

New Models of Higher Education: Unbundled, Rebundled, Customized, and DIY

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This chapter argues that the conventional approach to education systematically inculcates passivity and strips learners of the capacity for meaningful and informed choice. Rather than promote student agency and self-direction, the prevailing model remains focused on teaching, namely what “instructors” impart, not what students learn. This attitude inevitably treats learners as empty vessels to be filled rather than as fundamental co-creators of their own education. However, the solution is not for educators to abdicate from the responsibility of educating. Instead, they can and should intentionally foster learner agency with a coherent approach to learning design that is based on six principles: relevance and transparency, active learning, authentic assessment, staging and scaffolding, actionable feedback rather than grades, and a commitment to equity.

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The future is more uncertain than ever, and this uncertainty is creating challenges for institutions of higher education (IHE), especially as they seek to prepare students for the future. Students are seeking new models of education, and some are even putting together their own pathways to survive and thrive in this uncertain future. While it is not possible to predict the future, this chapter demonstrates how strategic foresight can help IHEs better position themselves to develop new models of learning to meet learner and societal needs. The chapter employs the Association of Professional Futurists Foresight Technical Competencies to demonstrate how this can be done. It also provides examples of IHEs that are beginning to build the capacity to employ strategic foresight across their institutions and others that have already done so.

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Ryan J. Specht-Boardman, University of Wisconsin Extended Campus, USA

There are certain policy barriers that are preventing alternative credentials from fully maturing in the national discourse in the way that academic degrees have. This chapter will review three primary areas of policy concern: quality assurance and accountability, financial policy, and standards of documentation and interoperability. This chapter calls for the establishment of universal quality and accountability policy and mechanisms, opening more financing opportunities so that workers may have increased access to lifelong skills development, developing a unified way to document learning experiences across institutions, and forging a common currency that allows for interoperability of learners' credentials. Policy improvements for alternative credentials will help serve to further legitimize them in the public eye, improve their educational outcomes, and perhaps most importantly, enable a more coherent vision for alternative credentials as a central pillar of a national educational attainment strategy.

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Navigating life and charting a path towards educational goals and professional advancement is challenging in troubled water. When structures and trusted tools previously relied on begin to falter, chaos can beset those on the journey. Therefore, innovation and new ideas must be championed and tested to develop a greater sense of the possible and to provide unique and tailored solutions to everyone. The authors advise the adoption of the Diamond of Interoperability, a set of four principal statements—open skills, open achievements, open records, open pathways—to support the workforce development needed for the future of work. These ideas are rooted in transparency, collaboration, transformation, and interoperable technology to provide answers to the current challenges in education and hiring in the turbulent waters of the 21st century economy.

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Skillification is a powerful concept that can drive better outcomes for students, employers, and institutions of higher education (IHEs). Successful use, however, requires IHEs to adopt a systems thinking mindset more than developing a singular taxonomy or exquisite model. Creating a system of skill-driven applications assumes that universities have rich input language that can be translated to skills without extraordinary investment or effort and can do that translation many times over using different algorithms created by different providers as their application needs warrants. Two tests conducted at Northeastern University

offer guidance on how to approach this new design: by affirming the feasibility of using syllabi as input for automated skill extraction and identifying data evaluation activity that drives better decisions about third-party partnerships and skill-driven application use.

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The U.S. higher education system is struggling to adapt to the needs of modern society. Employers hire for specific skills and are increasingly looking outside of higher education degrees as those degrees fail to deliver needed skills. Across the country and globe, a growing number of innovative projects are underway to realign higher education’s human and technological systems with the skills and competencies necessary for modern work and life. These projects illuminate core elements of the next paradigm of education. In this chapter, authors from Microsoft and LinkedIn highlight some of these promising innovations as well as the risks of this new paradigm. The core elements outlined in the chapter include skill-based education, verifiable credentials and learner records, the infusing of data and intelligence into personalized education-to-employment loops, the unbundling of higher education degrees and the separation of learning from the certification of skills, and new business models and sources of revenue in education.

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Lauren Smith, University of Wisconsin-Whitewater, USA

In this chapter, the authors will explore credit for prior learning (CPL) by portfolio as a high-impact educational practice that can enable learners to weave together disparate learning in meaningful ways while also deepening elements of integrative learning. While portfolio-based CPL is a longstanding educational practice, its utility is often undervalued. The authors will consider why the portfolio process should be a more central feature of academic programs and how it can support student learning and achievement. The authors will share findings of a CPL portfolio case study that directly and indirectly assessed student integrative learning performance and student perceptions of their proficiency. Findings validate student learning as well as increased internal validation of learning and academic confidence. Respondents indicated the portfolio process positively impacted their ability to apply learning, communicate, and create new knowledge. Implications for teaching and learning, program assessment, and administration and policy will be discussed.

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Expanding Knowledge Acquisition Frontiers in University Education: Accreditation of Learning Outcomes in Universities 157

Niyi Awofeso, Hamdan Bin Mohammed Smart University, UAE

Hamdy Ahmed Abdelaziz, Hamdan Bin Mohammed Smart University, UAE

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One of the fundamental principles of contemporary postsecondary education system is that knowledge is rooted in experience. Contemporary andragogy and experiential learning theories recognise the ability of people to learn in a variety of places, times, and styles, thereby challenging rigid, subject-matter-centred pedagogies. Accreditation of Learning Outcomes (ALO) is the assessment of previously unrecognized skills and knowledge an individual has achieved outside the formal education and training system. The ALO initiative is imbued with substantial potential to benefit learners, higher education sectors, employers, and the society at large. This chapter reviews the concept of ALO and successful initiatives for standardising the accreditation process for learning from experience—work experience, in-service training, self-study, or community work—in South Africa. Approaches for addressing the barriers encumbering ALO implementation are discussed.

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Robert H. Ducoffe, University of Wisconsin-Parkside, USA

Deborah L. Ford, University of Wisconsin-Parkside, USA

In the current fast-paced environment, learners want flexibility in timing and content as they seek relevant credentials to be successful. For institutions of higher education (IHEs) to be relevant, they must address the educational needs of learners through a strategy rooted in innovation and agility. The UW Flexible Option (Flex) is the University of Wisconsin System’s implementation of competency-based education (CBE). University of Wisconsin-Parkside (UWP) has implemented the Flex Bachelor of Science in Business Administration and a certificate in Project Management that allows learners to master competencies and achieve degree completion at their own pace. This chapter describes UWP’s journey, discusses a strategic framework for serving different types of learners, and suggests pathways to implement this framework through a CBE/Flex lens. It offers guidance on how IHEs can plan for the future by focusing on competencies, researching potential markets via the Ansoff Matrix, and implementing successful educational pathways for learners through partnerships.

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Mary C. Pluff, University of Massachusetts Global, USA

Victoria Weiss, University of Massachusetts Global, USA

This chapter will review what competency-based education is and how delivering traditional educational credentials and degrees in a non-traditional, non-term program can better engage students and promote their success in the new higher educational market. It will discuss how the CBE model can benefit students, especially non-traditional populations. Students can leverage this type of “just in time” flexible education to obtain credentials, degrees, and certificates needed to meet professional goals and career requirements in the current job market. The chapter will summarize some of the common challenges administrators can face while administering CBE programs related to information technology barriers, student retention and motivation, and faculty perception and make recommendations for addressing these challenges. This discussion will better-prepare institutions of higher education in creating and implementing their own CBE programs.

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Nadia Leal-Carrillo, Foundation for California Community Colleges, USA
Jodi Lewis, Foundation for California Community Colleges, USA
Aisha Lowe, California Community Colleges Chancellor's Office, USA
Kate Mahar, Shasta College, USA

Creating flexible pathways for students, especially those who are caregiving, balancing working and learning, and/or acquiring skills and knowledge outside of classrooms, requires coordinated state- and college-level actions. This chapter describes how the California Community Colleges Chancellor's Office and its supporting Success Center, undergirded by the system's north star, the Vision for Success, established an infrastructure of policy and resources at the state level, especially through credit for prior learning and competency-based education, to enable colleges to better support students' lifelong learning. Colleges such as Shasta College leveraged these pre-conditions to advance new reforms and accelerate existing ones to transform student journeys.

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Carole Barrowman, Alverno College, USA
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John C. Savagian, Alverno College, USA
Amy H. Shapiro, Alverno College, USA

With 50 years of experience in outcome-based, assessment-driven education, Alverno faculty understand the value of student-centered learning as the cornerstone of curriculum design and pedagogical practice. On the scaffold of the authors' experiences as senior faculty in Alverno's curriculum, this chapter explores how pedagogical and pragmatic considerations helped the Alverno Accelerate design team create a program that carefully considers its participants and puts the learner at the center of learning. Alverno Accelerate lets go of many of the canon principles of higher education, welcomes unbundled credits and work/life experiences, and collaborates with adult learners on their individual journeys to their bachelor's degree.

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Debra Humphreys, Lumina Foundation, USA
Mary Dana Hinton, Hollins University, USA

Taking account of the dramatic shifts in the make-up and educational and social needs of today's college students, the authors explore how to steer future reforms in ways that will advance goals related to equity and educational quality. The chapter begins with an overview of the major trends in who today's students are, what we now know about teaching and learning that advances equitable student success, and the changing global economy and workplace. Building on that analysis, the chapter explores the strengths

and weaknesses of unbundling and proposes a potential new avenue for reform in liberal arts colleges making use of both unbundling and “re-bundling” of educational experiences proven to advance quality and equity.

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David Jaeger, Florida Gulf Coast University, USA

Shawn D. Felton, Florida Gulf Coast University, USA

This chapter describes how institutions of higher education (IHEs) can create a multi-faceted microcredentialing/digital badging program that includes industry specific skills, transferrable skill development (career readiness skills), and reskilling/upskilling for regional community workforce partners. Drawing from the direct experience of Florida Gulf Coast University (FGCU), a regional, state comprehensive university, this chapter provides a blueprint for cultivating relationships with diverse constituencies, such as industry partners, faculty, staff, and students, to create a successful, comprehensive digital badging initiative.

Chapter 15

Implementing a Digital Microcredential Strategy at the University of Washington Continuum

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Bryan Blakeley, University of Washington, USA

Rovy F. Branon, University of Washington, USA

This chapter explores the emergence of digital microcredentials and describes how the University of Washington’s Continuum College is participating in the iterative design of infrastructures and approaches to support these new forms of credentials. The authors explore the current landscape of digital credentials, including the possible benefits, nascent research, and offer a brief introduction to some of the coalitions and formative work underway in many settings. The chapter details a three-pronged strategic approach at the University of Washington’s Continuum College. Each of the three efforts is intended to help both the local context served by Continuum College and a new digital credential ecosystem. The three project areas at Continuum College include using digital credentials for university employees, digitally badging the college’s extensive portfolio of non-degree programs, and offering digital credentialing as a service to other university departments. The authors describe these ongoing projects, their current state, and implications for further work in digital credentials.

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Microcredentials, Macro Learning: One University’s Path Toward Unbundling 313

Allison Ruda, Northeastern University, USA

This chapter tells the story of one university’s ongoing work to explore and ultimately define an institution-wide approach for awarding microcredentials, specifically digital badges, and the discoveries this work enabled. It documents the initial badging pilot, highlighting the specific steps taken, and the challenges and opportunities they presented. From the limitations of our common academic vernacular to the benefits

of effective change leadership and cross-functional collaboration, these efforts offer a real-world view of the challenges and opportunities of unbundling. Sharing and reflecting on this initiative may provide other higher education institutions (IHEs) with insights about this complex change process and factors that contribute to why new models may flourish or fail.

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Beth Romanski, Maryland University of Integrative Health, USA

The landscape of higher education is moving in a direction of greater variation, leaving traditional academic institutions at risk of obsolescence amidst the myriad of accessible, responsive, flexible learning opportunities increasingly represented in the global learning market. Declining confidence in the value of a college degree forces the higher education industry to open to expanded audiences and diversification of learning opportunities—including embracing the value of alternative credential programming as an institutional priority. This chapter depicts a streamlined model for generating high-quality skills-based microcredentials and professional development offerings with limited resources. To do so, a step-by-step process for identifying opportunities to leverage existing academic content to create more flexible, skills-based learning experiences will be described. The chapter will provide a framework for unbundling credit to non-credit offerings that can be adapted and replicated by other institutions seeking the same outcomes.

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Matthew Pittinsky, PARCHMENT, USA

For the first time in its history, higher education is having to prove its value. Being able to communicate a learner’s holistic set of experiences and competencies when they leave an institution is critical both now and in the future. Comprehensive learner records (CLRs) have been created to fill this important role. These are the practical considerations for the creation of CLRs, the steps that should be considered, and how this new credential can be used to assess and document learning that happens inside and outside of the classroom.

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As institutions of higher education began their full returns to campus in Fall 2021, questions arose about continuing the flexible student support services that emerged during the pandemic, the expectations students might have of the post-shutdown world, and whether there would be equity between the support of on-campus students and those who remained at a distance. This chapter details the literature amassed during the height of the pandemic and the findings of a study focused on the online organizational structures that emerged as campuses were shut down when COVID-19 was sweeping the United States in early 2020. Interview participants detailed the rapid rollout of robust student support services that were offered in a virtual mode during the height of the pandemic. Participants hoped for the long-term

continuance of services that offered better support to online and remote students, as well as those that could more robustly support on-campus students who choose to consume services in a more multimodal way.

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In a world where skilling, upskilling, reskilling, and career shifting are becoming the norm, and where lifelong learning is a requirement, models of higher education designed to best support the needs of learners and the workforce remain relatively limited. In the chapter, the authors discuss strategies used by Excelsior University's School of Graduate Studies to respond with agility to the needs of students and employers, including structures and processes used to better connect with employers and their needs. They highlight the development of high-quality learning outcomes, the creation of industry-aligned curricular and co-curricular learning experiences, and the development of stackable credentials to demonstrate how they provide students with flexible on-and-off ramps to learning and skill development.

Chapter 21

Working Inside the Box: How Small Steps Cumulatively Expand Access to Large Public Universities 429

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Societal and financial changes impacting higher education present great opportunities alongside great risks to traditional, large public institutions. While many such colleges and universities have defined goals to enroll more nontraditional students, it can be challenging to undertake large-scale initiatives that require updates to policy, accreditation, and structures. Alternatively, continuous, steady, and incremental improvements undertaken in partnership with willing faculty can accomplish the same goals. Though initially enacted on a smaller scale, demonstrated success can spread across flagship campuses. The authors present seven strategies demonstrating how incremental change at a unit level can create stronger connections and pathways between traditional research institutions and nontraditional students without disrupting the overall university culture. At the aggregate level, the impact of these individual initiatives has spurred thousands of new graduates and numerous opportunities for learners to achieve their goals through higher education.

Chapter 22

A Model for Lifelong Learning: Reframing Institutional Policy, Process, and Partnerships 450
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The higher education industry is in a state of significant transformation. The learners institutions serve are evolving, demanding new kinds of offerings and credentials that drive direct and clear outcomes. Unfortunately, the policies, processes, and partnerships that structure modern higher education institutions are still designed for a traditional model that no longer serves most prospective learners. This chapter—authored by The EvoLLLution’s Editor-in-Chief—will highlight insights from higher education leaders across North America to frame a new model for higher education, designed to serve a next normal defined by lifelong learning. It will highlight opportunities for growth, identify challenges with the status quo, and provide suggestions for higher education leaders looking to form partnerships to explore these new options.

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Preface

THE NONTRADITIONAL STUDENT IS THE NORM

About 19.7 million people in the United States are enrolled in credit-bearing and degree-granting postsecondary education programs, with about 16.6 million of them in undergraduate programs and 3.1 million in post-baccalaureate programs (NCES, 2021a). However, only a fraction would be considered “traditional” college students: under 25 years old, enrolled fulltime in residential programs, working less than 10-12 hours per week, and dependent on someone else for their finances. Consider that:

- 60% of the 19.7 million are over the age of 25, working full time, or connected with the military (Soares et al., 2017).
- Less than two-thirds of the 19.7 million are enrolled fulltime (NCES, 2021b).
- And fully 70-80% of these students are active in the workforce—and dependent on that income—while enrolled (Carnevale et al., 2015).

Because “nontraditional” students make up such a large proportion of all postsecondary enrollees, the American Council on Education has advocated to replace “nontraditional” with “post-traditional.” It has been decades since traditional students and their enrollment pattern have been the norm for students in postsecondary education in the U.S. (Soares et al., 2017). In fact, Clif Adelman (1999) discovered a pattern that began in the 1970s and 1980s which he called “swirling,” in which more than half of all students who obtained their bachelor’s degree received credits from more than one institution—a pattern that still persists (Peter et al., 2005).

And “post-trationals” who “swirl” describes only those who are enrolled in higher education as degree seekers. Now add in all those who seek noncredit forms of training and education. Estimating noncredit enrollments is notoriously difficult, largely due to lack of standard definitions and reporting mechanisms (Erwin, 2019; Sykes et al., 2014). However, just to show one state’s context, our own research in the State of Wisconsin estimates that, at any given time, *twice as many* adults ages 25-54 actively seek noncredit professional training as those that seek credit-bearing education (Fowler, 2018).

Taken together, it should surprise no one that the number of people seeking nontraditional forms of postsecondary education and training, who combine formal credit-bearing education and noncredit workforce-related training, far outstrips the number of people we typically think of as college students enrolled in traditional higher education. *The focus of this book is on the types of programs that serve these post-traditional learners.* We posit that adult learners are already mixing and matching different types and modalities of postsecondary learning, both formally and informally, and from traditional and

nontraditional providers of education and training. We propose that our field should embrace this mix-and-match model of lifelong educational engagement to better serve citizens of this country and around the world.

IS IT GOOD THAT PEOPLE ACTIVELY MIX-AND-MATCH HIGHER EDUCATION AND TRAINING?

Mixing-and-matching education and training programs, throughout one's life, we argue, is a smart and efficient response to an ever-changing workforce that requires continual reskilling and upskilling. From both inside and outside higher education, many are writing about the need to support people who continually collect—and bridge between—formal education and workforce training because that is what modern work and life requires (Hetrick et al., 2021). The Society for Human Resource Management (SHRM) finds that the challenge for businesses is often not innovation shortages, or even overall labor shortages, it is finding the right people to fill new and specific positions (Maurer, 2021). Lifelong mixing-and-matching of education and training is a reasonable and advantageous approach to reskill and upskill new and existing employees.

This is the behavior we have seen for at least a decade in our own work with working adults in the University of Wisconsin System: expanding the concept of swirling to include integrating different education-and-training products, mixing and matching one's education with noncredit certificates and workforce training, and doing so throughout one's life. It is completely normative for people to respond to workforce requirements by creating their own personalized bundle of content by combining one-off courses, degrees, for-credit minors, industry certifications, and boot camps to expand one's skillset (or sharpen existing ones). That unique combination of educational credentials that a learner has rebundled is displayed into portfolios (which we call "Comprehensive Learner Records" in this book) that are used to illustrate and showcase unique profiles of skills and experiences as the context warrants.

Institutions of higher education (IHEs) have made it hard for students to seamlessly combine learning from multiple sources into customized learning pathways. There are many reasons why IHEs have not evolved, or even adapted, to this behavior in their students (see for example, Johnson Bowles, 2022; Mintz, 2019). In this book, we consider positive, proactive change management strategies that can help institutions renegotiate persistent and historical barriers within IHEs. In fact, this book showcases examples from many institutions who are pioneering new, innovative models of higher education despite higher education's traditional resistance to change. This book focuses on how to embrace and actively promote a vision of higher education's future that puts at its center a learner's lifelong engagement with unbundled, skills-based education and training. This model supports people's agency to select, customize, and "rebundle" education and training experiences that fits their unique needs and enables their workforce competitiveness.

Unlike some, we do not view this vision of higher education's future as dismantling or dishonoring higher education's past (e.g. Young, 2022; see, too, the work of Kamenetz, 2010, who coined the term "DIY U" to describe an alternative to the failure of traditional higher education to meet needs in modern society). Nor do we view skills training as antithetical to personal and professional transformation. A skills-based vision of higher education—where students have choice and agency in their own education—need not be in conflict with a well-rounded liberal arts education. We advocate for well-designed

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unbundled credit and noncredit programs that intentionally integrate traditional liberal education outcomes like critical thinking, data- and fact-based analysis, and good communication.

We do believe that forcing everyone into a one-size-fits-all, fulltime-and-out four-year degree is itself outdated (Hoffman et al., 2021). It is a model of education that was developed centuries ago when the world was very different, and was built to serve a small fraction of the population (Lefkowitz Horowitz, 1988; Thelin, 2019). But rather than calling for the wholesale replacement of the traditional academic degree, we instead call for a new, more comprehensive blended model of learning. Degree attainment within the academy should happily co-exist—and retain equal status with—non-degree driven training that millions of adult learners currently pursue for needed upskilling and reskilling. Silo-ing “education” from “training” artificially separates ways of learning and, as Adelman (2017) writes, leaves nontraditional providers of learning “out in the cold.” Recognizing that the 21st century requires lifelong training and education for people to keep pace in an ever-changing world, all institutions involved in postsecondary education—whether centuries-old colleges or newly-launched EdTech companies—have an imperative to work together and collectively reconsider that neither traditional academic degrees nor traditional workforce training can meet the needs of the 21st century world without the other.

People’s ability to customize their own education and training pathways illustrates a smart, cost-efficient, and accessible approach to lifelong education and training. Promoted correctly, using policies, practices, and recommendations discussed by chapters in this book, this mixing-and-matching model of education and training is the right model to embrace and lean into. It makes education and training accessible to working adults across the U.S. and the world because it adjusts to their lives versus the other way around. This approach holds the promise of making education and training a truly democratic endeavor.

But it is essential to emphasize a key point in the paragraph above: this model of higher education and training needs to be developed correctly. With no quality standards, this model of education and training can be exploitive. With no ability or even logic to help people “rebundle,” they’re left with a bag full of disconnected and disparate experiences. With no funding mechanisms to providing training and education beyond what one can afford as a purely personal good, societal inequities are not only maintained, but exaggerated. And with no thought towards the importance of a diverse ecosystem of education and training providers, monopolies will flourish and choke out future innovation.

THE FUTURE OF HIGHER EDUCATION IS ALREADY HERE: UNBUNDLED, REBUNDLED, CUSTOMIZED, AND DIY

We see this lifelong pursuit of customized, do-it-yourself (DIY), unbundled, and rebundled programming as the future of higher education, and we believe that it should be embraced by the higher education community—both within academe and outside of it. The more intentionally we can support this approach through better planning and design, the better outcomes for learners. Indeed, to say it is the *future* of higher education is a bit of a misnomer since this multimodal approach to postsecondary education is already being demanded by learners *today*. The institutions that thrive in the decades to come will be those that recognize this sea change is already upon us and take steps to design an ecosystem of educational programs and products that students have agency to customize to meet their lifelong needs.

That is what this edited volume is about: showing examples of how the higher education and training industry, both inside and outside IHEs, is *already* leaning into this mix-and-match model of lifelong education/training engagement. Institutions across the country (and indeed, the world) are *already* pro-

viding better unbundled opportunities that learners have agency to rebundle. Many are *already* developing policies and recommendations to make this vision of higher education and training even better by identifying pitfalls, blind spots, and future opportunities.

Our intent with this book is to illustrate a few things:

1. First, that activity is already taking place that supports this modern approach to education and training. Much of this work is taking place both inside IHEs and outside of it through the Education Technology (EdTech) industry.
2. Second, most of the work is homegrown—that is, individual companies, colleges or universities have developed tools and approaches that help their students or trainees. By bringing together many examples as chapters in this book, we hope to paint the bigger picture, like putting jigsaw puzzle pieces together to form the picture on the box.
3. And third, this customized unbundled/rebundled approach to education and training is certainly not without significant problems and even dangers. As a field leaning into this model of lifelong higher education and training, we should look with clear eyes at its shortcomings in order to make it better for individuals and society.

We have collected chapters that:

- Blur the lines between formal (i.e. academy) and informal (i.e. workforce training) learning in a way that recognizes and *validates* the complex and myriad ways that adults learn and master skills throughout their life.
- Point out the need to both address quality standards in noncredit offerings, and address the cacophony of these offerings in a way that balances learner agency with design intentionality.
- Provide guidance for federal, state, and institutional policies that fund and assist people as they pursue their education and training using this customized model.
- Illustrate both how people currently pull together their experiences into portfolios, and how the “comprehensive learner records” themselves *should* be designed.
- Argue IHEs should reframe their academic offerings into a skills framework to better and more deeply connect the academy and workforce—and provide tangible steps on how to do so.
- Show how credit can be awarded for noncredit and nonacademic activity. More specifically, our chapters go beyond making the case for “credit for prior learning” and make recommendations to scale the use of these tools.
- Lay out step-by-step processes for building microcredential programs, implement digital badges, and unbundle programs into smaller, skills-based units of learning.
- Demonstrate how IHEs have adapted both their “back offices” and “front offices” to support this mix-and-match model.
- Showcase how IHEs and EdTech can work together to support this approach.

The future of higher education is already upon us. We hope that this volume provides a useful blend of strategic insight and tactical steps that will help institutions facilitate a new model of higher education and training that is more responsive, equitable, and effective for today’s learners.

OVERVIEW OF BOOK CONTENT

Section 1: Introduction and Overview to Higher Education’s Unbundled, Customized, DIY Future

The three chapters in this section each provide foundational elements to consider throughout the book.

Chapter 1, “Fostering Learner Agency through Intentional Learning Design: Six Principles” by Cathrael Kazin, makes the case that the DIY approach to education and training is a new opportunity to put learner agency front and center. DIY requires that individuals already know something about how the process itself works—equally true whether one remodels their kitchen or pursues education. This new model of higher education must contain intentionality and nuance: too much unbundling and customization of learning pathways will leave learners paralyzed in the face of unlimited choice, while too little fails to give learners any meaningful agency in their own educational journey. Through the six principles of program design articulated in the chapter, this chapter articulates a vision of balancing a thoughtful approach to unbundling education in a way that maximizes learner agency.

Chapter 2, “Exploring the Future to Create Pathway Opportunities That Empower Students” by Chris Mayer, provides a framework for building educational programs that are oriented toward future, rather than solely current needs. He argues that the traditional approach to strategic planning at most IHE’s are on a timeline that is too short (typically only 3-5 years) considering how long it takes academic programs to be built and then for learners to progress through them. Mayer presents a tactical framework that helps institutions consider future-planning on a scale of 10-15 (or more) years, and to design new and innovative academic programming with those insights in mind.

Chapter 3, “Policy Challenges and Opportunities for Postsecondary Alternative Credentials,” is focused on the policy barriers that are preventing widespread adoption of alternative credentials, and what potential solutions to those policy problems are worth exploration. The author, Ryan Specht-Boardman, covers three primary policy areas: quality assurance & accountability policy, financial (i.e., funding) policy, and policies as it relates to national standards of interoperability and documentation of learning. The chapter argues that the new models of higher education described throughout this book are essential tools in meeting the nation’s educational needs. As a result, institutional, state, regional (i.e., accreditor), and national policies need a serious and thoughtful review to both ensure accountability of, as well as access to, new postsecondary educational programs beyond just traditional academic degrees.

Section 2: A New Paradigm in Higher Education Reform – Skills as the Common Language for Higher Education

The three chapters in Section 2 collectively advocate for skills forming the backbone, and language, of new models of higher education. Utilizing skills frameworks will ensure greater alignment between workforce needs, business leaders, and postsecondary educational programming.

Chapter 4, “Charting a Future With Skills: The Need for a Skills-Based Education and Hiring Ecosystem,” articulates that aforementioned proposition with clarity. Its authors—Sarah DeMark, Darin Hobbs, Kacey Thorne, and Kristian Young—posit that adoption of a common skills-based language and framework is not just useful, it is essential to ensuring the success of new models of higher education. Adoption of a common skills framework is a prerequisite to true interoperability. However, doing so requires significant attention to systems design and technology innovation. Informed by their national

work with the Open Skills Network, the authors provide a process for how an institution may adopt an interoperable, skills-based educational program design.

Chapter 5, “Brought, Sought, and Taught: Toward a System of Skill-Driven Applications,” is written by Amanda Welsh and Allison Ruda. It presents a solution to a critical question as higher education moves towards a skills-based language: how might an IHE successfully convert the hundreds (or even thousands) of courses they currently offer into a common skills framework? In an academic study, Welsh & Ruda establish that course syllabi, when entered into a skillification processor, generally contain sufficient language to produce a useful skills translation. The authors studied the skillification product by the company Emsi (Editors note: This chapter was written prior to Emsi’s re-branding as Lightcast), but its findings help shed light on the ways that existing college artifacts—namely, syllabi—can be used in the work of translating higher education into the language of skills.

The final chapter in this section—Chapter 6—is written by Maria Langworthy and Jake Hirsch-Allen of Microsoft and LinkedIn, respectively. Their chapter, “Learning 3.0: Bringing the Next Education Paradigm Into Focus,” describes the impact of the skills-based ecosystem at a macro-level, heralding a new paradigm of learning (Learning 1.0 being the agrarian educational model, 2.0 being the industrial educational model, and now, Learning 3.0, a skills-based, more personalized model). They discuss applications of this approach in areas such as learner records, unbundling, verifiable credentials, and new business models. In fact, this chapter tees up Sections 3 and 4 well.

Section 3: Rebundling Academic and Nonacademic Sources of Learning – Prior Learning Assessment and Competency-Based Education

The chapters in this section explore the ways that a person’s experiences—whether from the workplace, military, prior or alternative schooling, industry certifications, community service, or other sources of knowledge—can be authentically and intentionally brought into curriculum design. Two primary pathways exist to convert experiences into credit: prior learning assessment (PLA)¹, which is a broad term to describe the awarding of credit on the front-end of a student’s academic career for their experience to-date; and competency-based education (CBE), which is an explicitly outcomes-based educational pedagogy that allows learners to leverage existing knowledge and skills to accelerate through curricula. Both these approaches help honor knowledge and skills accrued outside the walls of academe, and save valuable time and expense for learners. These two approaches can either be used as standalone features of academic program design, or can be embedded into other academic models. The first two chapters in this section will relate to PLA, the second two will relate to CBE, and the final two will integrate both approaches in their design.

Chapter 7, “Utilizing Prior Learning Portfolios to Rebundle Formal and Informal Learning” written by Diane Treis Rusk and Lauren Smith, shares results from a study on the portfolio process for PLA. They argue that because both formal and informal sources of learning have value, IHEs need to build a more robust infrastructure for evaluating and validating learning from informal avenues. The chapter contains a study of one PLA process that helps shed light on five essential questions, such as the impact of PLA on retention/graduation outcomes, proof of deep learning, academic performance once enrolled, variation by academic discipline, and the impact of a well-structured PLA portfolio process on students’ own perception and meaning-making of their learning.

Chapter 8, “Expanding Knowledge Acquisition Frontiers in University Education: Accreditation of Learning Outcomes in Universities,” is written by Niyi Awofeso, Hamdy Ahmed Abdelaziz, and

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Moetaz ElSergany. This chapter surveys international efforts in PLA (called ALO, accreditation of learning outcomes, in their context) from different countries in Europe, the Middle East, and Africa. This chapter illustrates that the need to better integrate formal and informal learning experiences is a universal problem to solve. The diversity of approaches to recognize and validate prior knowledge may help readers consider new paradigms in their own institutional approach to the topic.

“A Competency-Based Lens for Exploring Higher Education Opportunities,” Chapter 9, is written by Dirk Baldwin, Suresh Chalasani, Robert Ducoffe, and Deborah Ford. Drawing on their experience operating the nation’s first AACSB-accredited fully online CBE business degree, the authors of this chapter showcase the key principles to build and support a successful CBE program. This chapter uniquely blends the business case for developing CBE programs (that successful businesses diversify their modalities and offerings) with the academic case for CBE as a pedagogical framework (that CBE provides a key pathway, especially for adult learners, to earn a degree on their own terms).

Chapter 10, “Competency-Based Education: The Future of Higher Education,” showcases the implementation processes and steps an institution should consider when developing a CBE program. Authors Mary Pluff and Victoria Weiss press the case for the pedagogical and structural merits of CBE as an educational model. Building CBE programs is a unique challenge for most institutions, and this chapter provides helpful solutions and ideas to consider as an IHE faces the common barriers to implementation.

Chapter 11 is “Enabling Lifelong Learning in California Community Colleges: Coordinated State and Local Efforts.” Its authors, Nadia Leal-Carrillo, Jodi Lewis, Aisha Lowe, and Kate Mahar, describe how the California Community Colleges—with 2.4 million students, the largest system of higher education in the country—is implementing both CBE and PLA initiatives. It is a unique story of system-level efforts and individual college-level processes. They showcase lessons learned on everything from how they worked with their state legislature, to specific college-level implementation decisions. Blending both PLA and CBE is a unique opportunity to radically rethink the way that adult learners’ experiences can be seamlessly validated within academic learning.

Chapter 12, the last chapter in this section, “Alverno Accelerate: A Paradigm-Changing Program for Professional and Personal Success,” is by Carole Barrowman, Trish Lewis, John Savagian, and Amy Shapiro. This chapter explores the development of Alverno Accelerate, a new degree pathway offered at Alverno College in Wisconsin. The program described in this chapter is truly a paradigm-changing disruption to how IHEs currently approach the education of its learners. This chapter illustrates the possibilities when traditional structures of higher education are dismantled and reinvented. Learners in this program have agency in their academic program, and the curricula integrates an outcomes-based pedagogy with a blend of experiential learning.

Section 4: Unbundling Learning to Facilitate Customized, Multi-Modality Learning Pathways

Though the concept of unbundling postsecondary learning into smaller units has been prevalent in higher education in the last decade (see, Selingo, 2013), simple unbundling is insufficient. The field needs to cultivate meaningful and intentionally-designed pathways between unbundled educational programs, forge interoperability across smaller units of learning, establish stronger and more universal frameworks for documenting unbundled learning, and reconsider the way that IHEs tell the story of skills-based small-scale education to learners and employers. This is the next evolution of unbundling. The seven chapters in this section showcase the topic from a variety of angles. Five chapters describe the process

through case studies of unbundling across different institutional contexts and approaches; one chapter focuses on the use of a Comprehensive Learner Record (CLR) to document multi-modality learning across multiple contexts; and the final chapter describes how to better design student support services in a multi-modality context.

Chapter 13, written by Debra Humphreys and Mary Hinton, describes the process, contexts, challenges, and opportunities in unbundling and rebundling the academic curriculum of small private liberal arts colleges. Titled “Seeking Equity, Quality, and Purpose as Higher Education Transforms: Liberal Arts Colleges Respond,” the authors add to the literature by showcasing how liberal arts colleges might leverage their unique strengths to design new and innovative models of higher education.

Chapter 14, “A Step-by-Step Guide for Developing a Microcredentialing Program,” is written by a team of authors from Florida Gulf Coast University. Glenn Whitehouse, Clay Motley, Aysegul Timur, David Jaeger, and Shawn Felton, outline a 12-step process for institutions to build and successfully implement a digital badging program. They detail key considerations, success strategies, and tactical approaches for obtaining institutional buy-in and ensuring the successful implementation of a unified, comprehensive digital badge program. The editors of this book also wish to thank Florida Gulf Coast University for sponsoring this chapter’s Open Access.

“Implementing a Digital Microcredential Strategy at the University of Washington Continuum College,” Chapter 15, is written by Bryan Blakeley and Rovy Branon. This chapter provides an excellent overview to the current landscape of digital credentials and describes a compelling case about the value of their implementation. It walks through overall strategy development and then explores three tactical steps taken by the institution to begin the implementation process.

Chapter 16, “Microcredentials, Macro Learning: One University’s Path Toward Unbundling,” is written by Allison Ruda. This chapter is a case study in how Northeastern University is undertaking the process of establishing a microcredential framework as an institution. It not only explores the development of that framework, but it also covers the leadership elements necessary to succeed in that arena. The chapter reviews some of the challenges with campus organizational structures and obtaining buy-in, change management strategies, and how to confront challenges faced as organizations work toward their unbundling goals.

“Unbundling Credit to Non-Credit: A Framework for Developing Alternative Credentials” by Beth Romanski is Chapter 17. Romanski articulates a vision and strategy for the coordinated and comprehensive unbundling of existing credit-bearing educational offerings into non-credit offerings. This chapter contains useful tables showing highly-detailed strategies and tactics on how to approach and succeed in the work, on all areas from institutional administrative structures to academic pedagogy. It also includes sample checklists and timelines that would help any leader considering how to manage this type of work.

Chapter 18, written by Matthew Pittinsky, is titled “Practical Considerations on How to Document and Transcribe Multi-Modality Learning: The Emergent Role of the Comprehensive Learner Record.” As noted earlier in this preface, not only is it essential that we consider how to mix-and-match educational products, but just as important is the process by which learning is documented and validated from those myriad sources. A comprehensive learner record (CLR) is one emergent and leading tool for this purpose. Creating and implementing a CLR at a IHE is a daunting task, and this chapter helps readers know what considerations they should review and how their institution and their learners both benefit by utilizing a CLR.

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Chapter 19, “Meeting in the Middle: Envisioning Postpandemic Responsive Student Support Services,” written by Bettyjo Bouchey, Erin Gratz, and Shelley Kurland, is focused on the student affairs side of supporting students in multiple learning modalities. This chapter discusses the imperative that student affairs systems should be designed to support students in multiple learning modalities. Though its findings and recommendations apply to supporting students in multiple learning *mediums* (e.g. online vs. on-campus), it could also be considered through a lens of how student services can support students in multiple learning *formats* (e.g. traditional degree-seeking students in microcredentialing programs).

Section 5: Where Do We Go From Here? Enacting the Vision by Managing Change

This final section asks readers to consider how to implement themes from the preceding sections in the book.

Chapter 20, “Ever Upward: Building an Ecosystem to Support and Validate Lifelong Learning,” is written by Scott Dolan, Michele Paludi, Leah Sciabarrasi, Anna Zendell, and Gretchen Schmidt. This chapter argues that many of the strategies in this book combine to form an “ecosystem” of ways that adult learners can continually return to the institution to upskill and reskill. Guided by a deep connection with employers and industry advisors, this team of authors describes different elements of their implementation and recommendations for readers to consider how these models of higher education may integrate.

“Working Inside the Box: How Small Steps Cumulatively Expand Access to Large Public Universities,” Chapter 21, is written by Marty Gustafson and Jeffrey Russell. Though the chapter is written through the lens of change management at large universities, the seven strategies and tactics described are readily applicable to any institution ready to implement the new and innovative model of higher education outlined in this book. For each of the seven strategies detailed, the authors present both a high-level summary of its effectiveness and share a case study from their experience to show how to apply that strategy.

Chapter 22, “A Model for Lifelong Learning: Reframing Institutional Policy, Process, and Partnerships,” is by Amrit Ahluwalia. This chapter brings in the voices of higher education leaders across the industry who are advocating for the development and implementation of new models of higher education. The chapter focuses on three key themes: recognition of prior learning, a shift to stackable certificates, and student-centricity as an enduring value rather than buzzword in design. This chapter also provides guidance on how IHEs may effectively partner with non-academic companies to help provide and support their vision of higher education.

In the Conclusion to this volume, Sally Johnstone shares insights from her long history as a leader and an innovator in higher education. She paints a picture of the resiliency of traditional higher education as it adapts and changes around the edges in response to social needs, demographic shifts, and world events. However, the past decades of change in the world, and particularly given the acceleration caused by the covid pandemic, may be straining traditional higher education beyond its ability to adapt. Johnstone provides many examples of how state systems and other coalitions of institutions have come together to meet the needs of the modern world.

In a world that itself is changing at breathtaking speed, our deepest hope is that this book is a clarion call to our field. We hope that the range of examples provided by this book inspire those within and outside of higher education to come together and lean into this new model of higher education and training. Our world has never needed a smart, informed, adaptable, and creative citizenry more than it does now.

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ENDNOTE

- ¹ PLA goes by many names, including Credit for Prior Learning (CPL), Assessment of Prior Learning (APL), and others internationally, like Validation of Non-formal/Informal Learning (VNFIL) in Europe or Prior Learning Assessment & Recognition (PLAR) in Canada. Whenever possible, we use “PLA” as the catch-all acronym here, but individual chapters may reference these other terms.

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Section 1

Introduction and Overview of Higher Education's Unbundled, Customized, and DIY Future

Chapter 1

Fostering Learner Agency Through Intentional Learning Design: Six Principles

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ABSTRACT

This chapter argues that the conventional approach to education systematically inculcates passivity and strips learners of the capacity for meaningful and informed choice. Rather than promote student agency and self-direction, the prevailing model remains focused on teaching, namely what “instructors” impart, not what students learn. This attitude inevitably treats learners as empty vessels to be filled rather than as fundamental co-creators of their own education. However, the solution is not for educators to abdicate from the responsibility of educating. Instead, they can and should intentionally foster learner agency with a coherent approach to learning design that is based on six principles: relevance and transparency, active learning, authentic assessment, staging and scaffolding, actionable feedback rather than grades, and a commitment to equity.

By any measure, higher education in the United States is in serious need of rehabilitation, if not a complete overhaul. Outcomes are generally dismal, whether measured by completion rates, readiness for the workplace, cost, student debt, or equity. At two-year degree-granting institutions, only 30% of first-time, full-time undergraduates earn a degree or certificate within three years, 150% of the “normal” time required for completion (National Center for Education Statistics, 2022). Nonselective four-year institutions fare little better: only 32% attain a degree within six years. An even smaller proportion of students graduate within four (National Center for Education Statistics, 2022). And, according to repeated employer surveys, those who do graduate too often lack the skills that the workplace requires (Flaherty, 2021). Such failures do not come cheap. Both the cost and price of higher education are prohibitive:

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student loan debt in the U.S. has skyrocketed to \$1.747 trillion (Hanson, 2022), higher than the total amount of U.S. debt for both credit cards and auto loans (Friedman, 2021). Student debt profoundly constrains the choices of the debtors, especially those who have not earned a degree. First-generation students, lower-income students, and students of color are disproportionately affected (Looney, 2021).

Given this situation, it may be tempting to believe that learners would be better off if they bypassed institutions altogether and curated their own education from the myriad sources available for free or at low cost. Such options have only proliferated since the publication of Kamenetz's *DIY U* (2010). After all, if home design shows are to be believed, do-it-yourself (DIY) is not that complicated. You select your own materials, design your own home, and then reap the rewards of your accomplishments. Yet, as anyone who has ventured into a cavernous home improvement store can attest: DIY is much simpler in theory than in practice. To do-it-yourself successfully, you need to know what you are doing. Having the relevant skills, equipment, and a clear plan for action is also key. Without expertise, experience, and the necessary toolkit, the results can be both dangerous and expensive. This holds as true for higher education as for home renovation.

BACKGROUND

The Problem of Passivity

But why are learners ill-equipped to exercise meaningful choice when it comes to how and what they learn? This chapter argues that the conventional approach to education, prevalent at both the K-12 and postsecondary levels, systematically inculcates passivity and strips individuals of the capacity for meaningful and informed choice. Rather than promote student agency and self-direction, the prevailing model remains focused on teaching, namely what “instructors” (sic) impart, not what students learn. This attitude inevitably treats learners as empty vessels to be filled rather than as fundamental co-creators of their own education. The solution is not for educators to abdicate from the responsibility of educating, however. Instead, they can and should seek to foster learner agency. Accomplishing this goal requires a coherent, systematic approach to learning design, one that embodies relevance and transparency, emphasizes active learning, integrates authentic assessment within learning, stages and scaffolds learning experiences, eschews grades, and strives to ensure equity.

Unfortunately, even those who agree that learning agency is paramount may not know how to promote it. I once met with the leader of a much-praised public charter high school that was heralded for its innovative approach to developing human skills in the curriculum, including learner agency. He was proud of the school's reputation in this area; however, when I asked how they went about developing learner agency, he responded, “We give the students worksheets.” It should go without saying that worksheets do not enable learners to exercise agency. While this example may be particularly egregious, it is neither unique nor confined to K-12. The dominant model of education in the U.S. is characterized by inflexibility, rigidity, and a disregard for learner agency. Term structure, class schedules, assignments, and assessments all testify to the pervasive lack of meaningful choice. Most learners' experiences in this regard stand in sharp contrast to their experiences as consumers, which, in turn, inform their expectations about higher education. In many areas of their lives, they have opportunities to create, customize, tweak, and produce (typically mediated through technology). In higher education, however, too often the expectation is that one size does, or should, fit all.

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Yet higher education is not simply a type of consumer activity. In fact, the increasing tendency to treat students and their families as customers (Farrell & Davis, 2016) further cements the perception that education is just another expensive consumer good. It is something to be acquired and financed, with the student acting as buyer rather than as learner. Even the ubiquitous term “curation,” borrowed from the museum context and applied to education, suggests that learners can simply mix and match resources with limited effort. It belies the expertise and experience needed to be a successful curator, whether of art objects or learning objects. The use of the term also ignores the fact that the educational marketplace presents an inherent power differential between learners and institutions and/or profit-making enterprises. Many students, especially those who are first generation, low-income, and/or working fulltime, are no match for sophisticated marketing campaigns. Even massive open online courses (MOOCs), which began as an attempt to democratize elite education, have proven to be most attractive to students who already have degrees (ICF Monitor, 2014). Furthermore, the retention rate of most MOOCs remains low, with figures of 10% or less regularly cited (Hone & El Said, 2016). For those individuals whose primary goal is learning, DIY presents little risk. Yet, most students’ primary goal in seeking higher education is to improve their employment prospects (Fishman, 2015).

The cruelest irony is that many students, especially those who are first generation, low-income, or other “new majority,” are *already* doing it themselves. The status quo too often leaves them without effective guidance and with little evidence of educational efficacy. Perhaps as a result, many learners do not attend a single college from commencement to graduation. Instead, they swirl or churn through multiple colleges sequentially or at the same time, gaining debt and losing time (and credits) in the process (Adelman, 2006). In the years since Adelman’s analysis, the problem has only intensified as college students have become more mobile, juggling multiple work and family responsibilities and moving:

in and out as well as through, multiple colleges and universities and other learning environments, such as through service in the military or other employment opportunities, as they navigate their path to a degree. (National Task Force on the Transfer and Award of Credit, 2021, p. ix)

Students who leave college without credentials but with educational debt find their personal and career choices severely constrained. The consequences can be especially dire for those students who are “new majority” (e.g., those who are first generation, underrepresented, older, working, and/or part-time). Debt creates barriers to college access and completion, creating additional obstacles to those that Black and Hispanic students already face (Looney, 2021). DIY tends to work best for students who are already educated or conversant with the ways of higher education. It further privileges the privileged and disadvantages those already disadvantaged.

These realities reflect a paradox. In most respects, conventional higher education is characterized by rigidity and inflexibility. Still, in other respects, it presents students with *too much* choice and too little direction, from selecting institutions in the first place to choosing majors, programs, and courses once enrolled. Too much choice can be overwhelming when there is no clear way for the choosers (i.e., the learners) to distinguish among the options. For first-generation college and other new majority students, this type of DIY can have catastrophic consequences. More structured pathways offer an attempt to rectify the situation:

Laying out a clear academic pathway for students minimizes barriers to degree completion. A structured, clearly outlined degree path can reduce students taking off-program courses, accumulating excess credits, and planning to take courses in a semester they are not offered. (Veney & Sugimoto, 2017, para. 3)

The Problem of Too Much Choice: The Jam in the Supermarket

The characteristic over-rigidity (lack of choice) and overabundance (too much choice) of higher education reflect the same underlying problem: a lack of *meaningful* choice. Iyengar and Lepper's (2000) famous "jam in the supermarket" experiment helps explain the paradox. Faced with an expanded array of choices, customers bought less, not more. These findings challenge the "common supposition in modern society that the more choices, the better—that the human ability to manage, and the human desire for, choice is infinite." (Iyengar and Lepper, p. 997)

Having too many options can be overwhelming and counterproductive, especially if there is no meaningful distinction among the options. When educational choices are driven by institutional interests rather than students', the results can be detrimental, especially to those who have been ill-served by K-12 education. In fact, virtually all aspects of higher education (e.g., registration, curriculum, assessment, credit recognition, even scheduling) are designed to accommodate institutional, administrative, and faculty needs rather than those of learners. In this situation, the opportunity to pick courses and majors does not constitute the exercise of personal agency. Students not only lack meaningful choice, but they also lack access to critical information that would inform meaningful choice and enable self-determination. In a world that was neither built by nor for them, learners are at a significant disadvantage. If the learners are adults trying to fit learning between daytime job(s), childcare, elder care, and other responsibilities, it matters little if the course meets at 10:00 am or at 11:30 am. But while issues like cost, scheduling, and even the possibility of wholesale disruption in the education industry have begun to attract substantial attention (Armano, 2021), remarkably little attention has been paid to reimagining the underlying learning model itself. Despite the lip service devoted to "learner-centricity," learning continues to be treated as synonymous with teaching.

When the underlying model does not empower learners to be essential partners in, and ultimately, drivers of, their learning, the capacity to mix and match is no solution. Expecting students to curate their own learning without enabling them to become informed curators constitutes an abdication of responsibility that ends up looking very much like the current situation. Is there a third option beyond the status quo, on the one hand, and optimistic anarchy, on the other? Yes. However, it requires no less than a profound shift in the set of assumptions we bring to higher education. For this transformation to occur, the nature of the educational contract between learners and faculty, administrators, and institutions must be renegotiated.

The current model has failed too many students, both literally and figuratively. One fundamental problem is that higher education, with some exceptions, is not designed to prepare students for life outside college. Consistent employer input attests to the profound and persistent disconnect between the competencies the workplace requires and what (and how) schools are teaching (Flaherty, 2021). For example, while the prevailing model is organized by major fields of study, most employers seek graduates with human or enduring skills rather than specific majors or even technical skills. More employers surveyed by the National Association of Colleges and Employers (NACE) stated that they require skills like the ability to work in a team (81%) or verbal and written communication skills (73.2% and 72.7%) than technical skills (67.8%) or even computer skills (59%) (Gray, 2021). These desired skills

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or competencies are best inculcated through active learning and feedback; they cannot be developed by listening in the lecture hall. Despite this evidence, however, many institutions continue to insist they are preparing graduates for the world of work. Their websites often feature institutional outcomes that look a lot like the human skills employers want. For example, the University of Illinois asserts that students will acquire intellectual reasoning and knowledge; creative inquiry and discovery; effective leadership and community engagement; social awareness and cultural understanding; and global consciousness (Office of the Provost, University of Illinois, n.d.). These are indeed commendable goals. But how does the University of Illinois or virtually any institution, know that students have actually achieved them? While institutional outcomes are typically coded to courses in which learners may, at least theoretically, develop the desired outcomes, there are generally few feedback mechanisms and few opportunities to demonstrate that the outcomes have been achieved. One problem is the departmental orientation of most faculty, which works against operationalizing cross-disciplinary aspirations (Rosowsky & Keegan, 2020). Paradoxically, whether the specific educational model is driven by faculty research interests (favoring the acquisition and/or regurgitation of disciplinary content knowledge) or its apparent opposite, the large-scale, top-down approach that treats individual faculty as essentially fungible (favoring cost-effective, low-touch practices like multiple choice exams and quizzes), the result is the same. In both cases, the driver is not the student. The high-touch and low-touch faculty models, though diametrically opposed to each other in key respects, leave the underlying learning model intact.

Learner Agency is Critical to Learning

As Freire (1970) noted, when the student is a passive recipient of education with no say in either process or content, then agency is automatically diminished or removed entirely. While there is no single authoritative definition of learner agency, most researchers and practitioners define the term along similar lines: “learner agency involves the availability of **meaningful choice** [emphasis added] and the learner’s wherewithal for exercising that choice, such that they develop into responsible owners of their own learning.” (Education Reimagined, 2018, p. 6)

Embedded in this description are four distinct and crucial concepts:

1. Learners who possess agency have *access* to meaningful choice.
2. Learners who possess agency are empowered to *exercise* meaningful choice.
3. Learners’ capacity to exercise meaningful choice requires a *developmental process*.
4. Learners have ultimate *responsibility* for their own learning.

FOSTERING LEARNER AGENCY THROUGH INTENTIONAL DESIGN: SIX PRINCIPLES

This section proposes a model for learning design that intentionally seeks to foster learners’ capacity for exercising personal agency. While the proposed model incorporates six fundamental principles for the design of learning experiences that develop agency, it neither prescribes nor proscribes specific formats for learning. Rather, the model seeks to characterize what truly empowering, effective learning can look like. It posits that learner agency is developed when learning experiences are intentionally designed to:

1. Reflect transparent, real-world competencies
2. Emphasize active and experiential learning
3. Integrate authentic assessment as a key component of learning
4. Stage and scaffold to develop capability
5. Provide actionable feedback rather than grades
6. Drive diversity, equity, inclusion, and belonging

Principle 1: Transparent, Real-World Competencies are Necessary for Learner Agency

Transparency is critical to enabling both learner agency and learning itself. Transparency in learning design, in the development and communication of outcomes and competencies, and in the crafting and application of criteria for evaluating student work, help minimize the power differential between student and faculty member. Transparency makes the criteria for constructing learning experiences explicit. It also makes the criteria for assessment/evaluation explicit, enabling alternatives to the conventional faculty attitude toward grading (e.g., “I know ‘A’ work when I see it”). Transparency honors learners by recognizing their need for actionable, reliable information. It also facilitates communication among institutions, learners, and employers.

The rise of competency-based education (CBE) models has played a key role in establishing expectations for actionable transparency. While CBE may take different forms (e.g., credit/course based or direct assessment), it is generally rooted in a framework of competency statements that express what someone who has completed a course or program knows and can do. Learners deserve to know what competencies a specific learning experience will help them develop. They also need multiple opportunities to develop and demonstrate these competencies.

In addition, transparent competency statements help students gauge their progress toward mastery. This critical component of CBE enables small victories, which encourage engagement and communicate achievement. In CBE, mastery is clearly defined; the expectation is that all students have the capacity to achieve it. This stands in stark contrast to such practices as grading on the curve. Approaching learning through a competency lens also enables both learners and administrators to create more meaningful pathways through the curriculum, regardless of the format of the learning. This approach also serves to dislodge the course as a proxy for learning, making learning both transparent and actionable.

In this context of this discussion, the term *competency* is deliberately chosen in contrast to *learning outcome*. There is a meaningful (if sometimes subtle) distinction between the two terms. Competencies reflect what individuals can do with what they know. In contrast, learning outcomes describe what individuals can expect to learn as a result of a specific educational experience (e.g., a course or program of study). For this reason, learning outcomes are essentially self-referential and have no meaning outside the academic context. The use of *competency* puts the focus on transferable skills rather than a time-delineated academic moment.

Perhaps the greatest contribution of competency-based learning models is that they remove time as a controlling factor in learning. They focus, instead, on the mastery and demonstration of explicit competencies, independent of how long it took to develop them. In so much of higher education, students are expected to start from the same place, regardless of what they came in knowing and being able to do, and then move in lockstep throughout the semester, until the calendar says it’s over. This disadvantages both those who would like to move more quickly and those who need more time.

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Furthermore, removing time as a proxy for learning promotes alignment of curricula to labor market needs, enabling the ‘improved signal’ that competency-based programs provide, where employers can learn exactly what skills and abilities a student has mastered based on the [un]equivocal description of those skills acquired in competency-based programs (Daugherty et al., 2015, p. 17). This “improved signal” stands in marked contrast to the conventional model, in which “degrees, majors, and course names from traditional programs, provide comparatively weak signals for employers on the knowledge, skills, and abilities that an individual has obtained through higher education.” (Daugherty et al., 2015, p. 16)

Whether the model is CBE or not, learners need and deserve accurate, actionable information about *all* learning experiences, from cost and time commitment to labor market alignment and return on investment (ROI). However, the notion persists within some corners of the academy that higher education should somehow be divorced from such petty concerns as jobs and careers and should, instead, produce “paragons of a well-rounded and foundational liberal arts education” (Horn & Moesta, 2020). This prejudice is long-standing, harkening back to the elitist assumptions that drove the founding of the American university. The demographics have shifted – though not enough – from the “college population of 1800[, which] was white and male and largely of British descent” (Horowitz, 1987, p. 5). Though written decades ago, Horowitz’s observations of the higher education landscape remain true:

More women than men attend college, and the ethnic mix on campus mirrors, with the significant distortion of the underrepresentation of blacks and Hispanics, that of the population. College has always served disproportionately the privileged, but the field of privilege has widened to include greater reaches of the middle and working classes. (Horowitz, 1987, 5)

Despite these dramatic and ongoing demographic shifts, traces of the “gentleman scholar” ethos prevail, especially among elite liberal arts institutions and their professors. The idea that the purpose of college might be to get a job or a better one remains unpopular, particularly in the humanities. In a nod to contemporary realities, the goal of higher education is often positioned as preparing students for a lifetime of learning rather than a specific job or career (Gerstein & Friedman, 2016). While the notion of continuous learning is appealing, everything about how education is structured belies it, from seemingly random general education requirements to the primacy of the degree (vs. credentials earned throughout one’s working career). Even in community colleges, which do a better job than most universities of acknowledging the importance of preparing students for the workplace, the continuing education division typically stands apart from the academic units and is generally non-credit. In other words, it is seen as less academic and lower in value.

Principle 2: Active and Experiential Learning is Necessary to Develop Learner Agency

Well over a century ago, John Dewey observed that education was moving in precisely the wrong direction. Dewey recognized that learners naturally need experiential, hands-on education (Dewey, 1907). Most of K-12, and virtually all of higher education, paid no attention, doubling down on the:

Traditional, compliance-based pedagogy first created to meet the demands of the Industrial Revolution and 1800s America, denying modern students the type of education they need to thrive. Instead, we need

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policies, trainings, professional development, and academic standards that all contribute to schools where engagement-based practices can flourish. (Center for Inspired Teaching, 2018, p. 1)

Dewey's description of his fruitless search for furniture to support the kind of education he imagined illustrates the problem. He visited dealer after dealer until finally one remarked, "I am afraid we have not what you want. You want something at which the children may work; these are all for listening" (1907, p. 48). "All for listening" continues to characterize many students' experiences, even in higher education. The lecture hall and lecture format remain the dominant modes of teaching, especially in large universities. That experience, in which knowledge flows in only one direction, epitomizes the contemporary learner's lack of agency and, typically, disengagement from learning. It does not matter whether the lecture hall is attended in person or virtually.

For too many learners, formal education, starting with K-12, systematically strips them of their natural curiosity and desire to learn. The relentless focus on compliance, good grades, and standardized test scores, as well as the multiple pressures K-12 teachers are under, mean that many students arrive at higher education assuming college will be more of the same: conformity, passivity, grading, and getting by. Too often, they are right. Even adult learners, who bring to college a wealth of life and work experience, are treated as problems to be solved rather than resources to be welcomed. In this sense, learners' lack of agency and the conventional approach to learning design turn out to be intertwined. As Estrada et al. (2020) expressed the problem:

The traditional instructional method of primary- and secondary-grade teachers has been to guide a classroom of students through a curriculum. Because of this, and the bulk structures of academic models, many adults were conditioned to be "obedient" learners in school environments even while they may regularly practice self-direction in personal and professional endeavors. Considering this, the need to develop [student-directed learning] behavior among adult learners can be an important strategy for combating the passive learning habits cultivated during youth. (p. 6)

The authors' focus on adult learners is instructive. Relatively little effort has gone into reimagining higher education in light of the evidence that most students in college today are not what members of the public and, too often, policy makers, think of as "college students" (i.e., campus-based, 18 to 22 years old, and free to devote themselves full time to study). Actual college students or the "new majority" learners include:

People of color; English as a second language learners; immigrants; the undocumented; and those who may be low-income, age 22 or above, formerly incarcerated, disabled, first-generation, single parents, part-timers due to life or financial circumstances, part- or full-time workers, transfer students, financially independent for financial aid purposes, have dependents other than a partner/spouse, veterans or active-duty military personnel, transgender, genderqueer, and/or gender nonbinary. (Education Design Lab, 2022, n.p.)

Lorenzo (2021, para. 3) defined this population more succinctly as "anyone for whom college was not originally designed."

Project-based learning, which involves learners actively in the learning process, is an important corrective to the traditional emphasis on instructor-constructed knowing. It incorporates learner-constructed

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doing as a key principle of active learning. While project-based learning can take many forms, it is “characterised by students’ autonomy, constructive investigations, goal-setting, collaboration, communication and reflection within real-world practices” (Kokotsaki et al., 2016, para. 1).

Principle 3: Authentic Assessment is an Integral Component of Learning

Too often, assessment is treated as an unpleasant necessity driven by the need for compliance with external requirements (e.g., accreditation), not as a fundamental component of genuine learning. Conventional approaches to assessment have frequently served to cement the faculty member’s authority and the student’s lack thereof. The faculty member holds all the cards (or at least the bubble sheets). Still, the issue goes deeper. The process of trying, getting feedback, and trying again forms a virtuous cycle that fosters the growth mindset and serves as a precondition to true learning. But unless it is authentic, assessment is limited in the information it can provide as to what the learner really knows and can do. While there is no universal agreement as to what constitutes authentic assessment, the criteria proposed by Wiggins (2011) are useful. Adapted for higher education, they help us understand that authentic assessment is that which:

- Is realistic
- Requires judgment/innovation
- Requires “doing”
- Replicates or simulates real-world context
- Requires integration of knowledge and skills
- Provides opportunities for feedback and practice

Performance assessment is sometimes used as a synonym for authentic assessment; however, there are useful distinctions between the two terms. For example, the written test necessary to obtain a learner’s permit is authentic, but there is no performance, no *doing*. In contrast, the road test necessary to obtain a driver’s license is both authentic and performance-based, requiring the learner demonstrate the capability that is being assessed.

Project-based assessment is a form of performance assessment that incorporates complex doing. It reflects the best incentive for learning: wanting to accomplish something. As Blaschke and Hase (2021) noted, if you ask teenagers or adults how they learn when taking up a hobby or pursuing a new interest, they will tell you that:

they search the Internet, watch YouTube and TED Talk videos, talk to or watch experts, maybe enroll in a class, experiment, fail, mess around, and test out ideas, even innovate. People know how to learn. But when they enroll in a course, particularly one that [leads to a credential], they give over control to the “teacher,” the curriculum. They become passive rather than remain in their natural state as an active learner. (pp. 13-14)

Ironically, the freedom to experiment, fail, and “mess around” is too often banished from education in the name of increasing “success.” The current approach eschews failure and seeks to avoid it at all costs. But failure is not a bug in the learning process. It is a key feature. Inviting risk, experimentation, and learning from mistakes is essential for developing self-directed learners.

The obsessive focus on success may also result from a misguided and paternalistic effort to promote equity. While the twin goals of increasing retention and preventing attrition may be rooted in concern for students, they are also often rooted in concern for the institution. Initiatives like learning success centers and learning success coaches are attempts to fix the inevitable outcomes of curricula that are both regimented and random. Such initiatives do not address the root causes of disengagement, which can stem from uninspiring and irrelevant curricula as well as the complex realities of many students' lives, which are constrained by poverty, food insecurity, homelessness, multiple job and family obligations, and societal racism.

Principle 4: Staging and Scaffolding Develops Learners' Agency

The capacity to exercise agency requires a developmental process focused on “releasing the inherent agency in those who have become passive learners, rather than increasing conceptual complexity” (Blaschke & Hase, 2021, n.p.). This is as true for postsecondary education as for K-12. While the *goal* is for learners to own their learning, intentionally designing learning experiences so they build on and support each other (i.e., staging and scaffolding) enables students to develop the capacity for responsible and meaningful ownership. This process includes, where possible, the opportunity for learners to co-create learning experiences. As the old rallying cry for special education puts it: Nothing about us without us. Just as we have begun to question and reject the patronizing attitudes that have long characterized the education of individuals with disabilities, it is past time we reexamined the notion that any students should be passive recipients of their education.

The term “heutagogy,” while unlikely to become a household word, describes the important concept of self-directed learning, which is centered in learner agency. According to Blaschke (2016), heutagogy brings together five guiding principles:

1. **Learner agency:** The student is the primary agent of their learning, with the learner making decisions about learning, from what will be learned and how, to whether learning has been achieved and to what degree (e.g., self-assessment).
2. **Self-efficacy and capability:** The learner has self-efficacy, belief in their own abilities, and capability, the ability to demonstrate an acquired competency or skill in new and unique environments.
3. **Metacognition and reflection:** The learner reflects upon and critically thinks about what has been learned and the process of learning, in the form of double-loop learning (metacognition).
4. **Non-linear learning:** The learner directs the learning path, which is not pre-defined or sequential, as the learner is responsible for identifying what will be learned and how.
5. **Learning how to learn:** The student not only learns but also learns how to learn, preparing the learner for life outside the classroom.

This chapter proposes a slightly different approach to “non-linear” learning that is perhaps less absolutist. Learners need freedom to explore, make mistakes, and follow interests: as noted above, this is essential to the learning process itself. As also noted above, the passivity of conventional education leaves many learners without the capacity to thrive in a wholly non-linear environment. This capacity needs to be systematically developed through intentional design (i.e., by scaffolding learning experiences so that learners become increasingly confident and competent). Similarly, “learning how to learn,” a key principle of heutagogy, can happen organically, but benefits from intentional design. The haphazard

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aspects of many college educations illustrate this need, as well as the limitations of the DIY approach. Education is usually structured around courses, not competencies; there is little attempt or even ability to harmonize curricula within a department, much less an institution or system. The traditional college curriculum is replete with redundancies and gaps, making for an ineffective learning experience, and also wasting students' time, money, and effort in the process.

Staging and scaffolding are also important from a more granular perspective. The principle of backward design enables the competencies (i.e., the claims we would like to be able to make about what a learner knows and can do) to define the learning experience, whether that takes place through a course or an internship. The question shifts from the standard focus on what will be covered to how best to support learners in developing and demonstrating those competencies.

Principle 5: Actionable Feedback, not Grading, Promotes Learner Agency

Whatever agency a learner may have exercised in the learning experience soon dissipates in the grading process:

The current grading paradigm has been seldom challenged for a long time, and for many, leaves much to be desired. The assignment of grades can be a cause of trepidation for many educators. Many students feel that they do not earn a grade as much as it is 'given' based on subjective criteria. (Woods, 2020, para. 1)

The process of grading typifies and reinforces learners' status as passive recipients. Understandably, given these circumstances, learners tend to focus on the grade or score rather than on qualitative feedback. Learners perceive grades as an evaluation of their worth rather than of their proficiency. These assumptions are so pervasive in higher education that they militate against the adoption of a growth mindset, one that perceives talents as capable of being developed through hard work, good strategies, and input (Dweck, 2016). Those with a growth mindset tend to achieve more than those with a more fixed mindset (i.e., those who believe their talents are innate gifts) because they worry less about appearing smart and put more energy into learning (Dweck, 2016).

Alternatives to the current grading approach have been proposed by Woods (n.d.) and others, who champion "specification grading," defined by Roberson (2018, p. 192) as a "points-free, mastery style of grading that replaces partial credit with quality feedback and revision opportunity." In its emphasis on mastery and opportunity for revision, this approach is similar in some respects to CBE. Crucially, both shift the locus of responsibility from the evaluator to the learner. Both models also position meaningful feedback as an essential component of the learning process; in the current paradigm, however, grades are usually divorced from learning. The grade that matters most is the final one, received once the course is over.

A competency-based format that offers learners multiple attempts to try, get feedback, and try again provides significant incentives to take feedback seriously, rather than disregard it as merely the color commentary to the score. Of course, the success of this approach requires that feedback be both targeted and actionable. In the interests of learning as well as equity, grades can and should be jettisoned in favor of clear, transparent, and measurable outcomes.

Principle 6: Diversity, Equity, Inclusivity, and Belonging Require Learner Agency

Equity reflects a commitment to ensuring that historically underserved students are successful by continually asking, “how should the system adapt and respond in order to engage and empower students to learn, progress and achieve mastery? What will it take to ensure that students who are not making adequate progress are moving forward?” (Sturgis & Casey, 2018, p. 4). Learners need and deserve an environment that is supportive and challenging, culturally responsive, and that explicitly acknowledges the multiplicity of skills and assets learners bring to higher education. At the same time, the environment should recognize the multiple impacts of pervasive structural racism and inequality:

Race continues to play a defining role in one’s life trajectory and outcomes. A complex system of racial bias and inequities is at play, deeply rooted in our country’s history, culture and institutions. This system of racialization — which routinely confers advantage and disadvantage based on skin color and other characteristics — must be clearly understood, directly challenged and fundamentally transformed. (Annie E. Casey Foundation, 2014, p. 2)

An asset-based perspective has an important role to play in ensuring equity. Focusing on “deficits” and “gaps” has the potential to position so-called “non-traditional” learners as problems to be solved, as the other, and as failures. But it is the learners who have been failed. To ensure that higher education works for them, it is imperative to understand the systemic factors that produce inequitable results and work to create educational experiences that reinforce and replicate “equitable ideas, power, resources, strategies, conditions, habits, and outcomes” (Annie E. Casey Foundation, 2014, p. 5). Adopting an equity lens enables learners to experience education as respectful and empowering, not infantilizing and limiting. Changed attitudes are not enough: ensuring equitable outcomes requires capturing and analyzing quantitative and qualitative data from sources like surveys, focus groups, and feedback forms.

CONCLUSION

Achieving the goals of promoting learner agency and building learners’ capacity for self-direction requires an intentional approach to learning design based on the principles of transparency and relevance, active learning, integrated and authentic assessment, scaffolded learning experiences, actionable feedback, and equity. The argument proceeds from the premise that our current system is designed to work primarily for institutions and faculty rather than learners. The status quo too often perpetuates inequality instead of promoting genuine opportunity.

The chapter presumes that learning can and does occur in multiple formats and forums: how and when learning occurs is less important than what is learned and how it is demonstrated. While the chapter presents competency-based education as a model that, at its best, serves to foster learner agency, it does not argue that CBE is the only such model. Nonetheless, competency frameworks, designed with input from all stakeholders (including students and employers) and containing clearly articulated and measurable outcomes, can and should form the basis for a robust array of experiential and simulated learning opportunities as well as authentic assessment. While the six principles of intentional learning design presented here are technology-agnostic, the assumption is that the skillful use of learning technology,

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including interactive authoring tools and learner-owned comprehensive records, is necessary to enable effective and meaningful learning. Technology can also play an important role in providing the immediate and targeted feedback that is required for learning to occur. Finally, ensuring equity in higher education demands that we intentionally design learning experiences to foster and develop learner agency. There can be no equity without self-determination.

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KEY TERMS AND DEFINITIONS

Authentic Assessment: An opportunity for learners to demonstrate competencies by completing a realistic task.

Competency: A bundle of knowledge, skills, and attitudes needed to perform a specific task. It assumes that both tasks and competencies can be cognitively complex and/or require high-level interpersonal or “human” skills.

Competency Framework: Schema used by both learning designers and employers for organizing expectations related to an educational program or a set of jobs into a coherent and cohesive whole.

Competency-Based Learning: This model defines learning in terms of the demonstrated mastery of articulated competencies rather than by proxies like seat-time.

Faculty-Centricity: The belief that faculty are the primary and rightful drivers of education. In addition, it is a belief that colleges and universities should be organized around faculty interests.

Heutagogy: A theory of self-directed learning.

Learner Agency: The belief that students are entitled to the exercise of meaningful choice in terms of what and how they learn.

Learning Experience: Any opportunity for students to learn, whether curricular or non-/extra-curricular.

Performance Assessment: The opportunity for learners to demonstrate competencies by *doing* (i.e., performing or producing in a realistic setting).

Project-Based Learning: A constructivist approach to learning that typically incorporates real-world activities, a high degree of student autonomy, goal setting, collaboration, communication, and reflection.

Chapter 2

Exploring the Future to Create Pathway Opportunities That Empower Students

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ABSTRACT

The future is more uncertain than ever, and this uncertainty is creating challenges for institutions of higher education (IHE), especially as they seek to prepare students for the future. Students are seeking new models of education, and some are even putting together their own pathways to survive and thrive in this uncertain future. While it is not possible to predict the future, this chapter demonstrates how strategic foresight can help IHEs better position themselves to develop new models of learning to meet learner and societal needs. The chapter employs the Association of Professional Futurists Foresight Technical Competencies to demonstrate how this can be done. It also provides examples of IHEs that are beginning to build the capacity to employ strategic foresight across their institutions and others that have already done so.

“[C]ompanies are looking to provide reskilling and upskilling opportunities to the majority of their staff (73%) cognizant of the fact that, by 2025, 44% of the skills that employees will need to perform their roles effectively will change” (World Economic Forum, 2020, p. 8). This finding from the World Economic Forum highlights how the fast pace of change will impact workers and their need for training and education to thrive in the future.

Working adults have better adapted to the pace of change across society and in the workforce than have many institutions of higher education (IHE). One way working adults have done this is by creating their own lifelong education and training pathways to acquire the skills they need to attain their personal and professional goals. These do-it-yourself (DIY) pathways do not just include traditional degrees; they also include non-traditional credentials such as certificates, microcredentials, and training. The creation of these pathways recognizes that education can no longer be limited to the time a person

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spends completing a degree. Education has, by necessity, become a lifelong pursuit. Because they are in the workplace experiencing the results of these change, workers recognize the dangers of not evolving to meet the needs of employers or not having the skills needed to open one's own business, which has become increasingly common and has been made easier by advances in technology.

Preparing students for the future of work is difficult, especially with a traditional undergraduate degree completed in four or six years. The world changes substantially between the time students begin a degree and when they graduate. Additionally, given the time-consuming process required for curricular change at most IHEs, it is extremely difficult for IHEs to ensure degrees reflect the workforce's latest needs. This means that students may enter the professional world having been prepared for the world as it was four or six years prior. While certificates, microcredentials, and training can be adapted faster than traditional curricula, they too can lag behind the needs of the workforce. Additionally, IHEs have not devoted the resources to preparing and supporting students to create their own educational and training pathways following graduation. This is unfortunate given that students have unique goals that frequently change throughout their lives and are often in the best position to identify the skills required to adapt to the changing needs of the workforce.

Supporting students' efforts to create their own education and training pathways will empower them to thrive in a variety of futures and is consistent with the missions of IHEs. Supporting students as they create these pathways could also bolster enrollments at a time when fewer 18-24 year old students are pursuing degrees (National Student Clearing House Research Center, 2022), and significant numbers of adults are seeking educational opportunities but not necessarily degrees.

There are many reasons that IHEs as an industry are currently not supporting students in their efforts to create these pathways. Some do not see it as their role to prepare students for life and work after graduation, although enrollment declines over the past decade have provided an incentive to support students with this need. Other IHEs are wary of meeting the needs of the moment, preferring instead to focus on the timeless aspects of education, which are also very important and do contribute to preparing students for the future. It is also impossible to predict the future, so many IHEs may be wary of investing resources into offerings that may not have any demand in a few years. It is this last problem—the hesitancy to invest resources for an uncertain future—that I will address in this chapter by explaining how strategic foresight can help IHEs develop strategies to meet learner and societal needs now and in the future and how IHEs can develop strategic foresight capability across their campuses. This chapter will employ the Association of Professional Futurists' Foresight Technical Competencies framework as its strategic foresight approach.

STRATEGIC FORESIGHT

While it is true that it is not possible to predict the future, IHEs should not view themselves as victims of an uncertain future. Strategic foresight can help IHEs gain insights about the future that they can use to make decisions and take action in the present. "Strategic Foresight tools enable you to discover which potential futures are possible (for instance, by extrapolating from emerging trends and pockets of the future which are already happening today). And then to decide which one(s) you would prefer" (Lustig, 2015, Location No. 244). Another description of strategic foresight highlights its "ability to create and maintain a high-quality, coherent and functional forward view and to use the insights arising

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in organisationally useful ways; for example: to detect adverse conditions, guide policy, shape strategy; to explore new markets, products and services” (Slaughter, 1997, p.1).

Strategic foresight helps people and organizations discover what futures are possible. Futures, the plural of future, is intentionally used to indicate that it is not possible to predict *the future*. The idea of considering multiple plausible futures also recognizes that, “plans that enable us to navigate diverse futures are more robust than plans that are cemented to a single version of the future” (Educause, 2020, p. 32). Slaughter’s (1997) use of the adjectives “high-quality” and “coherent” reflects the rigor that comes with employing strategic foresight; it is not about taking a guess or fortune telling. His use of “functional” and “organisationally useful” suggests that strategic foresight produces insights that are useful for organizations by informing strategy development, planning, and decision-making. Lustig (2015) highlights one way to determine which futures are possible by identifying “emerging trends” and “pockets of the future,” both of which can be identified from our position in the present. She also highlights the idea of a preferred future, which is the depiction of the future to which the organization commits to achieving. This links back to Slaughter’s (1997) view that strategic foresight should be useful for organizations by suggesting that strategic foresight can help organizations identify the direction they want to pursue. Strategic foresight can also help IHEs test current and proposed strategies against futures that may be undesirable yet possible.

Examples of Strategic Foresight Use

California State University Long Beach

IHE use of strategic foresight is not widespread; however, there are some examples of where it has been used to inform strategy development and planning in a way that better prepares IHEs for an uncertain future. Thousands of members (3665 participants) of the California State University Long Beach (CSULB) community employed strategic foresight when they participated in Imagine Beach 2030 to explore what the world of 2030 might be like and what it would mean for CSULB (CSULB & Institute for the Future, 2019, p. 2). Participants were asked to contribute insights on the future of CSULB. Their input included identification of emerging trends and other signals of change. The Institute for the Future (IFTF), an organization that helps people learn and use the tools of foresight, supported the CSULB effort (IFTF, 2018). The input from this process was collected and analyzed using IFTF’s Foresight Engine Platform. This analysis informed the development of emerging themes for 2030 which included “Pioneer Future-Ready, No-Barriers Education” and “Open the University-Amplify Anytime, Anyplace Learning” (CSULB & IFTF, 2019, p. 4).

These themes informed the framework for CSULB’s new strategic plan, Beach 2030: A Roadmap for the Next Decade. The plan is designed to “Respond to the forces shaping the next decade of challenges and opportunities,” among other things, and lists five priorities that reflect the themes identified during the Imagine Beach 2030 effort (CSULB, 2020a, p. 13.). Although similar to other strategic plans, it has a longer time horizon and is very future focused. The plan identifies “drivers shaping the next decade” and recognizes that, “We know that change does not come when we are ready; we must always be ready for change” (CSULB, 2020a, p. 7). This openness to multiple possible futures, rather than betting on one future, is a key element of the use of strategic foresight.

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Another unique aspect of the CSULB plan is that while many strategic plans do not mention their methodology except to highlight that they were produced by an inclusive process, the prominent role of strategic foresight is clear throughout the plan as is the desire to incorporate strategic foresight into how CSULB operates and plans. An introduction video notes that:

Futures thinking is the structured critical exploration of possible futures that is driving our campus to 2030. By 2030 we will integrate futures thinking into organizational culture. By integrating futures thinking into curricula and campus and community programs, we can build a futurist culture that rises to grand challenges (CSULB, 2020b).

There is also an accompanying action plan to support CSULB's transformation into a future-ready university that includes a goal to "institutionalize futures thinking in organizational culture by embedding futurist practices at all levels of the university" and to "become a regional asset for futures thinking in collaboration with other CSUs and external partners" (CSULB, 2020a, p. 21). CSULB's use of strategic foresight did not only create a future-focused strategic plan; it transformed CSULB into a future-focused IHE.

Southern New Hampshire University

Southern New Hampshire University (SNHU) is another IHE that has used strategic foresight to inform its strategic planning process. One section of the SNHU 2018-2023 strategic plan, "A Look over the Horizon: Preparing for the Learner of 2030," notes that SNHU is "engaged in studying future trends and forces to enable us to not just survive but to thrive in an increasingly uncertain environment" (SNHU, 2018, p. 29). The employment of strategic foresight to develop the SNHU strategic plan is clear though its five commitments and accompanying initiatives. For example, an initiative associated with its first commitment is to create "future-proof credentials" (SNHU, 2018, p. 22). Commitment Five, "Create the capacity and foundation on which to build the 2030 learning ecosystem," focuses on supporting the learner of 2030 through "future-scenario planning, observed market signals, and macro-trends" (SNHU, 2018, p. 26). This long-range time horizon, 12 years from the beginning of the plan rather than the more typical five-year period of most strategic plans, reflects the SNHU foresight-informed approach as does language such as "future-proof" that is used by foresight practitioners.

While the strategic plan acknowledges that the future is uncertain, it proposes that there is a way for SNHU to thrive in uncertainty by changing how it develops strategy. One of the plan's three themes is to develop a new approach to strategy through a "reliance on future planning methods" that are "informed by trends, signals, and forces that inspire creativity" (SNHU, 2018, p. 30-31). The use of scenarios, which will be discussed below, is one of the ways that SNHU does this and was very useful for testing current strategies and developing new ones.

Both IHEs have effectively used strategic foresight to develop strategic plans, and this has helped them develop a longer time horizon, which allows an IHE to consider how nascent ideas and innovations may mature and what their impact might be. It also encourages the IHE to embrace and explore possible futures and use the future to make decisions and take action in the present. Elements of their experience with strategic foresight will be referenced below.

FORESIGHT TECHNICAL COMPETENCIES

One way for IHEs to employ strategic foresight is by using the six Foresight Technical Competencies that are part of the Association of Professional Futurists (APF) Foresight Competency Model. This is the framework I will use to demonstrate how IHEs can employ insights from strategic foresight to better support student and societal needs through the development of new models of higher education. I will first briefly describe each competency and then apply it to the chapter's focus in another section. The APF Foresight Competency Model includes six foresight technical competencies (Framing, Scanning, Futuring, Visioning, Designing, and Adapting) that can help IHEs think systematically about the future needs of students and society and then develop strategies to better meet these needs.

Foresight Technical Competencies: Framing

The first foresight technical competency, *framing*, involves identifying and describing the specific issue that you want to explore, the scope of the project, current assessments related to the issue, and the timeframe for the project, typically 10-15 years in the future (APF, 2016, p. 12-13). For this chapter, *framing* will focus on the issue of workers' education and training needs based on possible changes over the next 10-15 years, and how these changes could impact how people work and live. Both CSULB and SNHU employed strategic plan timeframes that were in line with timelines used for strategic foresight work. As noted above, this longer timeframe offers a better opportunity to consider and prepare for a variety of possible futures that reflect different ways nascent ideas and innovation may mature. It also avoids betting on one future in the way that many IHE strategic plans do. The current assessment of the issue will identify significant trends where there is consensus (e.g., demographic changes), and these will be useful for considering elements of the future where there is more certainty.

Foresight Technical Competencies: Scanning

The purpose of *scanning*, the second foresight technical competency, is to identify signals of change related to nascent ideas and innovation (APF, 2016, p. 12-13). Foresight practitioners often use established frameworks to focus their scanning efforts. For this chapter, I will employ the STEEPLE (social, technological, economic, environmental, political, legal, and ethical) framework, which categorizes collections of trends and signals, often called *scanning hits*, into each of the seven categories (Lustig, 2015). This wide range of categories ensures that impactful changes are not overlooked.

Another technique in this category, the *three horizon method*, is a helpful structure for *framing* and *scanning* because it provides a view of how change manifests itself at a given time. The first horizon represents the status quo that is losing its relevance and effectiveness due to external changes (Sharpe, 2020, p. 13). The third horizon reflects the future and is "those new ways of living and working that will fit better with the emerging need and opportunity" (Sharpe, 2020, p. 13). Finally, the second horizon is the transition from the first to third horizon. It includes "emerging innovations that are responding to the shortcomings of the first horizon and anticipating the possibilities of the third horizon" (Sharpe, 2020, p. 14). The first horizon provides insights for conducting a current assessment of the issue. Identifying signals of change within the second and third horizons is conducted during scanning. Understanding which horizon these signals are part of provides a way to estimate how long nascent ideas and innovations will take to mature and their possible impact. *Scanning* is best conducted in groups to attain diverse

perspectives related to each of the STEEPLE categories. It is also important to document what is found in an organized manner, as CSULB did using IFTF's Foresight Engine Platform, to facilitate the analysis of the scanning hits, which are the results of the scanning process.

Foresight Technical Competencies: Futuring

What is discovered while *framing* and *scanning* informs *futuring*, the third foresight technical competency. The goal of *futuring* is to produce scenarios, which are stories about the future that reflect different possibilities (APF, 2016, p. 13). "As stories, of course, some scenarios might depict highly surprising, unlikely or unorthodox futures, but they work best when they represent futures and underlying building blocks of trends and drivers that aren't so unthinkable that they can easily be dismissed" (Smith, 2020, p. 133). Although scenarios should not be unthinkable, Hines and Bishop (2015) write that, "A key task for the analyst, therefore, is to challenge this view and prod the organization to take seriously that things may not continue as they have—in practice they rarely do!" (p. 127). Scenarios can be very broad by describing shifts in the international order and major economic changes. They can also be more focused to explain what life would be like in the future for a particular person.

Organizations have used scenarios for many decades to help navigate and thrive in uncertainty. Royal Dutch Shell is well-known for the creation of its Long-Term Studies activity that led scenario planning for Royal Dutch Shell. This activity developed "long-term outlooks in the form of alternative futures" (Wilkinson, A., 2013, para. 3). These futures were especially helpful to Shell during the oil crises of the 1970's and 1980's as "Shell sold off its excess before the glut became a reality and prices collapsed" (Wack, 1985, para. 2). To be clear, the value of scenarios is not about predicting the future. Instead, scenarios have "helped break the habit, ingrained in most corporate planning, of assuming that the future will look much like the present" (Wilkinson, A. 2013, para. 3).

Foresight Technical Competencies: Visioning

Both the broad scenarios and those that depict life for a particular person can be useful for IHEs as they consider how best to support learners in the next 10-15 years through *visioning*, the fourth technical competency. Scenarios serve as the starting point for *visioning*, the fourth technical competency, by providing organizations opportunities "to consider what it would mean if each alternative were to occur" (Hines and Bishop, 2015, p. 221). In this way, *visioning* connects the work of the *framing*, *scanning*, and *futuring* competencies to the "mission, purpose, effectiveness, performance, and, ultimately, the bottom line" (Hines and Bishop, 2015, p. 221). Specifically, for IHEs, scenarios can provide a way to identify possible changes in the future that are relevant to aspects of their operations and mission, but especially in terms of their curricular offerings for learners and how and when they deliver these offerings. Scenarios can also create vivid descriptions of the lives of people who will be creating their education and training pathways. This enables IHEs to identify the challenges and opportunities people may face as they adapt to a changing personal and professional world. From this, IHEs can test current strategies to see how they would fare if elements of these futures became reality and determine what they might do differently to help these people achieve their goals. This enables IHEs to focus on the possible needs of potential students by committing to a strategic direction(s) while simultaneously addressing their current needs. This is especially useful when drafting a strategic plan as CSULB and SNHU did.

Foresight Technical Competencies: Designing and Adapting

Although they will not be addressed in this chapter, *designing* and *adapting* are the final two technical competencies. They involve additional analysis of the scenarios along with beginning the processes necessary for implementing strategies. One component of *adapting* that is worth mentioning is the idea that organizations should develop indicators that will signify whether certain aspects of a scenario are becoming more likely.

Much more can be said about APF Competency Model's six foresight technical competencies. The foresight technical competencies do not have to be executed sequentially. It is often necessary to return to one of the competencies, and a competency like *scanning* is an activity that IHEs should be doing continually to identify indicators of change. The descriptions above were meant to provide an overview of the framework being used in this chapter, which is one of many frameworks that IHEs could use to enhance their abilities to posture for the future and better support students and society.

For the remainder of this chapter, I will provide a detailed analysis of how IHE's can apply this framework to a specific topic: the *Futures of Student DIY Education and Training Pathways* over the next 10-15 years.

APPLYING THE FORESIGHT TECHNICAL COMPETENCIES

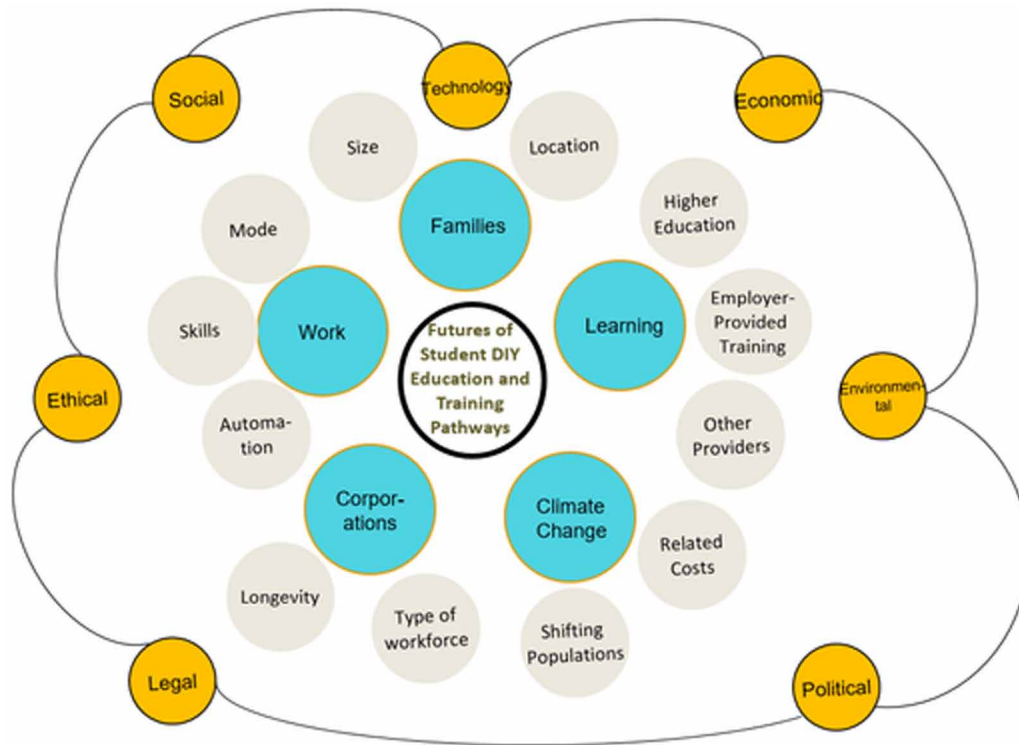
In this section, I will apply the *framing*, *scanning*, *futureing*, and *visioning* competencies to demonstrate how an IHE might launch a project to determine how to support students as they seek to develop their education and training pathways over the next decade. It is important to note that there are other foresight tools that can be used for this purpose. Foresight projects should be completed collaboratively, which is especially important at an IHE where you are seeking to build consensus and develop a future-focused mindset across campus. Also, a project completed at an IHE would be more comprehensive than what is below.

Applying the Foresight Technical Competencies: Framing

When *framing*, it is important to first identify and describe the topic. One way to describe this topic is to think about it as the *Futures of Student DIY Education and Training Pathways* over the next 10-15 years. This depicts the topic in student-centered terms while not limiting who is considered a student or whether the pathways focus on students' professional or personal lives. If desired, IHEs can narrow the focus of the topic based on their specific circumstances. Given that education and training can be delivered online, it may make sense to not limit geography but to leave this aspect of the project open-ended. Finally, the primary purpose of the project is to inform strategy development and planning and to foster a future-focused mindset across the IHE community as happened at CSULB and SNHU. The audience for this work should be the stakeholders of the IHE completing the project.

Domain maps are used within *framing* to focus the scanning effort by identifying broad and sub-categories. They identify what is important to the project and what is not, and it is often depicted visually to gain consensus on the bounds of the project. Below is an example of a domain map for this project.

Figure 1. Domain map



A key task in the *framing* competency area is an assessment of *current conditions*, *stakeholders*, and *history* of the chosen domain. *Current conditions* are reflected in the first horizon of the three horizon method which includes the ideas, beliefs, and way of operating that exist in the present. Examples of what may be identified during an assessment of current conditions include the recognition that people need to learn continuously to keep pace with the skills required for work. We see this in corporations’ focus on reskilling and upskilling (Elfond, 2020).

Surveys are useful for identifying conditions and beliefs within the first horizon. A May 2021 survey found that 65% of current college students agreed with this statement: “Higher education is not worth the cost to students anymore” (Third Way/New America, 2021, p. 6). The survey also found that current college students are concerned about post-college employment, with 79% concerned with “Getting any type of job once I graduate” (Third Way/New America, 2021, P. 8). Trends can also provide insights on the history and current conditions of an issue. One example are demographic trends, which reflect the tracking of population growth over time. In addition to providing insights on the history and current conditions of an issue, trends often include projections of how the trend will evolve in the future.

Assessment of *stakeholders* in this sample project may include current students; potential students; IHE faculty, staff, and administrators; alumni; employers; and the public-at-large, although different IHEs will have different perspectives on this. When considering the third area of assessment—*history*— the background of the specific IHE would be helpful to illustrate how its mission, identify, and students served have changed over time. Also helpful would be the history of the IHE type (e.g., land grant university, community college) to consider how this has changed over time. It would also enrich the project

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to know the history related to the specific topic of analysis, which in this case is a consideration of the ways higher education models have evolved to meet the educational needs of the day.

The above is just a sketch of *framing the Futures of Student DIY Education and Training Pathways* sample project. As with each Foresight Technical Competency, the process is just as important as what is produced. Bringing together a diverse group of members from the IHE community to frame the project ensures that the work is focused on the right thing, community members acquire the needed foundational knowledge on the topic to effectively explore the future related to it, and they feel comfortable enough with the structure of the project to have confidence in the results.

Applying the Foresight Technical Competencies: Scanning

Frameworks and domain maps are essential for scanning the horizon to see how the future may be different than today. The *three horizon method* can help focus scanning efforts. As a reminder, the first horizon represents the status quo that is becoming increasingly irrelevant and ineffective due to how the world is changing. Within the third horizon are future possibilities for replacing the status quo found in the first horizon, and within the second horizon are transitional ideas and ways of doing things that are a reaction or movement to third horizon possibilities. *Scanning* explores the second horizon, seeking those incremental changes that are a reaction against horizon three changes or an incremental change that reflects movement towards horizon three changes. *Scanning* also explores the third horizon to find those transformative innovations that will fundamentally change the way we live and work.

There are many different ways to categorize *scanning hits*. One way to categorize scanning hits, which Maree Conway (2019) defines as “a change happening in the internal or external organizational environment which can be observed and tracked,” are as existing trends, strong and weak signals of change, and wild cards” (p. 128). An existing trend, which may be identified when *framing* the project, are trajectories of change for which there is evidence and consensus. Demographic changes and technology adoption rates are examples of existing trends. Signals can be anything: new technology, attitudes, practices, values, or products. Stronger signals of change indicate the possibility of an emerging trends. Weaker signals of change reflect developments that are occurring in small pockets but that may represent the beginning of a much larger change. An example of a strong signal is four major corporations announcing that bachelor’s degrees are no longer required for certain positions. A weak signal example is a mid-sized corporation purchasing a small college with fiscal challenges in order to use the college’s campus and educational infrastructure to train and educate its employees.

Below are examples of *scanning hits* using the STEEPLE framework, which was discussed above. Were this an actual project, there would be many more *scanning hits* identified by a diverse group from the IHE community.

Social

There is consensus on the demographic changes expected around the world. One example is the increase in the United States of people 65 years and older, which is expected to increase from 15% in 2016 to 23% in 2060 (Vespa, 2020, p. 1). Another relevant trend could be the percent of people who never marry, which has declined in recent decades (Unmarried, Census, 2021). The increased number of people who have left their jobs, which many have termed the Great Resignation, is an example of a signal that may,

over time, turn into a trend. Another signal could be the creation of digital nomad visas, which provide people greater opportunities to work and live abroad (Williams, 2021).

Technological

The number of smartphones in the world might be a useful trend to track as it is projected to increase from 3.668 billion in 2016 to 7.516 billion in 2026 (Statista, 2021). The rise of non-fungible tokens (NFT) may be another hit, as a person recently paid \$450,000 to purchase the land next to Snoop Dogg's NFT house (Hissing, 2021). Also important is corporation research into the metaverse: "Still early in its evolution, almost every company has its own vision of a metaverse archetype" (Ahmed, 2022, para. 2).

Environmental

Scanning hits that reflect the impact of climate change will certainly dominate this category. Climate migration and the unsuitability of certain areas for IHEs are examples. Other examples include the increasing popularity of Environmental, Social, and Governance criteria to evaluate companies (Visram, 2021) and the inclusion of climate-related issues in IHE curricula (Nugent, 2021).

Economic

Trends related to economic inequality are helpful as are shifts in the strength of certain industries. Another trend is the decrease in the years a company remains on the S&P 500 Index. The 30-35 year average on the S&P Index that occurred during the late 1970's is expected to only be 15-20 years during the 2020's (Viguerie, Calder, Hindo, 2021). A signal might be airlines' concern about 5G use (Shepardson, 2021). Another might be the conversion of office buildings into residential units (Cockrell, 2021).

Political

Scanning in this category can include trends at the geopolitical level related to shifts in power, or occurrences in one country that may be a signal of change for what is to come in other countries, such as the challenges Poland is facing regarding sustaining its democracy (Wigura, 2021). Another signal could be pockets of support for state secession in the U.S. (Gale and West, 2021).

Legal

One example is the recent success by activists who have sued companies to force them to take stronger action against climate change (Bateman, 2021). Another is a lawsuit against a technology company because of the ten billion images of people that it maintains without their consent (Richard, 2021).

Ethical

A signal might be changing ethical views regarding the tension between technology and privacy. Changing ethical views often lead to the creation of laws, with one example being eleven states "banning mandated implantable technology," which often comes in the form of employee microchips (Maurer, 2021, para. 2).

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Topics identified on domain maps can also provide a focus for *scanning* efforts. The future of work and the future of higher education, which are both on the domain map above, are especially important to this sample *Futures of Student DIY Education and Training Pathways* project. For the future of work, one signal of change is the use of fractional (part-time) leaders to fill executive leadership positions (Smith, 2021). Another signal, that highlights industry leaders as *scanning* sources, is from Scott Belsky, chief product officer at Adobe, who suggests that project-based work will be the norm over the next decade and that people in their 20's entering the workforce will embrace nomadic professional and personal lives for at least a decade (Belsky, 2021).

The finding mentioned at the beginning of this chapter, that by 2025 44% of the skills currently used by employees to perform their role will change, is a signal related to the future of work (World Economic Forum, 2020). Another signal is the increasing automation of tasks such as writing, customer support, translating, and coding, which may impact the types of jobs available for humans (Bangert, 2022). Also, while it is not widespread, the move to four-day weeks by Panasonic and Bolt (Kelly, 2022) and D'Youville College (Redden, 2022), and others, are weak signals that may indicate a more significant shift in the future. For the future of higher education, the emergence of Minerva University, a highly selective online university with students who spend most of their semesters abroad, is a signal of change (Clarke, 2020). One *scanning* hit that addresses both areas is the decision by some companies to loosen degree requirements and focus more on skills and competencies when making hiring decisions (Burke, 2021).

There are numerous sources helpful for *scanning*, but like any research those conducting the *scanning* must ensure the sources are credible. Commercial media, academic research, social media, blogs, podcasts, and newsletters are examples. Sometimes people can come across relevant *scanning* hits when they are going about their day and notice something that represents a radical change from how things are normally done.

It is important to have a system to document *scanning hits* so that they can be analyzed. Many foresight practitioners use online tools to collect *scanning hits*, while others create cards that include the name of the trend or signal, a description of it, a link to the evidence for it, and a description of what is driving the change. As described above, CSULB used the IFTF Foresight Engine Platform to collect, discuss, and analyze. *Scanning* is never truly complete. People across campus should be continually *scanning* so they identify possible changes that are relevant to the IHE. It is also important to track potentially high-impact items found during *scanning* to determine if they are gaining traction.

The process of *scanning*, especially the conversations it produces, is just as important as the product. It fosters a futures-oriented mindset across the IHE of continually *scanning* the horizon and being on the lookout for what could impact the IHE. As is evident from CSULB's experience, conversations about what *scanning hits* mean can be very productive and have long-lasting effects on an IHE.

Although you will not find them during *scanning* due to their nature, it is also important to identify wildcards, which are low-probability/high-impact events, during the *scanning* process. Wildcards like pandemics, a sudden and substantial drop in social trust, and solar flares are relevant to IHEs. Bryan Alexander's mention of a potential pandemic in his book *Academic Next: The Futures of Higher Education*, which was published prior to the COVID outbreak in 2020, demonstrates how consideration of wildcards could strengthen an IHE's readiness in responding to them should the wildcards ever become reality.

Applying the Foresight Technical Competencies: Futuring

Collecting and analyzing *scanning hits* provides an opportunity to understand what is driving change. Alex Fergnani (2020a) labels them *driving forces* and defines them as issues that will emerge in the future with a significant impact, although it is uncertain how they will emerge. For example, in terms of populist political viewpoints, you should consider the “degree of influence populist political viewpoints around the globe” will have in the future or, regarding conflict, the “degree of tension of political conflict” that exists (Fergnani, 2020a, para. 6). The world will be very different depending on how these issues emerge.

Based on the *framing* and *scanning* efforts described above, a group might identify many driving forces. For example, the degree of automation that is employed to perform tasks in the workplace is a driving force. Another is the pace of climate change and its impact. The level of inequality in society is another driving force. Also important is the time a person stays in a geographic location or in a particular position at an employer, which can range from low to high turnover. Once all driving forces are identified, they should be ranked in terms of their importance and their uncertainty. For the *Futures of Student DIY Education and Training Pathways* topic, importance should be judged based on the impact it has on people who IHEs may be able to serve. Driving forces at the top of this ranking are designated critical uncertainties because of how important they are to the topic but also because of how uncertain their trajectories are.

Driving forces are the building blocks of scenarios and can be used in the different approaches to scenario development. I will briefly describe two of these approaches and then will use one to develop an example scenario.

One way to develop scenarios is through the Four Archetypes approach. This approach places numerous driving forces into one of the four scenario archetypes, which reflect four perspectives on unique holistic trajectories for society. The first archetype is continued growth, which is “a future of continuation and enhancement of the current trajectory, but also of current problems” (Fergnani, 2020b, para. 5). It assumes that society will continue its continued path. The second archetype, discipline, is a future where there is a new balance between competing forces, a “future of equilibrium” (Fergnani, 2020b, para. 4). Collapse, the third archetype, is exactly as it sounds: “the system reaches its limit and collapses” (Fergnani, 2020b, para. 4). Finally, transformation “is a future of radical departure from the present due to a transformative event or phenomenon” (Fergnani, 2020b, para. 5). The world and everyday life are almost unrecognizable from the present.

Although this chapter will not provide an example of the Four Archetypes approach, this approach was mentioned in the SNHU strategic plan for the purpose of shifting from a planning approach based on “past and present realities” to one “more informed by trends, signals, and forces that transpire creativity” (SNHU, 2018, 31). A key element of this shift is a version of the Four Archetypes approach that employs the following scenarios: “Growth (or evolution), Environments of constraint (or discipline), Utter collapse (or disintegration) of ourselves and our systems, and Transformation (or revolution)” (SNHU, 2018, p. 31). By employing digital twins and simulations, SNHU plans to model how its current structures and practices would fare in each archetype and what changes would allow SNHU to adapt and thrive to the unique conditions of each archetype. Testing current strategies and developing new ones for these four potential futures strengthens SNHU’s readiness for an uncertain future.

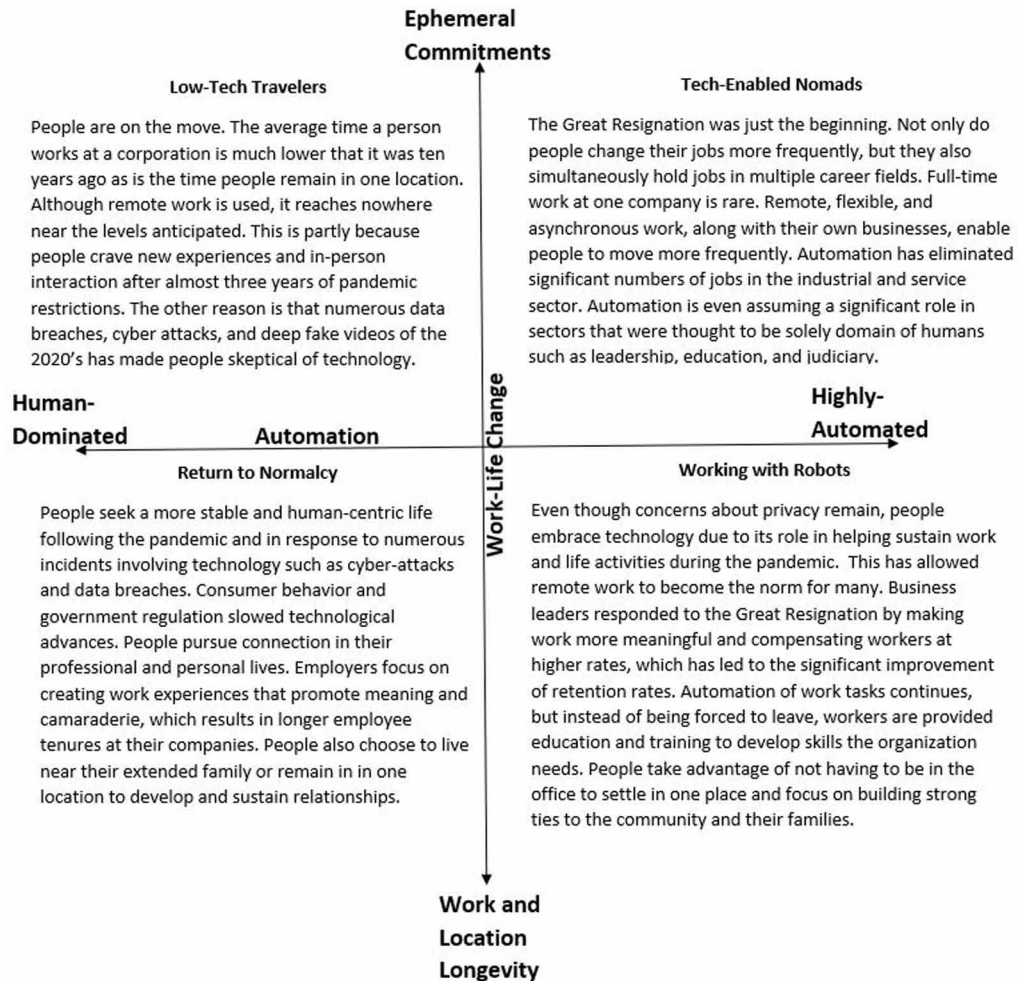
The second scenario development approach is the 2x2 Matrix, which seeks to isolate two critical uncertainties to see how they interact with one another and the different ways the future may play out. Different extremes of a continuum are identified for each critical uncertainty. For example, if political

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stability is a critical uncertainty, one edge of the continuum is an extremely stable political system; at the other end is an extremely unstable political system. One critical uncertainty with its two extremes is placed on the x-axis, and the other is placed on the y-axis (see example below). This approach produces four scenarios based on the interaction of the two critical uncertainties in each quadrant. Each quadrant is given a name that summarizes the state of affairs it produces.

Below is an example of a 2x2 Matrix using two of the driving forces mentioned earlier in this section, which I will assume emerged as the most important and uncertain. The first driving force on the matrix is related to the level of automation being used to perform work-related tasks. One end of the spectrum will be a faster-than-expected automation of work-related tasks where automation is performing some of the tasks that were once thought would be performed by humans until at least mid-century. At the other end of the spectrum is a slower-than-expected automation of work-related tasks. Slower-than-expected automation could be due to slower advances in technology or because people have resisted increased automation due to concerns over privacy or because of the economic risks. The other driving force is related to the frequency of change in terms of how long workers remain at a company and how long they remain in a geographic area. The 2x2 Matrix below reflects a ten-year timeframe, looking out to 2032.

Figure 2. Sample 2x2 matrix



The four short descriptions in the 2x2 matrix above would be used as a foundation for four longer scenarios. I will offer more detail on the Tech-Enabled Nomads and then show what life for a person might be like if that scenario became reality.

Tech-Enabled Nomads (2032)

The Great Resignation shifted power to workers and was fueled by their desire for and confidence to pursue new work experiences. The majority of a typical company's workforce is now part-time and remote with flexible schedules and often working asynchronously. This has become easier given advances in technology, although it initially challenged leaders in terms of building cohesive teams. The metaverse is everything it was promised to be, and companies use it to bring people together and build cohesion within their teams making virtual offices and organizational events as good or even better than they were before the pandemic. Small businesses and the ability to work on temporary contracts continue to grow and be a part of the economy.

Many tasks that were performed in 2022 by humans are now automated. It is common for machines to make low level decisions (including hiring), although there is still a human appeal authority for many of these decisions. The pace at which this happened surprised even some of the most optimistic technology leaders. This has led to an abundance of opportunity for education and training that supports reskilling and upskilling to prepare people to perform tasks that cannot be automated. Governments commit to support reskilling and upskilling to prevent mass unemployment, and corporations provide support as well but are unwilling to invest too much into their team members given the short tenure that is expected from the overwhelming majority of their employees. Thus, people often fund their own training and education.

Even though metaverse is exceptional, people still enjoy the experience of physically living in new places. The predominance of remote, flexible, and asynchronous work, and the desire to travel after years of pandemic restrictions, has led many to travel across their countries and abroad, spending a year or two in each place to explore and experience a different way of living. People that do this are represented across all age groups. Four-day work weeks, which are the norm, provide an additional day to travel, making this lifestyle even more enticing. People combine school in the metaverse, local schools, homeschool co-ops, and local travel to educate their children.

The increased reliance on technology has made cyber security more important than ever. Governments, corporations, and people are willing to pay significant amounts to protect against these attacks. Even brief outages cause everything to stop. Although these happen infrequently, they do create a level of fear and make cyber security even more important.

Personalized Scenarios. A scenario such as Tech-Enabled Nomads can be used to imagine what this would mean for a particular person. This is often helpful for enabling people to move from the abstractness of a scenario such as Tech-Enabled Nomads to a specific person who, in the case of this chapter's topic, may seek educational offerings at an IHE. Such a scenario might look like this:

Libby is currently working for a company that develops metaverse offices for corporations. She has worked in this field for three years. Previously she worked in social media marketing, which she still does on the side for a few clients. Automation has made switching fields easier as many technical tasks are automated allowing humans to exercise their critical thinking and creative abilities. Libby is married with two children, ages 11 and 13. She and her family have moved every one to two years since 2022. They have lived in multiple locations across the United States as well as Asia and Africa. The moves are not for work but to experience new cultures. Her children receive schooling from a mix of approaches

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that include local schooling, home schooling, and school in the metaverse. Libby works remotely and often asynchronously four days a week. She spends her fifth day of the week either traveling with her family or learning. The weekday when she is not required to work gave her the opportunity to learn about the metaverse through an array of synchronous and asynchronous, online and residential, learning opportunities. She anticipates leaving the metaverse field in two years and plans to begin a new round of education and training fairly soon. She is even open to part-time enrollment in a residential educational program while she continues to work, especially if the college or university was located in a place she and her family have not yet lived. Given that so much has been automated, she is seeking educational opportunities that focus on strengthening her uniquely human skills like critical thinking, creativity, and leadership. She is also interested in a course that provides exploration of other possible careers as she anticipates changing careers many times over the course of her life. She saves a bit of her salary each month for training and education, which supplements tuition assistance provided by her company.

Applying the Foresight Technical Competencies: Visioning

Through *visioning*, an IHE would examine its current strategies and offerings in each possible futures, as described in the scenarios produced during *futureing*, to determine how well they would serve potential students along with the threats and opportunities the IHE would face. Returning to the 2x2 Matrix from Figure 2, groups involved in visioning would explore the education needs that would exist in the Low-Tech Travelers, Tech-Enabled Nomads, Return to Normalcy, and Working with Robots scenarios. An IHE would determine how well its current approaches aligned with possible education and training needs in each scenario. What is discovered may provide reasons for an IHE to change course or to pilot an offering that would be relevant should elements of a scenario become reality.

In the Libby scenario presented above, which is based on the Tech-Enabled Nomad sample scenario in the 2x2 Matrix, an IHE might consider how it could attract and support people who would be interested in moving to its area for a year or two to take courses part-time in a residential environment while still working full-time remotely. Also, the fact that Libby has accepted that she will change careers often might provide an opportunity for a curricular offering that helped people explore ideas on new careers paths as well as how to establish an education and training pathway to make the change. Discussions and insights from *visioning* serve as the foundation for crafting strategic plans.

DEVELOPING FUTURES CAPABILITY

Employing strategic foresight at an IHE may seem overwhelming, yet it is possible. As with any instance of institutional change in IHE, any approach chosen must reflect an IHE's unique history, culture, structure, mission, and needs. In this section I will describe how two IHEs have developed futures capability.

Developing Futures Capability: Portland State University

The first example is the standing up of the Futures Collaboratory at Portland State University (PSU). This project began during the 2019-2020 academic year and was led by Dr. Laura Nissen, a PSU faculty member with foresight training who was named PSU's first Presidential Futures Fellow (PSU, 2021). In this role she founded the Futures Collaboratory in 2019 and led the process of selecting 22 Futures

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Collaboratory fellows from across PSU. The following three goals were articulated for the Futures Collaboratory:

1. Explore and cultivate interest and capacity among selected individuals across campus by participating in workshop sessions comprised of traditional learning opportunities along with futures oriented play and experimentation, interacting with futurists around the world, and engaging in individual projects on a futures topic related to current university challenges;
2. Develop institution-wide foresightfulness defined as increasing our shared ability to apply and benefit from futures thinking and foresight tools and resources to more effectively address our challenges;
3. End the year by making thoughtful, creative, and well-reasoned recommendations to our president about how our university could become more future facing (Nissen et al, 2020, p. 338).

The first goal seeks to build expertise across the campus community through workshops and other types of learning opportunities. It also connects the campus to the broader futurist community, enabling faculty and staff to employ what they learn from this community to individual projects that address a specific challenge. The second goal addresses Slaughter's (1997) idea of using insights from futures work in an "organisationally useful way" by developing "institution-wide foresightfulness," a foresight mindset to address the challenges and opportunities faced by PSU (p.1). This goal moves the focus from individuals to the institutional level and seeks to make "foresightfulness" a characteristic of PSU. This goal is also accomplished by employing one-year fellows who participate in the Collaboratory's training sessions and work on foresight projects with the expectation that they will take their skills and mindsets back to their organizations. The third goal requires members of the Futures Collaboratory to develop concrete recommendations regarding how PSU can become more "future facing" and present the recommendations to the PSU president. This ensures that the work of the Futures Collaboratory leads to action at the institutional level and influences PSU's vision and mission.

Futures Collaboratory members recognized that developing institution-wide foresightfulness needed to be an intentional, long-term effort that would need to become part of PSU's institutional culture. Some of the progress noted in its first year include recognition from institutional leaders of the possibility of foresight as a "collective" activity; additionally, it was noted that, "Among campus leadership, a more intentional futures discourse emerged" (Nissen et al, 2020, p. 339). The Futures Collaboratory also conducted *scanning* to identify trends and signals, and "Foresight processes and projects started to become embodied in small ways in a variety of campus contexts" (Nissen et al, 2020, p. 339). Futures Collaboratory fellows assumed leadership roles around campus as "Futures thinking started to become more widely discussed as a key component," and recommendations informed by foresight were presented to the president, (Nissen et al, 2020, p. 339).

These recommendations spanned a range of topics. One recommendation was to "Center the idea of future readiness as a key component of our authentic university identity and purpose and build the necessary community and structures to make that an explicit reality" (Nissen et al, 2020, p. 347). Another was to, "Revise our institutional structures toward the future of work and the future of learning at work," which was based on what was learned from the Collaboratory's *scanning* efforts. Also included was the need to focus on equity and to, "Reimagine what teaching, learning, and advising might be and to do so with courage" (Nissen et al, 2020, p. 347). Sustaining this effort will be important to accomplishing its goals and implementing the recommendations, but PSU is off to a good start on doing so.

Developing Futures Capability: MiraCosta College

Another approach to building foresight capability was recently undertaken by MiraCosta College. To incorporate lessons learned from the pandemic and ensure the institution is thinking systematically about the future, 77 people from MiraCosta College have completed some type of foresight training and the plan is to offer it to 250 additional people during the spring of 2022. Participants in the training include administrators, faculty, staff, and students (Weissman, 2021). Like CSULB, MiraCosta College partners with the Institute for the Future.

Foresight training began at MiraCosta in 2020. Participants learned how to scan for signals, identify trends, and develop scenarios (Whissemore, 2021). During the spring of 2022, participants will use what they have learned over the past two years to develop and update “several of the college’s plans, such as the educational, equity, facilities and technology masterplans” (Whissemore, 2021, para. 26). Dr. Sunita Cooke, president of MiraCosta College, explained why this initiative was undertaken: “If we don’t look further into the future, we’re constantly going to be in crisis mode. We’re always going to be one step behind responding to the crisis rather than being prepared for various scenarios in the future” (Weissman, 2021, p. 4).

MiraCosta’s effort has created the foundation for a successful planning effort because it has trained significant numbers of people across campus. Too often, strategic planning efforts begin with no training and without providing a methodology to think about the future, but this effort avoids these problems. More importantly, it has helped the MiraCosta community recognize the importance of thinking about the future and given community members the tools to do so. This has prepared them to bring a futures-oriented mindset to the planning effort.

The Portland State University and MiraCosta College examples are two of many ways to develop futures capability across an IHE. Whether creating deep expertise by employing a fellow’s model as PSU did or conducting more widespread training represented by MiraCosta College’s effort, building futures capability across an IHE takes training, prioritization, and time.

CONCLUSION

The next ten to fifteen years will be challenging for higher education. Work may change a great deal, new providers of educational opportunities may be strong competitors for students, and undergraduate and graduate students may no longer be the primary students that IHEs serve. Many students may decide to forgo pursuing undergraduate degrees seeking shorter-term education opportunities or relying on employer-provided education and training.

This chapter described strategic foresight and highlighted examples of how IHEs are using it to empower their institutions and their students. It also introduced the APF’s Foresight Technical Competencies and the three horizon method and demonstrated how these tools can be used by IHEs to better position themselves to develop new models of learning to meet learner and societal needs. While it will not give IHEs the ability to predict the future, strategic foresight can help IHEs think more systematically about possible futures. This will prepare IHEs to make decisions in the present that enable their institutions and their students to thrive in an uncertain future.

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Chapter 3

Policy Challenges and Opportunities for Postsecondary Alternative Credentials

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ABSTRACT

There are certain policy barriers that are preventing alternative credentials from fully maturing in the national discourse in the way that academic degrees have. This chapter will review three primary areas of policy concern: quality assurance and accountability, financial policy, and standards of documentation and interoperability. This chapter calls for the establishment of universal quality and accountability policy and mechanisms, opening more financing opportunities so that workers may have increased access to lifelong skills development, developing a unified way to document learning experiences across institutions, and forging a common currency that allows for interoperability of learners' credentials. Policy improvements for alternative credentials will help serve to further legitimize them in the public eye, improve their educational outcomes, and perhaps most importantly, enable a more coherent vision for alternative credentials as a central pillar of a national educational attainment strategy.

National educational strategies focused on postsecondary *degree* attainment alone—though laudable—are insufficient to meet the demands of the modern economy. Employers, policymakers, and higher education leaders are beginning to converge on the realization that a more coordinated, comprehensive lifelong educational experience focused on *both* degree attainment *and* skills gained outside academic degrees is also a crucial component of a robust and evolving economy. Non-degree forms of postsecondary educational credentials are a key tool in the continual upskilling and reskilling of workers that the modern economy requires; however, compared to academic degrees, the policy ecosystem as it relates to non-degree education and training is notably laggard.

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Though there are a range of possible descriptors for this non-degree academic marketplace, the term these skills-based training programs most commonly take, and the term this chapter will use, is ‘alternative credentials’ (Fong, 2016). The last decade has seen an explosion of postsecondary educational programming beyond the bounds of the traditional academic degree (Fong 2016; Maxwell & Gallagher, 2020). These programs are in response to the mounting demands of the marketplace for lifelong skills training and are offered by traditional institutions of higher education (IHE) as well as private industry. Credential Engine’s (2021) analysis found that there are nearly one million unique educational credentials (both for credit and non-credit) in the United States, over half of which (549,712) are provided by non-academic entities. The scope of this marketplace impacts tens of millions of learners annually. Credential Engine’s (2021) analysis was just within the United States: when one considers the possible range of credentials globally, it quickly becomes overwhelming to consider the scale of the education credential industry that exists beyond academic degrees. Fain (2020) notes that non-degree programming is projected by Moody’s to be the fastest growing higher education industry market segment. Furthermore, Fain (2020) also highlights a survey from the Strada Education Network which found that 62% of Americans considering enrolling in a postsecondary program in the next six months would choose a non-degree option.

This chapter, though, is not meant to simply describe the alternative credential marketplace and how those offerings are providing meaningful opportunities for learners to upskill and reskill. Other authors have done this well (e.g., Fong, 2016), and this chapter posits that readers are already aware of the changing economy and need for lifelong skills training—it seems every week even casual readers of the news are met with a new barrage of headlines about skills gaps, new credentials, lifelong learning, workforce changes, and calls for educational reform. For years, thought leaders in higher education have called for IHE’s to evaluate and reconsider their own role in the future of postsecondary education and meeting the lifelong learning needs of our citizenry (see Weise, 2020 as but one recent example).

What this chapter will focus on, instead, is how certain policy barriers are preventing alternative credentials from fully maturing in the national discourse in the way that academic degrees have. The current alternative credential marketplace is, at best, chaotic. There are varying levels of quality, no coherent policy framework or objectives, and essentially no seamless interoperability (i.e., mixing and matching) of products. To move the alternative credential marketplace forward, government actors, IHEs, non-academic postsecondary education providers, and employers need to establish quality and accountability standards, financing strategies, and a common documentation and interoperability framework for alternative credentials. Federal and state policy can provide the framework for these actors to work together to establish quality, interoperability, and fair trade standards. Policy improvements for alternative credentials will also help further legitimize them in the public eye, and perhaps most importantly, enable a more coherent vision for alternative credentials as a central pillar of the United States’ national educational attainment strategy.

BACKGROUND

Definitions

Before delving too far into a discussion on how to better organize alternative credentials as a policy strategy, I want to first establish a few grounding definitions. The nature of innovative and emergent work means that consensus has not yet been achieved on the guiding principles of alternative credentials. Even

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the definition of the term ‘alternative credentials,’ itself, is in flux. Maxwell & Gallagher (2020), offer a simple definition of alternative credentials as “credentials that are different from traditional academic degrees” (p. 104). Others, such as Jim Fong (2016) and his associates at the University Professional & Continuing Education Association (UPCEA) argue that alternative credentials are “competencies, skills, and learning outcomes derived from assessment-based, non-degree activities and align to specific, timely needs in the workforce” (p. 1). One can find dozens more definitions of alternative credits available, but most have a few key elements in common, most notably that alternative credentials are:

- 1) Not academic degrees,
- 2) Postsecondary in academic/intellectual rigor (though there is an emergent range alternative credentials at the secondary level, those are out of scope of this chapter),
- 3) Focused on specific skills (as opposed to generalizable knowledge, i.e., the liberal arts),
- 4) Awarded by IHEs, government agencies, and private companies (both for and non-profit), or via partnership combinations of the three,
- 5) Shorter, more nimble than traditional academic programs (taking learners anywhere from a few hours to less than a year to complete), and
- 6) Typically, although not necessarily always, use outcomes-based assessment pedagogy

A critical challenge of having no unified definition is that there is confusion from IHE’s, employers, policymakers, and students as to what these products are, and for whom are they are for. Writing about microcredentials (which is a sub-category of the broader alternative credentialing movement), Elisabeth Rees-Johnstone (2021) notes that:

Employers’ lack of familiarity might be explained by our sector’s continuing lack of clarity as to what constitutes a microcredential. . . So long as the definition continues to be debated, presenting microcredentials to employers as a viable credential will continue to be problematic, which is ultimately a disservice to learners.

Much of the confusion on the marketplace is not only due to varying definitions, but also to the diverse range of programs that are considered alternative credentials and the terminology for those programs being incorrectly used interchangeably (e.g. a badge is a form of microcredential, but not all microcredentials are badges).

Alternative credentials, as a term, is really an umbrella description for a host of different types of educational products and services (Fong, 2016; Fain, 2018). This includes Massively Open Online Courses (MOOCs; such as Coursera and Edx); boot camps; academic certificates (both for credit and non-credit); professional certifications (e.g. PMP, SHRM); industry certifications (e.g. AWS certification, CompTIA A+); microcredentials; badges; industry-developed academies (e.g. Grow with Google); apprenticeships; government-led training programs associated with licensure; and in-house corporate training, just to name a few. It also even includes skills-based, alternative pathways to acquire a traditional academic degree, such as competency-based education (see Clawson & Girardi, 2021). Not all the programs or educational services on this list are new, in fact many have roots that can be traced back decades or even centuries (Kurzweil, 2018).

Though most alternative credentials are awarded outside the academy, and are non-credit in nature, academic departments at colleges and universities are still a major player in the development of shorter

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form, credit-bearing alternative credentials. These are typically in the form of for-credit certificates. Certificates may be designed as a series of stackable, modularized programs that lead toward a full degree; or they may exist entirely independently as a standalone educational unit. It is easier to measure demand for for-credit academic certificates than it is to measure demand for other non-credit alternative credentials because IPEDS, and other national datasets, track for-credit certificates. That demand for for-credit academic certificates has increased measurably over time. Carnevale et al., (2012), writing for the Georgetown Center on Education and the Workforce, noted that “In 1984, less than 2 percent of adults 18 and older had a certificate as their highest educational attainment; by 2009 that percentage had grown to almost 12 percent” (p. 4).

The Emergence of Alternative Credentials

The shifting demand, even within academic institutions, toward shorter form credentials stems in large part from the growing dissatisfaction with the academic degree as a source of effective, lifelong skills training. David Schejbal (2016) opined that:

At best, [the degree] is a very blunt instrument that signifies in very general terms disciplinary knowledge and skill. At worst, it is a document noting only that the holder spent time in college, but provides no information at all about what the holder actually knows and can do.

Though there is a substantial body of evidence on the positive effect of academic degrees (e.g. Mayhew et. al, 2016), they are nevertheless commonly critiqued as expensive, lengthy, and inefficient indicators of education and learning (e.g. Goldrick-Rab, 2017; Laitinen, 2012; Schejbal, 2016). There is also a reported disconnect between the skills college graduates possess and what employers expect. In one often-cited survey, 96% of provosts felt their graduates were ready for the workforce but only 11% of hiring managers felt the same (Grasgreen, 2014). Other surveys have found a mismatch between recent graduates’ self-reported level of competency and with employers’ perspectives of that graduate’s level of competency (Bauer-Wolf, 2018). Furthermore, employers’ preferences seem to be shifting away from the degree as the primary way to demarcate educational qualification. Fuller et al. (2022) in their analysis with the Burning Glass Institute note that significant structural changes in hiring practices are underway in the American economy, most notably that employers of middle-skill and high-skill positions are moving away from requiring degrees and instead using skills-based hiring practices. They call this “downcredentialling” or a “degree reset,” a reverse of the *degree inflation* that occurred through much of the first two decades of the twenty-first century (Fuller et al., 2022, p. 4).

Even if academic degrees had perfect alignment between learning outcomes and workforce needs, their very structure is still inefficient in the modern economy. A single degree can take years for an IHE to develop, and once developed, it tends to remain relatively static outside of five or ten-year institutional assessment cycles. In swiftly evolving fields, like cloud computing or biotechnology, that assessment cycle can prove too long to keep a degree current. In his literature review of alternative credentials, Albert (2019) states that scholarship supports the “filling the gap” hypothesis, such that the “proliferation of certification programs [is most seen] in fields in which demand for degrees outstrips (or historically exceeds) supply” (p. 10). Albert (2019) notes that this hypothesis is most prevalent in IT fields, where the rapid pace of change in the industry is at odds with the slow rate of curriculum and degree development by universities.

Even once built, degrees are discrete, singular experiences that are not designed for continuous learning. The idea that one finishes a bachelor's degree at 22 and is 'set' for the rest of their career is untenable in the modern knowledge economy. For adult learners who did not finish a degree as a young adult, taking four years out of the workforce to earn a credential is not a realistic expectation given their other commitments. Even the very structure of courses is out of date: the idea that all content areas can and must be taught in 15 week increments, and that a student needs to acquire 40, three-credit classes to graduate, is a version of teaching and learning stuck in the industrial revolution (Laitinen, 2012).

On the other hand, alternative credentials promise the opposite: affordable, short, and highly efficient programs that deliver education and training 'just-in-time,' and can be returned to again and again throughout a person's life. They are nimble and can be developed quickly in response to immediate (and local) workforce needs (Fong et al., 2016). By focusing on discrete and easily articulated skills, they can improve the transparency in the connection between workforce skill demands and what education provides. But, much like how academic degrees have areas of opportunity, alternative credentials too are not necessarily a perfect solution, nor can they be all things to all learners.

A Critique of Alternative Credentials

Despite my aforementioned critique of the academic degree, I do not advocate that alternative credentials should be viewed strictly as an "alternative to" (i.e., in lieu of) an academic degree. Though reforms to the academic degree are overdue, that does not inherently mean that it is an experience or delivery mechanism that must be jettisoned. As a holder of multiple degrees, I would not trade in those experiences. An ideal policy ecosystem should position alternative credentialing as complementary of, or supplemental to, academic degrees.

Where academic degrees have a significant leg up on the emergent marketplace of alternative credentials is a clear and empirically proven connection between completion and employment outcomes. Generally speaking, holders of degrees at any academic level enjoy improved outcomes in securing and keeping employment, higher pay, better health measures, increased life satisfaction, and increased civic participation (Mayhew et al, 2016). This same axiom cannot be said for alternative credentials, and therein lies the greatest challenge facing their widespread adoption. Higher education scholars, leaders, and policymakers cannot definitively prove that all alternative credentials lead to improved economic outcomes for their earners (Ositelu et al., 2021). This is chiefly because of the lack of availability of outcomes data (which I will discuss in detail in the next section), but it is also because the limited outcomes data that does exist shows mixed results that varies widely by type of credential and occupation cluster (Albert, 2019; Ositelu et al., 2021). Kevin Carey writes in the forward of a major study by New America that:

Much of the value of a four-year degree in the labor market comes from a combination of durable institutional brand names and professional-class acculturation. Short-term training programs offer no such value. They are worthwhile if and only if they immediately lead to job opportunities that pay enough to justify the cost of training. And one thing that's clear from the research is that many existing programs don't meet that benchmark, or even come close. (Ositelu et al., 2021).

In their longitudinal analysis in the state of Washington, Dadgar & Weiss (2012) found that "unlike associate degrees and long-term certificates, short-term certificate have little or no effect on wages in most fields of study when compared with earning some credits and leaving college without a credential"

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(p. 2). The wide variation in the field of non-degree learning makes universal declarations difficult, since data do show that although many alternative credentials have a positive labor benefit, many more still lack clear labor market value and may even be an economic detriment to earners (Bailey & Belfield, 2017; Ositelu, 2021; Tesfai, 2018). Variation by provider, occupation cluster, and credential type is a significant challenge that policymakers should consider, recognizing that one-size-fits all policy for postsecondary alternative credentials will lack the nuance needed to ensure interventions are most effectively targeted.

In addition to a lack of clear outcomes data and labor market value, there are serious equity concerns in the alternative credential marketplace that IHEs and policymakers have an imperative to address. Alternative credentials have a gender gap, with men regularly earning more than women with the same credential (even when controlling for gender discrepancies in the occupation field), and women holders of sub-baccalaureate credentials are over-represented among sub-baccalaureate certificate holders who make poverty-level wages (Ositelu, 2021; Tesfai et al, 2018). Black and Latino/a students are more likely than their White counterparts to enroll in sub-baccalaureate alternative credentials, creating a phenomena described by Anthony Carnevale (2020) as “White flight to the bachelor’s degree,” which mirrors other observed instances of White flight in areas such as housing, occupation, and region of residency. Carnevale (2020) notes that the emergence of the alternative credential marketplace is serving to increase educational stratification, most notably that White students continue to use the degree as their vehicle for economic success, while people of color are increasingly using alternative credentials, with more limited (or even negative) results.

As these critiques briefly illustrate, alternative credentials are not a panacea for the United States’ education and workforce problems. The academic degree will and should remain a key feature in our national educational attainment strategies. But, as Bernard Bull (2015) writes in the *Chronicle of Higher Education*, “there are diverse pathways to success, and more ways to demonstrate competency than by earning a college degree.” Rather than shying away from alternative credentials because of the current challenges, a more robust policy ecosystem would help reposition alternative credentials as a viable and essential part of upskilling and reskilling talent in the modern economy.

In fact, I argue that it is precisely *because of* the lack of coordinated policy that the sector has not seen better outcomes actualize. Herein lies the crux of this chapter’s supposition: alternative credentials are an essential element of the education and training needs of the modern economy, but the lack of meaningful policy for alternative credentials means the industry has yet to mature to a point where learners can reliably point to alternative credentials as a source for economic advancement in the way they can for academic degrees. Carnevale et al. (2020) summarizes this well, writing that “policymakers and higher education leaders need to catch up with the demands of our modern economy and make it easier for all students to acquire education beyond high school” (p. 32). To do so, though, three significant policy barriers require attention: quality and accountability frameworks, financial tools and policy, and universal documentation and credential interoperability.

QUALITY AND ACCOUNTABILITY STANDARDS

Accreditation

Despite their increasing importance and prevalence in the postsecondary landscape, there is no universal quality and accountability policy (or mechanism) related to alternative credentials. This is not to sug-

gest that there are *no standards*: plenty of organizations, such as IACET, are working to create quality standards and voluntary accreditation processes for non-credit learning (IACET, n.d.). But the simple reality is that non-credit learning is not regulated in the same way, nor has it achieved a level of near-universal compliance, as the accountability infrastructure in place for academic credit bearing programs and degrees.

Robert Kelchen's (2018) book, *Higher Education Accountability*, provides a stellar overview of the accountability mechanisms in place for universities at local, state, and federal levels. Specifically related to the process of accreditation, he discusses how the U.S. Department of Education recognizes regional accreditors to operate on its behalf. Those accrediting agencies, through a rigorous peer review process, establish accreditation standards that degree granting institutions are held to. Federal financial aid is tied to an institution's accreditation status, as is the public perception of quality that comes along with accreditation. Regional accreditation also serves to provide some level of interchangeability of institutional degree programs. This means that a degree from two regionally accredited institutions equally certify a student's completion of a baccalaureate program. In addition to institution-level regional accreditation, many (if not most) academic disciplines have their own voluntary professional bodies or associations who provide specialized accreditation (e.g. AACSB for business, CCNE for nursing). These bodies provide additional layers of quality control and accountability for individual academic disciplines within an institution. And, within institutions themselves, formal governance processes serve as a check and balance against rogue players and help to ensure quality and accountability for individual degrees and courses (Kelchen, 2018).

This is not to suggest that the current quality and accountability framework for traditional academic degrees is without flaws. The extensive, byzantine network of accountability and quality control mechanisms does not ergo mean that all academic programs which have passed those tests are of high quality. Nor is the current system inexpensive: institutions, depending on their size, typically need entire offices staffed with people whose sole job is reporting institutional data to external accreditors or regulators (Kelchen, 2018). The American Council of Education itself notes that "the current regional basis of accreditation is probably not the way America would structure the system if starting from scratch" (Kelchen, 2018, p. 98). The point here though is not to provide an extensive critique of accreditation as the accountability mechanism of traditional academic degrees, but instead to illustrate that, though flawed, such accountability mechanisms at least *exist*.

The world of alternative credentials, on the other hand, lacks a common framework for quality assurance and accountability. As previously mentioned, there are over 500,000 educational credentials provided in the U.S. alone by non-academic institutions, let alone the various certificates, badges, and microcredentials offered by IHE's themselves. The current postsecondary accountability policy ecosystem was not designed to support this kind of a market. Most U.S. Department of Education regulations do not even apply to non-academic organizations¹, nor were they designed to respond to a world where, for example, hundreds of thousands of Americans are enrolled in educational IT programs through *Grow with Google*, many doing so in lieu of enrolling in a traditional college or university. Furthermore, non-credit programming, even at IHE's, has historically been ignored by institutional governance processes and is typically unexamined in institutional accreditation peer reviews. Non-credit programming at non-academic companies is even less transparent (Adelman, 2017; Fong et al, 2016). Private companies (operating programs such as boot camps, MOOCs, badges, and academies) have little incentive to submit to peer review (after all, their peers are other private competitors in their marketplace). Since private companies who offer alternative credentials tend to guard their data as a legally protected trade secret

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(especially those that are not publicly traded), there are few empirical, peer-reviewed studies in reputable educational journals on outcomes of students who complete their programs.

Given the increasing importance and prevalence of the alternative credential marketplace, the nation can no longer afford to continue to *not* regulate the sector. The education of America's workforce is an indispensable task, one which is increasingly occurring outside the realm of public oversight. There is a disconnect in the American educational policy ecosystem whereby the education one receives in the first seventeen years (K-16) of one's life is highly regulated and accountable to the public interests, but the programs designed to upskill and reskill workers for the subsequent forty years of their career is an unregulated wild west. The solution here however does not mean a wholesale copying of the existing accreditation schemas found in traditional postsecondary education, since that system is not without its own costs and flaws. The U.S. Department of Education should appoint a Blue Ribbon Commission to investigate this issue in depth, and propose a federally-backed accreditation and regulatory schema for alternative credentials. If alternative credentials are going to continue to rise in the United States as an essential part of the educational ecosystem, the public has a vested interest (much like they do in K-12 and traditional IHEs) in ensuring these kinds of programs are of quality design, have appropriately calibrated outcomes, and are accountable for their actions. The field is currently in a high-innovation phase, and the government was right to allow that innovation to cultivate unburdened initially. However, the alternative credential marketplace has matured to a point where the need for a more formal (and mandatory) set of quality assurance and accountability mechanisms are in place. The degree to which voluntary accreditation organizations—as an alternative to a government-derived accreditation policy—can meet that need remains to be seen.

Outcomes Reporting

For these non-credit alternative credentials, there is no common state-level reporting mechanism. Writing for the National Skills Coalition, Jenna Leventoff (2018) found in her survey of all fifty states that “that no state has comprehensive data about all types of non-degree credentials,” and that “even when states do have data about non-degree credentials, many do not incorporate that data into their SLDS (State Longitudinal Data Systems)” (p. 2-3). That means information about non-credit learning, even when collected, is unconnected to states' primary data systems on K-12, postsecondary degrees, and workforce development data and needs.

Federal reporting is even less of an option. Since federal financial aid is not a factor in the financing of alternative credentials, there is little incentive (or venue) to report outcomes to federal regulators in the way that IHEs must for degrees. The U.S. Department of Education (2015) notes,

Since the purview of those [Dept. of Education recognized] accrediting agencies typically does not extend to non-traditional providers, these new providers lack the broadly recognized mechanisms for ensuring quality that are required for the Department to make Title IV aid available. The lack of those structures may also reduce opportunities for external review and sharing of best practices in general that traditional accreditation can offer.

Neither the Integrated Postsecondary Data System (IPEDS) nor the National Student Clearinghouse (NSC) have comprehensive reporting avenues for non-credit learning, and they have comparatively weak (though improving) for-credit certificate reporting processes. This means that it is not just alternative

credentials provided by private companies that lack reporting and accountability: even alternative credentials (including for-credit certificates) that are offered by universities often lack data transparency. Gainful Employment regulations attempted to improve reporting outcomes on for-credit certificates, but the repeal of those rules in 2019 has left the industry in limbo (Kreighbaum, 2019). For instance, there are scores of coding boot camps offerings on the marketplace (including ones offered by IHE's themselves), each of which costs as much if not more than a typical associate degree. Few to none of these programs have publicly available accountability metrics posted either through mandatory governmental avenues or voluntary associations. Some may post outcomes as part of their disclosures documentation if the company is publicly traded, but such a process lacks the consistency and benchmarking afforded to programs whose data is reported in a common dataset, like IPEDS or NSC.

The policy answer for this problem may be easier to solve than the preceding point about building a comprehensive accreditation apparatus for non-credit learning. The best case scenario would be to expand and re-tool the existing postsecondary outcomes reporting programs, most notably IPEDS and the NSC, to include alternative credentials. A statement perhaps much easier said than done, but not impossible to achieve. Clifford Adelman (2017) writes that the best solution here is to use the NSC to include data reporting on alternative credentials, and though they cannot compel participation in the way that federal regulators can, the NSC can bring together a coalition of major players (like the American Council of Education) that makes it reputationally advantageous for alternative credential providers to submit their data. Alternative credential providers can then link their data to other labor market indicators in already established datasets, as well as “glean a mantle of credibility and recognition,” by participating, noting that the “NSC is the best route out of the shadows” (Adelman, 2017). Another benefit of using the existing outcomes reporting database is that comparisons could be made between academic credit bearing and non-credit programs. A tool like NSC or IPEDS is already familiar to education leaders and policymakers, and data from these large datasets can feed into other systems to help close gaps between educational programming and workforce needs. Such a project would not occur overnight but may be a more tenable proposition than building an entirely new national dataset to track outcomes of the hundreds of thousands of alternative credentials.

Other writers have underscored the fact that without solving this policy problem of increased transparency of outcomes reporting, the other policy problems facing the industry are moot (e.g. Adelman, 2017; Ositelu et al, 2021). Without a formal, publicly available accountability framework, alternative credentials have highly variable student-level outcomes and programmatic quality, and it will continue to be difficult to convince governments, employers, and IHEs to invest in this marketplace without assurances that the credentials lead to outcomes of value. Until then, the answer to the foundational question “*do alternative credentials work?*” will remain empirically elusive.

FINANCING LIFELONG LEARNING

In a similar vein to the issue of accountability and quality assurance, financing postsecondary lifelong learning is an area where academic degrees have a substantial leg up relative to alternative credentials. Though there are several options and opportunities, there lacks a coherent or strategic national financing framework that targets skills training and alternative credentials. Most apparent is the ability to use federal financial aid funds to pay for degrees, but not alternative credentials. The impact of the \$150 billion dollars in federal financial aid each year has on the postsecondary industry cannot be overstated: access

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to those funds is an essential lifeline for both students and institutions of higher education (Kelchen, 2018). Availability of public dollars (in the form of grants and loans) represents a federal commitment to providing pathways for learners of any age to access an academic degree. As a result of this substantial funding allocation, educational attainment goals based on degrees is a more achievable policy objective. Much like how the preceding section on accountability noted the flawed nature of accreditation, though, it is important to also point out that the financial aid system in its current state does not exist as a perfect solution to higher education financing. But, despite any gaps or flaws in the current system, the main point here is to illustrate that the financial aid system to support academic degrees at least *exists* and is a massive economic engine. The inverse is true for alternative credentials.

Creating educational attainment goals that mirror the needs of the modern economy is a complex and challenging financing situation that requires substantial policy and financial reform. Rovy Branon (2018) calls for a similar re-thinking of traditional financing paradigms as he writes,

College debt is now more than \$1.5 trillion in the United States alone. Saying to these same indebted students, “This is just the beginning of your learning!” does not generate excitement. . . To make a lifetime of learning affordable and energizing first requires setting aside the three-stage model of life [learn, work, retire]. The balance of financial expectations will require a very different support system of parents, learner, government and business.

This section will review several potential avenues for financial assistance for alternative credentialing. Though each of these independently may have an impact, the most effective policy reform would consider the ways a coordinated strategy across these different funding pools may serve to increase access to lifelong education and skills training.

Federal Financial Aid

Title IV federal financial aid (an umbrella term describing a mix of federal grants as well as federally-backed subsidized and unsubsidized loans) is the primary government financing mechanism for postsecondary education in the United States. Title IV funding applies to academic programs that are offered at accredited institutions of higher education. The Pell Grant, one of the main programs within Title IV, can only be used on for-credit programs with at least 600 hours over 15 weeks, effectively eliminating the potential of using those funds on any shorter, more nimble education (Brownlee, 2022; Ahlman, 2019). Availability for credentials beyond academic degrees is an area the federal government has explored in the last several decades, albeit with limited changes. For instance, the U.S. Department of Education ran an experimental site allowing for federal financial aid to apply to non-degree career, technical, or vocational programs (such as boot camps) that partner with IHE’s, which ended in 2017 (Fain, 2015; Department of Education, 2015). Experimental sites are ways for the Department to allow, in carefully monitored environments, the bending of existing rules to see the impact of a particular policy innovation. In this experimental site, they noted that,

Although some of these educational opportunities [e.g. boot camps] show promise in advancing these priorities [improving skills attainment], they remain out of reach for many students, particularly those from low-income backgrounds, in part because they generally do not provide students with title IV aid. The unavailability of title IV aid could increase the potential for educational inequity, because only those

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students with significant financial resources are able to enroll in these innovative programs, and it may constrain the growth of promising new approaches to learning. (U.S. Department of Education, 2015)

There has been no substantive policy change to Title IV funding of programs like boot camps since that experimental site ran, although despite that, the topic of expanding Title IV eligibility is a current topic for policymakers in Congress. Pell Grant expansion legislation, for instance, has been a topic of robust debate in the current legislative session, such as the recent COMPETES Act of 2022 (Educational Advisors, 2022). As of this chapter's writing, no formal legislative change has occurred in Title IV expansion.

Though offering Title IV funding for alternative credentials would be a boon to postsecondary non-credit education and training, it is not a proposal without significant policy consequences. Critics argue that opening up federal financial aid to alternative or short-form credentials would vastly expand the opportunities for fraud and funding misuse by both students and IHEs (Ahlman, 2019; Baum et al., 2021). What's more, the data are largely inconclusive or inconsistent about the labor market value of all alternative credentials, and that high variation means opening up alternative credentials to funding carries significant risk for policymakers, taxpayers, and students (Ositelu et al., 2021). The analysis by Tesfai et al. (2018) echoes this concern, noting that:

Data show that holders of many sub-baccalaureate certificates make poverty-level wages, and women are over-represented among the low-earners. As policymakers consider whether to extend eligibility for federal student financial aid (grants and loans) to short-term certificate programs, they should consider whether they can adequately protect students from providers of certificates that have little or no labor market value.

Baum et al. (2021) write that “opening the door to funding of a wide range of short-term programs risks funding many programs that do not significantly contribute to students’ prospects for stable and remunerative careers, or even increases in earnings above current levels” (p. 2). They go on to note that it would be easier and better to expand workforce development funding for alternative credentials than it would be to expand Title IV funding for alternative credentials. Workforce development funding is historically only typically applied in situations due to the loss of a job or income; this idea considers the ways that expansion could make it a more proactive financing strategy in the upskilling & reskilling of the workforce (rather than solely reactive).

It is also worth noting that expanding federal funding to education—in any form—is a politically contentious topic, as competing visions for the future of education and work largely lead to policy stasis as opposed to meaningful, large-scale substantive reform.

Even beyond the policy or political challenges in expanding Title IV funding to alternative credentials is the relationship IHE's themselves have with the use of debt-based financing strategies for their educational services. Postsecondary leaders should seriously consider the ways that institutions of higher education themselves have complicity in the student debt crisis in this country. The annual increases in college prices—above annual inflation guideposts—is a well-documented phenomenon in the United States (see Ma & Pender, 2021). While the ‘true cause’ of these increases is disputed, the reality is likely that no single factor alone is responsible and that myriad complex factors are at play, which includes actions taken by IHE's that raise institutional expenses and tuition for uses and programs that are not directly tied to improving the educational outcomes of their students. If Title IV funds became available to support alternative credentials, leaders should stand by the values of affordability and market

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responsiveness that alternative credentials currently espouse, and not simply raise prices on the products artificially as a way to obtain indirect government subsidies through the indebtedness of their learners. College leaders will need to guard against a ‘just because we can, we should’ mentality when considering price increases if students are using student aid, as they have some responsibility to play in the long-term impact student debt has on a student, their family, and the economy at large.

Employer Reimbursement

Other financial tools and options must be relied on to finance lifelong learning in the absence of federal financial aid. Perhaps the most common is the use of employer reimbursement. Since alternative credentials are often shorter, more focused training on specific skills, employers may use them to encourage professional development among their staff. This can come in the form of an employer-purchased subscription (e.g. the company buys a LinkedIn Learning subscription that allows employees to gain any number of skills and badges), or in the form of direct reimbursement of a specific worker for their educational expenses. Having employers bear the cost of additional employee training, education, and development is a logical and sound fiscal approach (those that are demanding their workforce upskills should have some role in paying for said upskilling), but may not be a particularly effective strategy for raising the level of national educational attainment.

First, employers are more likely to invest in opportunities that increase the performance of an employee in their *current* role. Companies may be unwilling to invest in significantly reskilling employees who will then in turn depart the company for a different position. This phenomenon means that employer reimbursement alone may not a viable approach at scale for closing the skills gap, upskilling workers, or an individual’s career growth. Second, employer reimbursement is going to be a disproportionate benefit to middle and high wage jobs, and to those who work for typically larger firms. Many of those working in low wage jobs, in rural areas, for smaller companies, or who own their own business likely lack access to employer-paid skills development. Third, federal income tax limits on tuition reimbursement (set at \$5,250 as of this writing in 2022) mean few employers will pay for educational expenses past that cap as it then becomes an income tax liability. While many alternative credentials tend to be lower cost and could fit within that cap, it still serves as a limiting factor, particularly for boot camps or shorter form-for-credit stackable academic certificates. Finally, every company sets its own policies as to what that educational benefit can be used for. Some may only apply this benefit to credit-bearing programs that progress a student toward a degree, rather than allowing any form of career or skills training to qualify. Therefore, the company may only focus on educational programs that are a direct perceived benefit to the company, rather than that of the employee. Employer-paid or subsidized education is a critical tool in the tool kit, but alone insufficient to meet national skill attainment objectives.

Other Governmental Financing Programs

Though the government does not provide direct federal financial aid for alternative credentials, it does still deploy a few financial incentives that are of assistance. State and federal workforce development funding is commonly available for career training, which is a broad field that overlaps substantially with skills-based alternative credentialing. It is not uncommon to see non-credit or alternative credential programs approved as providers of skills education for workforce development departments. This is an

essential tool that can help those who are out of work build the in-demand skills specific to a state's (or even county's) economy.

At the federal level, the Internal Revenue Service (IRS) allows a deduction of up to \$2,000 annually for its Lifetime Learning Tax Credit.² Non-degree or non-credit programs/courses are allowable for this tax credit; however, it must still come from a Title IV eligible institution (thus negating any educational credentials earned from private providers), *and* a student must present a 1098-T. It is not universal to expect that IHE's provide 1098-T's for non-credit coursework even if it is skills related. As a result, though the tax credit is a useful option for some, it is not a holistic financing strategy for skills training via alternative credentials. The last federal program worth noting is the Servicemen's Readjustment Act of 1944, or the G.I. Bill, as well as any state specific military tuition assistance program. In most situations, these funds can only be applied toward credit-bearing degree programs. However, there are some situations (and some states) that allow those funds to apply to vocational skills-based training programs not offered by college or university (Veteran's Affairs, 2022). But, on the whole, these funds are fairly traditionally applied to educational programs in a similar way to those eligible for Title IV funding and may not necessarily be able to holistically support, say, a microcredential or non-credit boot camp.

Financial Policy Opportunities

From a policy perspective, to better support education and skills attainment for the nation's workforce, there needs to be a more coherent financing strategy to accompany it. Other financial tools that are mainstays in the financing of academic degrees (e.g., scholarships, AmeriCorps, 529 plans) are either unusable, uncommon, or uncoordinated when it comes to supporting any form of alternative credential at scale. If there is a recognized imperative that workers need to continuously upskill and reskill for our economy to remain competitive (see de Locarnini et al., 2021), then the field needs an investigation into the ways that local, state, and federal actors, alongside employers and IHEs, can develop a financing framework for lifelong learning and alternative credentialing. This has equity implications, too, as it is often those in most need of additional education and training who can least afford it.

An expansion of existing programs is certainly a starting place in this front, as the infrastructure and necessary policy apparatuses are already in place. This could include a creative rethinking of existing federal financial aid rules, the widening of state workforce development funds in proactive rather than reactive applications, expanding the tax credit, or allowing greater flexibility in tuition reimbursement, to name a few. Any one of these by itself would have an impact, but taken as a more holistic package, it presents adult learners, employers, and communities with options. Just as this book is advocating the position that educational programs should be better designed such that students can mix-and-match them, policymakers should consider the ways that changes in multiple fiscal policies can allow learners to mix-and-match the funding strategies they need to upskill and reskill.

Though changing or expanding existing funding programs is a potential starting point, it should not preclude employers, IHE's, and policymakers from considering *new* ways outside our current systems to pay for alternative credentials. One such idea is the creation of a federal program to allow for tax-advantaged postsecondary educational savings accounts that provide funding and flexibility to an individual learner to purchase, and save for, whatever educational program is aligned with their goals. There are two current educational savings and investment programs, the Coverdell Education Savings Account and the 529 plan (see Ramsey, 2022, for a nice overview of the differences). These two plans can only be used for traditional higher education degree programs, not alternative credentials. A new solution

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may be more akin to the Health Savings Account (HSA): creating a flexible education savings account that both employee and employer can contribute to that one can use for any education-related expense, regardless of source. Like the HSA, it could accumulate interest, and comes with tax-advantages to incentivize participation. And, much like how an HSA does not have to be used exclusively at hospitals, the idea of an educational savings account in this design does not need to be used exclusively at universities. Instead, it can be used to purchase content from Grow with Google to Coursera to a non-credit program at your local college. The account would be owned by the learner, not the employer, and can follow them throughout their career. Versions of such a program exist in other countries (e.g. Singapore and France), and has seen some interest by federal lawmakers in the United States (Sarwari, 2019). The challenge to adoption does not necessarily seem to be to the concept itself, but rather with the specific implementation details—including a determining how many (if any) taxpayer dollars are involved.

Coming up with new ideas to help students finance alternative credentials must coincide with a parallel policy conversation on affordability. IHEs should devote considerable energy to considering their own costs, and designing programs in such a way that keeps expenses low. Radically changing the nation's federal financial aid infrastructure, for instance, would be less necessary if the typical education credential was priced within reach of most American's disposable income. Public institutions in particular should consider their public service ethical imperative, and design programs from day one with affordability as a central premise. Many alternative credentials can be run with a (comparatively) limited overhead, and are therefore an opportunity for IHEs to experiment with low-cost, high-volume budget models.

Creating new or expanding existing financing options (either publicly backed or privately funded) for alternative credentials would ultimately represent an increased cost to taxpayers, employers, IHE's, and/or students themselves. As federal and state policymakers consider the future of postsecondary lifelong education and training, they also need to consider how to best finance the upskilling of the American workforce. If a national educational attainment agenda beyond academic degrees is a priority, then funding that agenda will need to be central to any policy discussion.

STANDARDIZED DOCUMENTATION AND INTEROPERABILITY

Challenges with the Current State of the Documentation of Learning

An area of considerable activity and opportunity in the EdTech field and among IHE's is on how to document non-degree forms of learning more effectively. The problem that needs to be solved is that institutional transcripts are an inadequate form of documenting skills, as they simply display course titles and not the actual competencies attained in a course. An employer is unable to discern what knowledge, skills, and abilities a prospective employee actually has based on course titles alone. What's more, is that college transcripts also fail to display non-credit credentials earned at a college or university, nor do they display skills obtained from co-curricular activities. As an example in the former case, if a baccalaureate student takes a weekend workshop in Microsoft Excel that is offered by the university's professional and continuing education office, they may receive a paper certificate showing their competency in Excel, but their transcript will not display that skill alongside their other courses despite being taken by the same institution. An example in the latter case, many traditionally-aged college students participate in leadership development opportunities, such as student organizations. Being a treasurer of a student or-

ganization is a high-value experience, and in many cases more valuable than an individual three credit course, that again goes undocumented as valid learning by a university.

Students may list non-credit or co-curricular experiences on their resume, but for most traditional IHE's, there is no university-provided verification of those learning experiences, which is in stark contrast to the high degree of security and verification embedded in official transcription of academic credits. Furthermore, academic transcripts in their current form are owned by IHE's rather than being learner-owned. IHE ownership is antiquated in a world in which people must demonstrate their entire spectrum of skills, abilities, and knowledge throughout their professional career. Transcript production represents a significant revenue source for IHE's: rather than letting a learner access and distribute the record *of their own skills* as they see fit, it exists behind a paywall. Few institutions provide official transcripts for free to learners, which is a convoluted business proposition to force a consumer to pay for the *record* of the classes that they have already paid the institution for (akin to having to pay Target a separate fee to get a receipt of the home goods you just purchased). Such a parallel simply does not exist in the business world.

To add to the complexity of proper documentation of non-traditional forms of postsecondary learning, this is not just a policy problem that exists solely for academe to solve. The proliferation of private companies involved in alternative credentials has meant that the documentation of a person's education, skills, and learning is non-standardized and may exist in near countless forms. A typical mid-career IT worker might have a bachelor's degree, completed a coding boot camp, have amassed several dozen skills-based badges, attended employer-sponsored training and professional development, and earned a few industry certifications like their CompTIA A+ certification. This sample employee has no centralized place to store, verify, and display his or her comprehensive educational journey. A resume might work for displaying skills, but it has no built-in verification of authenticity mechanism. This is fundamentally a policy problem because the task of increasing the educational attainment of this nation's workforce cannot be separated from the effective documentation of said educational attainment.

Comprehensive Learner Record

There is extensive work being done on this policy issue. Organizations like the IMS Global Learning Consortium are advancing industry standards for learning transcription, and concepts like a Comprehensive Learner Record (CLR) are gaining considerable momentum (Carbonaro, 2020; Vander Ark, 2021). A CLR is a single record that is owned by a learner that displays all their educational achievements (curricular, co-curricular, and workplace learning): it is a record for a *whole person* that showcases one's competencies from multiple sources of learning (Leuba, 2018). Scores of EdTech companies, working with IMS Global Learning Consortium and the Open Skills Network, are rapidly developing products compelling products to seek widespread adoption for (e.g., VerifyEd, territorium CLR). Others are focusing on digital badging and creating a comprehensive ecosystem that translates learning experiences into badges (e.g., Credly, Badgr). Innovation in this space is exponential, especially alongside advancements in digital blockchain technology. But it is also deeply constrained by existing IT and policy systems in higher education. Mark Leuba (2018), a Vice President at IMS Global, writes, "A transition to a fully digital credentials process, however, is not trivial. The weight of 30 or 40 years of institutional technology and data systems is a difficult thicket to cut through for higher education administrators." And that statement is just within the context of digital credentialing of existing academic programs: creating

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systems that bring together learning experiences across credit and non-credit educational experiences from multiple sources is, simply put, an immense challenge.

The current approach to solving that challenge—creating comprehensive digital records of learners’ skills—is, despite the high levels of activity, still a nascent industry. Though IMS Global is pushing interoperability standards for companies in this space, the reality is that we have not seen this happen at scale yet. Most IHE’s are still at square one of seeing if a CLR can even connect with their student information system (e.g. PeopleSoft). What happens when the thousands of IHE’s and private companies that provide education start to adopt CLR’s at scale, affecting hundreds of millions of people? What does the digital skills documentation look like when every person’s learner record exists in the cloud and documents and verifies every learning experience they have?

Envisioning a Universal Record

As thought leaders and policymakers continue to push for lifelong education as a solution to modern economic and workforce disruptions, it will only lead to the development of more educational products from traditional and non-traditional postsecondary education providers. If we consider the exponential nature of educational innovation in the first two decades of the twenty-first century, it is not hard to imagine that we will continue to be confronted with entirely new, unthought-of pedagogies, delivery models, and providers of lifelong learning in the decades to come. I offer this truism as one of the most important tenets of a vision of a centralized, student-owned education record: it has to not only be designed to integrate the entire traditional and alternative educational credential industry *of today*, but needs to be future-proof so that its designs can nimbly assimilate new forms of learning. Those who are calling for a 60-Year Curriculum approach to lifelong learning (e.g. Branon, 2018) recognize that it would be rather inconvenient if a learner’s lifelong educational record had to be structurally redesigned a few times each decade.

That challenge appears to be insurmountable: how can we create a single, learner-owned record that securely displays all the verifiable education, skills, and competencies said learner has achieved, from potentially scores of different places, and doing so for the duration of a person’s life? This is a problem that can look to two other major industries for guidance: health and financial records. Whatever hospital or clinic you go to, you produce a set of health records that use standardized medical coding so that any other medical organization can easily understand your health history. Interoperability is certainly a long way off, as records across states or systems do not operate in coordination—meaning though your record in one institution or state might use the same medical coding as another, that does not necessarily mean those two records are systematically interoperable—however the illustrative point here is in the creation of a standard taxonomy for organizing the data. Likewise, financial records, specifically related to credit reporting, have also contributed solutions toward solving the universal interoperability issue and record keeping problem. There are thousands of financial institutions, but any activity you do that requires credit is reported to one of the three main credit reporting bureaus. You can look at your credit report and it will show your financial history and transactions related to financial credit, even if it is different types (e.g. credit card vs. auto loan) or from different financial institutions. The bureaus take in diverse information and consolidate it into a single report, which they then sell to other companies (or even the consumer, themselves). These two examples certainly are not without flaws, but they are offered to point out that creating a universal educational record that transcends any single educational institution or product can learn from the systems in place in the medical and financial records industry.

Having a single, cohesive documentation strategy for *all forms of learning* in this country is a massive challenge, but one that can learn from solutions in other industry sectors.

Interoperability of Skills and Education

Private companies developing products to *document* multi-modality learning is only one part of the problem. The second part of the challenge is establishing a standard framework for the *translation* of learning experiences as equivalents to other learning experiences. Interoperability, in this context, refers to a standard framework that is developed such that all learning experiences operate on a universal currency that allows the translation of one experience into another (e.g., a 24-week coding boot camp is viewed as equal to a web development minor from a college campus). There are near-infinite combinations of learning experiences in both traditional and alternative credentials that are stackable, modular, and could be combined in interesting and diverse ways. This may sound daunting, but this problem was solved once before in higher education: the Carnegie credit hour. The credit hour itself is laden with flaws (see Laitinen, 2012, for arguably the best critique of the credit hour). But, despite its flaws, what it has done well is it has created a *universal currency* across higher education that allows students, IHEs, and employers to understand and transfer learning experiences from one institution to another. It is the lingua franca of higher education and has near universal adoption, owing in large part to its role as the foundation of most higher education federal policy, like financial aid rules.

Alternative credentialing, on the other hand, lacks a single currency. There is no standardized way to compare the learning from a MOOC, a boot camp, a professional certification, and an academic credential. IACET is a continuing education organization and accreditor that offers a standardized approach to documenting and translating non-credit learning, which is an important step (IACET, n.d.). But from a policy perspective, adoption of this common framework is far from ubiquitous, both within the higher education industry itself but also to the public and external stakeholders. A typical observer of higher education is likely aware of the credit hour. They are likely unaware of IACET's CEUs (continuing education units). At most universities, the conversion of alternative credentials into for-credit learning is based on Prior Learning Assessment (PLA). PLA is a resource and time-consuming process that in its current state is inconsistent at best, inequitable and ineffective at worst. Some organizations, such as ACE and the Lumina Foundation (2019) have been directing resources toward PLA innovations, but without a unifying currency, but for most colleges and universities PLA lacks scalability to manage the conversion and combination of alternative credentials and traditional credits on the scale tens of millions of learners. Other chapters in this book will dive into these issues, and present innovative solutions, in much more detail.

For the purposes of this policy chapter, I advocate that the best course of action for higher education is to take a reductionist approach: skills, at their most basic level, should become the unifying currency that allows translation across alternative and traditional credentials. Organizations like the Open Skills Network, the Competency-based Education Network, and Emsi (among so many others) are leading efforts to reclassify *all* learning (academic degrees and alternative credentials from both within and outside the academy) and educational experiences into the language of skills. This allows stakeholders to easily translate experiences across credentials at the lowest common denominator: skills. That will also lead to greater connectivity between the demands of employers and the supply of programs in the educational sector. The President's Forum (2021) argued, "Too often, the skills gap can really be a communication gap" (p. 6). Aligning higher education and workforce on the same language of what skills

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are needed and taught may illuminate a much closer-than-realized alignment. But this work is certainly easier said than done, as adopting a universal skills language is in and of itself fraught with challenges. . . and then comes the task of getting universal buy-in on the skills framework. But in principle, repositioning all learning in the language of skills rather than credentials can solve issues of interoperability and make it easier for all learners to connect with the right kind of jobs that employers are looking for. The Open Skills Network (n.d.) is leading the vanguard of this effort, and several additional chapters in this volume will dive into this policy proposition in much greater detail and provide case studies of what this looks like in action.

CONCLUSION

In this chapter, I have argued that there is an increasing need for lifelong learning and alternative credentials to be recognized as a central part of a national education attainment strategy, beyond just degree attainment. Though the current alternative credential marketplace has yet to definitely prove itself with solid longitudinal outcomes, it is nevertheless the fastest growing educational market segment and its rate of growth far outpaces traditional educational delivery. For this industry to reach maturity and become a key pillar of the United States' national educational attainment strategy, this chapter reviewed three primary policy hurdles that will need resolution: establishing universal quality and accountability mechanisms; opening up financing opportunities for more workers to obtain the lifelong skills development that is necessary for the modern economy; and establishing a unified way to document learning experiences across institutions, and forge a common currency that allows for interoperability of learners' credentials. These are not easy problems to solve, but as we look to the next century of postsecondary learning in this country, the winds are shifting toward alternative credentials. We need a policy ecosystem that supports this educational movement in ways that ensure quality, promote access, and enforce accountability.

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ENDNOTES

- ¹ This section is focused on accountability policy, but it is worth noting that the lack of policy governing these non-academic providers of education is not only limited to quality mechanisms: other hallmarks of the higher education policy landscape like FERPA and Title IX likewise don't typically apply to these non-credit programs or providers.
- ² Information as of the 2021 tax year.

Section 2

A New Paradigm in Higher Education Reform: Skills as the New Common Language for Higher Education

Chapter 4

Charting a Future With Skills: The Need for a Skills–Based Education and Hiring Ecosystem

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ABSTRACT

Navigating life and charting a path towards educational goals and professional advancement is challenging in troubled water. When structures and trusted tools previously relied on begin to falter, chaos can beset those on the journey. Therefore, innovation and new ideas must be championed and tested to develop a greater sense of the possible and to provide unique and tailored solutions to everyone. The authors advise the adoption of the Diamond of Interoperability, a set of four principal statements—open skills, open achievements, open records, open pathways—to support the workforce development needed for the future of work. These ideas are rooted in transparency, collaboration, transformation, and interoperable technology to provide answers to the current challenges in education and hiring in the turbulent waters of the 21st century economy.

In the beginning of navigation, early humans did not venture too deep into the open water or stray far from land. They kept the shore in sight and traveled primarily along coastlines, using landmarks to gauge their progress and position. Traditional hiring and education clings to these same ways of early navigation. These methods and well-worn pathways have proven they are successful, but what happens when the storm of change approaches, the trusted landmarks fade, and the well plotted routes lose their relevance in the face of greater needs and more targeted desires? How is the journey of a life charted? Through constellations made of skills, these are the stars that will guide new explorers.

As we emerge from the latest health and economic crises, the flaws in our talent supply chain have become increasingly more apparent. While employers are looking for the most efficient path to hiring a skilled and diverse workforce, they are also struggling to define and identify the right talent, even though

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in many cases, it is right in front of them, yet somehow unseen. Learners struggle to communicate the skills they have demonstrated as part of their learning journey leading to a communication gap that makes it difficult for employers to find skilled talent (Carroll, 2017). Meanwhile, individuals who have gained in-demand skills through education and on the job experience, do not understand the marketability of those skills and are unable to communicate their value in any meaningful way beyond that of transcripts and credential attainment. Individuals also do not have a way to reflect and share the skills that they are learning on their path to credential attainment, resulting in potentially missed opportunities where they could have leveraged their skills earlier in their career path. To further exacerbate the issue, education and training providers are frequently siloed in their approach to designing and delivering their offerings and are either not aligned to workforce need or their course outcomes do not make resulting skill attainment clear to consumers. As more non-degree credential offerings flood the job market, employers are growing increasingly perplexed as to the value of both the credential and the individual credential holders (Whissemore, 2022). As a result, there is a disconnected and floundering ecosystem of talent that is leaving many stranded, especially those in underserved and overlooked populations. All of this while the skills gaps and communication gaps between employers and individuals continue to widen (Wiley, 2019). There needs to be a better solution that will benefit all.

So why skills and why now? There are several shifts in the talent supply chain that have been underway but are now accelerating as the pandemic timeline continues to evolve. Employers are struggling to find and hire the right skilled individuals. A recent report from the Harvard Business School reveals that companies are increasingly desperate for workers. As they continue to struggle to find people with the skills they need, their competitiveness and growth prospects are put in jeopardy (Fuller, 2021). As the economy continues to recover, it will intensify the struggle to find talent. According to the U.S. Bureau of Labor Statistics' December 2021 jobs report, the number of job openings (10.9 million) is outpacing the number of unemployed individuals (6.3 million). Current events have only hastened what has been occurring for years—a continued widening in the skills gap.

There are several factors driving this divergence. First is the acceleration of new and complex skills. According to a 2018 report from the World Economic Forum, they estimate that approximately 42% of the skills in demand for jobs across all industries will change between 2018 and 2022. The 2020 Jobs Report from the World Economic Forum finds the trends continuing only faster and further on that path. According to a Gartner analysis of more than 7.5 million U.S. job postings in 2018, those in IT, finance, and sales roles required an average of 17 skills (Wilde, 2021). The same types of roles now require an average of 21 skills, including at least eight that were not previously required. At the same time, 29% of the skills from an average job posting in 2018 may not be needed next year (Wilde, 2021). How can a person keep up?

In addition to escalating complexity and ever-changing skills, employers increasingly rely on degrees as a proxy for professional and enduring skills. Sometimes called “soft” skills or “21st Century” skills, these are the essential interpersonal human skills. As can be seen in a recent Emsi report, they are some of the top in-demand skills (Oldham, 2022). Yet, in this knowledge-based economy, college degrees continue to have weight and significance. The Education Trust estimates that 65% of jobs required a minimum of a bachelor's degree in 2020, up from 28% in 1973 (Nichols, 2017). The college path is also increasingly rewarded as those who hold a bachelor's degree or higher earn almost \$1 million more over their lifetime than those high school graduates who do not pursue the college route (Abdelal, 2021).

However, this reliance on what has always been the expected path—degrees—is a profound and deeply rooted mindset and experience that is making the U.S. labor market more inefficient. Job postings that

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traditionally were viewed as middle skills jobs, those that require employees to have more than a high school diploma but less than a college degree, now stipulate a college degree as a minimum education requirement—while only a third of the adult population possesses this credential (Fuller, 2017). The inherent problem in this dependence on old modalities was laid clear by Scott Pulsipher, President and CEO of Western Governors University (WGU) in testimony to the U.S. House Committee on Education and Labor, “Valuing degrees only—a signal of skills—rather than skills themselves makes little sense and can exacerbate the structural inequalities that influence who access college, and particularly who accesses selective institutions” (Pulsipher, 2020).

To further compound the issue, these degree requirements continue to be a barrier for many minority populations. Bryon Auguste, an economist who served as deputy director of the National Economic Council in the Obama administration and now is the CEO of Opportunity@Work explains,

If you arbitrarily say that a job needs to have a bachelor’s degree, you are screening out over 70% of African Americans. You’re screening out about 80% of Latino-Latina workers, and you’re screening out over 80% of rural Americans of all races. (Carapezza, 2021)

It is evident that the way people are navigating in this new world is different than before. They are acquiring skills in new and unique ways apart from traditional paths and experiences, but individuals remain challenged by expectations set in the realities of the past. Organizations are attempting to shift the paradigm about aptitude from one that is based on a four-year degree or credentials to one that is based on skills, to give more people a meaningful pathway into an opportunity to have earned success (Abdelal, 2021).

This tension is beginning to drive organizations to rethink their degree requirements. Several large corporations, including Microsoft, Netflix, Google, and Tesla, have already announced a shift toward skills-based hiring (Ahktar, 2019). In addition, Google announced three new certificates that will be treated as equivalent to a four-year degree for relevant roles (Bariso, 2021). For smaller companies, those with less than 500 employees, for which most Americans work, could there be a collective solution on the horizon for how to activate skills within their hiring practices? Further within this equation, coalitions such as OneTen are working with employers and education providers to advance upward of one million Black Americans in 10 years’ time into in-demand family sustaining careers (OneTen, 2022). Many large corporations have signed up to support this mission, with a “skills-first approach,” beginning with unpacking the actual required skills as opposed to degrees and other barrier credentials.

But are the various constellations of skills guiding anyone? As new avenues are explored, many individuals must feel just like those sailors who began to push further out from shore and into open waters. As this exploration begins it is paramount to define which points are guides and how each is found in the night sky.

BACKGROUND

Skills-based hiring is a set of practices which focus on identifying the skills needed to be successful in a given role and then matching potential employees to the opportunity. This matching is based on their skills and competencies or the aptitude they have shown for acquiring the necessary skills quickly. This connectivity creates the right environment for business growth and success as it means having the right

workforce with the right skills, in the right place, all at the right time (Curnow, 2021). The tide is shifting as employers take strides to adopt skills-based hiring (Arnold, 2018). More and more individuals and hiring managers experience how limited the process can be when the hiring pool is restricted by rules derived from past biases and beliefs (Skillful, 2019). This is clear in recent developments seen by LinkedIn that show a 21% increase in job postings advertising skills instead of degrees (Roslansky, 2021). But there is still only a small percentage that are striving to begin to retool their processes. The overall search for skilled talent is described as difficult by many organizations (Maurer, 2021).

And while there is this inability for employers to find the right talent, at the same time an enormous and growing group of people are unemployed or underemployed, eager to get a job or increase their working hours. However, they remain effectively “hidden” from most businesses that would benefit from hiring them by the very processes those companies use to find talent (Fuller, 2021). A report from Harvard Business School writes that there are more than 27 million “hidden” individuals in the U.S. described as people who are “unemployed or underemployed, eager to get a job on increase their working hours”; however, although many of them possess the right skills, they are lacking the credentials, which effectively eliminates them from many of the automated Applicant Tracking Systems that employers use today (Fuller, 2021). According to a recent article in the New York Times, as many as 30 million Americans have the skills to earn 70% more income but lack either awareness of this latent potential or ability to validate it (Lohr, 2020).

Occupations are quickly changing and being affected by technological advancement. This has made it exceptionally hard for workers to acquire skills that are relevant. The evolution in job content has outstripped the capacity of traditional skills providers, such as education systems and other workforce intermediaries, to adapt (Fuller, 2021). The ugly end effect is that to obtain the skills that are in demand by employers, the person seeking employment must already be employed within the ecosystem. To be on the outside of employment is to truly be left in the cold. Learning and employment systems need to change to adapt to rapidly evolving needs for short and long-term workforce development needs.

The learning and employment ecosystems were designed for a world of work that is no longer here. Current employment foundations are built on the assumption of linear careers largely using a traditional life model of ‘learn, do, retire.’ In order to be seen by the systems as employable and current, workers must run on a treadmill of reinventing their skillsets and offerings; companies must endlessly hunt for new and innovative talent sourcing, matching and development strategies; and educators face pressure to explain their return on investment, and increasingly, their relevancy. Consequently, there is a pressing need for more efficient proxies that can relay the skills that individuals acquire throughout their life course (World Economic Forum, 2019).

While it is true that following the shore will bring the sailor to port reliably in the case of a degree and with historical positive return in higher income—more routes are being opened for access to those who might not be able to chart the traditional course. This allows more talent to enter the economy and thereby push innovation, such as micro-credentials, and new and previously unthought of destinations to the forefront. There are nearly one million credentials offered in the United States through education, training, licensing, certification, and other organizations. It is a vast and growing landscape to be explored, tamed, and leveraged (World Economic Forum, 2020).

The pandemic has merely illuminated the importance of faster, more targeted avenues for developing and refreshing skills. Learner-workers need more efficient ways to skill and reskill to meet the shifting demands of an ever-changing labor market. Credentials can provide a shorter-term solution to validating skills for immediate value. In fact, a survey conducted by Strada Education Network found that 60%

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of Americans now prefer shorter-term credential options to full degree programs, especially in these unpredictable times (Ashburn, 2018). However, these credentials will not gain broad employer adoption unless the underlying skills become more transparent to both individuals and employers. Shawn O’Riley, associate vice president of professional education and special programs at Pace University recently stated:

A quarter of American adults hold nondegree credentials, meaning something short of an associate or bachelor’s degree, according to federal data, and they’ve become more popular in recent years. Among other things, advocates say, they encourage equity by giving consumers a way to get jobs without spending three or more years in college getting degrees they don’t need. If there’s a way to get a really skilled employee in less time and with less effort, they’re really interested in that, but they struggle with that same question, which is, ‘What’s the real currency of an individual credential?’ (Marcus, 2021)

Traditional education does not support students in their understanding of the skills they are gaining through their academic programs. Students, and employers, need more transparency. This skills view will also illuminate for students the skills that they are achieving which may not be as apparent. For example, students will know that through their general education math course, they not only learned critical domain skills, but also enduring, lifelong skills like problem solving, critical thinking, and communicating data. This transparency will allow students to make career-relevancy connections and to communicate these skill achievements to employers (DeMark, 2021).

A skills-based education and hiring infrastructure has the potential to significantly improve the talent supply chain. By focusing on the needed skills, education providers can focus their offerings on the skills that are most in demand, employers can more swiftly upskill workers to fill changing organizational workforce needs and evaluate whether the skills an employee has gained in a shrinking industry can be quickly converted to valuable skills in a field experiencing growth and talent shortages. Skills transparency across systems will enable individuals to make better decisions regarding education pathways and be better able to understand and communicate the value of the skills they are obtaining throughout the course of their education and work experience.

Fortunately, we are starting to see some movement in this space towards creating a new interoperable skills-based currency that can help to connect the value between employers, individuals, and education providers.

THE SKILLS DILEMMA

Higher education is facing multiple challenges to our existing portfolios of offerings—namely, degree offerings. Clear signals are being sent by employers that the “degree” is a poor proxy for learner-worker development and job readiness. For colleges and universities offering professional degree programs (e.g., business, healthcare, teaching, information technology, etc.), this feedback is deflating. When combined with decreasing enrollment numbers, increasing non-completers, and increasing scrutiny on degree value given rapidly escalating student debt, institutions are presented with an opportunity to reinforce the value of credentials by placing the learnings into the context of the labor market.

While degree programs are careful to meet accreditation requirements, both regional and programmatic, they often leave learners and employers unclear as to how they relate to job requirements and workforce demand. As a result, learners choose programs and majors, and even institutions, for many

reasons—personal or professional—and with only a general understanding of how their learning will contribute to their goals and ambitions. But many learners are presently disadvantaged in their understanding of how their investment of time and money will provide benefit to the wellbeing of themselves and their families. Further, learners often struggle to translate how their learning prepares and qualifies them for jobs because they do not realize the skills they are gaining and, therefore, cannot articulate them in any meaningful way. For higher education and employers to help one another more effectively, a shared language and clarity around skills is necessary. This need is articulated well in the 2018 Strada Institute for the Future of Work and Emsi report, *Robot-Ready: Human+ Skills for the Future of Work*, which says, “[T]he time has come for a modern-day Rosetta Stone to translate and decode the intersection between postsecondary education and the workforce” (Ashburn, 2018).

For those learner-workers seeking to maximize the value of their efforts and hard-earned dollars, the lack of a clear line-of-sight of around training can be frustrating. Where obtaining a college degree can provide a reasonable return on the investment (ROI), the increasing cost of degrees and the average time to completion is challenging that traditional ROI. But what of the many learners that never complete a degree? The oft-quoted number of approximately thirty-six million people with some college and no degree is demoralizing when we consider the debt these learners incurred while they still lack a credential (National Governors Association, 2021). By relating educational pursuits and resulting credentials to the labor market, as well as transparently defining credentials, learners will be able to understand the real benefits of education.

NAVIGATING NEW TRANSPARENT PATHWAYS TO OPPORTUNITY

Imagine a young single mother, Latoya. She is struggling financially and eager to find a better paying job to support her two young children. She is a self-starter and has worked for years as an assistant manager at a local family-owned restaurant. As she worked, she earned her high school diploma and a Certified Nursing Assistant (CNA) credential with the aim of getting a better job within healthcare. Latoya decides to pursue a bachelor’s degree in Nursing at Western Governors University to achieve her long-held dream of becoming a nurse.

On application, Latoya uploads her profile into the WGU Achievement Wallet which immediately validates much of her prior work experience and industry-recognized credentials against nursing degree requirements. Because Latoya can capitalize on her existing skills and credentials, it puts her farther ahead than she expected in a nursing BA program. Latoya is also able to view other healthcare pathway opportunities within WGU and sees she has flexibility in her options to pursue a healthcare degree.

Latoya decides on the BA in nursing and begins to work towards her degree at WGU. As Latoya progresses in her program, she is excited to see the list of her in-demand skills grow as they surface to her Achievement Wallet with every credential she earns. She is energized and engaged as she works through her WGU program seeing the clear alignment and relevance between her coursework and the high-demand skills nursing employers are looking for.

During her second term, Latoya decides to put her existing skills to work and seeks employment as a Certified Nursing Assistant (CNA) within her hometown. Through her Achievement Wallet, Latoya can see current job opportunities in her own zip code that align with her competencies and credentials. Latoya can customize her wallet to showcase her profile to prospective employers hiring for CNAs. She is even able to opt-in to being discoverable by recruiters via her Learning and Employment Record based

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on her existing skills and credentials. A few months later, using insights from her Achievement Wallet, Latoya starts a job as a nursing assistant at a hospital just a few blocks from her daughter's school. Her employer *found her* based on her credentials, experience profile, and location—a perfect match. Latoya is now working in a job she loves while also being able to work towards her degree full time. A flexible education schedule is a must for her busy schedule!

Two years later, Latoya graduates from WGU with her bachelor's degree in nursing and is immediately offered a job as a full-time nurse at her existing employer. Post-graduation, Latoya still has access to her WGU Achievement Wallet and can keep her eye on additional employment and educational opportunities that are available to her. She is interested in exploring a master's degree in nursing with a focus on education when the time is right. Via the Achievement Wallet, Latoya can see pathways to pursue her advanced degree both within and outside of WGU as well as employment opportunities that are available to her as she continues to pursue her life and career dreams.

CREATING AN OPEN MAP

In a dynamic, ever-changing labor market, learners need access to educational programming options that match their career goals and allow for just-in-time skill development. They also need to be able to tell a compelling story about the skills they possess, thereby highlighting their unique talent brand. Employers need better insights into the skills of their current workforce as well as the skills within the external talent pipeline. They need more transparency into the skills an individual has based on their experience and credentials, and they need faster, more automated ways to match highly qualified candidates with high-value jobs.

Since its establishment in 1997, Western Governors University (WGU) has been built with learners at the center of its competency-based model to create more equitable pathways to opportunity in support of critical workforce development needs. WGU has focused on making education more accessible for every learner to maximize their success in degree attainment and to achieve their career aspirations (WGU, 2020). We recognize that to help our students actualize their dreams for career and degree success, we must continue to innovate to meet the needs of learners and employers alike by enabling better, faster, more flexible models for connecting talent with opportunity.

Building on its competency-based roots, WGU has become a great use case for transforming pathways to opportunity with skills as the underlying currency and infrastructure. With the mindset that how individuals' access, use, communicate, and apply their education experience will continue to evolve, WGU has created a skills-based achievement architecture to map all competencies and credentials to high-demand skills, including the enduring, essential skills like critical thinking, social emotional intelligence, creativity, and the ability to work with diverse collaborators. These high-value industry-relevant skills are then mapped into educational experiences and credentials to better support the upskilling and reskilling needs required for our dramatically altered job market. WGU then surfaces these skills and competency achievements to students through a learner-owned record, which can then be shared with current and potential employers, thereby facilitating a more efficient and effective match of talent to opportunity. Transparency across individuals, employers, and education providers is key.

A CASE FOR OPEN DATA STANDARDS

To bring Latoya’s story to life and create better systems for connecting talent with opportunity, an open data infrastructure that breaks down silos and bridges the gaps between workforce and higher education is necessary. This infrastructure must be predicated on the use of open standards to drive data and system interoperability. An interoperable infrastructure uses open standards and common ontologies and frameworks to enable data to be machine readable, exchangeable, and actionable across technology systems and, when appropriate, online (Department of Commerce, 2020). Why is data and system interoperability so important? Consider the early beginnings of the railroad system in America. Before the 1840s, planning and construction of railways in the United States were disconnected and made primarily for short independent passenger lines that ultimately failed to be financially profitable (Library of Congress, 2022). The Railroad Act of 1862 initiated the momentum and funding needed to work towards a connected, coast to coast system, and in 1869 the existing eastern US rail network was connected to the pacific coast. In addition to this, early railroad networks were constructed with different gauge tracks with no unifying standard. These siloed networks began creating problems for the efficient movement of supplies during the U.S. Civil War and their rectification caused great economic pain (Puffert, 2000). Without an interoperable system, organizations are at risk of the unintended consequence that they may be building disconnected railroads to nowhere for their learners and workers, creating the equivalent of the failed short passenger lines within their own organizations.

An interoperable infrastructure that is built upon open data standards can connect the world of work and the world of learning in unprecedented ways, create more transparent pathways to opportunity for learner-workers, establish a system in which data may move freely across systems, and enable employers to hire and train the talent they need when they need it. Specifically, WGU has identified four major open standard domain areas, when working together, create the foundational infrastructure needed to enable scalable, connected solutions for a more interoperable ecosystem of education and work:

- **Open Skills** to bridge the gap between work and learning by establishing a common skills syntax language and improving open documentation of in-demand skills from the labor market in a machine-readable format.
- **Open Achievements** to demystify credentials and achievements for learners and employers by using a consistent, machine-readable standard for packaging information about accomplishments and recognition of work and learning.
- **Open Records** to empower learner-workers with access to their learning and employment records from any institution and to share them with any education provider or employer using a standard, digital protocol.
- **Open Pathways** to create more transparent insights into education and career pathways using a standard logic for connecting learning achievements and/or work experience within and across education and employment providers.

Together, these four domains of open standards create a recipe for true interoperability between the world of work and the world of learning. WGU has termed this the “diamond of interoperability” and has used it as a foundational framework for our technological and process transformations over the last three years to support our students in achieving their goals and maximizing their career success.

Figure 1. Diamond of Interoperability



THE WGU USE CASE

As WGU began exploring more skills-based solutions for our students, we used the diamond of interoperability to make decisions about what standards we would adopt to power the solutions we are building. The next section will discuss the specific standards WGU has adopted to power skills-based solutions for our learners.

Open Skills

As explained by DeMark and Kozyrev (2021), currently skills interoperability is out of reach, both within and between organizations because available skills data are unstructured and not machine readable (DeMark, 2021). Adding to this challenge, existing data standards do not *directly* support interoperability of discrete skills data and posed an early obstacle for thinking about how we might approach an open standard for skills. To move to an open and actionable skills data ecosystem, where skills data is machine readable, structured, and interoperable, WGU in collaboration with the Open Skill Network developed the Rich Skill Descriptor (RSD) Schema as an extensible, skills-based universal description language for the interoperability of structured skills data (Rich Skill, 2022). In an open standards ecosystem, the RSD serves as a syntax for structuring skills data in a format that makes it publishable or usable by

numerous applications—industry-aligned academic credentials, skills-based curriculum design, and skills-based job descriptions, etc.

Open Achievements

To cover data needs around achievements, within and beyond the institution, WGU has selected Open Badges standard from IMS Global, a mature, industry-adopted standard, as the Open Achievement standard (Home, 2022). Open Badges allows for the central management of badges issued by an organization and for the ability for practical metadata such as earning criteria, associated skills, competencies, industry standards, or other framework aspects within the badge. The other major aspect of this data standard is that it covers assertions of achievements that are verifiable, portable, and sharable by the earner.

Open Pathways

As modeling complex learning pathways requires a flexible data model, WGU has adopted the Credential Transparency Description Language (CTDL), (Credential Engine, 2022) and the CTDL Profile of Achievement Standards Network-description language (ASN-DL) and (CTDL-ASN) specifications published by Credential Engine to enable the design of our educational pathways. CTDL is a vocabulary of terms about credentials and their relationships to other frameworks and includes the definitions of pathways and pathway components. CTDL-ASN is a vocabulary of terms about competencies and competency frameworks. When combined, CTDL and CTDL-ASN enable flexible pathway construction that can be comprised of components such as frameworks, assessments, courses, credentials, extracurricular or co-curricular activities, jobs, etc. These functionalities are necessary for WGU’s pathway functionality to provide transparency to students into flexible learning pathway options and more transparent career pathways.

Open Records

WGU uses the Comprehensive Learner Record data specification and model from IMS Global to support more robust data sharing within Learning and Employment Record solutions. The CLR data model covers much of the traditional record “academic data” that Student Information Systems do via the Postsecondary Electronic Standards Council (PESC) Academic College Transcript industry standard (PESC, 2022). Additionally, WGU has adopted the IMS Global Competencies and Academic Standards Exchange (CASE) standard to facilitate the format and exchange of information regarding learning and educational competencies, including information that pertains to rubrics, and supports association across frameworks (Competencies, 2022).

By adopting this set of open standards and specifications, WGU can exchange data from multiple sources and subsequently surface powerful information relevant to our learners in meeting their next goal, whether that goal is academic or career-oriented in nature. For the last three years, WGU has focused on operationalizing the diamond of interoperability as a means for providing our students with better insights into the skills they have, the skills they need, and the pathways available to them. We have focused on four major value streams to bring value to our students:

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- **A skills architecture** where high-demand, workforce skills are foundational to academic programming development and decision making
- **A skills-denominated achievement** system where all WGU-issued credentials include clear alignment to workforce relevant skills
- **A learning and employment record** where WGU can instantiate verified learner credentials
- **A learner-owned Achievement Wallet** where learners can cultivate, curate, and share their achievements and gain insights into learning and career pathways they may choose to explore.

Skills Architecture

WGU has always been competency-based and hyper-aligned with workforce needs. As Provost and Chief Academic Officer Marni Baker-Stein explained in an article in the *Diplomatic Courier*, “we have doubled down on that commitment by mapping the skills and competencies employers want into our courses and programs.” (Baker Stein, 2020). Over the last two years, WGU has adopted a skills architecture function and practice, where employer-valued, open skills are used to inform programming development and decision making. Using WGU’s Open Skills Library which currently includes over 13,000 rich skills descriptors, all competencies and programs have been tagged with relevant skills data. This has enabled our ability to create a dynamic skills relevancy metric for every program, illuminating real-time opportunities to improve the workforce relevance of our existing portfolio to ensure our credentials continue to provide students with the skills they need to be successful with current employer expectations and with the future of work. Additionally, by using rich skills descriptors from the WGU library to inform the design and development of every new program, we can ensure close alignment between the skills students need and the educational pathways we develop. Making these connections transparent in our program marketing information helps to support individuals in their decisions regarding which education programs and pathways are right for them and ensuring a strong return on their education investment.

Skills-Denominated Achievements

Through a systematic approach to skills architecture and using the open badges standard, WGU has the capability to include high-demand skills in its academic credentials. Using the open badge standard, high-demand skills are included as metadata within WGU digital credentials, making the skills represented by the credential more transparent. This work ensures our learners have a better line of sight into the skills they have demonstrated in earning their credentials. It also provides employers and other education institutions with better transparency into the value of WGU credentials and the skills our learners have demonstrated. As noted by the World Economic Forum (2019), skills are becoming the new currency of the labor market where “...potential returns are vast, for individuals, for businesses and for economies.”

Learning and Employment Record

To increase the portability and usability of learner credentials, WGU has begun implementing Learning and Employment Record (LER) technology. As defined by the American Workforce Policy Advisory Board Digital Infrastructure Working Group an LER is a system that contains verifiable information about a person’s achievements spanning an inclusive range of contexts, whether educational or training processes, formal or informal, classroom-based or workplace-based. LERs (learning and employment

records) can seamlessly record, verify, transmit, and interpret information about learning achievements between learning institutions, businesses, and individuals (Department of Commerce, 2020). As our efforts in this area expand, WGU will instantiate learners' credentials to their Learning and Employment Record which will enable advanced capabilities for every learner to curate and share their achievements with prospective employers. The LER also provides more efficient mechanisms for employers to search for talent within the LER ecosystem as learners opt-in to making their credentials and related skills discoverable.

Achievement Wallet

Building on the culminating capabilities of a systematic skills architecture, skills-denominated achievements, and LER technology WGU has deployed its initial prototype for an Achievement Wallet. The Achievement Wallet is an interoperable, learner-facing application technology that provides learners with the ability to curate, customize, and share achievements from their LER with prospective employers or other education institutions. The Achievement Wallet provides students with the ability to showcase their unique talent brand, based on the credentials they hold and the skills they have demonstrated. Because of the power of the skills architecture and skills-denominated achievements within WGU credentials, the Achievement Wallet also has compassing capabilities to reveal both career and educational pathway insights to a learner based on their current skillset, career goals, and educational aspirations. Additionally, skills and competencies can be added to the Achievement Wallet as they are verified within a degree program, even before the final credential conferral. This enables students to take more immediate advantage of the skills they have already acquired and to be able to pursue career options earlier in their educational journey, as opposed to waiting for that final credential as evidence.

These four value streams when working together create a relevant, workforce-aligned experience for students with more streamlined mechanisms for connecting talent with opportunity.

CENTERING OPEN SKILLS: A CALL TO ACTION

The utilization of open data standards has been presented as a compelling case for how credential transparency can be achieved, put into context, and related to both career and academic pursuits for learners. It should be noted that WGU has been engaged for three years in applying the “diamond” as the framework for creating achievement transparency, alignment to labor market demand for skills, surfacing pathways and relationships between credentials and jobs, and allowing learners to take control of their record. Recognizing that such an endeavor may be daunting or untenable for many institutions in the short term, a discussion on how or where any institution may begin their own journey is warranted.

Credential providers (educational institutions, certification providers, etc.) can take the necessary steps to ensure their offerings are aligned with the labor market. Though this may sound difficult to implement, many credential providers are already including usable data in their existing systems, such as Student Information Systems (SIS), Learning Management Systems (LMS), and badging platforms that can be leveraged to provide more transparency and definition to credentials and further be leveraged to create labor market alignment. As programs are created within SIS systems, they are almost always aligned and labeled with a Classification of Instructional Programs code (CIP-C). By utilizing the National Center for Education Statistics (NCES) CIP Standard Occupational System (SOC) crosswalk

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institutions can begin aligning their credentials to occupations at the highest level (NCES, 2020). By so doing, an education provider can begin creating transparency for their learners by simply listing how the credential relates to jobs as a part of their standard catalog and in their program marketing information for both individuals and employers to see.

As an institution contemplates expressing the credential as a digital achievement, the open data standards allow for the inclusion of SOC alignment as part of the credential description, tagging and meta-data. Even a digital diploma provided as a PDF image file can include hyperlinks directing the viewer to information that is relevant to the credential. An example of this type of linking can be achieved where the credential definitions (and SOC or other alignments) may be located within the Credential Engine repository (Credential Engine, 2022) or IMS Global Competencies & Academic Standards Exchange (CASE) Network (IMS, 2022).

The Credential Finder website—provided by Credential Engine—currently catalogs credentials, organizations, competency frameworks, and more that are already available. Similarly, the IMS Global CASE Network may also be used to define and create alignments of credentials. For those institutions already defining credentials within the Credential Engine repository, the Credential Transparency Description Language (CTDL) data standard allows for alignments to be included – whether to competency frameworks or SOC codes. The CASE Network also includes these capabilities. By taking advantage of the Credential Engine repository or CASE Network, education providers can link their credentials earned by learners to the specific repository listing such as mentioned above regarding digital diplomas or website listings of credential and program offerings, which begins to support transparency of the underlying skills and competencies for these credentials.

Presently, approximately 2,500 colleges and universities participate with the National Student Clearinghouse by providing Degree Verification (DV) files wherein individuals earning credentials are listed. The information within a DV file may be somewhat limited but does allow for a credential major and minor (degree level) to include the relevant CIP code as an additional attribute. If institutions begin adding the CIP code to their DV files uploaded to the National Student Clearinghouse, they will be well positioned to take advantage of future functionality where their credentials can be cross-walked to the appropriate SOC code(s) and surfaced into a Learning and Employment Record (LER) or a learner-owned Achievement Wallet.

As educational providers contemplate how they may wish to eventually express academic achievements and credentials that align with workforce needs, or relate to other credentials, the utilization of both the Open Badges and Comprehensive Learner Record (CLR) data standards should be considered. By aligning to the related jobs, skills, competencies, and learning outcomes learners will have more visibility into the skills and value that underlie their learning and achievements. Put another way, by including skills as part of the data provided with a credential, learners are equipped with the same vocabulary used by employers. Utilizing open badges and CLR data standards becomes a powerful combination, providing robust and rich descriptive information and data that creates transparency, alignment, and meaningfulness for learners, employers, and other education providers.

As the dynamic nature of the U.S. economy increases the demand for highly skilled workers, higher education and other talent providers are challenged to respond with traditional and new short and long-form credentials that directly relate to occupational requirements. As Joseph E. Aoun notes in *Robot-proof*:

It no longer is sufficient for universities to focus solely on isolated years of study for undergraduate and graduate students. Higher education must broaden its view of whom to serve and when. It must serve everyone, no matter their stage in life (Aoun, 2018).

Digital credentials are emerging and will become the norm. Efforts are already underway to create a national Learning and Employment Record ecosystem with Achievement Wallets to better equip learner-workers, employers, and educators to understand and streamline the talent pipeline. As credential providers move from a paper-based system into digital, the opportunity to imbue credentials with meaningful data can accomplish so many desired outcomes. As discussed, digital credentials can be successfully aligned with occupational roles by leveraging existing processes and practices, and then integrated into the ecosystem of repositories and data standards.

FUTURE RESEARCH DIRECTIONS

Through this work in creating a connected skills ecosystem, we have discovered that most of the data needed to support skills-based education and hiring already exists; however, the data are siloed, not easily accessible, nor machine-readable. This makes the advancement of a skills-based ecosystem expensive, manual, and out of reach for most institutions. Further, as we see more organizations realizing the value of skills in creating a more equitable and efficient talent pipeline, these organizations are solving for this future in a siloed way, creating their own skills logic and systems that do not interconnect with the larger ecosystem efforts. While these organization-specific solutions for adopting skills as the currency of value begin to open pathways to opportunity, it is by tearing down the silos and connecting all these solutions through a common skills-based infrastructure where we will really begin to see the power of this work.

In pursuit of building this connective collaborative community, WGU has initiated with partners such as Walmart, Concentric Sky, and the U.S Chamber of Commerce Foundation, among others, the Open Skills Network (OSN), an alliance of innovators from education, industry, workforce development institutions, technology, and government agencies determined to solve this problem (Open Skills Network, 2022). The OSN mission is to change education and employment practices to be equitable and resilient. The OSN champions *skills* as the currency for good jobs and career advancement. To realize this future, the OSN seeks to enable and accelerate skills interoperability between technology platforms through open standards, and to reduce the costs and barriers of implementing skills-based hiring and skills-based education through shared technologies skills-based solutions. Formed in September 2020, the OSN is focused on establishing and supporting a community of practice focused on widespread adoption of skills-based education and hiring practices through the creation of: 1) a standard skills syntax that is open, accessible, and machine-actionable; 2) open-source toolsets to support the creation and adoption of this standard syntax across education providers and employers; and 3) a national network of interoperable open skills libraries and skills data to be leveraged across institutions.

After one year since its founding, the OSN has grown to over 1700 active members representing over 700 institutions from across the globe. These members are dedicated to advancing this much-needed paradigm shift towards skills-based education and hiring that ensures all learners, workers, and employers have the skills and talent necessary to thrive in a fast-moving and ever-evolving workforce. OSN members are committed to the adoption of skills-based education and hiring as a standard practice and are championing the evolution of open standards for meaningful and actionable skills data as the

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infrastructure of this new skills ecosystem. A national open skills infrastructure is critical to support the future of work and the development of agile and robust talent pipelines where all individuals have the opportunity to achieve their career goals.

To achieve these goals, the OSN has supported numerous pilots and collaborative projects in its first year. These projects have focused on the creation of open skills libraries, the testing of open skills tools, and the creation of use cases for how these skills can be leveraged and connected throughout the skills-based ecosystem. This early work is centered on supporting institutions with the adoption of an open skills-based infrastructure through the creation of playbooks, use cases, best practices, and toolsets.

Driving the OSN work on rich skills descriptions has been a big part of WGU's contribution as a member. The partnerships formulated within the OSN have allowed for the expansion and promotion of adoption such tools as the Open Skills Management Tool, which provides a technology solution for the authoring, publishing, and sharing of libraries and collections of RSDs (Rich Skill Descriptors)—the cornerstone of the work. This is a free open-source tool available to everyone. It is fundamental to the mission of OSN and all its members to support an open philosophy for advancement.

Throughout 2022, WGU will be rolling out various skills library collections containing over 13,000 RSDs that have been created across a wide variety of domains. With these skills collection releases, WGU will be partnering with employers, education providers, and others to further enhance and refine these dynamic skills libraries for all to use. In addition to job-specific collections, like cyber, HR management, and medical assistant, WGU has also created library collections focused on the future of work, including collections for socio-emotional learning, and diversity, equity, and inclusion skills. To further the goals of creating a national infrastructure, these collections will be published openly for anyone to access and use as part of their own skills work. Additionally, other organizations will begin to create and release their own skills libraries and collections for institutions to view and leverage. All this work contributes to the creation of a national skills infrastructure.

Using skills-based education and hiring practices, combined with an LER Achievement Wallet, provides employers and workers with a mechanism to find each other, while maintaining the privacy of learner-workers. Though a “blind” search for talent that meets hiring needs may help to mitigate inherent hiring biases, more research is needed to investigate unintended consequences of this technological solution. It is here a call for further research hopes to be heard and expanded upon by the greater community.

CONCLUSION

Change within the talent management pipeline is happening now, and how it is managed and communicated matters. The greatest benefits to individuals, employers, and education providers are fueled through skills-based interoperability—which will be created through collective action. As the future of work continues to advance at an ever-increasing pace, educational institutions, employers, and workforce development organizations must work together to evolve their education offerings, professional development, and hiring practices to find and activate new and hidden talent. The return on investment for those individuals weaving in and out of education and the workforce is not a zero-sum game or an either-or scenario between non-degree credentials and traditional degrees but will be built on personalization and a unique educational experience. Skills will be the new currency of value to be the connector of the infrastructure to enable this transformation.

Through these efforts in creating a scalable, interoperable skills architecture across multiple institutions in the talent supply chain, we lay the foundation to help transform the pathways to opportunity. WGU believes that these advancements in skills-based curriculum and learning experiences where the competencies that students are earning are linked to workforce-relevant skills and are transparent to both students, faculty, and employers will help underserved populations and under-identified individuals. As the future of work continues to advance at an ever-increasing pace, educational institutions, employers, and workforce development organizations must evolve their education offerings, professional development, and hiring practices to find new and hidden talent.

Much like early humans taking to deeper water we must learn to navigate into the future by mapping a new course set by modern stars—constellations of skills.

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KEY TERMS AND DEFINITIONS

Competency-Based Learning: Refers to systems of instruction, assessment, grading, and academic reporting that are based on students demonstrating that they have learned the knowledge and skills they are expected to learn as they progress through their education.

Interoperability: The ability of computer systems or software to exchange and make use of information.

Learning and Employment Record (LER): This is a comprehensive digital record of a worker's skills and competencies.

Skills-Based Hiring: A hiring approach that concentrates on a candidate's practical skills and performance rather than formal qualifications.

Transparency: The quality that makes something obvious or easy to understand.

Chapter 5

Brought, Sought, and Taught: Toward a System of Skill- Driven Applications

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ABSTRACT

Skillification is a powerful concept that can drive better outcomes for students, employers, and institutions of higher education (IHEs). Successful use, however, requires IHEs to adopt a systems thinking mindset more than developing a singular taxonomy or exquisite model. Creating a system of skill-driven applications assumes that universities have rich input language that can be translated to skills without extraordinary investment or effort and can do that translation many times over using different algorithms created by different providers as their application needs warrants. Two tests conducted at Northeastern University offer guidance on how to approach this new design: by affirming the feasibility of using syllabi as input for automated skill extraction and identifying data evaluation activity that drives better decisions about third-party partnerships and skill-driven application use.

INTRODUCTION

Continuously building connections between academic curricula and the skills employers need is an imperative for institutions of higher education (IHEs). An overwhelming percentage of workers consider continuous skills development as either important or essential to future career success (Rainie, 2018), and many believe high demand skills correlate to higher paying jobs (Clayton & Torpoe-Sabey, 2021). For those areas of IHEs that primarily serve working adults and historically underrepresented and underserved populations, this imperative is especially urgent. Providing learners with appropriate opportunities to develop and apply skills is not just a trend, it is fundamental to creating a more inclusive prosperity.

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As IHEs strive to accomplish this mission, a good starting point is to explicitly associate learning content and activities with the skill(s) they address, a process we will follow Lightcast (2021) and refer to as “**skillification**.” Once identified, the skills from a curriculum can be used as a connector to other things that have been similarly tagged (Lee, 2005; Sodhi & Son, 2010; Zhang & Zhang, 2012). In one such example, Western Governors University and Central New Mexico Community College defined skills taught in courses which were then mapped to skills identified by the National Institute of Cybersecurity as meaningful for cybersecurity professionals. As students completed courses, the associated skills they had gained were stored in a Learning Credential Network blockchain created by IBM and used in career counseling as they explored their job potential (America Workforce Policy Advisory Board Digital Infrastructure Working Group, 2020).

What is most intriguing about applications like the one from IBM is that skills appear to be a unit of information that can be extracted from a number of experiences and can power a broad range of solutions. In addition to helping students find jobs relevant to their education, matching skills between jobs and courses can help IHEs keep curriculum current with market needs or guide course recommendations relevant to a student’s job goals. Clear articulation of which skills are taught at which points in a course can be used to dissect courses into smaller units that can be stacked differently for different learner populations as context warrants. Identifying skills can facilitate a model for thinking about how to value real-world experience in lieu of classroom learning, which is useful in awarding prior learning credit. It also offers an easy way to connect the curriculum of one IHE to another to support credit transfer in a more streamlined and consistent manner.

Despite the great potential, however, it is not yet clear that there is widespread use of skill identification for the sorts of applications we have just imagined. Defining and mapping skills in a curriculum can be daunting for an IHE. The level of intentionality that identifying the relationships between skills and coursework calls for is far greater and significantly more time consuming than typical curriculum development approaches (Joyner, 2016; Wang, 2015). Skill identification by faculty is often painstaking and, even worse, occasionally inconsistent (Britton, et al., 2008). Once mapping has occurred, documentation of that work generally lives in disconnected spreadsheets which can be cumbersome to access. Limited access makes it difficult for faculty and students to use skills information on a regular basis. It also makes it less likely that information will be updated regularly, a problem which can be especially damaging in disciplines where knowledge and needed skills are constantly evolving (D’Orio, 2019).

Solutions which seek to mitigate mapping and usage concerns through algorithmic identification of skills and easy access from a database constitute an improvement but are often bespoke projects driven by computer science researchers (Almaleh et al., 2019; Tavakoli et al., 2020). The models which define how lexical terms are elevated to skill status tend to be narrowly focused due to their exploratory nature and are built as discrete standalone solutions that will require ongoing investment from a university to maintain. Increasingly, universities can avoid expensive investment in limited, resource-hungry technology projects by leveraging a burgeoning ecosystem of third-party options. The explosion of online job boards has created rich datasets with skills information driven by actual employer demand. Companies, like Lightcast, have developed systems that parse this information into a skills taxonomy and have built tools to help users sift through connections between courses and jobs. Some organizations offering to store an individual’s lifetime of learning, such as iDatify, standardize the inputs they receive into “smart resumes,” effectively creating a skills taxonomy. Nonprofit consortia like Open Skills Network or the T3 Innovation Network promote a set of standardized “skill descriptors,” itself a comprehensive taxonomy, for use by all network members. In addition, increasing reliance on human resource management soft-

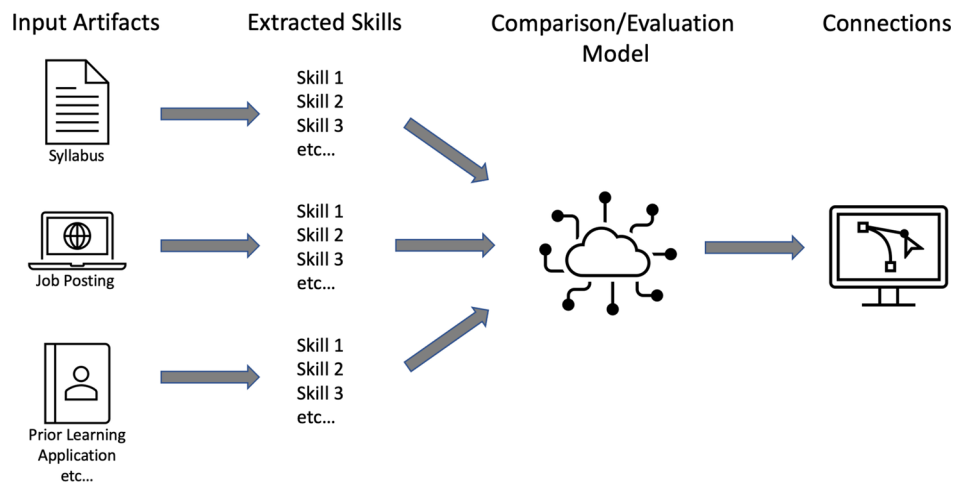
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ware has driven creation of tools to help employers develop their own, proprietary skills taxonomies that inform hiring, development, and advancement decisions (Bersin, 2020).

The problem of relying on a technology solution created by one of these third parties is that each has a reasonable, but vested, interest in considering its skills list as best or most appropriate. The result is a Tower of Babel-like cacophony of similar but nonetheless distinct taxonomies of skills that still require universities to invest time and energy creating crosswalks between them or to make a difficult choice to work with only one solution (World Economic Forum, 2021). Either decision clearly limits the potential for work with a range of partners. Faced with the onerous choice of intense manual effort or resource-hungry bespoke solutions or proprietary taxonomies that are difficult to use in an extended ecosystem, it's not surprising that IHEs may struggle to embrace skillification in meaningful ways.

Responding to the gap between the promise and the execution of skill identification, the College of Professional Studies at Northeastern University (CPS) conducted several tests designed to deepen our understanding of what was needed to support a more strategic, *systems-thinking* approach. A full skill-driven system, shown in Figure 1, consists of artifacts that encode skills, a method to reduce artifacts to a list of skills, some application or model to compare skills from different sources, and an output with a description of relevant connections between artifacts.

Figure 1. Diagram of a skill-driven system

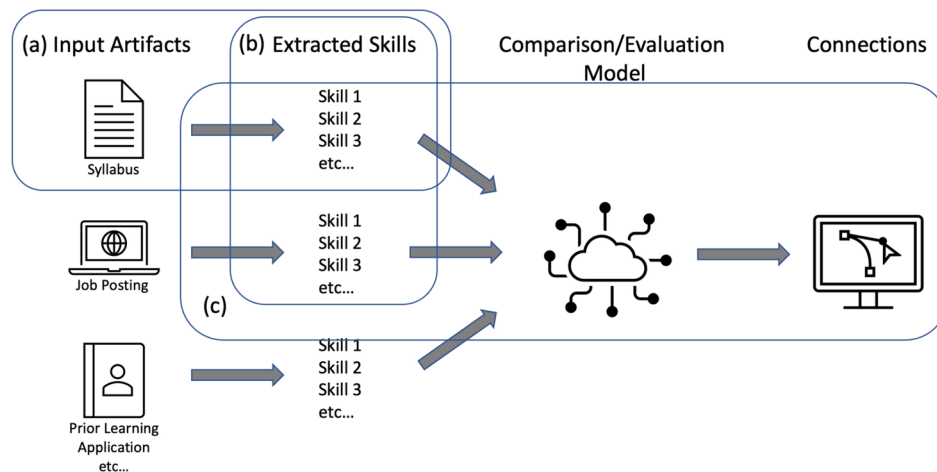


To truly capture its broad potential, such a skill-driven system requires that universities have rich input language that can be translated to skills without extraordinary investment or effort and that they will do this translation many times over with different algorithms created by different providers chosen for their appropriateness for each specific application need. This is a radically different approach from the push toward creating a singular, perfect list of skills that is adopted as currency across the entire education ecosystem. Instead, we imagine a system that is not all too dissimilar from how underlying credit information is translated into a credit score for consumers - dynamically and with some variation in execution by different score creators.

Our inquiry focus, therefore, was not on whether a curriculum can be skillified into one ideal taxonomy or to validate one particular use case; rather, as indicated in Figure 2, we evaluated system components.

In particular, we asked (a) whether the College has a data input that can reasonably serve as the basis for automated skillification, (b) could we gain confidence that the quality and relevance of automatically generated skills was acceptable, particularly without requiring significant human involvement in adjusting the results; and, (c) what additional considerations on skill extraction and modeling are raised in different use cases that might guide how to engage with third-parties and how to select the best partner.

Figure 2. Elements of a skill-driven system examined by tests



This chapter will distill lessons learned from the CPS tests and offer actionable advice and practical suggestions for curriculum developers interested in skillifying the curriculum. For those new to the concept, it offers an exploration of skillification as an enabler for curriculum strategies including modular learning, microcredentialing, and relating workplace experience to curriculum. For those already beginning to explore what skillification might offer, these perspectives may provide insights and examples of steps institutions can take now to pave the way to accelerate more quickly and systematically toward solutions on the horizon.

RESEARCH DESCRIPTION

Our research consisted of two tests conducted in partnership with Lightcast, a leading third-party skillification company. The initial test, designed to answer question (a)¹, evaluated a variety of extant course artifacts, including course descriptions and course-level student learning outcomes found in syllabi, to understand if and how well each resulted in robust skill lists using Lightcast’s automated skill extraction solution. Since syllabi are routinely created by faculty for courses independent of a skillification agenda, success in using them for skillification is an empirically less labor-intensive solution for sourcing skill tags for courses. Syllabus evaluation sought to explore a fundamental hypothesis that more input language would correspond to more unique terms and more unique terms would, in turn, translate to more skills identified. To accomplish this, we used a simple bag of words method to quantify the volume and

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variation of words found in syllabi and correlate that with the number of skills that were subsequently identified by the Lightcast algorithm as relevant to course content.

The second test tackled question (b)² and looked at the strength of the connection between skills found in job postings and the course skill lists to validate the quality of the automatically extracted skill information. This work required exploring a few specific points. Notably, did syllabi produce enough skills to achieve reasonable levels of matching to job skills? Were the skills relevant—did the automatically extracted skills cover the same sort of information that was present in job postings, or did syllabi emphasize things employers did not? And finally, was there any benefit from having faculty input on adjusting skill lists to make them more appropriate for use in skill-driven applications? This directly addressed whether there was still a need for resource intensive activity even when using an algorithmic approach. The second test concluded by vetting the automatically generated curricular skills quality in two specific use cases: informing curricular updates and recommending courses to learners based on their job aspirations. Exploration of specific applications was also expected to inform question (c)³, when to engage with third parties and how to best do so.

Success in both tests would mean that we had identified a scalable, repeatable solution for skillifying our curriculum that could drive different application use cases. Armed with positive answers to our questions, we could further work backwards to identify what language metrics for syllabi corresponded to the desired number of actionable skills and therefore establish minimum benchmarks for syllabus language to guide faculty as new syllabi were written. In this way, we not only sought to validate the potential for using course syllabi as inputs to an algorithmic skillification system, but also to develop a perspective on how to maintain the impact of this input over time.

TEST ONE: EVALUATION OF SYLLABI LANGUAGE

Data for the Initial Test

For the initial phase of work, we created test data sets for three graduate degree programs in CPS, Project Management (PJM), Analytics (ALY) and Regulatory Affairs (RGA). Data consisted of course description language, course outcome language and a section from the syllabus that provided information on weekly topics from all courses required for each degree.⁴ While these three syllabus sections are readily available in all CPS syllabi, which follow a standard template, the actual language content is specific to a course and not part of the boilerplate language that is repeated from syllabus to syllabus. Each set of raw language input was cleaned to exclude stop words (“a” or “the”, e.g.), words of three characters or fewer, and special characters. The cleaned language was deemed to have a higher likelihood of containing only words with interesting semantic content.

In addition to data from the syllabi for courses in the test degrees, we also compiled language from course descriptions and course outcomes found in the syllabi for courses in 27 additional graduate degree programs. These degrees cover a wide range of business, social science, and technical disciplines, and correspond to richly varied skills. The aim of this additional data set was to facilitate a slightly deeper dive into whether there was meaningful variation in language and skillification across disciplines.

Using an application programming interface (API) from Lightcast, we then provided the syllabus language as input to the Lightcast skillification algorithm and received back the corresponding skills. Lightcast mines job posting websites for language that they parse to create a dictionary of roughly

30,000 skills (Verougstraete, 2020). The exact nature of the skillification algorithm is unknown to us but was not a concern. An important aspect of creating a system in which we might engage multiple vendors is a recognition that we often will not have intimate knowledge of each skill extraction process. Knowledge of a commercial company’s internal workings may reasonably constitute trade secrets that they are disinclined to share. Furthermore, like maintaining a tech platform or guiding faculty through a manual process, evaluating a vendor’s code requires an investment of university resources, which we are seeking to minimize by using a partnership model. We will examine the boundaries of accepting the “black box” nature of third-party output as part of our analysis.

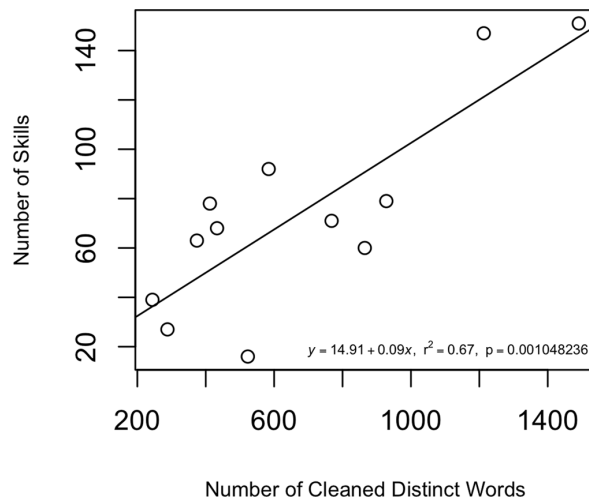
Volume and Variation of Language

Initial examination sought to understand and quantify the volume of input at our disposal. In the three test master’s degree programs, the total language taken from all three sections of the syllabi for all courses in each program was equivalent to a 10-15 page paper. While there was some variation, the language for each course corresponded to roughly two paragraphs. An early potential hurdle, that syllabi simply did not contain all that much useful language, was easily cleared.

Additionally, there was a reasonable amount of variation in what words were used in different sections of the syllabus. Only about one fifth of the words in the data for each program was used in more than one section. Practically, this means that all the different sections of the syllabus contributed distinct terms to the final list of cleaned words, and it appears that to create the richest input data set possible, all syllabus language that can be included as input to a skillification algorithm should be.

The power of including as many terms as possible was validated in a comparison of the number of input words and the number of skills extracted from each programs’ course descriptions, learning outcomes, weekly topics, and a combined dataset of all three (Figure 3). There is a general increase in extracted skills with a rise in the volume of input terms.

Figure 3. Relationship of number of words to number of skills for each language source



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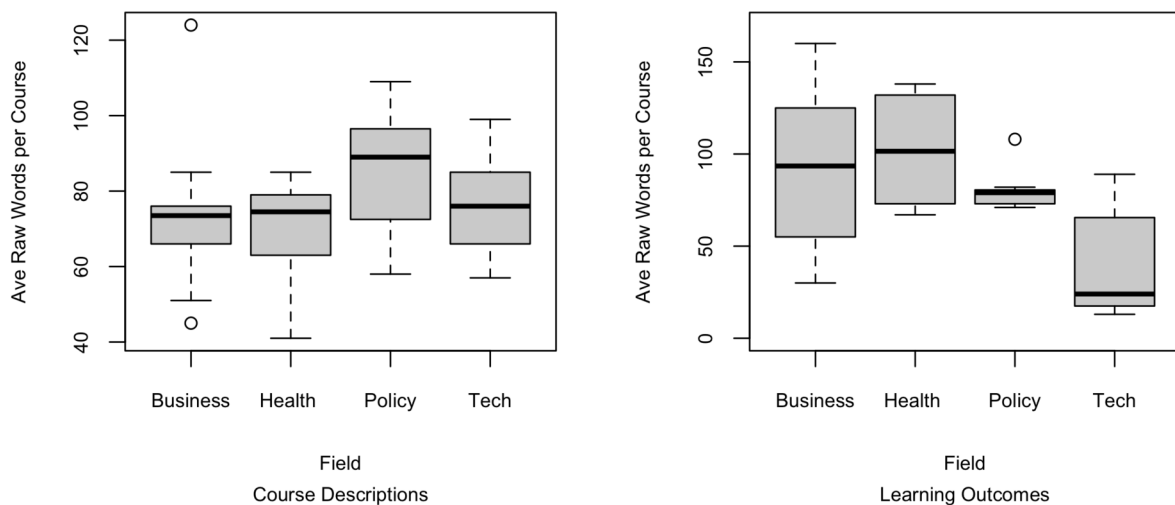
Results from the first test, thus far, confirm that syllabi appear to contain language that can be used for skillification. All sections contribute unique information and should be used if it is practical to do so. In anticipation of building best practices to guide faculty writing new syllabi, we also find support for the foundational premise that more language corresponds to more distinct terms which, in turn, loosely corresponds to more skills extracted.

Variation by Discipline

Given an initial affirmation of the potential of syllabus language, the next step was to determine if the three test programs were reasonably representative of the range of disciplines offered in the College. Some disciplines rely more on specialized vocabulary and a preponderance of field specific technical terms might alter the fundamental nature of the volumetric observations. Comparison of course description and course learning outcome language from the 27 CPS grad programs in our second data set revealed more consistency in the word count of course descriptions than for the program course learning outcomes (course description standard deviation = 17.0 words; course learning outcome standard deviation = 37.0 words).⁵ This certainly makes sense since the logistics of publishing course descriptions in a catalogue forces a prescriptive length for this content. There are no such limitations placed upon language which lives only in the syllabus, and it is reasonable to expect more variation from course to course.

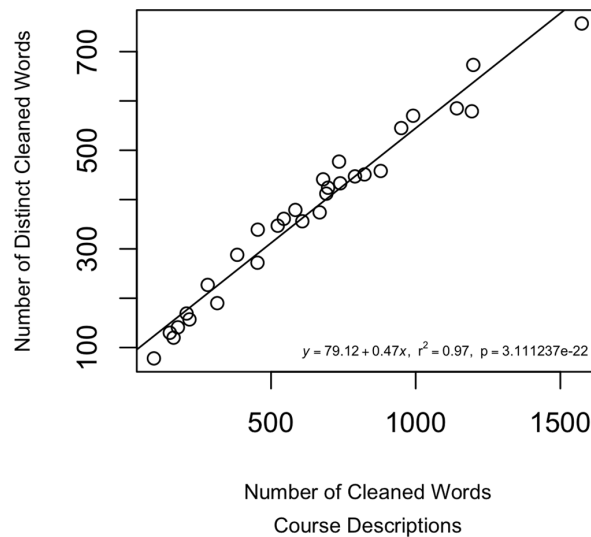
Notably, however, the variation in the number of words used in syllabi was not sensitive to specific disciplines. As shown in Figure 4, courses that can be generally grouped as applying to law and policy are described by above average word count in course descriptions but below the averages for other disciplines in course learning outcome language. Tech related courses average slightly higher word counts than other fields in course descriptions but noticeably less in course learning outcomes. The key here is that there is variation, but not variation that can be explained by the nature of the content being described.

Figure 4. Variation in average raw words for all grad programs grouped by general area



Additionally, there is lack of systemic variation in lexical diversity across disciplines. Comparison of word count for different disciplines shows a definitively clear, strong linear relationship (Figure 5). For every two words in the course description and course outcomes language in any field, the number of distinct words in the cleaned dataset (i.e., where repeated terms were only counted once) will roughly increase by 1.

Figure 5. Relationship between word counts found in course descriptions for all grad programs



Given both observations, it appears reasonable to imagine generalized guidelines for language volume requirements in syllabi without any discipline specific variation.

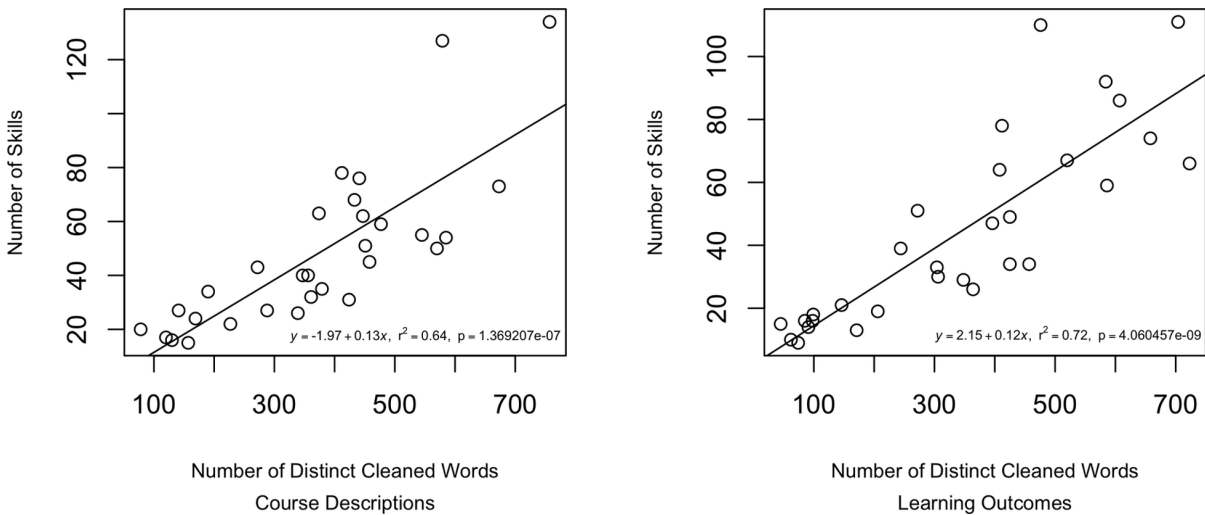
Robustness of Skill Extraction

The final, and arguably most important, metric is examination of the number of skills extracted from a given language input. Skill lists were successfully created from all syllabi in all fields, which affirms that there is indeed a signal for skillification broadly in syllabus language. What's more, as shown in Figure 6, the number of skills derived positively correlated to the volume of input language—the more distinct cleaned words in the input data, the more skills extracted.

That said, the correlation between input language volume and skills extracted is not quite as strong as the one between cleaned and distinct words in Figure 5. Whereas cleaned to distinct word counts all fall on or very close to the regression line that best expresses the relationship, the data points of the relationship between input language volume and count of skills are more scattered. Some sit well above or below the regression line, indicating variation among programs that is worth understanding better. Since we have already determined that the input language did not appear to vary in meaningfully identifiable ways, it seemed appropriate to take a step back and consider if the variation might be a function of the skills taxonomy itself.

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Figure 6. Relationship between word counts and skills counts for all grad programs



When working with a stable and trusted input source to extract program skills from, the quality of a skills taxonomy is most easily described as the match rate to the input. However, because we are asking an *a priori* question—are course artifacts such as course descriptions, course learning outcomes and weekly class topics good input—we also need to think about the degree to which the taxonomy contents play a role in identifying program skills. The richest course language mapped to a highly limited skill dictionary will still yield a limited result. We need to be confident that the skills taxonomy is appropriately exhaustive in its compilation of skills across the types of programs and job opportunities that should be relevant.

Typically, the quality of an exhaustive measure of something is validated by comparing it to an estimate of the size of the total population—in our current case, a count of the number of the skills that are found in all the jobs in the world. Because no attempt at such quantification has ever been conducted that we are aware of, we are reduced to proxy measures to gauge the sufficiency of any third-party skills list.⁶ To be clear, our goal is to be able to create any number of program skills lists by mapping our content to a range of skill taxonomies. It is reasonable to expect that each taxonomy will have its own strengths and weaknesses so the focus here is not to applaud one source over another but to define an evaluation process that any IHE might undertake to assure proper fit with whatever list is used for the task at hand.

To achieve this, calculating the ratio of skills to cleaned distinct terms in input language, which we call “input performance,” can be useful. Looking at the “input performance” of syllabus language across all degrees, we find programs in Table 1 for which language from both the course description and learning outcomes sections of syllabi yield fewer skills than might be expected given the volume of the input. Interestingly, these programs cluster in the law and policy area. In contrast, a non-trivial number of technology programs have above average “input performance” scores for both sources, yielding more skills than would be expected given their input language volume.

Table 1. Programs by input performance relative to average input performance across all grad programs

Below average score on all syllabi sections	Above average score on one syllabus section; below average for the other	Above average score on both syllabi sections
Policy: Food Regulatory Affairs Policy: Security and Intelligence Policy: Criminal Justice Policy: Homeland Security Policy: Law and Policy Policy: Global Studies Business: HR Management Business: Public Relations Business: Leadership Business: Communication Business: Nonprofit Management Health: Nutrition	Health: Human Services Health: Healthcare Management Health: Physical Therapy Health: Clinical Trial Business: Finance Business: Accounting Business: Construction Management Tech: Technical Writing Tech: Remote Sensing Policy: Regulatory Affairs	Health: Respiratory Therapy Tech: Geographic Information Systems Tech: Digital Media Tech: Enterprise AI Tech: Analytics Tech: Information Technology Business: Commerce and Economic Development Business: Project Management

Since it is a bit of a stretch to imagine that different faculty drafting individual course syllabi across a set of different but related programs are all comparably poor at using rich, explanatory language, a more likely explanation for the clear clustering of performance by content area is lack of representation in the skill taxonomy itself. It is important to call out that a lower number of skills associated with a given discipline may be appropriate —there may legitimately be fewer discrete skills needed for someone in public service than in high tech. However, even if this is the case, the practical implications of skew in the taxonomy should be considered. As will be discussed shortly, there is some evidence that having fewer skills leads to lower matching levels when matching courses to other skillified artifacts, such as job postings. A sensible response is not to require rethinking the taxonomy—we want to stipulate that this is impractical since a systems approach demands that it be provided by the third-party vendor. Rather, given the success of “more equals more” in the initial evaluation of syllabus language, we propose simply increasing input to capture as many skills as may be available. Until further research determines that lower skill counts are acceptable for matching applications in certain disciplines, faculty teaching in domains with lower skill representation in a taxonomy might reasonably be encouraged to include more language in their syllabi than colleagues in fields with higher representation. It also seems reasonable, in cases where the input performance of certain programs is sufficiently concerning, to explore choosing a different third-party vendor.

We conclude the first test with confidence that the answer to our first question, whether the College has a data input that can reasonably serve as the basis for automated skillification, is yes. Course descriptions, course learning outcomes and weekly topics contained in syllabi offer a rich source of input language for skill extraction. Since syllabi containing these kinds of elements are routinely created by faculty already, universities may find that they have already achieved scale in creating an appropriate input for an automated skillification solution with little additional effort required.

In addition to gaining confidence about a key building block for skill-driven applications, we have also gained some initial understanding of how to make overall system design decisions. Given the correlation between language volume and the number of skills extracted, there is value in defining a minimum amount of language that syllabi contain as a best practice to guide faculty in future syllabus creation. In the case of CPS, we determined that the volume of language in each syllabus section should be above a minimum defined by evaluating the average across all courses in the College. With this requirement, only 3% of input language was incorrectly identified as acceptable when it did not generate the number

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of skills that we ultimately determined we wanted. Happily, any minimum language requirement does not have to be sensitive to discipline variation outside of demands suggested by skew in the skills taxonomy itself, which can be easily identified by calculating the “input performance” ratio across programs. Using a measure like this, educators can examine input content for patterns to consider as they make decisions about specific adjustments to any basic language requirements they establish.

TEST TWO: EVALUATION OF MATCHING BETWEEN SYLLABI-BASED SKILLS AND JOB-BASED SKILLS

Data for the Second Test

For the second test of the inquiry, we examined one program, Project Management (PJM), to see how well skills from PJM courses matched to skills culled from jobs posted online. We received a file from Lightcast of roughly 12,000 random jobs that included the job description and title along with a list of skills that Lightcast derived from the job description field.

We reviewed job descriptions to identify “true” jobs relevant for the PJM degree holders. Jobs that required a standard industry credential (a Project Management Professional certification offered by the Project Management Institute) or used the term “project manager” in the job description were flagged. Additionally, jobs that used one of 87 keywords deemed indicative of project management responsibilities in the job description were flagged. The flagged jobs were then reviewed manually for appropriate fit, resulting in identification of 363 jobs that were appropriate for PJM degree holders.

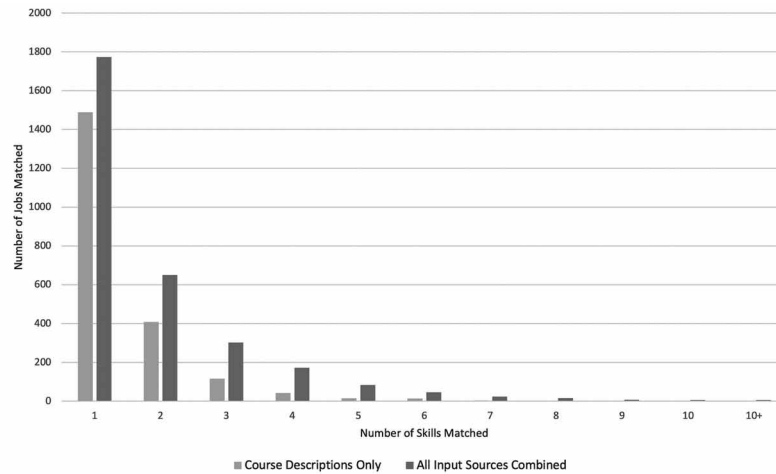
Match Rates

Prior work in skill-driven applications has typically focused on the viability of a given matching solution with less attention paid to the nature of the elements being matched. Since we are most interested in evaluating whether we have an acceptable way to create an appropriate list of curricular skills, we focused on how well our skills exactly matched skills from other items of interest. We can certainly imagine more sophisticated matching models that yield better predictions about reasonable connections between artifacts than what we consider here. There is ample literature that offers insight into a range of relevant improvements (Gugnani & Misra, 2020; Kaur et al., 2020). What is obscured by the more advanced models, however, is an understanding of the fundamental level of quality needed in the data input for an extensible system to achieve results.

Application of a deterministic matching routine returned a preponderance of cases, roughly three-quarters, where no matches between PJM course skills and jobs occurred. This was a good result since a very small subset of jobs were, in fact, relevant to PJM degree holders. When matching did occur, it was typically at a low volume: one to three skills matched in most jobs. The upper bound was 20 matched skills.

Variation in the skills match rate for different syllabi sections affirmed the fundamental assumption that identifying more skills in the curriculum would drive more matches to job content. As shown in Figure 7, the skills derived from using the combined language of all PJM syllabus sections matched more jobs than the skills from the course description language alone, a list about one-third the length of the combined list.

Figure 7. Number of jobs by number of skills matched



While it is useful to be able to quantify the amount of matching given different skill lists, perhaps the more interesting question is “what amount is enough?” Using coding that identified the true positives in the jobs data (i.e., the jobs the PJM degree did prepare candidates for), a logit model was created to quantify the probability that a job the complete dataset was a true PJM job as a function of the number of matches between PJM curriculum skills and the employer skills. The model results indicate that for each additional skill that matched, the odds of that job being a true project management job increases by roughly a factor of two. The impact of any additional matching, at least in this example, is reasonably large, and further reinforces the assumption that there is value in building out longer skill lists as is feasible.

One challenge of looking only at a count of matched skills is that, as in the discussion of skill extraction relative to taxonomy contents, matching between syllabi and job skills also refers to the intersection of two stimuli—only one of which we control. IHEs are unlikely to ever have a material impact on how employers draft the descriptions of jobs they post. Therefore, we refined our analysis to account for variation that we should understand even if we cannot affect it. The logit model was adjusted to consider the number of skills in each job description that were being matched against, the opportunity for matching, in addition to the actual number of matches. With this refinement, the projected probability of successfully identifying appropriate jobs with varying levels of information could be created (Figure 8; bands indicate the full range of possible values at a 95% confidence interval).

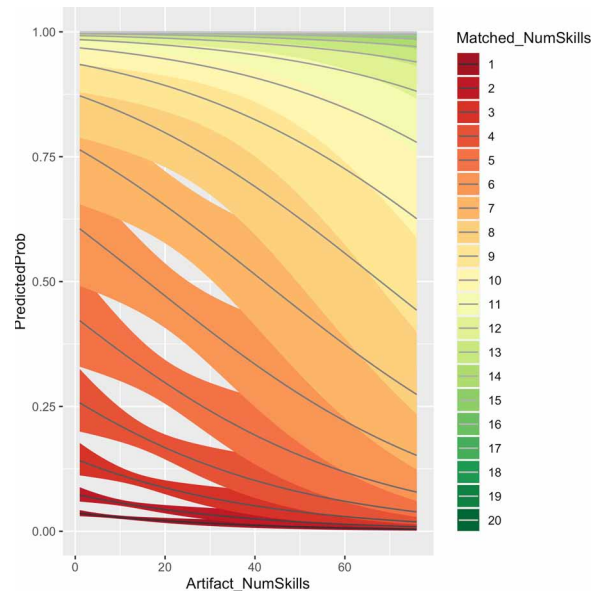
The projections show that to be above a 50% probability of predicting the correct TRUE/FALSE status for a PJM job (i.e., better than guessing), we should look for a minimum of seven curricular PJM skills to match in jobs defined by 40 or more skills. For jobs that are described by fewer skills, the same number of matched skills offers closer to a 75% probability of predicting the right classification. Since CPS programs corresponded to an average of 45 skills per program, our curricular skill information was comfortably more than the minimum matches we might require.

The matching test provides an initial answer to the second question about the quality of our algorithmically generated skills lists. From the basic match rates, we see that there were enough and the right kinds of skills surfacing algorithmically from syllabi that match rates between job and course skills had some level of predictive power. It also affirmed, not surprisingly, that there is a positive relationship between

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the number of skills matched between two stimuli and the likelihood they have a valid relationship and, consistent with the first test, that volume was important. The more skills extracted from a course artifact, the more matches to jobs.

Figure 8. Probability of successfully identifying appropriate jobs with varying levels of information



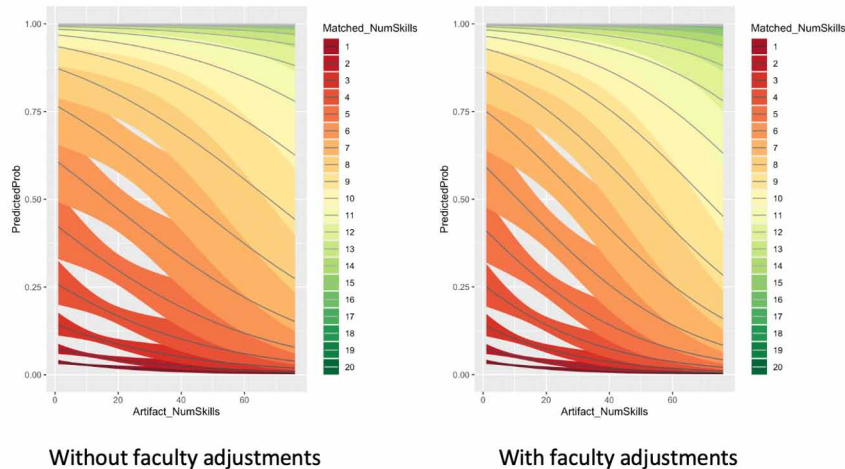
Impact of Faculty Review on Makeup of Skills Lists

As one last point in evaluation of the quality of algorithmically derived skill lists, we turned our attention to how adjustments made by faculty may or may not improve things. We were interested both in how the number of skills for a program might change following faculty review as well as if the types of skills they introduced (or eliminated) resulted in skill lists that were qualitatively different.

We provided skills lists for each course in the PJM program to faculty and invited them to add, move or eliminate skills as they saw fit. From a quantitative perspective, faculty review of the PJM skill output had little impact. Project Management faculty added 11 new skills, removed 5 skills, and adjusted skill assignment to address or eliminate repetition. While this did change the relationship between courses somewhat and arguably offered more precision on how learning accrues through the degree journey, it did not shift any conception of the skills taught in the program.⁷ Overall, faculty changed fewer than 8% of the total number of skills.

Given the very limited changes introduced by faculty, it was not surprising that job matching also was not markedly impacted. Matching the job description skills against the faculty-cleaned PJM lists yielded predictive power that was essentially similar to, actually very modestly worse than, matching the lists of algorithmically derived skills (Figure 9). At least for use cases where progression through the degree is not a factor, we determined that the burden of soliciting faculty input did not change the result enough to make the investment warranted.

Figure 9. Comparison of probability of successfully identifying appropriate jobs using skill lists with and without faculty adjustments



In contrast to the outcome in the test with Project Management faculty, the impact of review in a similar test run with faculty in the Organizational Leadership (LDR) program did uncover an interesting finding. In their review, Leadership faculty added 19 new skills or about 11% of the total number of program skills. While this was slightly more than what Project Management faculty did, it still had little to no quantitative impact. What was interesting was that skills introduced by the Leadership faculty in their review did not correspond to skills in Lightcast’s dictionary.

In a few cases, the lack of correspondence could be chalked up to variation in tokenization. Faculty chose slightly different language than Lightcast to capture the same concept. While there may be some instinct to solve this problem by coaching faculty to use specific desired vocabulary, this could be counterproductive. Setting aside the pushback such a prescriptive approach would likely engender among experienced faculty, standardization on term usage inside the IHE will still not account for any variation across vendors. From the same content, one vendor may extract “cost management” and a second “budgeting control.” Standardizing on one term will still only work some of the time. A better solution is to realize that skill token variation will occur only when we invite faculty to imagine the skill itself. It should completely disappear when we take normal descriptive text—used by faculty in syllabi and employers in job descriptions—and derive skill lists by applying the same extraction process/algorithm to all input. If the skillification system codes a given skill as “cost management,” for example, it should reduce the appropriate text only ever to “cost management” and never introduce a different term for the same concept.

In a handful of other instances, the lack of skill correspondence was more semantic in nature. Faculty introduced terms focused on personal development milestones such as “growth mindset” and “critical reflection.” Once again, we might imagine that guidance to faculty on language choice could minimize gaps in skill identification. However, it is not clear that the lack of skillification in this case is even a problem. Review of job post language reveals that employers do not reference anything resembling “growth mindset” to a significant degree. Consequently, a taxonomy derived from job postings will not likely include any version of this skill. The fact that faculty articulated a skill that did not exist in the

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Lightcast taxonomy will play little role when using that taxonomy to identify appropriate jobs for learners who complete a given course.

Despite not being a common staple of terms used in job postings, the concepts identified by the Leadership faculty are not without merit. It is useful to communicate development of a “growth mindset” as a course objective and the value of possessing one is hard to argue. Indeed, there can be interesting use cases where this *would* be a meaningful skill to identify—in a solution offering modularized learning matched to student-defined rather than employer-defined goals, for example. In this case, thoughtful vendor engagement is probably a better route to solve the taxonomy gap and avoid the need for tapping into precious faculty time. We might reasonably expect that a third-party skill list developed with a purpose more aligned to the use case purpose would contain the skills that our faculty felt were missing.⁸

The current exploration of matching drives confidence in the quality of skills derived from parsing syllabi, without requiring laborious additional review by human subject matter experts/faculty. To the contrary, there is some evidence that matching artifacts subjected to different skillification treatment leads to slightly worse outcomes than matching in a system where both artifacts are treated comparably. In answer to the second question driving the formulation of our systems approach, we conclude that well-written syllabi, on their own, can effectively deliver skills of appropriate quality using LIGHTCAST’s skill extraction solution.

As with the first test, this investigation also highlighted important additional considerations about system design. We begin to see the practical need to be sensitive to the nature of the desired use of an application. The absence of personal development goals in the taxonomy flagged by the Leadership faculty was not an issue for a solution which matched course skills to jobs, given how employers write job descriptions, but it could be limiting in other imagined uses. A heightened awareness of the use case considerations can help IHEs identify relevant criteria for vendor review—for example, by surfacing questions about how they construct their skills lists and how that may lead to important gaps in the skills identified or matched. The need for use case sensitivity as a driver in vendor selection becomes all the more evident as we unpack our two sample applications.

APPLICATION IN TWO USE CASES

Guiding Faculty in Adjusting Curriculum

With the fundamental matching activity sorted, we could now turn to question (c), understanding how the matches between jobs and syllabi skills might lead to applications that drive curricular adjustments and course recommendations and what guidance this offers for working with third parties.

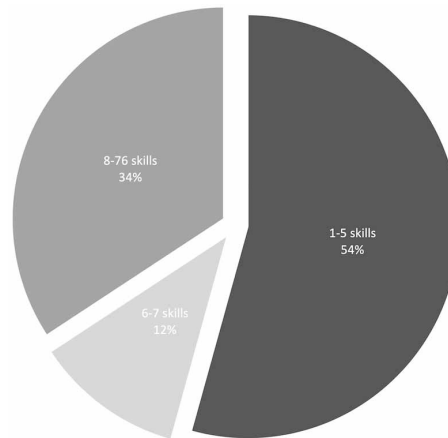
There are two actions that might be taken based on a gap analysis between course and job skills: removing skills taught in courses that do not match to skills sought by employers and adding skills asked for by employers but not taught in courses.

Adding to the Curriculum

We have gained confidence in the quality of the syllabus skills. However, as we saw in the discussion of the taxonomy content, the richness of the skills data we want to match against is also important. We need to reconsider the jobs data to achieve reasonable confidence in course-to-job skill matching. Earlier

modeling offered guidance on the amount of matching that is desirable to predict job classification in our very simple system, roughly six to seven skills. Unfortunately, as shown in Figure 10, a little more than half of job descriptions in our data set were so short that they corresponded to five or fewer skills. They simply did not contain enough information to support even a marginally reliable classification prediction.

Figure 10. Distribution of number of jobs by how many skills were extracted from them



This creates a reasonable suspicion that a number of relevant cases may not be identified in our classification system even though they should be. Lowering the amount of matching required to identify a relationship will allow for more cases to be identified, but it will also reduce the probability of correct classification and introduce a larger number of false positives. As the illustration below suggests, this can lead to false conclusions and incorrect decisions.

The first column in Figure 11 identifies the skills sought in at least 15 project management jobs but not taught in any of the courses in the PJM degree. Looking at the skills list in the first column immediately prompts the observation that not all entries found in the job posts and flagged by Lightcast are what we might consider skills. Merriam Webster offers a useful definition of a skill as “a learned power of doing something competently; a developed aptitude or ability” (Merriam-Webster Inc, 2022). Following this definition, it is not clear that something like “supply chain” should be included.

As with the discussion that coaching faculty to find perfect skill descriptors may not be a necessary or desirable focus of energy, we might conclude something similar here. Sometimes we use lists of skills to be meaningful. Publishing a list of skills with a course, for example, communicates learning outcomes to students (though we might argue that actual prose descriptions found in syllabi are better for this). Unlike this example which relies on skill descriptors to communicate content, skill-driven applications simply use skills to connect things together. It is not necessary to communicate the contents of two artifacts to be able to conclude that they share similar attributes. It would be nice if a skillification output did have some recognizable bearing on skills as a guiding organizing principle, but for many use cases strictly adhering to the Webster definition is not a *sine qua non* requirement. Provided artifacts being compared are subject to the same skillification treatment, flexibility in what is considered a skill by a given system should not really matter.

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Accepting that the skills in column one are essentially adequate if not literally correct, we then turn to consider how we use skill-based matching to identify reasonable changes to the PJM curriculum.

Figure 11. Comparison of job skills that did not match to any skills taught in PJM courses

Skills From True Positive Set	#of Jobs	Skills From Jobs With Low Match Threshold	#of Jobs	Skills From Jobs With Higher Match Threshold	#of Jobs
subcontracting	46	accounting	83	accounting	59
computer_science	30	merchandising	40	jira	22
accounting	27	customer_satisfaction	38	strategic_business_unit	21
supply_chain	23	warehousing	33	systems_development_life_cycle	20
automation	22	strategic_business_unit	31	computer_science	19
systems_development_life_cycle	22	packaging_and_labeling	29	subcontracting	19
customer_satisfaction	22	financial_analysis	28	warehousing	18
information_systems	19	financial_statements	28	financial_analysis	18
workflows	19	subcontracting	28	customer_experience	17
jira	18	automation	27	automation	17
financial_services	18	customer_experience	27	financial_statements	17
process_improvements	17	customer_relationship_management	27	mortgage_loans	17
strategic_business_unit	17	financial_services	27	packaging_and_labeling	16
estimators	16	jira	27	customer_satisfaction	16
cyber_security	15	supply_chain	26	customer_relationship_management	16
		discounts_and_allowances	25	merchandising	15
		...		risk_mitigation	15
		nursing	15	supply_chain	15
		occupational_health_and_safety_administration	15		
		strategic_management	15		
		truckload_shipping	15		

Because IHEs will not always have the luxury of being able to manually review jobs data, and instead will need to rely only on models to classify which jobs are relevant, we created two further groups of jobs in addition to the set of jobs we identified as related to project management. One included the jobs from our data that met a skills match threshold low enough to connect PJM coursework to jobs even when the job descriptions were very short. The other included only jobs that met a higher match threshold. The higher threshold connected far fewer jobs to PJM courses (meaning that cases we might legitimately be interested in were not identified) but also resulted in fewer wrong connections. Wrong connections could happen, for example, when a job required some skills that overlapped with project management skills but also required other, more important skills that a project management graduate would not possess. The second and third columns in Figure 11 show the job skills in each of the two additional datasets that did not match to any skill in any PJM courses. Note that the list of unmatched skills at the lower threshold was significantly longer, more than three times the true positive set list. Only a portion of that list is included in the table.

Skills not found in the true positive set but found in jobs positively classified from our matching models at each threshold are shown in bolded italic. With this side-by-side comparison, the potential danger of false positives—predicting a meaningful relationship when one does not exist—becomes apparent. Almost three quarters of the skills in the middle column were not captured in 15 or more jobs in our true positives. Faculty relying on information in the second column might incorrectly be guided to think about adding content related nursing, truckload shipping, and employee safety skills to the PJM degree.

Happily, the output given the slightly higher match threshold has fewer false positives and is more comparable to that of the true positives. From the third column, faculty could conclude that a focus on finance, supply chain, and tech skills should be interesting to develop further. This is roughly the same conclusion to be drawn from looking at the true positive data. However, there is still error we should

be sensitive to—some PJM-related jobs were not identified simply because the posts did not contain enough information to generate the required number of matches. Because our understanding of the count of appropriate cases is compromised, our understanding of the amount of demand for a skill in the marketplace is also compromised. Consider, for example, that the true positive data in the first column suggests that demand for accounting and computer science skills, requested in 27 and 30 jobs in our sample respectively, is roughly equal. In contrast, the number of jobs tallied for the third column suggests that computer science is called for in considerably fewer PJM related jobs (19) than is accounting. Program faculty relying on information only from a model might mistakenly prioritize adding more accounting skills to the program over computer science skills.

Removing Skills from a Curriculum

On the other side of the equation, the curricular to job skills matching model can also isolate skills that are taught in courses but enjoyed no matches at all to the project management jobs. A sample of unmatched skills is listed in Table 2.

Table 2. Examples of skills taught in courses but not mentioned by employers in job postings

activity_sequencing	income_tax	project_scoping
activity-based_costing	innovation	quantification
agile_leadership	integration	rate_of_return
agile_management	international_business	requirements_traceability
baselining	kickoff_meetings	resource_leveling
critical_path_method	persona_user_experience	team_building
cultural_diversity	precedence_diagram_method	team_motivation
customer_analysis	prince2	technical_data_management

Upon examination, it appears that many of the unmatched skills represent underlying competencies of more general project management capabilities. Given the richness of the syllabus language compared to the relative lack of job description language, we might reasonably conclude that job descriptions operate at a higher level of generalization than our curricular data. When an employer wants someone with “project management” skills, that employer is implicitly, but not explicitly, requesting skills in “team building,” “activity sequencing,” and “resource leveling,” and if job descriptions included the same level of detail as the syllabus language, we would likely see many of these orphaned skills matching. Here again, our understanding of the quality of the input data drives our understanding of limits on how we should interpret skill matching. We concluded that the true power of a skill-driven solution that informs curricular adjustment lies in considering what skills are present in the jobs data and not in the coursework. The lack of a match to a job skill from a course is not as meaningful.

The positive outcome is that CPS ultimately arrived at a strategy, even given our very simplistic matching model, to gather useful information about general areas that we should consider accentuating in the PJM degree. However, the real takeaway is that we did so with a deliberate understanding of the quality of the input data and how that shifts expectation of what we can learn from our application. In

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this case, the low number of skills in job postings required us to prioritize precision over recall which means that we can identify skills to consider adding but need to look to other sources of information to understand the degree to which such skills are in demand. Similarly, the general nature of terms chosen by employers in job posts limited our ability to gain useful insight into whether skills taught in courses but not sought by employers were, in fact, not really desired.

We concluded that, just as IHEs would do well to ask questions about how a skills taxonomy is constructed, they can and should ask vendors to explain how their solution is designed to address identifiable aspects of the data inputs, such as data paucity and lack of detail. IHEs would also do well to be clear on the goal of their use case to evaluate their associated tolerance of risk from errors in data interpretation. Developers of an application that lets students filter job opportunities by skills acquired in their degree, for example, might err on the side of providing as many options to students as possible. To do this in our simple model, they would reasonably relax the correspondence criteria so much that any information returned will include false positive hits as well. The student is not necessarily harmed by considering “stretch” jobs and can apply their own intuition about what jobs in the returned list make the most sense for their individual situation. While this kind of tradeoff seems perfectly reasonable in supporting students in a job search, it can lead to negative consequences when considering curricular change. Here, the time and cost of creating new curricula means that decisions to do so should be considered more judiciously. An IHE might determine in this latter use, as we did, that it is more important to favor accuracy over exhaustiveness in finding all the relevant cases.

Providing Course Recommendations

For the second application of algorithmically created skillification data, we wanted to understand if we could meaningfully make course recommendations to someone who was interested in applying for a given job someday. Here, we have the job signal—it is what the student identifies—and only need to call out courses that correspond to the interest defined. This is a fundamentally different use case from curricular adjustment. It is not a big data problem with its reliance on classification probabilities and a need to be sensitive to the type of errors that result. Rather the question in this use case is one of finding differentiated signals. Are course skills sufficiently different from one another to be able to drive a recommendation that is something more specific than “any course in the degree?” For this, we took the 363 jobs that were identified as relevant to PJM degree holders and matched job skills to course skills once again. This time, as a skill matched, the course was noted. In this way, we were able to show a distribution of how many courses matched to skills in each job. The results were modestly encouraging.

There was one skill (“project management”) which appeared on the list for almost every course and that anchored the target job to the correct program. At the same time, there were also a fair number of skills that were taught in only one class in the degree. This meant that, after excluding the “project management” skill, a course could generally be recommended based upon the match of a single skill. In this construct, slightly more than a third of the jobs a student might select from our true positive set could be linked to anywhere from one to four course recommendations. While we can imagine ways to improve this result such as clustering skills to achieve more differentiation among courses, the fact that some level of success was possible using skills lists derived algorithmically from syllabi without painstaking manual articulation of a skill by faculty was very positive.

One downside to our solution was that in many instances where more than one course was recommended, the learner was presented with both an introductory and advanced treatment of the same topic.

This highlights a fundamental weakness in the simple matching model: outcomes were created based on the binary presence or absence of a match, with no mechanism to include concepts like mastery. This suggests additional, and intriguing, refinements for skill-driven applications to consider.

For now, the exploration of offering course recommendations, while once again affirming the potential of syllabi as a data input source, is also instructive in helping IHEs develop vocabulary for different types of use cases. We might distill the basic nature of any skill-driven application into one of three types: finding any relevant matches, as in surfacing potential jobs to a graduate searching for work; all accurate matches as in gap analysis that provides guidance on continuous curricular improvement; or the best match, as in the case of recommending a course (or skills-based module) to a learner with a declared goal. While finding matches in large data sets requires awareness of skills volume, identifying a best match requires understanding how differentiated skills in contrasting artifacts are. Sufficient differentiation appeared to happen organically in the data we worked with in CPS.

ADDITIONAL APPLICATIONS AND FURTHER RESEARCH

The investigation by CPS offers positive indications for the viability of a systems approach to maximize skill-driven applications. As we look forward, there are two areas in which additional investigation can be useful in shoring up this initial conviction: testing the current conclusions with other skillification providers and data input sources as well as extending the notion of skills as a unit of information.

We acknowledge that our findings really indicate that what we discuss as possible is possible with Lightcast. Repeating the evaluations we've described across multiple vendors would drive further nuance in understanding how to engage with third parties and build additional confidence in relying on a systems mindset where universities can reasonably expect to work with more than one partner. We suspect that some vendors will be better than others, but we certainly uncovered at least one example where understanding vendor capabilities may be less about "good" vs "bad" and more about which provider is appropriate for a given use case.

Similarly, there is value in extending evaluation to additional data inputs. We believe it is a strong finding that syllabi are useful as they stand. However, this should be further vetted with coursework that is less professionally focused, such as an undergraduate liberal arts curriculum. It is also entirely possible that simply asking faculty to write more when syllabi need to produce more skills holds true because faculty are subject matter experts accustomed to thinking about their work in terms of learning outcomes, a very close relative of skills. We might find that input artifacts from other authors are qualitatively different and more specific guidance on language choice is warranted. It is not clear, for example, if asking employers to post longer job descriptions would address the paucity of extracted skills that we found. This may not be that pressing a question since we suspect we will not ever have an opportunity to meaningfully impact how employers write job adverts at scale, but it is interesting when we consider creation of data inputs that universities can control, such as applications for prior learning credit from prospective students. Early investigation of the language in learner requests for course credit, justified by skills they bring from their work experience, suggests that the "more is more" finding loosely holds. We note, however, that these learners do appear less precise in their use of language than faculty and may benefit from guidance beyond achieving a minimum word count.

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Finally, there is great potential in extending the power of skill-driven applications through models that transcend a simple binary presence/absence evaluation of skills. Such a refinement would allow for better understanding of mastery that might translate to more nuanced job matching by level of experience. It may helpfully distinguish introductory from high level courses.⁹ Looking at skill clusters or repetition of skill exposure across artifacts may also offer interesting proxies for learning assessment. A student who had the *opportunity* to learn something from a class is more likely to actually have learned it following a defined pattern of exposure, for example.

CONCLUSIONS AND RECOMMENDATIONS

Skillification is a powerful concept that easily piques the imagination for how it might be used to uncover connections between courses, jobs and learner experience which drive better outcomes for students, employers, and IHEs. Real success in utilizing skill-driven applications, however, lies not in developing a singular taxonomy or exquisite model. Rather, it requires IHEs to adopt a systems thinking mindset and work through creation of a solution that has scale and is flexible across a range of potential use cases. The tests conducted at the College of Professional Studies at Northeastern University offer guidance on how to begin to approach the requisite need.

Of greatest importance is the evidence that IHEs likely do not need to invest in additional manual effort to skillify the curricula. While our tests affirmed several assumptions that may seem self-evident, they also offer assurance of the fundamental validity of the proposed approach. Faculty are experts in their fields and, it appears, will naturally use language that encodes the skills they teach as they explain courses to their students. Without any specific coaching, CPS faculty had written syllabi using language of both sufficient volume and variety to generate lists of associated skills that were enough and the right kind to match to jobs, the artifacts we were interested in. The tests offer a promising sign, therefore, that a university can imagine foregoing investment in maintaining a single set of skills associated with courses and instead create them algorithmically as needed with syllabi as input and using the right taxonomy for the purpose at hand. This is a very different model from what has been traditionally followed.

The tests also provide insight into simple and straightforward guidance to faculty to assure that syllabi are optimized for this new approach. The impact of involving faculty in explicit skill identification was modest, potentially even counterproductive. If skills are to function as an effective lingua franca, it appears useful to have the same skill extraction treatment applied to all stimuli input in a given use case. Validation of basic assumptions that more language will correspond to more skills means that, rather than encouraging faculty to encode specific skills or write in a certain way in a syllabus, they simply need encouragement to say more when the existing syllabus is not as potent as desired for skillification. Specific guidance might be that the word count in each syllabus section should be greater than a benchmark defined as the average number of words currently used in syllabi across all courses in the college.

While getting more language from faculty will almost certainly correspond to more skills extracted, the tests did uncover potential variation of skill volume across disciplines. There could be valid reasons for the variation, but it may also carry practical implications that we should be sensitive to. The notion of evaluating “input performance” (the ratio of skills to the input word count) of syllabi can be helpful to identify any skew. Any course syllabus language input which fails to score above an average measure of “input performance” may want to be examined more closely and refinements considered – either in syllabus construction or vendor selection.

With a strong and dynamic solution for curricular data input in place, institutions can turn their attention to how to work with partners, internal and external, on their desired range of uses. What emerged from the tests was a need for IHEs to develop a clear understanding of each skill-driven use case to define how to choose the right partner(s) for it. Our research suggests that developing understanding follows a few steps:

- 1) Consider the skills taxonomy development. This is a key connector between artifacts in any application and warrants its own distinct investigation with vendors. IHEs should understand how any skills taxonomy is derived and updated. What sources are used? Are there known limitations, such as covering jobs in the US but not in Europe? And fundamentally, is the taxonomy creation method aligned in purpose to the use case? Personal development milestones, for example, will only be included in a taxonomy if they are described in the source material used to develop the list.
- 2) Evaluate the artifact data inputs. IHEs can work with faculty to assure quality syllabus creation; they can also guide students on the best way to present evidence of prior learning. Investment in defining and driving quality standards for input data that IHEs control is useful. At the same time, IHEs are unlikely to convince employers to draft job descriptions differently or drive syllabi best practices at other educational institutions. In those circumstances, IHEs can focus on developing understanding of the implications of quality considerations. Given the limitations of matching due to the brief, high level nature of job description language, for example, it was consistently true that identifying the full number of appropriate jobs in our test data using a classification model could not be accomplished without introducing an overwhelming number of false positives. Recognizing this and favoring accuracy over exhaustiveness to drive meaningful curricular decisions eliminated all possibility of looking at distribution of skill match rates for guidance about skill importance or priority.
- 3) Define the type of use case. There is value in simply articulating the desired goal of finding any, all or the best matched outcome. This can lead to a better understanding of tolerated risk from errors in data interpretation as well as uncovering additional data demands. The “best-matched” case, for example, requires a heightened focus on differentiation among artifacts and potentially a need for additional data elements, such as skill mastery, to make differentiation more clear.

In response to previous challenges slowing large-scale adoption of skill-based applications, the CPS tests suggest that IHEs have reason to be confident about using well-written syllabi as a foundational input to skill extraction algorithms. This offers IHEs tremendous freedom to create any number of nuanced skill ontologies with capable companies for a range of well-thought-out applications. Add in a keen eye for assuring that data and its interpretation in each use case are clearly aligned with the objective, and IHEs should find themselves quite well positioned to further their mission through understanding and leveraging connections between a student’s professional experience, employer needs, and coursework using a lingua franca of skills.

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KEY TERMS AND DEFINITIONS

Classification Modeling: Any of various statistical and machine learning techniques used to assign a test item to a certain class.

Curriculum Mapping: The process of defining skills taught in a curriculum.

Data Paucity: An issue in data sets where some variables may be lacking detail or content.

Regression Analysis: A statistical technique that compares the relationships between variables.

Skill Taxonomy: An organized structured list of skills representing a universe of possible skills.

Skillification: The process of reducing text found in things like job postings, resumes or course syllabi to a list of representative skills.

Systems Thinking: An approach to problem solving that considers the totality of the solution as opposed to a focus on one discrete piece or outcome.

ENDNOTES

- ¹ (a) whether the College has a data input that can reasonably serve as the basis for automated skillification,
- ² (b) could we gain confidence that the quality and relevance of automatically generated skills was acceptable, particularly without requiring significant human involvement in adjusting the results

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- ³ (c) what additional considerations on skill extraction and use in modeling are raised in different use cases that might guide how to engage with third-parties and how to select the best partner.
- ⁴ For this review, we focused only on each degree's required courses and department electives. We excluded information from possible electives provided by other programs.
- ⁵ It is interesting to note that the average length of course descriptions for Undergrad courses in CPS Professional Programs is 59 (with a similar standard deviation of 16.4) and for course learning outcomes is 76 (with a standard deviation of 44.4). There is a similarity to the patterns which drives confidence.
- ⁶ As Lightcast did with us, the author of a taxonomy may be willing to provide statistics on distribution of terms, which is also a useful guide to potential bias. However, this makes a generous assumption that skill category assignment by the vendor corresponds to how the university would group skills and still does not address the fundamental question of the suitability of representation.
- ⁷ To assess if faculty review impacted the skill to course mapping, we considered two views to show the relationship between courses: a simple correspondence analysis and a dendrogram of hierarchical clustering by terms. That work is not discussed in detail here but dendrogram plotting of courses clustered using the Lightcast skill list show a few outliers and a more general clustering of the remaining courses. The relationships created with the data reviewed by faculty shows more nesting of courses.
- ⁸ We do note that the "soft skills" called out by Leadership faculty may constitute a special skill category and look for more investigation into this specifically, such as found in Daubney (2020).
- ⁹ Workday (www.workday.com) and LinkedIn (www.linkedin.com) are very active in pushing these types of analysis forward.

Chapter 6

Learning 3.0: Bringing the Next Education Paradigm Into Focus

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ABSTRACT

The U.S. higher education system is struggling to adapt to the needs of modern society. Employers hire for specific skills and are increasingly looking outside of higher education degrees as those degrees fail to deliver needed skills. Across the country and globe, a growing number of innovative projects are underway to realign higher education's human and technological systems with the skills and competencies necessary for modern work and life. These projects illuminate core elements of the next paradigm of education. In this chapter, authors from Microsoft and LinkedIn highlight some of these promising innovations as well as the risks of this new paradigm. The core elements outlined in the chapter include skill-based education, verifiable credentials and learner records, the infusing of data and intelligence into personalized education-to-employment loops, the unbundling of higher education degrees and the separation of learning from the certification of skills, and new business models and sources of revenue in education.

Over the last 10 years, most Americans have experienced dramatic changes in how personalized and unstructured life and work have become. For consumers, mobile phones and Internet access have transformed everyday life, enabling new levels of personal access, choice, and agency in retail, travel, information, and other experiences. In the world of work, we are living through transitions to more fluid career patterns, remote and hybrid work, and the digitalization of every job. These shifts in consumer and work life require “soft” or durable human skills that traditional liberal higher education is meant to provide, like creativity, communication, resilience, self-awareness, initiative, critical thinking, and collaboration, as well as the need for everyone to continually advance their technical skills (Aoun, 2017).

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America's education systems and employers are struggling to provide this type of personalization and fluidity in learning and work, and to expand the pipeline between the two so that everyone can develop the skills needed to thrive and have a clearer path to high quality employment (Roslansky, 2021). This chapter focuses on the innovations happening in education around the world as we all strive to accelerate the adaptation and expansion of our lifelong learning systems. The chapter highlights how two global organizations, Microsoft and LinkedIn, are observing changes in the structure of education, skills-based hiring, learning-to-employment loops, and workplace learning both in the United States and internationally. The authors have worked for decades in education and skills, learning through dialogues with K–12 education systems, higher education institutions, and businesses globally. We have founded boot camps training thousands of students a year with 95%+ employment rates (Lighthouse Labs, 2020), taught at universities in Canada and the United States, worked on policies regulating education, and designed and implemented technology to support schools and systems.

Education and skilling programs that go beyond traditional education structures are rapidly growing. School districts are setting up apprenticeships with local employers where students get college academic credits while being paid for applied learning. Parents and students are proactively seeking tutoring services and alternative education opportunities in higher numbers. Employers like Starbucks, Target, and Walmart are funding their employees' higher education aspirations (Steele, n.d.). Governments are partnering with companies to empower workforce development initiatives that serve labor market needs. And universities are providing formal credits towards degrees for learning provided by third party organizations that specialize in employment-related skills. As these innovations emerge, however, there is a risk that a web3 model of education (Koenig, 2022), where all learning opportunities are disaggregated and offered through an open marketplace could lead to deeper inequalities and a society less educated in areas that do not have immediate value for employability but are essential to the health of our communities and world.

Further innovations are already underway, such as piloting the use of comprehensive learner records to better represent learners' achievements and the growing use of data to align courses and programs with employment outcomes. However, some adaptations are nascent, such as the unbundling of higher education, skills-based hiring, and the shift to new models of revenue for higher education institutions. What is not yet clearly understood is exactly how these innovations and directions will achieve goals of reduced costs, higher equity, and more efficient education and employment loops.

Conditions are ripe for Learning 3.0. This chapter provides a sketch of the next era of education and explores some of its likely core elements: comprehensive and portable learner records, a skills-based focus, data infused throughout education-to-employment loops, unbundling the ingredients of today's higher education degrees and institutions, skills-based hiring, and new business models for higher education. The goal of the chapter is to show how better alignment between education experiences and modern employment can be achieved, while addressing inequities in the current system.

BACKGROUND: WHAT IS LEARNING 3.0?

Taking the long view of education's role in relation to labor markets transforms one's perspective on today's challenges. Learning 1.0 represents how teaching and learning took place up until the 19th and 20th centuries, when most of humanity was illiterate and only a tiny fraction of the population became educated. Prior to the Industrial Revolution, what many think of as "education" was primarily an elite

pastime for those who were already economically or culturally dominant (Horowitz, 1988). For the majority of the human population, learning focused on developing the skills needed for specific jobs and trades, and these were learned experientially through apprenticeships, direct work experience, or in families.

Learning 2.0 ushered in the era of mass public education that went beyond working and living skills. Expectations of near-universal literacy and numeracy became the norm during industrialization, but beyond the basics provided in primary and secondary education, higher education was designed to be a filtering system to identify the “best and brightest” for higher-level employment and leadership (Selingo, 2020). College admissions criteria, standardized tests and stringent requirements for degrees became the sieves through which generations of students were expected to compete for higher status.

For policymakers and educators, the transition from Learning 1.0 to Learning 2.0—especially the ideal of universal literacy and numeracy—likely seemed an impossible dream. But it is a dream that came true, in part because industrialization and labor markets required the dream to be realized. Consider:

When the Universal Declaration of Human Rights was adopted in 1948, the world population stood at 2.4 billion, with only 45% of those people having set foot in a school. Today, with a global population of 8 billion, over 95% have attended school. Enrolment in 2020 surpassed 90% in primary, 85% in lower secondary and 65% in upper-secondary education. (UNESCO, 2021)

Today, literacy rates are over 90% in all but the poorest countries. Furthermore, global participation in higher education is at 40% and growing fast. But enrollment in higher education is declining in the United States (Schwartz, 2021), with a 5.1% drop in the first 2 years of the pandemic (Neitzel, 2022). This drop may be related to the global pandemic, but it may be part of a broader trend. The quality, relevance, and structure of Learning 2.0 are facing intense scrutiny, especially in relation to the increased costs of higher education in the United States. The well-intentioned goal of making all high school students “college ready,” promoted over the last decade in the United States, emphasizing the importance of high school graduation and four-year degrees, has hindered the development and legitimacy of alternative pathways (Reese, 2015). It has also increased debt loads, at times with a negative return on investment, increasing rather than decreasing inequality in America (The Economist, 2020).

Like earlier structural transitions, the seeds of Learning 3.0 began decades ago, triggered by the transformation of labor markets and society that coincide with the emergence of a technology and intellectual-property based economy (Seidman, 2014). As amply illustrated through the chapters of this book, Learning 3.0 is already underway, with innovative education systems, employers, policymakers, and technologies coming together to deliver more personalized solutions. As technology, connectivity, and communication have infused almost every aspect of modern work, employers will seek to hire more narrowly based on skills rather than degrees (Bersin, 2011). Employers also need to continuously upskill their employees to maintain competitiveness and increase retention. All of this informs what we are calling “Learning 3.0,” which we characterize as including the following core elements:

- 1) **Skills:** A clear focus on durable, human skills and competencies needed for well-being, and rapidly changing technical skills rather than diplomas or degrees. New patterns of assessment and verification of those skills are being developed, as well as new means of representing a person’s entire profile of knowledge and skills that is more precise, accessible, and interoperable across different schools, employers, and governments. Portable and comprehensive learning and employment re-

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cords will make these skills visible, backed up by portfolios of evidence, owned and controlled by the learner (not the system or institution).

- 2) **Data:** Infusing learning and skills data into all layers of education systems can enable the intelligent mapping of learning content, skills verification, and job requirements, to create more direct, personalized, and well-supported learning journeys towards a person's own career and life goals. Personalized learning is on the agenda for most schools and universities. Schools and governments are beginning to leverage labor market information (LMI) to inform curriculum and investments, and LMI is becoming more granular and open, with specificity down to discrete skills instead of high-level occupations. Skills data interoperability is also developing, facilitating cross-institution and international recognition and validation of learning and skill achievements.
- 3) **Unbundling and decentralization:** As remote and hybrid learning take hold, it has become more apparent that the "ingredients" that constitute today's higher education degrees (standardized curriculum requirements, physical campuses, advising, support services, career development, and social networks) do not have to be packaged together. Many employers have already shifted to a model of "learning in the flow of work" and this approach may begin to inform secondary and postsecondary education. As part of this unbundling, learning content and delivery (courses, learning experiences, projects, and assessments) are being broken into more granular chunks that can be more fluidly mixed to better align with the interests, goals, and skill needs of learners and employers. It will become more regular for these "micro-chunks" of learning to be sourced from third party learning providers outside the formal university. One of the core roles of the university will be to assess the quality of those external sources, map them to their accreditation frameworks, and provide university-issued credentials. Personalized student success services that support every student in their learning journey will also be essential.
- 4) **Business Models:** Modifications to education business models are emerging that rely less on high-cost tuition aimed at the completion of standardized degrees and focus instead on certifying more granular learning and skills (often based on portfolios of evidence of those skills) and providing verified data about a person's entire profile of knowledge and skills (growing a learner's record). Governments and employers will pay for the development of knowledge and skills needed in the labor market and in their organizations. With innovative approaches to assessment, skills verification and credentialing may become a core driver of revenue. Access to learning content (courses or micro-courses), advising, tutoring, and career development can all be discrete revenue streams, each funded à la carte. Remote learning, from Massive Open Online Course (MOOCs) to online program managers (OPMs) supporting universities going online to Coursera, LinkedIn Learning, and Masterclass, are all rapidly changing the business of education.

Risks of Learning 3.0 Model

As excitement grows around the potential for Learning 3.0 to resolve some of the current challenges with higher education, it needs to be calibrated with awareness and intentional prevention of potential harms that such a model could set in motion both in the US and around the world. Employers and technology companies who are some of the strongest proponents of this new model must better understand and address these risks. One of the possible unintended consequences of Learning 3.0 will be losing a treasured element of Learning 2.0. In an education model focused on the accumulation of skills for employment, what happens to learning the arts, history, politics, citizenship, well-being competencies,

or any knowledge or skill domains not deemed immediately essential by an employer? How can society maintain the catharsis found only in the arts or the self-knowledge of philosophy and history without a universal baseline understanding of these fields? This is a question that advocates of Learning 3.0 must address, as our societies and political systems face massive challenges of environmental sustainability, the effective functioning of democracy, disinformation, and economic inequality.

As will be further discussed in the conclusion of this chapter, government and policymakers must continue to play a strong role in structuring, funding, and providing oversight programs for public and private education to ensure curriculum requirements address all key aspects needed for individuals and our societies to thrive, aspects that go well beyond labor market alignment. One model of curriculum ‘redesign’ is offered by the Center for Curriculum Redesign in its model of “Four-Dimensional Education” that incorporates domains of knowledge, skills, character, and meta-learning (Fadel, Bialik, & Trilling, 2015). Education systems from Finland to Australia have mapped their curriculum standards to this four-dimensional model to identify where they have gaps and to show how their courses, content, and programs map to all the dimensions of education needed in the 21st century.

Another potential harm of a Learning 3.0 model could be the weakening of higher education’s traditional role in helping young adults mature, expand their personal networks, and broaden their worldviews, especially among first generation college students, low-income students, and otherwise vulnerable students. The mission of public education is in part to ensure that every citizen has opportunities to develop academically and personally, to explore and find the passions and talents that can guide successful careers, and to broaden their cultural perspectives. Architects of Learning 3.0 must address whether this emerging 3.0 model can serve these types of personal development functions for learners in the 15-25 age range, and if so, how? Early evidence suggests that the individuals who pursue skill-based learning directly related to employability are primarily learners who have already completed undergraduate or graduate degrees. One study among participants who completed “Micromasters” and “Specializations” programs at MIT showed that the average age of completers was 36, most completers already had degrees, and were in full time jobs (Hollands & Kazi, 2019).

This data points to a job market where applicant differentiation comes from having both degrees and digital credentials (Microsoft & LinkedIn, 2021). This pattern could easily result in greater inequality of employment outcomes, as fewer low-resourced students can afford both. To avoid this potential harm in a Learning 3.0 model, architects must develop a nuanced approach to the various stages of education in a person’s life. The needs of an 18-year-old first generation college student are quite different from the needs of a mid-career professional developing skills to improve their job prospects. The different types of supports needed by adult learners at different life stages—from financial to advisory to tutoring to peer groups—will be highlighted in descriptions below of the four emerging elements of Learning 3.0.

Evidence of the Emerging Elements of Learning 3.0

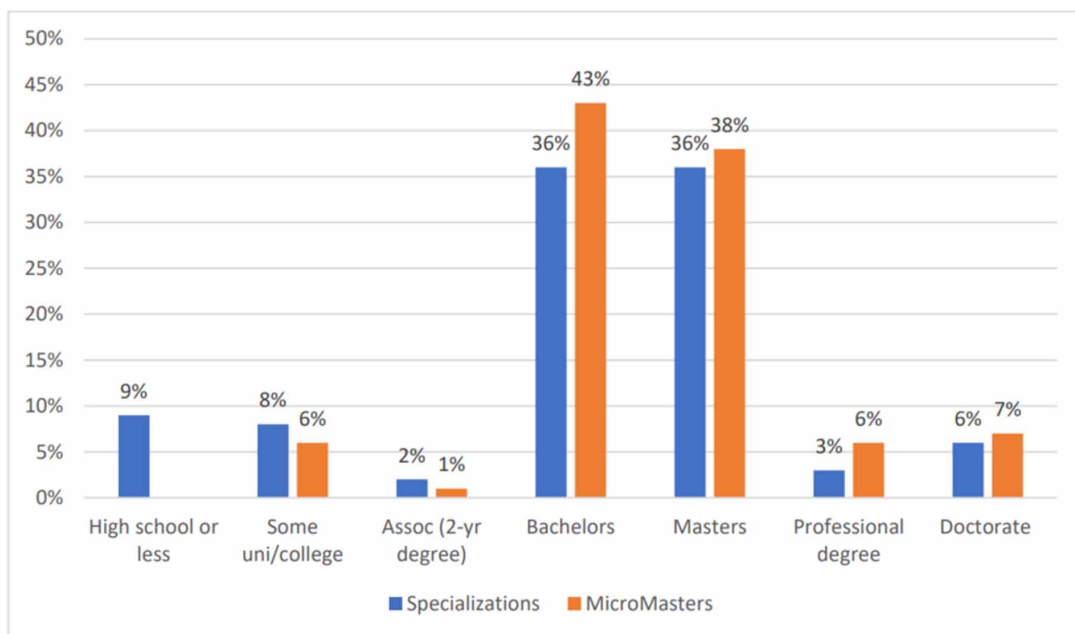
Other countries and regions are ahead of the United States in developing clearer pathways between education, job skills, and career initiation and progress. The International Council on Badges and Credentials, seeking to coordinate European and worldwide skills and credential equivalencies, articulates the vision and opportunity for Learning 3.0:

Never has there been so much momentum or excitement around the digital recognition of skills and competencies as today. The positive and increasing focus on lifelong learning—instead of batch-loaded

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degrees that feel obsolete shortly after graduation—is a widely recognized result of increasingly rapid technological change. As opposed to thousand-year-old academic institutions, traditions, and unions dictating curriculum divided up into neat semesters, today we see a plethora of open networks, multinational companies, start-up boot camps, tutoring services, and innovative public sector and non-profit organizations delivering more granular, personalized, and relevant content and learning experiences. These experiences are more often designed based on labour market information that attempts to prepare learners for constantly evolving occupations and competencies, or data on an individual’s current stage of knowledge or skills in a particular domain. With degrees exacerbating inequality and even creating inequity, the world seems poised to replace paper higher education credentials with digital forms of skills recognition as the legitimate measure of human capital. Educational institutions are defending their value beyond skills and brick-and-mortar place-based learning. Yet simultaneously they are being forced to move online in the face of a pandemic, to learn how to deliver more personalized hybrid teaching and learning. (Hirsch-Allen et al., 2020)

Figure 1. Highest level of education completed of micromasters completers at MIT
Source:(Hollands & Kazi, 2019)



In the European Union, the European Commission recently launched the Europass Digital Credential program. This program allows students to collect credentials issued by an accredited organization for their learning, work, or training experiences in a digital wallet, and then share those credentials, degrees, or diplomas with employers, education institutions, and others (Europass, n.d.). Organizations can digitally verify the credentials and immediately trust that a person has the qualifications they claim. This system sets up the foundation for free-flowing skills and competencies across all European Union member states. Within the European higher education sector, the European Credit Transfer and Accu-

mulation System (ECTS) is a standard means for comparing academic credits from different universities (European Commission, n.d.). It spans over 27 EU member states and another 10 European countries. Each participating university needs to have a Memorandum of Understanding that recognizes the ECTS credits issued by a partner university in another country, but this validated “translation” of academic credits makes transferring between higher education systems more flexible and fluid for learners across Europe, enabling them to work towards degrees or formal training completions across an ecosystem of learning opportunities.

On the education to employment side, in China, the government has developed a national certification program that provides skills alignment with 12 industries. The Open University of China has a ‘credit bank’ system that facilitates this competency-based approach, in addition to degree programs (McKinsey Global Institute, 2021). This Chinese credit system enables more permeable layers between vocational training, higher education, and employment. Similarly, Singapore has a Workforce Skills Qualification framework that allows individuals to complete small learning modules for specific technical skills aligned to the needs of 31 industries. The government created paid incentives for people to achieve these qualifications, in an example of public sector support for labor market alignment (McKinsey Global Institute, 2021). In North America some employers are already recognizing stacked credentials from various issuers to analyze the job-readiness of a worker dynamically. One example of this is from Credivera in Canada which helps employers verify the validity of a driver’s license from one registry and the training completion certificate for dangerous goods from another registry. This allows the employer to validate the specific skills of job candidates very quickly. Such programs provide examples of core elements of a Learning 3.0 model. The following section delves more deeply into the four core elements of Learning 3.0, and how they are emerging in the United States.

The Skills Focus

Durable “human” skills such as critical thinking, growth mindset, and responsible decision making, are critical to personal, societal, and career success (Aoun, 2017). At the same time, technical skills are needed in almost every type of modern work, and these skills must be continuously updated as new technologies emerge. Both technical and human skills require different types of assessment and verification than the traditional assessments that still dominate education systems. Innovative assessment methods, credentialing of verifiable skills, and skills-based hiring are core elements of the Learning 3.0 model.

Many of these human skills are implicitly taught and learned in schools today, but the measurement and naming of them has not been formalized in large-scale assessments or translated into the language employers use to discuss skills and make hiring decisions (Roslansky, 2021). Educators and learners must be better able to translate what is learned into real-world opportunity contexts. Students who take a philosophy, history, literature, or visual arts class need to be able to articulate how this learning has developed critical thinking skills that can be applied to real-world problems or to develop creative solutions. Students need to build portfolios of evidence of these skills that they can build and use to represent themselves throughout life. Vander Ark (2021) expresses this well:

The work starts with community conversations about new learning priorities—particularly skills key to entering and succeeding in the new economy. It continues with learners having multiple opportunities to develop and demonstrate new skills. And it ends with learners hired based on what they know and can do.

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Companies like Intel, Microsoft, Google, Unity, AWS, Verizon and others, in order to more quickly adapt to employer needs, have created their own learning programs to train employees, higher education students, and adult learners in continually advancing technical skills. These have quickly become mass programs, with millions of global learners achieving credentials for their technical skills, and these credentials have currency in the hiring process. Furthermore, universities from Beirut to Brazil are enabling students to receive official academic credit towards degrees for skill-based learning provided by third parties. That said, some continue to question the employment outcomes of these mass-skilling initiatives, particularly where they are predominantly online and targeting less educated workers, leading companies like Amazon to focus on in-person education in their warehouses.

ASSESSMENT IN LEARNING 3.0

One of the longstanding challenges of a focus on skills is how to assess these skills in valid and reliable ways. Authentic assessment of skills demands that learners demonstrate those skills in practice, often with open-ended problems that have no one right answer. Traditional test-based assessments of knowledge and skills (e.g., science knowledge or math skills), often have one correct answer, or very clearly established criteria for right or wrong (e.g., spelling and grammar rules). Demonstrating durable, human skills like collaboration or communication is more frequently done through projects, artifacts that demonstrate the skill, portfolios, case studies, or a combination of these, with rubric-based criteria designed to make assessment less dependent on teachers' subjective judgements. Designing clear criteria and ensuring assessors interpret them similarly are keys to ensuring the reliability of such assessment approaches, an approach well covered by the work of innovative professional higher education organizations like the Association of American Colleges & Universities.¹ One area of innovation that is needed is technology workflows to not only enable rubric-based assessments, but to automate the calibration of assessors judgements to provide stronger reliability for this type of assessment.

However, even more innovative approaches to assessing skills are emerging, that do not separate skills assessment from the applied demonstration of skills.

- **Measures of digital activity:** While computer-based adaptive assessments have been used for some time, newer approaches are based not on conducting a designed assessment experience, but on measuring digital signals from a student's everyday use of digital tools, like writing in a Word document or posting questions in a group chat. Learning engagement as well as demonstrations of teamwork, persistence, and proactivity are beginning to be measured through digital learning platforms. For example, in Microsoft Teams, the new "Education Insights" dashboard features allow teachers and schools to see data on students' engagement in class discussion posts, their activity in assignments (and procrastination patterns) and meetings, their review of feedback from teachers, and even their self-reported emotional trends. With over 100 million learners globally learning via Microsoft Teams since the start of the pandemic, teachers and schools needed to "see" student engagement based on digital activity.² Another example comes from the startup Readocracy, which measures the quantity and quality of a student's reading in real time, giving them feedback on whether they are falling for clickbait or politically radical content instead of evidence-based substantive reading.³ It also looks at how reading content may be affecting the student's overall mood, biases, and productivity. The resultant portfolio of verified content consumption is automatically

generated and can become part of the student’s learner record or integrated into their resume or online profiles. The use of digital platforms such as these have as much of a role in face-to-face classrooms as in online learning, so the potential for new “assessment” opportunities afforded by these platforms will continue to be explored.

- **Automated measurement of technical skills:** Assessment of technical skills has made great progress over the last decade. Today, many learning providers have developed automated and adaptive assessments using machine learning, manual assessments facilitated by experts, and combinations of both using digital workflows to accelerate multidimensional assessment. For example, to demonstrate data science skills, assessment projects will provide a test data set, a use case description, and instructions on analytical methods. The student or student team will then create a machine learning model for the use case. The assessment involves automated scoring of the accuracy of each model’s predictions, enabling a highly reliable and valid measure of each model’s accuracy as an authentic demonstration of skills of the application of a specific analytical method.
- **Validation of prior knowledge and skills:** LinkedIn Learning, Microsoft Learn and other companies now provide skills assessments that allow a person to demonstrate their knowledge or skills by completing assessments specific to those skills or providing evidence of the skill that is reviewed by a group of experts, often facilitated by machine learning tools such as those described above.

VERIFIABLE CREDENTIALS AND LEARNER RECORDS

In Learning 3.0, credentials are issued by a learning organization when a learner successfully demonstrates a skill. Education institutions in Colombia and Mexico have already issued over 9 million verifiable digital credentials for skills to students, who represent those skills to employers. The National College of Technical Professional Education (CONALEP) in Mexico began such a system for vocational skills, and after three years of implementation, employment three months after graduation increased 17% in technology and car manufacturing jobs, and the overall graduation rate increased by 4%.⁴

These credentials are produced, collected, and shared differently than in the Learning 2.0 model where transcripts include records of all a learner’s course grades from a single learning organization (school or college). Transcripts are gradually being replaced by comprehensive learner records (CLR) or learning and employment records (LER) where all a learner’s credentials from multiple learning organizations are collected, managed, and owned by a student in a digital wallet (Vander Ark, 2021). The credentials in a CLR can include not only academic records, but also credentials from learner activities including internships, employment experiences, boot camps, hackathons, special projects, or other extracurricular activities (AACRAO, 2021).

Proponents of CLRs and LERs aspire to make them interoperable—and ideally “machine readable”—between different systems and institutions, so that a richer profile of a person’s knowledge, skills, competencies, and experiences can be shared and verified instantaneously. This would enable the recognition and legitimacy of an individual’s full range of skills and competencies by educational admissions systems and job recruiters, no matter where these credentials were achieved. For example, a CLR/LER system could recognize the technical skills or academic competencies of military veterans for appropriate placement in higher education degree programs. If they can recognize skills data contained in an applicant’s CLR, job recruiters can identify specific skills needed for job openings and rely less

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on the perceived status of the applicant's institution as a proxy for skills. Vander Ark (2021) highlights the linkage between skills assessments, credentials, and hiring:

The surge in skills-based hiring means high schools and postsecondary education institutions should design experiences around priority skills, assess those skills and help learners communicate those skills. Where courses remain the organizing construct, they should be a series of experiences aiming at a bundle of competencies. Skills should be demonstrated in authentic ways and can be captured and communicated in digital credentials that, over time, will replace course lists and grades as the priority reporting mechanism.

A new wave of technology has been developed to facilitate the verified issuing and sharing of credentials across organizational boundaries. Blockchain could more securely encode validated learner records in learners' portable digital wallets. Credentials issued by organizations to individuals—ideally structured based on open data standards for verified credentials developed by communities such as the W3C Verifiable Credentials Working Group—can be accepted by the learner and then shared with other schools for admissions or employers to verify skills.⁵ The group's charter is to “maintain the Verifiable Credentials Data Model specification, which provides a mechanism to express a verifiable credential on the Web in a way that is cryptographically secure, privacy respecting, and machine-verifiable” (W3C Verifiable Credentials Working Group, 2020). Technologies like the Microsoft Entra Verified ID service provide the backbone for credential issuing and verification that can be used by education systems and employers (Microsoft, n.d.).⁶

These credential expressions need contextual skills data, such as that provided by Rich Skill Descriptor language, to provide data that is machine readable, structured, and interoperable. Open skills data standards would help employers understand LERs and unlock a skills-based hiring ecosystem (Open Skills Network, n.d.).⁷

Many CLR pilots are in planning or underway. In 2020, with support from the Lilly Endowment, WGU Indiana, part of Western Governors University, began work on the “Indiana Achievement Wallet” designed to help working learners translate and transfer their skills and experiences to potential employers and postsecondary education providers (Western Governors University, 2020). According to the university's announcement,

The initial pilot will be available to students in the WGU Indiana College of Health Professions with the intention to make the “Achievement Wallet” available to all WGU Indiana students in the future. The skills library for health professions will help WGU Indiana students within the healthcare industry more accurately communicate their specific skill sets and credentials to healthcare employers around the state. The goal is to bring enhanced transparency and opportunity to all Hoosiers and facilitate more equitable, life-long learning recognition. (Western Governors University, 2020)

The growing CLR/LER ecosystem is providing better transparency to individuals' skills. How skills data can be mapped to jobs and learning opportunities is discussed in the next section on how data will power the Learning 3.0 model.

Data Infusions

In Learning 3.0, data will infuse every element of learning, transforming education experiences from something predefined, that every learner must traverse and master in a standardized way, to educational experiences that are personalized for every learner, taking into account prior learning, personal interests, and professional goals in highly individualized ways. Given that current spending on education and training in the United States is closing in on \$2 trillion per year (Credential Engine, 2021b), ensuring the optimization of learning experiences with effective use of data is essential to both efficiency and equity.

Decades of research has shown that more personalized or computer adaptive learning experiences can lead to better learning outcomes, especially when they are well-designed and implemented effectively (Esqueta et al., 2017). More recent research, however, points to the need to address a range of learner variability factors, from cognitive and social-emotional skills to a student's background, environment, and experiences, to design successful personalized learning (Digital Promise Global, n.d.). Modern data services and platforms that have access to more comprehensive learner record data as a student enters a new learning environment (such as a university or a company), can personalize learning experiences and student supports based on broader data about learner variability factors to ensure students can both pursue their own learning goals and get the specific types of supports they need to be successful in the journey.

Because more and more learning systems and experiences take place on or through digital platforms and applications, more data about learning is more readily available. More granular data about skills can be developed through learning, work, and life experiences that will be verified and collected through portable learner records (CLRs or LERS). These verified credentials will enable employers to be more efficient and effective in identifying and hiring employees with the skills they need (Roslansky, 2021). Education systems that move in the Learning 3.0 direction will deliver learning opportunities that meet students' and employers' needs. They will use data to continuously map their learning content, skills assessments and verifications, and student CLRs with real-time labor market information and insights.

Key nodes of data will intersect in the substrate of Learning 3.0's ecosystem:

- 1) Real-time labor market data that includes jobs in demand and the specific skills and competencies needed for those jobs
- 2) Learning resources and experiences data representing the skills and competencies they are designed to develop
- 3) Assessment and credential data that includes granular data about the skills and competencies that are measured through the experience
- 4) CLR/LER data that provides rich data on the skills and competencies of individuals
- 5) Employer HR systems that can read and track rich data on the skills and competencies of individuals

Labor Market Data

Labor market data is needed as employers seek specific skills to fill unmet needs in their organizations. Currently, most employers are faced with two options: either upskill their current employee base or find new talent with the right skills (Bersin, 2022). The challenge is that employers do not yet have full visibility into current and prospective employee skills and what the gaps are, nor an efficient way to help current employees or potential hires access the learning they need to acquire those skills. As a result, traditional hiring practices often still rely on degrees and proxies for skills, which builds inequality into

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labor market opportunities when the price of those degrees is too high for economically disadvantaged groups. The aspiration is for skills-based hiring to promote more equitable job opportunities, as job seekers who do not possess a degree are not excluded from consideration if they have the skills needed for the job. Research needs to be conducted to assess if this aspiration towards equity is realized when employers put skills-based hiring into practice. Such research can help identify the policies and supports skills-based hiring practices needed to achieve the goal of greater equity in employment opportunities.

At the same time, learners would like insurance or proof that the time and money they spend on their education will yield successful job and career outcomes. But students do not have visibility into what skills they need to obtain for specific job opportunities, nor do they have an easy way to find out how to access the right content or courses to acquire those skills.

Learning 3.0 data is already starting to address these employer and learner challenges directly and the starting place is real-time jobs and skills data. This data has become available through professional networks and job platforms like Talent Insights, Indeed, and Handshake, and analytics companies like Emsi Burning Glass.⁸ Every job description for an open position includes descriptions of the skills needed for the role, and this data—often called “metadata” about the job—becomes machine readable and can be intelligently mapped to skills taxonomies using natural language processing algorithms. LinkedIn’s skills taxonomy includes over 30,000 skills and organically grows as new skills are identified or described in job descriptions. This type of real-time, granular skills data enables both employers and job seekers to get beyond the high-level proxy of degrees to identify specific skills needed for today’s jobs. And it enables individuals to focus on the attainment of skills that will yield those job and career outcomes without the ambiguity and high cost of many advanced degrees.

Learning Resources and Experiences Data

These data are necessary in the Learning 3.0 model to help individuals identify the best means to develop specific skills. Learning providers (e.g., universities, online training companies, internships, boot camps) are increasingly providing metadata about the specific skills associated with the learning content or experiences they provide. For example, in Australian universities’ engineering programs, there is a high level of governance around course design and assessment structures. Engineering professors must design courses to target specific learning outcomes that are mapped to the “Engineering Australia Stage 1 Competencies” skills defined by industry standards bodies (Engineers Australia, n.d.). This course and skills data could be (but is not yet) made available for analytics and mapping outcomes to jobs. Another example of skill mapping is from the new “Career Coach” application in Microsoft Teams. It combines data on job skills from the Economic Graph, LinkedIn’s digital representation of the global economy from its member, company, school, skills, and jobs data, to help higher education students understand the skills needed for real jobs. It then provides links to courses offered in the universities those students attend (as well as from third party learning resources from university subscriptions) to help students identify resources to develop those skills.

Universities subscribe to learning resources from companies like Go1 that aggregate content data from across many learning and training providers to create a digital library with over 100,000 learning resources, all tagged with data about the skills associated with each resource.⁹ The learning resources become searchable through skills metadata offered through a subscription service to companies and learning organizations, so they can search and provide very skill-specific learning options to employees or new hires. Learning providers will increasingly compete to provide the highest quality, most engaging

learning content, where skill development will gradually become measurable in the ecosystem through assessment and credential data.

Assessment and Credential Data

Assessment and credential data are becoming a separate and equally important data source in the Learning 3.0 model because people come into higher education with prior knowledge and skills. Skills-based assessment and credentialing requires people to demonstrate their skills, not simply complete a course, learning experience, or training. Credential and microcredential data enable individuals' existing skills to be formally recognized. Three recent definitions of microcredentials by the European Community, Colleges and Institutes Canada, and the Government of Ontario, reveal how this growing trend remains unsettled:

- European Community: Micro-credentials certify the learning outcomes of short-term learning experiences, for example a short course or training. They offer a flexible, targeted way to help people develop the knowledge, skills, and competences they need for their personal and professional development.
- Colleges and Institutes Canada: A microcredential is a certification of assessed competencies that is additional, alternate, complementary to, or a component of a formal qualification.
- Government of Ontario: Micro-credentials are rapid training programs offered by postsecondary education institutions across the province that can help you get the skills that employers need. Micro-credentials help people retrain and upgrade their skills to find new employment.

Among higher education institutions, Bow Valley College in Canada is pioneering this type of skills assessment through a program called Pivot-Ed, which provides assessment of skills and competencies independent of course completion:

Pivot-Ed is a BVC Venture that optimizes human potential. It builds on the College's pioneering work with scalable assessments and micro-credentials and aligns with its vision to make all learning count. Pivot-Ed leverages artificial Intelligence (AI) to help individuals viably demonstrate their competencies for a role, recommends learning for identified gaps and certifies the results with a recognized micro-credential. This allows individuals to find employment, progress to another role or transition to a new career. It also allows corporations to enable people to excel in their roles, thereby driving increased value for their employees and customers. Through these efforts, Pivot-Ed meets the needs of a rapidly changing workforce, and drives social and economic prosperity in Calgary, Alberta and across Canada. (Bow Valley College, 2021)

Learner Records Data

Learner records data, as described above, can empower both individuals and organizations to chart more relevant and effective learning journeys. For the Learning 3.0 skills data to become more usable throughout the ecosystem, two things are necessary: a common language about skills and a consistent way to recognize the quality of a credential. Credential Engine recently reported: "There are 967,734

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unique credentials in the U.S. in 16 detailed credential categories across four types of credential providers” (Credential Engine, 2021b). The case for better credentialing data is strong:

Education and training credentials of all types—degrees, diplomas, certificates, professional certifications, licenses, badges, and apprenticeships—represent important opportunities for people to get ahead, but the current landscape is not easy to navigate. With so many credentials from which to choose, people get lost and lose out on opportunity. People need better information to navigate pathways to credentials, into the workforce, and toward their goals. (Everhart et al., 2022)

Because it is difficult to compare the meaning and quality of credentials across educational institutions, employers, and international boundaries, employers and governments are developing data standards and quality controls for credentials. Several organizations are addressing these issues, and other chapters in this book address these issues in more detail (DeMark et al., 2022). Western Governors University and its open badge application, Badgr, created by Concentric Sky; developed the Open Skills Management Tool (OSMT). This is an open-source project for rich skill descriptor (RSD) based open skills libraries that begins to establish a common skills language, so skills are translatable and transferable across educational institutions and employers (Open Skills Network, n.d.). IMS Global, an education data standards organization, has developed a CLR data standard to facilitate “the new generation of secure and verifiable learning and employment records supporting all nature of academic and workplace recognition and achievements including courses, competencies and skills and employer-based achievements and milestones” (IMS Global, 2021). This standard is recognized by the American Association of Collegiate Registrars and Admissions Officers (AACRAO), leverages the Open Badges standard, supports W3C Verifiable Credentials standards, and can work with Credential Engine’s Credential Engine Registry of credential and certification programs.

Another organization address the skills translation and equivalency challenge is focused on of the world’s most disadvantaged populations: refugees. Talent Beyond Boundaries (TBB) is an organization focused on labor mobility and humanitarian resettlement.¹⁰ It has developed a “skills-based approach to transform refugee lives” by matching skilled refugees to economic visas (as opposed to refugees claims) that favor or select for their skills. Talent Beyond Boundaries’ collaborator, World Education Services, is pushing for the recognition of international education qualifications. The “Talent Catalogue” database developed by TBB collects comprehensive data on the professional backgrounds of refugees and displaced people. It now holds the skills profiles of over 30,000 refugees, maps them to employment skills, and makes these profiles searchable by employers. The organization has pilot projects for displaced talent mobility in Australia, Canada, and the United Kingdom (Talent Beyond Boundaries, 2022).

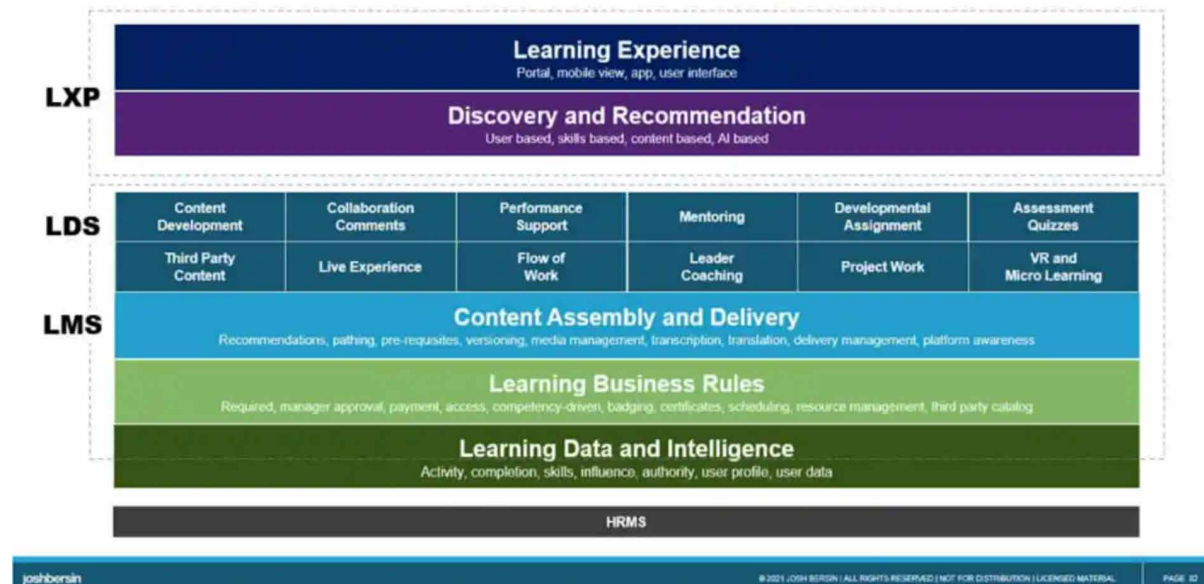
UNBUNDLING AND DECENTRALIZATION

The “ingredients” of traditional education systems generally include standard curriculum and degree requirements, physical campuses, advising, support services, career development, and social networks, all included in one package paid for primarily through tuition costs. To understand why unbundling the “ingredients” that constitute today’s high school diplomas and higher education degrees is part of the Learning 3.0 model, it is useful to look at the emerging models of corporate learning, and the way technology, data, learning resources, and human supports are decoupled (Bersin, 2021). Each component

can be sourced from different providers and different combinations designed for different organizational or personal development needs.

Figure 2. The complex corporate learning market

Source: (Bersin, 2021)



In the above diagram, the ingredients of learning and skill development have data and intelligence at their foundation, enabling a clear picture of each learner’s current skills profile to inform the combinations and arrangements of content, delivery, and support recommendations that the learner then engages with through a “Learning Experience” layer that may be through a digital platform or live learning engagements (or both).

This model of corporate learning enables what is increasingly called “learning in the flow of work” (Bersin, 2019) where the application of learning is immediate and relevant. Learning in the flow means that:

- 1) A worker or professional can learn what they need in the moment they need it as part of a project or task.
- 2) They don’t need to leave the work environment or project to get the learning they need, instead learning content and experiences are available to them ubiquitously
- 3) The learning experience will always be personalized, because the system has data on their current job context and level of skills.
- 4) There is potential to collaborate with other learners and learning supporters (e.g., coaches, mentors, teams, or teachers) who are focusing on that skill or who are experts on a subject because the system knows the skills and learning foci of all the people in the system and can recommend the right connections or collaborative learning opportunities.

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While “learning in the flow of work” as a concept is highly recognized in corporate learning circles, most organizations are at early stages of implementing such a model.

Unbundling

In higher education, many of these same elements exist, but they are bundled together and generally created and delivered by people who are all part of the same institution (faculty, support staff). Teaching, learning, and assessment are inextricably integrated with a course and “success” centers on evaluation of students’ ability to demonstrate mastery of that course, regardless of its relevance to the student’s goals. In such a structure, getting a good grade (rather than deep mastery of a skill or knowledge domain) in the course too often becomes the driving force of student motivation (Kohn & Blum, 2020). Students believe that good grades will lead to better future opportunities in life. However, that may no longer be true if the course does not concretely develop the skills, competencies, and knowledge that students will need for life and work in today’s world. Some countries, like Finland, are already well underway with revising their national curriculums to focus on skills and transversal competencies. Several good examples of competency-based learning exist that unbundle content and tie that content to skills assessed through authentic assessment (see for example, chapter by Pluff and Weiss in this book), but the United States has not yet put such aspirations into policy at a national level.

Alternatively, we are starting to see the growth of badges, microcredentials, credentials, and certifications that are incorporated into courses or acknowledged in degree programs. LinkedIn Learning provides “subscriptions” to universities that allow students to take their courses (called “learning paths”). Faculty can embed this third-party learning within their courses. Similarly, the growth of open education resources suggests a willingness on the part of many content creators to share their creations with the broader teaching and learning ecosystem. This means that faculty or “learning designers” do not have to create all learning content or assessment on their own. Instead, they can curate rich materials and content from an array of resources, mixing them into innovative pedagogies where “content delivery” becomes decentralized and is only one component of the learning experience. Every faculty member and every institution need not each recreated econ 101.

In Learning 3.0 traditional “professor” roles can potentially be unbundled as well, breaking into compelling content creation and delivery experts, academic researchers, learning project designers and managers, skills assessment and credentialing experts, and personal student mentors, advisors, and tutors (Baldwin et al, 2022). As Côté et al (2021) describe:

Schools will need to shift from a focus on getting students to complete a highly structured, pre-defined curriculums or degree programs to a focus on teaching individuals to search for and identify high quality learning options aligned with personal interests, goals, or career objectives (and teaching them how to define learning goals for themselves).

For the learner, the unbundling of higher education from degrees and tuition will enable more diverse individual learning pathways that can be pursued lifelong (Weise, 2020). For hundreds of years, education has been loaded in batches at the beginning of students’ lives in chunks of 2–6 years. As technology, society, and skills change more quickly, learners need to be learning throughout their lives, and this requires more flexible “learning paths” that can be paused and resumed easily, depending on the learner’s ever-evolving career and life context. The opportunity is for universities, colleges, vocational

programs, and other learning organizations to develop lifelong relationships with students as they progress through careers and stages of life where learning credentials are continuously collected from an array of different learning, life, and work experiences in the learner's portable, digital, and verifiable learner record. Learning 3.0 will likely see the breaking down of degrees into more fluid learning paths with microcredentials issued for specific courses or even smaller modules of learning.

DIFFERENTIATED LEARNING EXPERIENCES

In Learning 3.0, higher education institutions that thrive will recenter on providing engaging teaching and learning experiences, whether those be remote, face-to-face, or hybrid. Engagement in learning and courses is not just about having compelling professors who design engaging learning content. Students are all unique and arrive at new learning experiences with a diverse array of prior learning, competencies, and needs. The high dropout rates for massive open online courses (MOOCs) show how colleges and universities in Learning 3.0 can distinguish themselves from MOOCs through providing a more learner-centered experience (Gitinabard et al., 2018). Two core elements of this differentiation are personalization and collaborative learning.

Universities can develop more holistic and innovative approaches to assessment of prior learning and assessment, approaches that do not depend only on a learner's formal academic transcript (Sedlak, 2021). Learners develop skills and knowledge in a variety of contexts, and each will have their own goals. The American Council on Education and the Lumina Foundation both advocate strongly for greater use of PLA to address access issues and move the U.S. towards educational equity. For students just out of secondary school, those goals may include exploring different areas of academic pursuit to find what interests them. Proving personalized learning experiences means universities need to meet learners where they are in their skill level, knowledge mastery, and goals—whether those were developed through farm work, military experience, sports, family care, or other non-formal means. Such assessment will enable universities to recommend learning paths that begin exactly where a learner is now and provide experiences that help the learner achieve their goals. The notions of “college readiness” and “catching up” to be ready for a degree program make learners feel deficient, instead of feeling acknowledged and respected for where they are in their learning journey. Assessment in this context can be communicated as a kind of diagnosis to determine the appropriate learning recommendations for each student, guided by personal student success supporters such as coaches, tutors, career development advisors, and peer mentors and teams. Taking up the challenge laid down by ACE and Lumina, universities such as Arizona State University and Southern New Hampshire University already are moving towards this approach by allowing students to transfer up to 90 college credits from other programs towards a degree and allowing students to earn college credit for prior experience through “Prior Learning Assessment and Experiential Learning Credit” programs. This type of personalized support for flexible learning journeys can ensure more of a lifelong relationship between universities and their learners (one that is not solely based on asking alumni for donations).

The second way universities can differentiate themselves from MOOCs going forward is through a strong focus on the social dimensions of learning and development. This means a more explicit focus on learning experience designs—whether virtual, in-person, or a mix of both—that build deep learning partnerships. Very few individuals succeed in learning independently without a shared purpose in learning and a sense of belonging to a class or community with mutual expectations (Fullan & Langworthy,

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2014). Research on belonging clearly shows its relationship to academic persistence, engagement, and mental health (Gopalan & Brady, 2020).

In Learning 3.0, successful schools are innovating on how they design in the social dimensions of learning for a higher percentage of remote and hybrid learners. One example of this comes from Western Australia, where Catholic Education of Western Australia (CEWA) designed a unique virtual school that paired students who went to urban high schools with students who attended remote outback schools and did not have opportunities for university preparation courses (CEWA, 2019). The program paired up individual urban and rural students into study teams to work together virtually. When it came time to take university entrance exams, the rural students travelled to the urban area (Perth) and met with and even stayed at the homes of their urban pair student. This led to significantly higher application and admissions rates for rural students in universities. An extensive and intentional teacher preparation program enabled this type of model to succeed, and it has since expanded to cover most parts of the state curriculum (Cavanaugh & Roe, 2019).

Another example of an innovative pedagogical approach that builds towards a sense of belonging also comes from Australia. Additionally, this approach uses technology in ways that make it scalable. Professor David Kellerman at the University of New South Wales School of Mechanical and Manufacturing Engineering has developed new ways of using data in a 500-student engineering class that combines personalized and collaborative learning approaches. To develop collaborative learning and a sense of belonging, he developed Qbot AI. Qbot uses bot technology. Initially, when a student posted a question in the class chat on Microsoft Teams, the bot engine would look up that student's group tutor to make sure an answer was posted. After a few weeks of growing questions and answers posted, Qbot was able to answer most questions without the tutor being involved. As the solution developed, it could also recommend links to the point in a recorded video of the moment in a lecture when that specific question was addressed. The solution became a group knowledge generator that was continuously evolving and expanding as the class asked and answered questions. Through chat, the class would correct any incorrect answers provided by Qbot, thus automatically retraining the AI model. Additionally, Kellerman personalized each student's experience by digitizing all course materials and exam items. By mapping a student's prior assessment results, he was able to automate the generation of 500 individual study packs, one for each student, based on their predicted response to each question on a later exam. Through this use of data, AI, and other creative uses of Microsoft Teams as a collaborative learning platform, 98% of his 500 students said they felt a strong sense of belonging at the end of the course. He has repeated and improved this approach over the past three years, creating similar results even in fully remote learning courses during the pandemic. Kellerman's approach provides a great example of Learning 3.0 pedagogy that uses data and AI for personalization and collaborative learning (Cartwright, 2019).

BUSINESS MODEL INNOVATION

The unbundling of degrees described above provides the foundation for the fourth element of Learning 3.0: how the business models of higher education are changing. In much of the world, government funding of education is relatively stable and student costs are publicly funded through postsecondary schooling. In the United States, over the last four decades the mix of state, local, and federal funding sources for education has destabilized, and education leaders at all levels have had to focus more time on the hunt for fiscal resources (Nations, 2021). Some higher education institutions have been competing for alumni

and corporate donations to build “world class” campus facilities, and many spend considerable time building sports programs as another source of revenue. As neither buildings nor sports directly improves learning, this trade-off has in some cases resulted in a loss of focus on the core responsibilities of higher education institutions: teaching and learning.

As government funding destabilized, the costs of higher education for students escalated dramatically, as described above. The pandemic and the rapid shift to remote learning made students and families question the value of higher education investments, and enrollments saw a decline of 5.1% over the first 2 years of the pandemic (Neitzel, 2022). Tuition costs in the tens of thousands of dollars—putting many families in debt—did not seem justified without the in-person social networking enabled by the physical campus. But the value of the social networks developed through in-person college experiences may not be what it once was. For most of the last century, the intense competition for admission to elite universities was grounded in the perception that the human networks developed in those schools would be essential for future professional careers (Selingo, 2020). But opportunities for networking have become unbundled through global professional networks such as LinkedIn, which has over 800 million network members worldwide. These more open, global, and data-driven professional networks are potentially more valuable for job seekers and job recruiters as they use data to map skills between open jobs and a person’s skills profile, rather than relying purely on ‘who you know’ personally. This more open, global network has big implications for labor market efficiency, in addition to implications that are not yet well understood for equity and inclusion in job markets. This shift in networking power is recognized by higher education leaders and by the employers who use these new platforms as the primary source of talent recruitment. Microsoft and LinkedIn have witnessed a great many U.S. universities seeking to ensure every student has a LinkedIn profile before they graduate, so that their students become a part of this global professional network (and so that the university itself can track the careers of its students). To ensure their students and graduates have equal career opportunities in this new landscape, higher education systems around the world likely need to do more to encourage understanding of and participation in these new networks.

The growth of alternative opportunities for postsecondary education also increases pressure on the Learning 2.0 higher education business model. Online learning platforms such as Coursera, Udemy, LinkedIn Learning, and boot camps from a variety of providers provide training and certification on both “human” skills and technical skills. The content for these learning programs is often free online and a variety of new financing arrangements are emerging, like career impact funds and income share agreements, where students pay a portion of their earnings after completion back to the school (Randolph, 2020). In these new learning programs, students, schools, or companies can pay small costs for in-person or live online training. The technical tools and resources needed for learning experiences in technical skills (such as platform licenses or cloud computing credits) are often provided by companies at no cost in education contexts. Fees come in at the “certification” stage when students take assessments to demonstrate skill mastery. These certification assessments, when done well, require “authentic assessments”: a project demonstration or proctored exam that is carefully reviewed by experts with clear rubric-based criteria for scoring. The organization providing the assessment—whether it be a technology company, an institution of higher education, or an individual learning program—thus makes its revenue from the credentials it issues to students who have successfully completed assessments.

To understand the potential for a viable business model for higher education institutions in Learning 3.0, it is useful to look at what appears not to be working. MOOCs have seen tremendous growth over the last years, but none have become profitable, even during the pandemic, when interest in and usage of their platforms grew tremendously while enrollments in traditional colleges declined (Neitzel, 2022).

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Coursera is a case in point (Shah, 2021). Their business model is designed around a “learner funnel” with large numbers of students beginning online courses for no cost; fewer completing those courses, and then a small percent of students who complete courses then pay for a credential that certifies their demonstration of a skill. An even smaller number of students sign up for a complete degree. “Essentially, the same product is being monetized at different pricing levels, with the free product acting as a marketing channel that feeds customers into other higher-priced products” (Shah, 2021).

The majority of Coursera’s revenues are from consumers—independent students seeking the learning opportunities that the Coursera platform offers. The second largest revenue source is enterprise, or companies that pay for subscriptions to the platform for their employees. This enterprise segment is growing the fastest, from \$7.4 million in 2017 to \$70.8 million in 2020, and this company sponsorship of education and skills is an increasingly important revenue stream (Shah, 2021).

In Learning 3.0, the sources of revenue for higher education institutions are likely to shift in several ways. These shifts may make institutions closer to the MOOCs model in pricing, but still differentiated by providing more personalized and collaborative learning experiences that get more students “through the funnel” to skill credentials. In this emergent 3.0 landscape, we currently see four main categories of revenue for the Learning 3.0 model:

- Monthly or yearly subscription fees for core learning opportunities. Smaller subscription fees will gradually replace high up front tuition costs and cover a learner’s access to the full course and learning project catalogue (which combines the universities’ primary sourced courses and its subscriptions to secondary learning resources and experiences) and the learning platform (combining physical campuses and classrooms with virtual classrooms). When a student enrolls in a specific course or learning project (including internships or apprenticeships), they might pay variable fees depending on the course or project design and depth. Students who are working while enrolled might have these subscription costs covered by their employer.
- Flexible add-on supports and services. Student support and success services such as career development, academic tutoring services, personal coaching, and financial advising could have variable add-on costs in a Learning 3.0 model. Similarly, participation in university sports, clubs, and alumni networks (whether those take place on a physical campus, a local meeting space close to where students live, or online) could be paid for separately from tuition. The need for these supports and services is different for people at different stages in their careers. For younger students who are at the exploration stage before embarking on careers, these fees would need alternative types of funding, perhaps through a personal learning spending account (see below) or employer or personal funding. Support services are an area where it will be crucial to conduct further research to understand the return on investment vs. achieving equity goals in the new model. Personalized learning and student success services should be able to provide individualized learning options and personalized supports, while decreasing overall student costs as students use what they need, when they need it. Support staff will be able to better optimize their time and focus on the students who need their specific supports at a given point in time (not feeling responsible for student-to-staff ratios that are untenable). Personalized recommendations for learning and support services will be enabled by data as well as student coaches or advisors. One of the key supports for younger students would likely be personal student coaches. A “coach” role would be a person who understands the student, has access to their learner record, and is able provide continuous care, guidance, encouragement, and connections to the array of services and opportunities the

university can provide. An example of this model is Open Classrooms in France, where the rapid expansion from an online boot camp to an international success story is in part due to its subscription model and use of coaches (OpenClassrooms, n.d.).

- Assessments and credentials. While there will be lower costs for most courses (varying by type of course), there will be fees for credentials associated with demonstrations of skills and assessment of evidence of learning (where these may be from prior experience, rather than course-taking). These credentialing fees might be paid directly by the student, by employers seeking people with specific skills, or through public funding. This model of paying separately for assessments will allow students to choose where they want to focus on learning and where they want to invest in a more formal skills assessment for career or other goals, giving them more control over their time, works, and costs. Students could choose to simply explore and learn in some courses (at low or no cost) without the fear that failing assessments in these courses would lower their GPA and impact their future. Courses could be designed around engagement in learning, rather than assessments and grades. New types of checks and balances tied to measures of engagement in learning could be structured to ensure students' responsible use of public funds for their education, but there would be more distinction between engagement in learning versus assessments. This would push learners to think more about whether their learning was serving their needs, developing skills and perhaps take more responsibility for their own learning beyond what was strictly on a course syllabus and what it takes to pass or get a good grade. It could allow students to think explicitly which activities they tie to degree attainment and career skills versus courses for their own exploration and broader human development. Authentic assessments based on real-world projects could also be an area to deepen partnerships with employers.
- Research, employment, and public sector partnerships. In Learning 3.0 the university is not an "ivory tower" but even more deeply integrated with the economy and society. This means employers and the public sector very proactively partner with universities to identify the courses, learning experiences, and supports aligned to the skills their organizations and labor markets need. Employer partnerships can fund and align research projects that serve strategic goals for the employer as well as provide valuable experience and resources for both faculty and students. Similarly, universities' career development services can provide a revenue stream through partnerships with local or regional workforce development organizations. Work-based learning and work-integrated learning experiences from short term internships to multiyear apprenticeships and everything in between will become lifelong and commonplace, gradually reducing the boundary between work and school, just as earn-and-learn opportunities have become commonplace. Further, employers who commit to skills-based hiring practices can partner with education systems to ensure a common language of skills, and that the skills they want to hire are well-represented in courses and degree programs.

One example of deeper partnerships between universities, employers, and government comes from Los Angeles. The Los Angeles Community College District (LACCD) is the largest community college district in the United States. It sought to provide more effective connections between regional employers, workforce development offices, and the skills that the college system could offer. It brought together a partnership between the Entrepreneur Network of LA (a program designed to invest in entrepreneurs, specialized industry training, technical consulting, and job opportunities for students) and Pro-GTL Regional Consortia. Through this partnership, they launched the "Career Ready Job Initiative" that combines

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colleges' career centers with technical and durable human skills training offered by LinkedIn Learning. Students can take LinkedIn Learning courses directly aligned with the skills for jobs that have postings on LinkedIn and showcase their skills through their LinkedIn profiles. These profiles give students direct visibility with potential employers seeking those skills (that have posted open jobs), thereby reducing the time it takes for students to transition from education to employment that immediately uses the skills they have mastered (LinkedIn Learning, n.d.).

Government's role in the funding of higher education may also shift towards new models and policies that better align with goals of equity and innovation. On the equity front, the lower upfront costs of Learning 3.0 through the unbundling of services should allow individual learners to have more choice over the array of courses, credentials, and services they need to succeed. Underlying data systems will allow government financing of those student choices to be more transparent and flexible, and better incentivize learner engagement (in both courses and services). On the innovation front, government would need to expand funding for primary or basic research, as employers will primarily fund applied research. Expansion of public funding for primary and applied research would be merited, based on the clear evidence of economic impact of such investments in large scale initiatives like the NASA space program in the 1960s and 1970s (Mazzucato, 2015).

Government will also play an important role in changing how education outcomes are reported at the state and national levels, which will in turn have an impact on government funding streams. Governments need data on the knowledge and skills of their populations so they can ensure robust and efficient labor markets, close skill gaps, and partner with education and employment providers for effective applied and basic research. In the United States, many states are seeking to modernize their education data reporting systems, such as California's Cradle to Career initiative that will connect data from secondary education through post-secondary and into workforce development skills (CA.gov, n.d.). A CLR-based data ecosystem would provide granular learner data (rather than institution-centered) to such a reporting system, enabling real-time analytics to inform both policy decisions and funding. It would also give learners a voice in how government uses their data, which will be important as privacy regimes mature. If governments have much better data about their populations' learning and career progress, they can use it to help different institutions identify the student support models and funding patterns that will achieve common goals for equity. Projects like NSWERs in Nebraska are using data modelling and simulations already to look at the labor market and income returns on different types of education and training investments.¹¹ This type of expense-side modelling will be critical to realistically assess the financial sustainability and scale needed for a Learning 3.0 model.

CONCLUSION AND RECOMMENDATIONS

The need for the use of comprehensive learner records to enable more personalized learning experiences, the growing use of data to provide intelligence and insights at every stage of a person's lifelong learning and career journey, the gradual unbundling of higher education, and the shift to new business models have all been made more visible by the rapid shift to remote and hybrid learning during the pandemic. But the pandemic only accelerated already emergent patterns. More pilot projects, research, and data are needed to understand more clearly how Learning 3.0 models can achieve the goals of reduced costs, higher equity, and more efficient education and employment loops. While the descriptions and examples provided above in essence provide recommendations for moving towards Learning 3.0, there are three

areas not covered in previous sections that are essential to enabling progress in our education models. All three of these areas need to see more pilot projects that are surrounded by research. This research can directly inform the development of government policy, shaping new higher education accrediting frameworks aimed at enabling more skills-based education and employer hiring practices. These policies should build in requirements that make use of modern real-time data services and that encourage the use of learner records to facilitate more personalized learning journeys for all.

First, educational products are becoming more intricately embedded in the economy. Education institutions are beginning to up their games in developing work-based learning opportunities for students. To satisfy the needs of students, their families, and employers, educational institutions must get better at beginning their recruitment, curriculum, and career development with employers and labor market information in mind. Breaking down multiyear degrees into their skills-based, interoperable, and stackable microcredential components, and representing them as verifiable credentials in learner CLR, is just one of many ways this process can be facilitated. Learning 3.0 institutions are striving to ensure every young student has work-based learning experiences, every working adult has lifelong engagement in learning, and that both groups have visible and equitable networks and paths to high quality jobs. Educational institutions need not forgo their broader goals of social enrichment and knowledge building, but instead must weave this into their teaching while doing a better job of identifying and explaining the skills students will need and are already learning.

Second, for new business models for higher education to be viable, funding approaches will likely need to shift more costs to both government and employers, and away from families. While we are not experts in this area, the current U.S. system of students incurring debts through federally funded student loans appears to exacerbate the inequities of the Learning 2.0 model. The “lifelong learning savings account” concept recently introduced in the US Congress demonstrates one type of innovation in funding, where employers would have incentives to contribute to learning that develops the skills their organizations need (Sarwari, 2019). Countries such as Singapore, France, and the United Kingdom have already established such accounts for working adults to upskill (Sarwari, 2019). The same concept, however, could be developed for younger students with a higher ratio of public funding going into their learning savings accounts.

Modern data approaches enabled by the learner record system described above can be combined with better institutional data that includes course engagement data, skills assessment data, and progress towards quality employment data. Such combined data should be used to provide all stakeholders in a system—from students to educators to employers—visibility into learner needs and goals, the quality and alignment of learning opportunities and support services to those needs and goals, and the costs associated with both. With this level of visibility, government and employer-based funding for education can both become more personalized and provide a better picture of whether such investments truly serve the interests of learners. In short, data can allow us to ensure education delivers on its promise of a return on investment that leaves the individual with significantly better future options. The current picture in the United States is of an education system heading in the wrong direction, serving the needs of institutions first, but this trend can be reversed.

Third, and perhaps most radically, admissions policies and practices must be dramatically revised for Learning 3.0 to achieve its intended ends towards equity and increasing learning. The criteria for getting into college are not the same as the criteria for succeeding in college. While today’s higher education institutions provide experiences that can be transformative, they are too often negative experiences for students from historically or currently marginalized populations. And the heart of the problem is the

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admissions process. Intimidation and fear of the admissions process keep too many students from even applying to college (Hoover, 2022). The current U.S. admissions process emerged as higher education started to scale up over a century ago and colleges became something that were not just for children of elite families, but that were still seeking to select the best and brightest students (Selingo, 2020). The process doesn't fit today's realities of complex human skill development paths and the need for continuous lifelong learning for everyone in our society, nor does it align with the competencies needed for success in college and in life. Comprehensive learner records and portfolios filled with demonstrations of a learner's skills and knowledge offer one means for changing this process towards one that better recognizes and places every individual on a personal learning path where they can make meaningful progress with dignity and self-respect intact. However, admissions and enrollment cultures and practices must change in parallel.

Without very intentional research and the identification of effective financing approaches, pedagogical innovations, personal student supports, and modernized admissions processes, Learning 3.0 runs the risk of recreating inequalities in education opportunities. For now, we still see more economically advantaged families sending their students to elite universities that are designed to make living "on campus" desirable. Remote and hybrid learning opportunities currently work better for working adults. But for younger students fresh out of secondary school, as well as many adults, neither the fully on-campus nor fully remote learning experiences meet their economic, social or mindset development needs. Pedagogical innovation, faculty development programs, the use of data, powerful collaborative learning platforms, and other supports are all needed, as well as research to figure out what works. As the new paradigm of education evolves, we must all carefully calibrate between innovation, incentives, and equity. The U.S. higher education system is at an inflection point filled with great opportunities and great risks. It is up to every sector—from higher education institutions to government to employers to technology and data providers—working at every level of education ecosystems, to make Learning 3.0 work for all of us.

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ENDNOTES

- ¹ There is an entire literature on rubric-based assessment. See the work by AAC&U: <https://www.aacu.org/initiatives/value-initiative/value-rubrics>
- ² If you are interested, see more information on Microsoft Teams for Education: <https://docs.microsoft.com/en-us/microsoftteams/expand-teams-across-your-org/teams-for-education-landing-page>
- ³ If you are interested, see URL on Readocracy: <https://readocracy.com/>
- ⁴ For more information, see URL: <https://www.conalepmex.edu.mx/alumnos/territorium.html>
- ⁵ For information on this W3C working group: <https://www.w3.org/2017/vc/WG/>
- ⁶ For more information on Verifiable Credentials service: <https://docs.microsoft.com/en-us/azure/active-directory/verifiable-credentials/>
- ⁷ For more information on credential transparency: <https://credentialengine.org/understand-credentials/>
- ⁸ For more information see: <https://business.linkedin.com/talent-solutions/talent-insights>; <https://www.indeed.com/>; <https://joinhandshake.com/>; and <https://www.burning-glass.com/>
- ⁹ For more information, see <https://www.go1.com/>
- ¹⁰ For more information, see <https://www.talentbeyondboundaries.org/>
- ¹¹ For more information on NSWER, see <https://nswers.org/>

Section 3

Rebundling Academic and Nonacademic Sources of Learning: Prior Learning Assessment and Competency-Based Education

Chapter 7

Utilizing Prior Learning Portfolios to Rebundle Formal and Informal Learning

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ABSTRACT

In this chapter, the authors will explore credit for prior learning (CPL) by portfolio as a high-impact educational practice that can enable learners to weave together disparate learning in meaningful ways while also deepening elements of integrative learning. While portfolio-based CPL is a longstanding educational practice, its utility is often undervalued. The authors will consider why the portfolio process should be a more central feature of academic programs and how it can support student learning and achievement. The authors will share findings of a CPL portfolio case study that directly and indirectly assessed student integrative learning performance and student perceptions of their proficiency. Findings validate student learning as well as increased internal validation of learning and academic confidence. Respondents indicated the portfolio process positively impacted their ability to apply learning, communicate, and create new knowledge. Implications for teaching and learning, program assessment, and administration and policy will be discussed.

Even for students who have stopped out on their pathway to a degree, the learning does not stop. Disruptions brought on by COVID-19 reinforce what practitioners in the space of continuing and adult education have long recognized: lifelong learning and the ability for individuals to integrate and transfer learning from one context and occupation to the next is essential to sustaining a strong, nimble, and diverse workforce; and inequities in credential attainment are mirrored by inequities in unemployment. Adult learners seek learning that is accessible, affordable, and facilitates their progress on their career pathway. They may attain this learning via formal and informal learning experiences, credit and non-credit instruction,

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professional development and on-the-job training. Among the tactics to improve equity in outcomes, one that has been the subject of significant attention from scholars and practitioners, is the use of direct assessments and learning recognition formats to evaluate university-level learning that was acquired in a range of extra- and cross- institutional learning experiences. These practices un-bundle the learning that is done from the context within which it occurs, allowing for that learning to “count” in institutions where it has traditionally been marginalized.

Less has been written about how we connect these elements of unbundled learning, how we not only validate but also rebundle them into a higher credential, ideally in a way that has meaning for both the institution and the student. If we want equity for adult students, we need to do both. In this chapter the authors will explore CPL portfolio as a high-impact educational practice that can enable learners to weave together disparate learning in meaningful ways while also deepening elements of integrative learning, an Essential Learning Outcome valued by both universities and employers. The authors will share findings of a mixed-method CPL portfolio case study that directly and indirectly assessed student integrative learning and student perceptions of their learning. Findings indicated increased internal validation of learning and academic confidence. Respondents indicated the portfolio process positively impacted their ability to apply learning, communicate, and create new knowledge. Implications for teaching and learning, program assessment, and administration and policy will be discussed.

BACKGROUND

Outside of the United States, in nations where CPL is best established, conversations about “validation of learning” are shaped by concerns similar to those that shape the conversation in the U.S. Education professionals seek to address unemployment rates by providing improved access to credentials, particularly for underserved groups (Villalba-Garcia, 2021). As in the United States, scholars are concerned both with quality assurance and with the acceptance CPL by university faculty and employers, as well as with uptake of CPL by underserved students (Looney and Santabanez, 2021; Wihak, 2007). The language with which scholars and practitioners write about CPL varies widely, as does the particular means of providing CPL (Villalba-Garcia, 2021), with CPL by portfolio under-utilized outside of the United States. The research for this chapter was conducted at a regional four-year university in the United States and situates itself in a U.S.-based conversation about CPL and CPL by portfolio. Because of similar motivations (access to credentials for underserved) and similar concerns (quality assurance and uptake of CPL processes), findings should be applicable in contexts outside of the United States.

The impact of CPL on adult students’ success is well-established in the context of U.S. literature on adult learners. Klein-Collins (2010) found that adult students who earned CPL had better academic outcomes than students who did not, regardless of gender, race, socioeconomic status, age, academic ability, and financial aid status; and these findings were confirmed by a range of narrower studies focusing on specific institutions or institutional groups (Chappell, 2012; Hayward & Williams, 2015; Klein, 2017). The work of Klein-Collins et al., (2020) confirmed the positive impact of CPL on students, including students of color and low-income students. They also found equity challenges in the relatively low uptake of CPL by students of color. This was particularly true for those who are Black or low-income. Furthermore, Klein-Collins, et. al. (2020) found Latinx and military students had a higher uptake of CPL in the form of Spanish CLEP tests and ACE credit recommendations.

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A follow-up study, Klein-Collins et al., (2021) took a deeper dive into these equity issues and found that low-income and Black students get a particularly strong boost from CPL completion when they engage in the process, making their relatively low uptake especially troubling. The authors suggested that among the barriers for some minoritized adult students are the cost, a lack of confidence in their own academic skills, lack of institutional flexibility, and knowledge of the process. In order to provide the benefits of CPL to these students, the authors recommended more and better outreach, financial support for low-income and minoritized students, and CPL processes that are woven into programs and curricula. A microstudy completed by Rogers and Forte (2016) examined seven students' passage through the CPL process and the findings supported those of previous studies. The authors suggested that CPL feels inaccessible to many minoritized students for reasons that are complex and interwoven, including a lack of comfort with or confidence in a process that requires them to prove college-level learning when they have gotten the message in the past that they are not college material.

CPL by portfolio has been identified by studies and practitioner reports as particularly impactful in relation to adult student persistence and graduation. Klein-Collins and Hudson (2019) examined the academic records of 26,000 students, 7% of whom had engaged in CPL. They found that 98% of students who completed portfolio-based CPL graduated or remained enrolled, higher than for any other method of CPL. Similarly, Klein-Collins and Hudson (2017) examined student completion rates of 967 students who participated in a CPL portfolio class. Students engaged in the class were more likely to complete their degrees than students who did not, and the impact of portfolio completion increased as the level of engagement increased. Students who finished the class were more impacted than those who did not, and those who had successful portfolios were more impacted than students who did not, etc. That graduation and persistence rates were strongest for adult students who earned CPL solely through portfolio is supported by smaller-scale studies such as Rust & Ikard (2016).

A wide range of practitioner reports also describe the value of the CPL portfolio as providing opportunities to adult learners through reflective writing and portfolio construction that would not be available with other forms of CPL. In addition, the findings of Rogers and Forte (2016) indicated that minoritized students may benefit from the support of advisors and instructors in earning CPL suggests that portfolios may be especially beneficial to minoritized students, since this is a form of CPL that can and frequently does include extensive advisor and instructor interaction. Not all studies on CPL find that portfolio-based processes have the strongest impact on adult learner success. One exception is the work of Hayward & Williams' (2015) that examined CPL at four community college campuses. While this study confirmed the positive impact of CPL completion on adult student success more broadly, it found portfolio-based CPL to be less effective at supporting adults than other forms of CPL, a difference that may be explained by the approach to CPL that was taken by the community colleges.

Less understood is the non-content specific learning associated with portfolio-based CPL. There are many practitioner reports within the literature that identify a range of learning benefits for adult students from the creation of a prior learning portfolio, most commonly an increase in self-confidence in relation to college-level learning (Delleville, 2017; Marieneau, 2014) and a shift in self-cognition that students and practitioners sometimes describe as "transformational" (Brown, 2002; Stevens et al., 2010). Scholars also described the strengthening of other academic skills, for example metacognitive growth (Delleville, 2017) and the strengthening of writing and meaning-making skills (Marieneau, 2014). In several survey studies, students' self-reports reinforce the perception of CPL teachers and administrators regarding the impact of CPL by portfolio. Rust and Brinthaup (2017) conducted a survey of 232 students at Middle State Tennessee who completed CPL portfolios. The clustered responses of students to questions about

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the impact of CPL on academic skills was positive, which the writers suggested is connected to the reflective writing required for the course. Similarly, Stevens et al. (2010) surveyed 45 students who participated in the University Without Walls program and found that most students reported changes as a result of the prior learning portfolio, with improvements in writing and self-concept reported most often. Two innovative studies assessed the skills of students after they had successfully completed prior learning portfolios. Both found evidence that students who had completed a successful portfolio later demonstrated stronger critical thinking skills on a task assigned later than those students who had not (LeGrow et al, 2002; Rust & Ikard, 2016). Studies looking at the learning demonstrated in the portfolios themselves are largely absent from the literature, with some important and interesting exceptions. Judith O. Brown applied grounded theory to eight portfolios and eight student interviews. According to Brown (2002), students became aware of implicit knowledge through the creation of the portfolio and as a result valued their work as a source of learning, understood their learning better, and improved their organizational and communication skills. In addition, students reported greater self-knowledge and a sense of empowerment (Brown, 2002).

CPL BY PORTFOLIO IN A COMPREHENSIVE UNIVERSITY SETTING: CASE STUDY AND IMPLICATIONS FOR POLICY AND PRACTICE

Case Study Purpose and Questions

For this study, the authors wanted to learn if portfolio assessments would confirm practitioner and student reports about learning garnered through the portfolio process. Questions for the study were framed around the American Association of Colleges and Universities (AAC&U) Essential Learning Outcomes (Rhodes et al., 1994) in order to ensure a focus on learning recognized by the profession as “essential.” The authors chose specific questions around Integrative Learning because this was a contemporary learning framework that connected with the findings of previous studies.

The authors examined portfolios and interviewed students from a CPL by portfolio program at a regional comprehensive university that has offered a successful CPL by portfolio program for almost a decade. Adult learners interested in pursuing credit for prior learning first met with an advisor to pre-assess their prior learning, considered if this learning may be equivalent to that associated with a specific course offered at the institution, and considered how CPL could be applied to their degree requirements. Students who participated in the portfolio program received instruction regarding the evaluation of their learning and development of a CPL portfolio via a required one-and-a-half credit CPL portfolio development course. The course was offered 100% online; however, students were given the option to receive instructor feedback face-to-face. A faculty or instructional staff member taught the course. Throughout the course, students received instruction and developed portfolios via an iterative process. The finished portfolios were subsequently evaluated by a faculty member who was a content expert in the course discipline. Reviewers evaluated content-specific learning proficiencies directly related to the stated course learning outcomes. Academic reviewers did not assess broad learning associated with competencies such as integrative learning, and the portfolio instructor did not explicitly guide students toward integrative learning objectives. Over 90% of submitted portfolios resulted in an award of course credit.

Given the documented learning benefits of portfolio and CPL, the authors wondered if there might be other benefits associated with the CPL portfolio preparation course and student learning experience.

The course did not intentionally incorporate activities to develop student competencies associated with integrative learning, but the authors hypothesized that such learning might still occur in the process of portfolio building. They wondered what impact portfolio construction might have on students' ability to transfer and apply their learning and what impact it might have on students' understanding of themselves as learners.

Case Study Questions

1. Does the retention and graduation of the portfolio population differ from that of the general adult learner population?
2. Unprompted, do the activities and reflective processes incorporated into CPL by portfolio promote depth of integrative learning?
3. Do integrative learning scores correlate to GPA?
4. Will mean integrative learning scores vary based on the course discipline assessed or based on the student program of study?
5. How did the CPL portfolio experience impact students' perception of their learning and of themselves as a student?

Sample and Methodology

The authors used a mixed methodology. For the quantitative analysis, the sample included 62 successful portfolios produced by 48 non-traditional age students, evenly split by gender with half of the sample identifying as women and half as men. Half of the students, therefore, were minoritized around gender; and while the authors did not collect information about students' Pell-eligible status, many of the students worked in low-paid jobs, such as in early childhood education. Ninety-four (94) percent of the student sample identified as White, while 6% of the sample identified as Black, Latinx, or more than one race/ethnicity. This imbalance in equity in CPL participation is typical, despite research indicating CPL may have a powerful impact on students in underrepresented racial and ethnic groups. The point of time in degree program completion varied, but the median value was 2 years into their program. The mean GPA for the sample was 3.39. The CPL award for both the quantitative and qualitative samples ranged from three to twelve credits per students.

For the quantitative analysis component of the study, two independent reviewers analyzed each successful CPL portfolio to evaluate the level of integrative learning evidenced in the portfolio. Reviewers independently applied the Integrative Learning VALUE Rubric developed by the Association of American Colleges and Universities. The VALUE rubrics have been shown to be a valid and reliable tool to evaluate the factor of integrative learning (Finley and Rhodes, 2013). The Integrative learning assessment rubric comprises five items – Connections to Experience, Connections to Discipline, Transfer of Learning, Integrated Communication, and Reflection and Self-Assessment. Rubric scoring is based on a 4-point scale with "1" indicating benchmark evidence and "4" indicating capstone evidence of learning. The authors added a fifth point, that was quantified a "0" indicating that the portfolio did not include evidence of the respective facet of learning. Internal consistency across these five items was evaluated by applying Chronbach's alpha to the sample. Findings indicated a high correlation between and across this related set of items ($r=0.91$).

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The authors created a mean score and checked for interrater reliability. To ensure inter-rater reliability, reviewers met prior to the evaluation to construct consistent interpretation and application of the rubric. Following the review, evaluators met to compare findings. Reviewers discussed any finding in which reviewer scores differed by more than 1.0 on the 5-point scale for any single item and rescored, as necessary. Of the 62 portfolios examined, which produced 310 points of data, there were 15 points of data for which raters differed by more than 1.0 point.

For the qualitative analysis, the authors talked to a subset of 22 students and alumni, which included 14 individuals identifying as women and 8 identifying as men. Similar to the larger sample, 95% of the sample was white. One interviewee identified themselves as Black. The interviews took place subsequent to the quantitative analysis. Most (19) of the individuals had graduated and one was still enrolled. One individual had enrolled during the previous term but was not enrolled at the time of the interview. The interviewer used a 15 open-ended question protocol. Questions included elements related to the individual's learning experiences and expectations relative to the CPL portfolio process, learning connections across disciplines and experiences, application, perspective taking, confidence, etc. All interviews were recorded and transcribed. Transcripts were analyzed by one reviewer using a grounded theory approach to identify common themes and create a conceptual understanding of portfolio impact.

CPL Portfolio Case Study Quantitative Findings

Question 1: *Does the retention and graduation of the portfolio population differ from that of the general adult learner population?*

At the time of the quantitative analyses, 94% of the students had either graduated or were still enrolled at the university. All students from URM groups in this study had graduated. This success rate is high compared to that of adult learners at many universities. A contemporaneous analysis by the authors of adult learner retention rates for students across the system of higher education in which this university is a part indicated mean first to second year retention for the adult student population was about 71%. According to a recent report from the Pell Institute (2021), about half of adult nontraditional students earn degrees within six years.

Question 2: *Unprompted, do the activities and reflective processes incorporated into the CPL by portfolio promote depth of Integrative Learning?*

Table 1 illustrates mean scores and ranges for each element of integrative learning, as well as an overall integrative learning score. On a five-point scale with "0" indicating no evidence, "1" indicating benchmark evidence, "2-3" indicating a progression of milestone evidence, and "4" indicating capstone level evidence, the study sample demonstrated learning on par or exceeding what would be expected of students midway to their credential. The integrative learning mean score was 2.26. When examining mean scores for specific elements, the authors found the reflection self-assessment scores were lower than expected, surprising given reflection is a core component of a portfolio activity. The construction of the portfolio as an argument to justify course credit for specialized knowledge may explain this. A proficient reflection and self-assessment includes the identification of failures and challenges, along with strengths and successes, in its understanding of the evolution of self. In a CPL portfolio constructed to emphasize student competence, it is understandable that student self-assessments might be undeveloped.

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If the portfolio class were constructed to encourage stronger self-assessment reflections, that would not negatively impact students' chances to earn credit for the class under consideration, students might demonstrate greater competency in this category of learning.

Table 1. Mean integrative learning values

VALUE Integrative Learning Rubric Element	Minimum Score	Maximum Score	Mean	Standard Deviation
Connection to Experience	1.00	4.00	2.15	0.77
Connection to Discipline	1.00	3.75	2.20	0.81
Transfer of Learning	1.00	4.00	2.52	0.70
Integrated Communication	1.00	4.00	2.67	0.72
Reflection and Self-Assessment	1.00	3.25	1.79	0.69
Integrative Learning Overall	1.00	3.60	2.26	0.64

Question 3: Do integrative learning scores correlate to GPA?

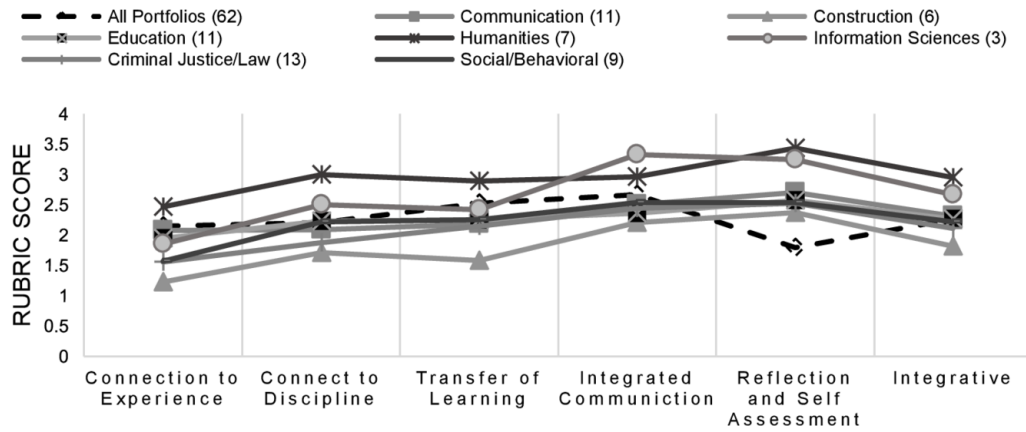
A Pearson's correlation analysis was conducted to examine the association between integrative learning scores and student cumulative grade point average (GPA). Reflection/self-assessment was the only element of integrative learning that was correlated to student GPA ($p \leq .05$). Students who scored lower in reflection and self-assessment also had a lower cumulative GPA. As noted above, the primary purpose of the CPL portfolio activity (to earn course credit for learning) may have impacted the extent to which the portfolios showed evidence of reflection and self-assessment. Nevertheless, this finding is interesting in the context of understanding subsequent student success or student perceptions of their success. This element will be further considered in the qualitative analysis.

Question 4: Will mean integrative learning scores vary based on the course discipline assessed or based on the student program of study?

The authors were curious to see if there was variance based on the discipline of the courses challenged. Maybe the nature of the course content or learning outcomes within a discipline impacts facets of integrative learning. The same could be said regarding the plan of study. Could there be variance based on students' declared major? Perhaps some disciplines train students differently, and this may impact the demonstration of integrative learning in their portfolios. To address these questions, first the authors conducted an Analysis of Variance to examine significant differences based on the course/discipline challenged. The authors examined the 62 portfolios, categorized each by course discipline area, and grouped 60 of the portfolios into one of seven broad curricular areas. Figure 1 illustrates the mean integrative learning scores by course discipline, overall, and by each element of integrative learning. Each line represents a subset of portfolios by course curricular area. The dotted line represents the mean scores for all 62 portfolios. While differences between groupings can be seen; the ANOVA did not indicate any significant findings. The authors acknowledge the sample size was small and not evenly distributed across groups.

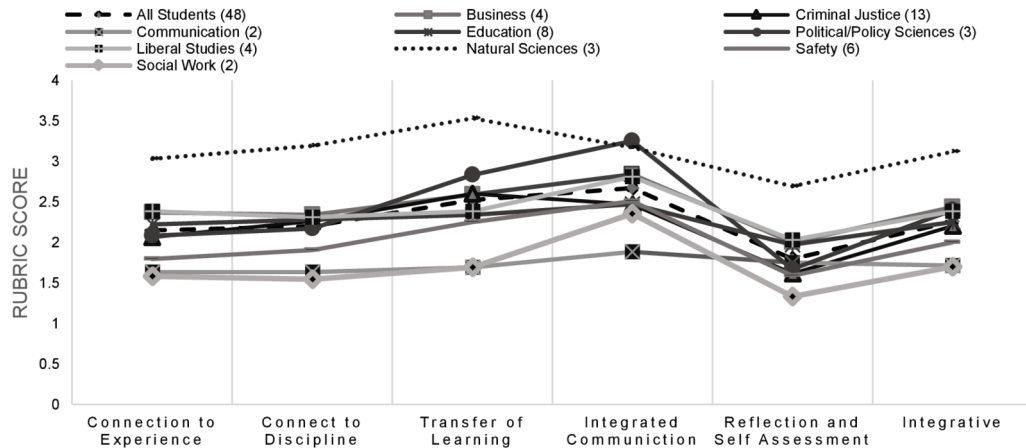
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Figure 1. Mean integrative learning values by course discipline



To examine differences based on student majors the authors categorized each of the 48 students by the broad curricular area of their declared major. In cases in which a student submitted more than one portfolio, the authors created a set of mean scores for the student. Majors with less than two students enrolled were removed from the analysis. Integrative learning scores were then examined. Figure 2 illustrates the mean integrative learning scores overall and by each element of integrative learning with each line representing a subset of students by major. The dotted line represents the mean scores for all students. Again, while variance can be seen, the ANOVA did not indicate any significant findings.

Figure 2. Mean integrative learning values by student program of study



CPL Portfolio Case Study Qualitative Findings

The qualitative portion of this study allowed for a deeper explanation of how the CPL portfolio learning experience impacted the 21 students who were interviewed. Respondents shared information regarding their proficiency and self-perceptions that increased or changed as a result of the CPL by portfolio activity.

Question 5: How did the CPL portfolio experience impact students' perception of their learning and of themselves as students?

The proficiency and self-perception elements were categorized into theme clusters. Table 2 illustrates seven theme clusters.

Table 2. Proportion of sample identifying theme element

Theme Cluster	Percentage of Response (%)		
	All Respondents (n=22)	Women (n=14)	Men (n=8)
Reflection and Increased Self Awareness	91%	93%	88%
Learning Organization and Metacognition	91%	100%	75%
Perspective Taking	82%	86%	75%
Cross Discipline Communication	73%	71%	75%
Validation: Internal or External	86%	93%	75%
Self-Confidence and Self-Efficacy	73%	79%	63%
Application and Transfer of Learning	91%	100%	75%
Transformation as a Learner	55%	64%	38%
Creative Freedom and Novel Approaches	41%	57%	13%
Unexpected Learning	77%	93%	50%

Reflection and Self Awareness. The design of the CPL portfolio development course did not intentionally include activities to prompt in-depth reflection, other than to challenge students to reflect on past learning as it applied to the courses for which they wished to earn credit. When the portfolios were scored using the Integrative Learning rubric, the authors found students scored low on the reflection and self-awareness element. Interview data clearly revealed reflection was part of the student experience, however. Ninety-one percent of respondents indicated they actively reflected on both content learned as well as on themselves as learners and appliers of knowledge. Ninety-three percent of women and 75% of men interviewed indicated reflection and increased self-awareness occurred as part of the portfolio process.

In some cases, respondents noted a newfound awareness of where and when learning occurred for them. For example, one respondent said, "I am more conscious of my learning. Not every learning experience is a formal learning experience." Another indicated, "Before [portfolio], as I was learning, I wasn't aware of the learning I was doing." While a third said, "It made me look at everything I've done in my life and highlight skills and knowledge. It made me realize the skills are there."

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In other cases, respondents noted how the increased self-awareness that they created as part of the reflections enabled them to see themselves as continuous learners. In the words of one respondent: “I had done a ton of work in the union. Before [portfolio] I hadn’t thought about the theory behind it. You’re always learning something new, but you don’t have to process it and relate it to a course.” Another emphasized the value of taking the time for their reflections, “The class forces you to slow down and assess what you have learned in relation to work and classes, and the reflections allowed me to do this. I realized that I am constantly learning.”

Some respondents emphasized an increased understanding of how seemingly disparate learning connects to create a whole. One respondent focused on how the format of the portfolio provided them with more value, than if they had earned CPL by exam. They said, “If I had not done this [portfolio] I would not have made all these connections. If I had just taken a test, there would be no self-reflection.” Another respondent noted the importance of looking at and connecting a large volume of learning:

I learned not to discard little pieces [of knowledge]. You really need to look at what you’re discarding. I discovered a huge amount of connection. The biggest thing was that I came to school with more than 40 years of life to put together with what I was learning. It expanded my learning and made all of my learning more full.

Reflection was also credited by several respondents as the first step to communicating and applying learning across school and work and across academic disciplines. Furthermore, self-awareness regarding what one knows and does not know is foundational to an individual’s advancement of learning, illuminating an important connection between reflection, self-awareness and metacognitive ability (Bransford, Brown, et. al., 2000; Brown, 2002). Last, reflection may be foundational to creating an identity as a learner and as a contributor to knowledge that, in turn, may impact perceptions of self-efficacy, confidence, and a sense of belonging at the university.

Learning Organization and Metacognition. Metacognition is the ability of the learner to self-identify, organize and evaluate their knowledge base; to identify gaps in their knowledge base; and to create a strategy to acquire needed learning. The ownership of one’s learning process may further enable individuals to retain learning and transfer that knowledge base across settings (Bransford et al., 2000). In this analysis the authors coded characteristics that indicated the portfolio process increased the student’s ability to identify and organize their learning and navigate how they might deepen or extend their knowledge. Ninety-one percent of respondents indicated elements of learning organization and metacognition were enhanced by the portfolio process and included statements regarding how they consciously planned, evaluated, and worked to improve their performance. All (100%) of the women and 75% of the men indicated aspects of metacognitive proficiencies.

The process of identifying relevant learning, gaps in learning, and creating artifacts and responses can be time consuming. A common critique of portfolio from faculty and staff is the time commitment and the sentiment that it might be easier “if the student just took the course.” The authors note that none of the respondents indicated regret for participating in the portfolio process, and many reflected on how the process trained them to own their learning. In the words of one respondent, “I learned how to learn in a way that was good for me, not someone else.” Other respondents reported discovering the value of recording their competence virtually or on paper. As one respondent put it, “Even if I hadn’t gotten the credit, it would have been worth it for me to put it on paper.”

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By creating ownership of their learning and learning processes, some respondents also grew more confident in their learning abilities and decisions within the college setting. As shared by one respondent:

Now I'm standing taller on my decisions and choices about how I learn.

I am able to reflect on what I've done and what I know. Writing the whole thing down I saw what was good, what wasn't, what I've learned, and what [learning] I need.

Metacognition is an important and valued outcome of our educational practices because it equips students to be lifelong learners and to take ownership for their learning development. Furthermore, metacognitive practices can increase a person's ability to adapt learning to new contexts in and out of academia. Many of the participants in this study spoke about the need for continued learning and shared their awareness that they can manage their learning and their learning experiences. One respondent shared how the portfolio revealed to them gaps in their learning and areas for growth. They said, "When you get comfortable, you don't stretch yourself. I saw that I did not have as much leadership and management in my portfolio. Since then, I've pursued that [learning] quite a bit."

Learning organization and metacognitive proficiency may be particularly important when students are asked to make meaning of disparate units of learning and to connect credentials. If each student is to be the owner and curator of their learning, then our responsibility is to incorporate activities that enable individuals to recognize and organize this learning. Portfolio can be a powerful tool to this end, helping them organize their learning to align with university expectations and requirements. Many respondents shared these perspectives. The first statement exemplifies how respondents now recognize that learning occurs across many domains, in many spaces and places. They said, "I am more conscious of my learning. Not every learning experience is a formal learning experience." Another respondent noted, "I think the reflections showed me [how] to connect disparate [learning]. The portfolio process forced me to take a bunch of data and pull it together in a cohesive and comprehensive way."

Perspective Taking and Interdisciplinary Communication. Perspective taking is an element that emerges in every facet of integrative learning. As described by one respondent, "The experience just really broadened me. I thought from a broader perspective instead of being so narrow-minded." When the authors posed a question about perspective taking to participants, most connected it to the task at hand – how to identify the perspective of the instructor, provide the evidence effectively to the instructor, and persuade them that the appropriate learning has been accomplished. In some cases taking the evaluator's perspective enabled the student to better select and organize evidence of learning, in other cases it extended beyond the portfolio activity to subsequent coursework. As one respondent shared, "You ask yourself, what are they [the faculty] looking for? What am I going to present that's going to hit those high points?" Another, "By doing it [the portfolio] it helped me research a little bit more, to think a little harder [about] what would I expect for an answer;" and, "I was thinking if I was evaluating this, what would I want to see?"

While the authors distinctly coded and identified perspective taking and communication across disciplines, in most cases these two concepts co-occurred. Eighty-two percent of respondents indicated elements of perspective taking and 73% indicated an ability to communicate either across disciplines or in their professional space. Students shared how they consciously transferred this skill to navigate across disciplines in the university and applied this learning in subsequent coursework. For example, one respondent said, "What I learned helps me [self] assess when I am communicating with people in other

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[university] departments.” Another noted, “It helped me because you really have to negotiate differences in different departments. Each academic discipline has its own walls.” Another responded spoke about the need to align expectations and communicate to those expectations. They said:

I had to translate my experience, which you [the reviewer] has never had, into something meeting your expectation. Your expectations are in your head. My audience is you. Almost all of it is about translating to your understanding.

Outside of the university, individuals connected perspective taking to their profession and described how they applied these skills in the workplace, as expressed by these three respondents, “It helped me communicate with people, future bosses. It helped me with relationships”; and “I changed the way I present information to my co-workers”; and, “[At my job] I’m the go-between between management and staff. I pay attention to different audiences.”

One respondent articulated the intersection of self-reflection, perspective taking, and communication with their clients:

What I find now [in my work] is that I spend a lot of time reflecting. If a person does not react the way I expect them to, say with their family, I have to reflect. That reflection is something I learned to do in the portfolio.

Validation. The intended outcome of a CPL review is to provide external validation to the student via the award of university credit that is applicable to their credential. The authors were surprised that many of the respondents framed their CPL experience as providing them with internal validation. For this reason, the authors coded references to university recognition as external validation and references regarding self-recognition as internal validation. While 73% of respondents shared perceptions about external validation, more (86%) shared perceptions regarding internal validation. Ninety-three percent of women made internal validation statements, versus 75% of men. Some statements of validation indicated a newfound awareness of knowledge. For example, one respondent said, “The biggest thing I learned was how much knowledge I had that I didn’t know I had.” Another said, “I didn’t realize how much previous training I had prior to going to college. You don’t realize [it] until it’s on paper.” In other cases statements of validation indicated a recognition personal competency. For example, one respondent indicated, “I was much smarter than what I realized. I knew more in the field than what I realized.” Another, “I felt accomplished. It justified my education [...] I was on the right path.”

Self-confidence. Seventy-three of all respondents indicated increased self-confidence as a result of participating in the portfolio process. Of women, 79% indicated increased self-confidence as compared to 63% of men. Some respondents shared that when they returned to school, they felt academically inferior to their classroom peers. After the portfolio experience, they saw themselves differently. A lack of academic self-confidence may be a barrier for many adult learners, particularly adult learners who are minoritized in other ways. For example, findings of the work of Rogers and Forte (2016) suggested that the relatively low uptake of CPL by minoritized students is connected to social messaging that they are not “college material” and their subsequent internalization of this message. One of the reasons CPL by portfolio impacts adult success may be that it improves their academic self-confidence, which might make this kind of CPL especially important for minoritized students.

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Several respondents who previously attended college and did not complete a credential, worried that they had lost ground, academically, since they were last enrolled. Respondents connected the recognition of their prior learning with a sense of self-worth and belonging. As one respondent noted, “I wasn’t so ostracized, that I was an adult student coming back. When I first started, I was very timid, very shy. It made me realize not only my self-worth, it made me find my inner voice.” Another respondent shared their transformation this way, “I am more patient than I thought, I am smarter than I thought, I have a lot of knowledge in there and I can use it.” Another simply noted, “I’m more confident than when I started back to school.”

Other respondents spoke of their confidence relative where they were in the pursuit of their academic goals, as compared to other students. One respondent stated, that following the submission of the portfolio and credit award, “I was able to slip into the advanced classes and was able to understand what they were talking about [...] I was in with students who had been in the classes I’d portfolioed out of and [they] knew less than me.” Another stated:

Putting the portfolio together made me see that I wasn’t that far behind [my classmates with more college credit.] What I learned outside of college was important. It made me feel more like where my peers were. Going through that process made me feel that my time off a college campus was not a waste.

After the portfolio experience, some respondents indicated they found new confidence and pursued new goals in and outside of the university. One respondent shared the change of perspective about their own limitations. They said, “My perspective has changed dramatically from when I started the process to now. I don’t hold myself back.” Many spoke about how they discovered they could best blend work and school, or how they found new opportunities. One person noted, “I’m able to take [work] plus academic experiences and have even greater success.” Another respondent shared how the experience increased their confidence in and outside of the classroom. They said:

Prior to this program I don’t think I had the self-esteem or the confidence to even look for a job. I would have skimmed [the job posting] and moved on. I ended up getting a job in H. I was able to articulate my self-worth.

The comments of one respondent reflected the intersection of metacognition and self-confidence. Referring to their current workplace, they noted how they now take an evaluative approach to verifying and defending their knowledgebase. They said, “[First,] I question things I thought I knew. Then, when people [with whom I work] question me, I am more confident with my judgment.”

Application and Transfer of Learning. A key indicator of integrative learning is a person’s ability to apply and extend learning from one context to another. Most often instructors and practitioners evaluate how students transfer classroom learning into practice, and they create experiential learning opportunities – such as community-based projects, internships, and undergraduate research – for them to make this connection. Those who participated in this study made it clear that learning application is non-linear. As one respondent put it, “My learning just goes around. It’s like a continuous circle.” Another respondent put it this way, “I could bring the learning I did at work and take it to my classmates and then take what I learned from them and bring it back [to work].” Similarly, another respondent said, “It taught me how to communicate better and how to connect [new] learning between my job and school and back again.”

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The authors found 91% of respondents made statements regarding how they transferred the learning acquired as part of the portfolio process of learning experiences in other academic and non-academic contexts. All (100%) women and 75% of men indicated at least one example of learning transfer. Some comments specifically addressed the directionality of the learning transfer. Perhaps, especially when CPL portfolio is administered early in the student's university experience, it provides students with an opportunity to connect their learning no matter where it happened. As one respondent remarked:

I never really saw the bridge between the two [work and school]. In the process of writing about it came to the surface. I would read in my sociology course and would see names for some of the ideas that I came to myself. I never thought about it before until the portfolio.

Again, the authors found intersections between the learner's ability to organize and apply their learning, and how the portfolio process helped them to discover how to connect and organize learning in and outside of the classroom and with those whom they work. Respondents stated, "I learned that my academic [learning] carries over to the business world. It is a blend of both . . . I learn best when I interact with people;" and, "I realize both learning experiences [academic and experiential] are important. I [supervise] differently. I have my team work together. They all have different skills and learn from each other;" similarly, "I am more ready with the takeaways of experiences. Soon after [a learning experience] I think about the new skill it's given me. I think about how my personal and professional skills and coursework connect."

Creative Freedom and Novel Outcomes. A capstone indicator of integrative learning is that individuals can extend their learning to create novel learning and original work. Almost half of respondents who indicated application and transfer of learning also indicated a newfound sense of creative freedom or taking novel approaches to their work. This was truer for women than men. While 57% of women indicated the portfolio experience gave them a sense of creative freedom and/or ability to produce novel work, only 6% of men made such an observation. One respondent described a day in which she was working to complete a learning activity with a child who had special needs. She spoke about the confidence she gained from the portfolio experience and how that helped her more quickly and more confidently organize different teaching strategies. Another respondent spoke about how the portfolio process provided her with metacognitive skills and confidence to create and propose solutions to potential funding sources, and secure additional funding. Another indicated that the portfolio process validated the creativity she brought with her into the university and thus gave her confidence to leverage this creativity and secure new work and advancement opportunities.

IMPLICATIONS, SOLUTIONS, AND RECOMMENDATIONS

Implications for Practice in Teaching and Learning

Adults need pathways through higher education that are accessible, affordable, and flexible. Higher education practitioners also want students' education to be meaningful to them, providing them with opportunities for personal and professional growth and tools that will help them shape their own experiences and live better lives. Portfolio-based CPL may play a significant role in providing such pathways; and it may provide a source of additional support for students of color, low-income students, and other

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students who face more barriers to higher education. Scholars and practitioners know that CPL, broadly speaking, impacts persistence, completion and grades; and they know portfolio-based CPL in most cases provides an even more effective form of support. From a student-centered perspective, the argument for including robust portfolio-based CPL in adult facing academic programs is strong. From a practical perspective, the support provided by CPL may make academic programming more sustainable by helping to retain students through more courses, more revenue, more degrees, and more documentable success.

In addition, practitioner reports and scholarly studies suggest that portfolios are not just a site for the demonstration and assessment of learning, but also a site where learning occurs. A successful CPL portfolio may positively impact students' subsequent performance on capstone and other academic work, for example, suggesting that student learning in the portfolio process provided them with tools to be better students. Student self-reports also provide further support for the idea that a wide range of learning occurs as part of the portfolio process. In addition, the direct assessment of portfolios in the study included here demonstrates that valuable integrative learning skills are enhanced through the portfolio process. This learning is valuable to students and may also be valuable to the programs that incorporate portfolios into their curricula to scaffold Essential Learning Outcomes associated with general education or to support other elements of learning. Because CPL is flexible, portfolio courses can be intentionally integrated into curricula across a variety of disciplines.

For example, one important theme that emerges from the literature and is supported by this study is that students who create a successful CPL portfolio learn skills associated with communication. With the purpose of their portfolio in mind, they must pull out relevant details about their experience, consider their audience, determine how to organize the details in a way that will make sense to this audience, write reflectively about their learning and use appropriate technology to create their portfolios. Growth in organizational skills, awareness of audience and purpose, appropriate use of technology and reflective writing skills are all part of effective communication and represent essential elements of college-level learning. Not all adult learners return to the university with strong communication skills. Students may have done substantial college-level learning in their jobs without needing to build the kinds of arguments shaped in a portfolio or without doing much reflective writing. Administrators in adult programs for these professionals could use portfolio-based CPL as part of a scaffolded communication curriculum; and faculty and administrators could place and structure the course to amplify these elements of the process.

CPL students also demonstrate essential elements of integrative learning, such as perspective taking, connecting work with learning in the college classroom, and the extension and application of learning. Through CPL portfolio, students identify elements of learning garnered through work and life experience and connect that learning to the outcomes associated with a college course or path of study. CPL students in this study also report applying learning from one context in another, using newly-recognized experiential learning in the classroom and bringing classroom and CPL learning back to work/life. This ability to connect and apply learning from one context to another is an important and capstone element of integrative learning. Because students with portfolio experience improve their ability to connect and apply learning, CBE or other adult-facing programs might provide a CPL portfolio opportunity early in the learning pathway as a way of preparing students for greater success in direct assessments and in the classroom. Programs might also decide to integrate the portfolio process as part of a capstone experience or as a book end to a capstone experience, something that would provide their students with the opportunity to weave the elements of their learning into a whole. This would not only provide a more cohesive learning experience for students, but also the opportunity to reflect on the connections between

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their experiences in and outside of the university making their education and the university programs they participate in more meaningful to students.

Among the most compelling, consistent, and well-documented outcomes of successful portfolio completion is growth in academic self-confidence. Students who reflect on and identify the college-level learning they've acquired through work and life experience may develop enhanced metacognitive skills, a better understanding of what learning is and how they themselves do it most effectively. They also begin to see what they've learned, what they've accomplished, and who they are differently. Based on the findings of this study, students' improved sense of belonging in relation to the university, their belief in their own capacity to learn at the university level, and their academic confidence more broadly is of value to many students—who express a good deal of enthusiasm over their growing sense of self. This improved self-confidence may be of particular value to students with multiple minoritized identities—adult students of color, for example.

This study supports the value of strengthened self-cognition and self-confidence through the CPL portfolio for minoritized students. Though the authors did not have enough students of color among their portfolio students to draw conclusions about this group, they did find that returning women—many of whom are also minoritized around class—were more likely to experience improved academic self-confidence than did returning men and valued the process more because of the validation of learning that it provided. In many cases, these returning women found the portfolio process to be transformational. CPL by portfolio may be of particular interest to adult-learning programs that are concerned about engaging and retaining students of color, Pell-eligible students, and minoritized women.

Implications for Program Assessment and Quality Assurance

Faculty will sometimes raise concerns regarding the implementation or scaling of CPL by portfolio because they perceive the learning and assessment as less rigorous than that in the university classroom. Creating routines to regularly assess CPL programming, like a university would for any of its programs, is a key step to increasing faculty confidence. Completion of studies like the one shared in this paper can be used to provide evidence and assurance of learning. In this study, the authors examined additional facets of learning, beyond specialized content. A CPL program assessment model might also include an examination of specialized learning and student success in subsequent courses. In both examples, findings can be useful to continuous improvement of the program.

In cases in which a university wishes to establish a new CPL portfolio program or modify an existing one, there are several practices and principles that should be considered to assure reliability and validity of the process, as well as student learning:

1. Develop CPL portfolio activities and routines that evaluate the student learning, not experience.
2. Be transparent regarding the required criteria. This includes learning outcomes, competencies, and expected levels of proficiency. These disciplinary-based criteria should be consistent no matter how the content is delivered or how learning is assessed.
3. Find the format that fits the learning to be assessed. Just like it is important to select learning activities and assessments that best demonstrate the required learning, it is important to select the most appropriate CPL format. This study featured CPL by portfolio, but other CPL formats may be appropriate for other kinds of learning. For example, departmental assessments that provide learners with specific prompts or project-based activities may be appropriate if faculty wish to see

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demonstration of specific or tailored sets of skills or knowledge. In such cases the academic unit may offer prompts to ensure the student is clear about what components of knowledge they should emphasize. Such a format may be particularly relevant when the course of study must align to specific standards of a professional accreditor or organization.

4. Ensure that the learning to be evaluated is college-level and based on criteria defined by subject-matter experts. This can be done by using tools such as rubrics that are calibrated to those used for conventional classroom activities.
5. In the case of CPL by portfolio, create a curriculum to support student development of the portfolio that includes opportunities for formative evaluation and feedback, as well as methods to ensure authenticity of materials submitted. Consider how a portfolio course may be used to satisfy other general education or degree requirements to maximize the value of the experience for the student and university.
6. While the CPL by portfolio course may be delivered by a qualified faculty or instructor from many disciplines, the evaluation of the portfolio and determination of credit award must be made by an academic subject matter expert qualified in the discipline.
7. Establish regular program review routines.

Implications for Administration and Policy

One advantage of CPL by portfolio is its flexibility and adaptability across academic program and degree requirements. Credits from this form of CPL can be applied to whichever courses subject-matter experts deem suitable and/or to general education program requirements. The portfolio process serves the student in two ways, to demonstrate discipline- and subject matter-specific content knowledge and to demonstrate university-wide essential learning. As demonstrated in this chapter, not only can the portfolio process be used as a means for the student to demonstrate competency related to specific courses within the curricula, but a university could also utilize the portfolio course to demonstrate learning associated with general education programs or degree requirements.

Second, while universities must invest in advising, evaluator training, and instructional support for the CPL portfolio course, utilizing a CPL by portfolio to assess for extra-institutional learning and to rebundle sets of learning can be more cost effective and efficient than other direct assessment programs. Converting delivery of an existing program to 100% direct assessment can require extensive instructional redesign, whereas CPL by portfolio can be integrated into a program without the need for substantive redesign. Also, the costs associated with the portfolio course instructor fees and evaluator fees can be covered by tuition revenues produced by the portfolio development course. In addition, portfolio functionality exists within many Learning Management Systems, so that procurement of additional applications is not needed. Last, credit awarded can be transcribed as university cataloged credit.

Third, CPL by portfolio can be done at the university level. Through established governance processes, universities can (and should) create institution-wide and academic unit policies. Currently, while notice to regional accreditors to comply with federal requirements may be required, in most cases prior approval is not necessary to implement CPL. Building two tiers of policy enables universities to comply with regional accreditation requirements and academic units to be responsive to the unique professional accreditation, licensure, and credential requirements of their discipline and industry.

At the university level, a secondary review of portfolio artifacts can serve to support comprehensive program review and demonstrate the university is implementing assumed practices. At the level of the

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academic unit, faculty leaders can evaluate essential learning and learning evidence required by their industry. Using program-level review data, faculty can determine what prior learning formats may best serve their curricula and their students, satisfy accreditation requirements, lower student cost and barriers to credential, and subsequently increase enrollment and credential production. Faculty also are best poised to identify program efficiencies and opportunities for collaboration. This may include opportunities to integrate CPL with other experiential-learning high-impact practices, such as internships, or to explore how industry certifications may bridge with academic programs via CPL.

Both faculty interest and capacity to deliver CPL by portfolio and student demand is imperative to program implementation and sustainability. It is important to

1. Create positive messaging around CPL, based on student and program data, increasing awareness of both students and faculty members.
2. Provide tools to support students through the CPL process, diminishing questions to faculty evaluators and confusion among students.
3. Separate portfolio instruction and building processes from the evaluation of the finished portfolio as a way of lessening workload for faculty assessors and providing more support for students.
4. Train new subject-matter experts periodically, paying them, if possible, for the time spent in training as well as the time spent in portfolio evaluation.
5. Integrate CPL into existing programs where possible.

Most faculty and staff care about student success, and students want efficiency in their education and acknowledgement for what they bring to their education. Communicating the learning value of CPL by portfolio, as discussed in this paper, diminishing professional development barriers for both faculty and staff, and incorporating routines to evaluate outcomes of students who participate in PLA may help to create and sustain momentum.

CONCLUSION

Higher education has long recognized that student demographics and enrollment patterns are changing, that there are equity gaps in credential attainment, and that there is a need to better support post-traditional learners across demographic groups. CPL by portfolio may be a crucial element of this support. It can provide a way for academic programs and institutions to rebundle disparate sets of learning and microcredentials, support student learners across demographic groups, and encourage students to create coherent meaning from a complicated academic journey. Enrollment choice is driven by a number of factors, including cost to degree, opportunity loss, transfer of learning and credit, credential relevance, and student perceptions of self-efficacy. CPL by portfolio can address all of these choice points. CPL recognizes that every student comes to us with a one-of-kind learning experience, and CPL by portfolio is a flexible and student-friendly approach to translating that learning into credits. As this study demonstrates, recognizing a student's prior learning not only impacts their success at the university but also enhances integrative and other essential learning. Students are empowered to understand themselves as lifelong learners who can connect and apply what they learn inside and outside the borders of the university.

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KEY TERMS AND DEFINITIONS

CPL Portfolio: A collection of artifacts and reflections that are organized around a specified set of learning outcomes, competency expectation, or prompts. An electronic portfolio (eportfolio) refers to a portfolio that is presented in a digital format.

Credit for Prior Learning (CPL): The practice of recognizing, evaluating, and awarding credit for university-level learning that was acquired by a student outside of university-sponsored credit instruction.

Integrative Learning: The ability to connect and synthesize learning across institutional and extraintitutional setting in a way that extends an individual's ability to adapt and create knowledge in multiple contexts.

Internal Validation: The outcome in which a learner is able to self-evaluate and recognize for themselves that they have proficiency of certain content or abilities.

Metacognition: The ability of an individual to recognize their personal learning needs and how that learning may be acquired.

Chapter 8

Expanding Knowledge Acquisition Frontiers in University Education: Accreditation of Learning Outcomes in Universities

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ABSTRACT

One of the fundamental principles of contemporary postsecondary education system is that knowledge is rooted in experience. Contemporary andragogy and experiential learning theories recognise the ability of people to learn in a variety of places, times, and styles, thereby challenging rigid, subject-matter-centred pedagogies. Accreditation of Learning Outcomes (ALO) is the assessment of previously unrecognized skills and knowledge an individual has achieved outside the formal education and training system. The ALO initiative is imbued with substantial potential to benefit learners, higher education sectors, employers, and the society at large. This chapter reviews the concept of ALO and successful initiatives for standardising the accreditation process for learning from experience—work experience, in-service training, self-study, or community work—in South Africa. Approaches for addressing the barriers encumbering ALO implementation are discussed.

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Learning theories in higher education outline how information and knowledge are disseminated, accessed, processed and applied during a learning process. Major categories of learning theories include behaviorism, cognitivism, social learning theory, social constructivism, and multiple intelligence learning (Zhou & Brown, 2021). The main domains of learning are Cognitive (focus on knowledge and intellectual skills), Affective (focus on feelings and emotions), and Psycho-motor (focus on skills acquisition via experiential learning) (Sönmez, 2017). Unlike the cognitive domain, for which universities are probably best suited to adopt for facilitating learning, the affective and psycho-motor domains are at least just as adaptable to utilize in learning acquisition. For example, psycho-motor skills development relies mainly on experiential learning. Three key aspects of experiential learning are personal experience, reflection on the experience, and transformation of knowledge and meaning based on the experience (Burnard, 2013, p. 3). Within universities, commonly used strategies for facilitating experiential, skills-based learning include simulation, case-based learning, project-based learning, web-based learning, group and peer learning, and internships. Internships are essentially a snippet of real-world opportunities for experiential learning in workplaces or volunteer settings (Chawłowska et al., 2021; Tran & Soejatminah, 2017). Affective learning outcomes involve attitudes and values which motivate life-long learning within and outside formal academic settings. Experiential learning activities optimise achievement of affective learning outcomes (Johns et al., 2017).

Accreditation of Learning Outcomes (ALO) is the assessment of previously unrecognized skills and knowledge an individual has achieved outside the formal education and training system. ALO assesses such unrecognized learning against the requirements of a qualification or award, in respect of both entry requirements and outcomes to be achieved. By removing the need for duplication of learning, ALO encourages an individual to continue upgrading their skills and knowledge through structured education and training towards formal qualifications and improved employment outcomes. ALO differs from Credits for Formal Learning, which provides for credit transfer for individuals who have undertaken formal courses or related training at tertiary (i.e. postsecondary) level from nationally accredited educational centres such polytechnics, vocational training centres, colleges of technology or other Universities. In the United Arab Emirates education system, ALO is described as the formal recognition of any previous learning experiences for skills and/or knowledge acquired, regardless of how, when or where the learning occurred, which is eligible to count towards a qualification (NQA Qualification Framework, Emirates Handbook, 2012). Individuals appear to seek ALO status to gain credit for further formal education, to increase self-confidence based on acknowledgment of prior self-learning, to identify strengths and skills, while also identifying long term educational goals and how such goals may be achieved. Universities, employers, and the wider knowledge society can significantly benefit from effective ALO implementation (Swedish Council for Higher Education, 2021).

Assessment for ALO may be undertaken using either evidence of competencies attained in informal educational settings—mainly the primary place of work of the applicant—or from non-formal settings from educationally relevant activities undertaken by the applicant, such as volunteering and continuing education programs. One aspect of continuing education programs which bridges formal and non-formal learning is microcredentialing from participation in courses organised by tertiary education institutes, particularly on online higher education platforms. Typically, university credit is awarded only if a learner who takes a “tracked” microcredential course goes on to enrol in the degree program associated with the microcredential. It is however conceivable that universities may consider such microcredentials as non-formal learning in other degree programs (Wheelahan & Moodie, 2021).

Over the last three decades, United States, Canada, Australia, United Arab Emirates and many nations in Europe have introduced policies to recognise adults’ prior learning and different institutions have fostered research on the topic, often using different terms to refer to similar practices, such as: PLA—Prior Learning Assessment (USA); CPL—Credit for Prior Learning (USA); VNFIL—validation of non-formal/informal learning (European Training Foundation); APEL—assessment of prior experiential learning (United Kingdom); APL—assessment of prior learning (United Kingdom and the Netherlands); PLAR—prior learning assessment and recognition (Canada) (ILO, 2018).

TYOLOGIES OF LEARNING IN UNIVERSITY EDUCATION

For the purpose of accreditation, approaches to learning at university level may be characterised as formal, informal, semi-formal and non-formal (Werquin, 2007). Formal learning typically takes place in organised and structured educational and training environments, specifically dedicated to learning, and typically leads to the award of course credits or a qualification, usually in the form of a certificate or a diploma. Non-formal learning is commonly undertaken through planned activities (in terms of learning objectives, learning time) where some form of learning support is present (e.g. student-teacher relationships). Instances of non-formal learning include in-company training, through which companies update and improve the skills of their workers such as information, communication, technology and cybersecurity skills, structured on-line learning by making use of open educational resources, and courses organised by civil society organisations for their members, their target group or the general public. Microcredentials, defined as a sub-unit of a credential that could accumulate into a larger credential or degree or to be part of a portfolio, may considered non-formal learning if not associated with a degree or diploma track (Ahmat et al., 2021).

Informal learning is learning resulting from work or volunteer related activities. It is not organised or structured in terms of objectives, time or learning support. It may be unintentional from the learner’s perspective. Often it is referred to as learning by experience or just as experience. Semi-formal learning describes learning that occurs during activities with learning objectives in which learners achieve learning beyond the learning objectives, the light of their own personal contingency and intellectual curiosity. This may be exemplified by learners conducting further research and publishing articles in peer reviewed journals based on topics learnt in a successfully completed training program. Technical, vocational education and training is largely semi-formal in nature (Hassan et al., 2018). The four learning typologies are illustrated in Table 1 below.

Table 1. The four learning typologies

There is intention to learn: The activity is planned as a learning activity:	Yes: Learning is intentional	No: Learning is not intentional
Yes: The activity has [a] learning objective(s)	Formal Learning (Type I Learning)	Semi-formal Learning (Type III Learning)
No: The activity does not have [a] learning objective(s)	Non-formal Learning (Type II Learning)	Informal Learning (Type IV Learning)

While some modes of learning are more conducive to certain subject areas than others, the skills, knowledge, and competences acquired are comparable whether the learning was done in formal settings or in informal, semi-formal or non-formal settings. Accreditation of Learning Outcomes (ALO) underscores the need for recognition, validation, and certification programs to focus on knowledge, skills, and competencies of learners, particularly for non-formal and informal learning activities. Accreditation of non-formal and informal learning is an important means for actualizing the ‘lifelong learning for all’ agenda of Sustainable Development Goal 4, subsequently, for reshaping learning to be more agile and better aligned the needs of contemporary knowledge economies and open societies (Elfert, 2019).

OVERVIEW OF ACCREDITATION OF PRIOR NON-FORMAL AND INFORMAL LEARNING POLICIES AND PROCEDURES AT UNIVERSITIES

Accreditation of formal learning and semi-formal incorporates well established and comparable procedures in most universities, using credits for formal learning policies and procedures such as the British University in Dubai policy on credit transfer for undergraduate programs (BUID, 2021). In contrast, accreditation of informal and non-formal learning lags in relation to consistency in policies for accrediting learning outcomes for both entry access to university education as well as granting of university credits to eligible applicants. The European guidelines for validating non-formal and informal learning—CEDEFOP guidelines—was endorsed in 2009 (CEDEFOP, 2009). This document identifies key challenges facing policymakers and practitioners and provides guidance on to possible ways to respond. The CEDEFOP ALO process as starting with identification of knowledge, skills and competence acquired. Documentation follows the identification stage and involves provision of evidence of the learning outcomes acquired. The subsequent assessment stage is one in which in which an individual’s learning outcomes are compared against specific reference points and/or standards. The final phase is validation of the learning identified, documented, and assessed. Few European countries have put in place a single national-level organisation in charge of validation and accreditation of learning outcomes which are linked to national qualification frameworks. This hinders eligible and successful applicants’ goal of achieving course credits, course exemptions or, where applicable, part qualification based on validated non-formal and informal learning experiences. A 2020 evaluation of its implementation stated its variable effectiveness in facilitating lifelong learning, although there is little evidence that implementation of the CEDEFOP guidelines in member states has enabled individuals to use ALO processes learn across the European Union, given limited use of ALO to award exemptions or credits to parts of a degree program validated by a learner’s experiential learning portfolio. A perception that the benefits of validation and accreditation exceeds its implementation costs was not supported by centralised and standardised data on validation in most EU member states (European Commission, 2020).

In Austria, ALO gained traction with the implementation of the Austrian strategy on lifelong learning in 2011, which states in part:

The acquisition of knowledge in classic education institutions such as schools and higher education institutions is complemented by learning at non-formally organised learning facilities. Acquired skills and competences are recognised and certified as qualifications regardless of where they were obtained and are equal to non-formal and informal education processes. (Birke & Hanfit, 2016, p. 4)

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In 2016, the Agency for Quality Assurance and Accreditation Austria (QAAA) published a policy document based on project collaboration with 11 Austrian higher educational institutes titled; “Recognition of non-formally and informally acquired competences.” The document recommendations including examples of good practice, such as “[ALO] Decisions must be criteria-based, plausible, consistent, comprehensible, and verifiable” (Luomi-Messerer, 2018). To date, ALO activities are well established only in a few Austrian Universities, such as the Universities of Applied Sciences. In 2020, pilot projects for ALO implementation were commenced at seven Austrian universities (ENQA, 2021).

In Croatia, the University of Rijeka pioneered ALO implementation since 2018 when strategic guidelines for its implementation were developed by the National Council for the Development of Human Potential. In the 2019/2020 academic year at the University of Rijeka, for undergraduate studies of Nursing and of Midwifery, there were a total of 188 requests for recognition of informal learning that were positively resolved, 135 in nursing studies and 53 in midwifery studies (Swedish Council for Higher Education, 2021, p34). ALO applicants were required to submit a certificate which states the position and time spent performing a task in that position. For example, the Health Studies implementation of European Parliament Directive 2005/36/EC (European Parliament, 2005) requires that at least 40 births be performed by learners in midwifery studies during clinical rotations as condition for graduation. However, if a learner has been recently or currently employed for at least one year in obstetric delivery wards for at least a year and has a certified letter by the employer that she attended 40 births at work, the learning outcomes are accredited for the clinical activity. ALO is available only for part-time learners at the University of Rijeka.

In the Middle East and North African region, recognition of prior learning is not yet well implemented in any country. Most National Qualification Frameworks in the Gulf Cooperation Council (GCC) nations—United Arab Emirates (UAE), Bahrain, Oman, Saudi Arabia, Kuwait and Qatar—include sections on recognition of prior learning in their respective national qualification frameworks, although most of such sections focus on prior formal learning. The UAE Commission for Academic Accreditation (CAA) and the NQA recently implemented Recognition of Prior Learning guidelines for higher education institutions. Universities seeking to award credit for prior learning are required to have policies and procedures for same approved by the Commission (NQA, 2012). The University of Dubai has operationalised the CAA guidelines in its recently released policy guidelines on Recognition of Prior Learning. Aspects of the policy related to ALO include: students are allowed to apply for credit transfer for courses earned in informal or non-formal learnings:

- The student must include the relevant documents and other evidence to demonstrate his/her prior knowledge, skills and competencies
- The prior learning must be fairly current (less than five years)
- The University Recognition for Prior Learning (RPL) committee is required to review each application and determine whether the evidence of prior learning and experience potentially match the learning outcomes and rigor of the course sought
- No double dipping in RPL applications using the same experience profile
- A challenge exam will be required in all cases prior to the awarding of credit for RPL

For undergraduate programs, RPL may be granted up to 50% of curricular requirements. For Master’s programs, the limit is six credit hours. No RPL is given in the PhD program; portfolio for ALO may include sample of work performed, published research and articles, workplace projects, reference letters

from employers detailing the applicant's skills and experience, membership in professional organizations, third party testimonies, and/or listing of pertinent trainings and attended workshops (University of Dubai, 2021).

REPUBLIC OF SOUTH AFRICA'S APPROACH TO STREAMLINING ALO PROCEDURES

The South Africa Qualifications Authority (SAQA) was established in 1995 to streamline educational opportunities following decades of apartheid rule (which stymied formal education opportunities for Black South Africans) to recognise skills that had traditionally been ignored or undervalued. In this regard, a competency-based approach aligned to the national qualifications' framework offered opportunities for ALO not developed within formal provisions, but rather through life or work experience. The South African ALO procedures allow candidates an opportunity to demonstrate their knowledge and skills through a series of assessments specifically designed to assist them in displaying their competence. At the end of the assessment process each candidate is issued with credits for the learning that they have been able to display. These credits are linked to SAQA-registered qualifications of skills acquired from formal training. The Public Service Education and Training Authority (PSETA) was established in 1998, is authorised to conduct the accreditation process. Assessment-driven ALO practices are located mainly in occupational sectors where changing standards, labour market requirements and quality assurance systems have threatened employees without the requisite qualifications despite their long years of experience and considerable skills in the field (Blom et al., 2007). PSETA requires ALO candidates to prepare a structured portfolio that will constitute the core for credit exchange whereby informally acquired knowledge and skills are assessed and certified as being equivalent in content and value to those specified in the selected unit standard of a university academic program. PSETA links the level of skills accredited to a specified level of the national qualifications framework and stipulates the academic credits equivalent to the accredited learning outcomes (Gunning et al., 2008).

In 2013, SAQA implemented the National Policy for the Implementation of the Recognition of Prior Learning (SAQA, 2013). The policy stipulates that ALO may be carried out at any level of learning and at any National Qualifications' Framework level for access to university as well as for credit transfer for experiential learning. The policy prohibits quality distinctions between qualifications acquired in part through ALO and those entirely through conventional formal university academic pathways. ALO practitioners are required to meet professional requirements, including the participation in continuing professional development activities and consistent quality control. The policy partners with professional bodies to develop and enhance their capacity to initiate and support RPL provision.

In teacher education, ALO was introduced as a pathway for access to the South Africa National Professional Diploma in Education (NPDE). The NPDE is a qualification that underqualified in-service teachers could enrol in, to upgrade and improve their qualifications in line with the requirements of the National Qualification Framework (NQF) Act 67 of 2008. At the time of the introduction of ALO in the NPDE in 2001, there were about 40 000 underqualified teachers in South Africa (Department of Education, 2006). PSETA worked with accreditation and validation providers to provide a structure for the portfolio development, written assessment, and role play required for the ALO. The postgraduate diploma comprises 120 credits and it is mapped to level 8 of the national qualifications' framework. Credits are awarded for reflective practices and the documented evidence of strategic, active engagement

of students in opportunities to learn through doing, and reflection on those activities. Also considered in applicants' portfolio are community education, educational project-based learning, and apprenticeship.

A study of a cohort of teachers undergoing ALO which focused on the question: "What is the value of RPL in enhancing access and redress in teacher education?" It found that participants regarded ALO as the only criterion why they could enter the tertiary education settings where they were enrolled for the NPDE and which enabled them to upgrade their qualifications. The participants unanimously stated that they had not been able to get access to universities previously and that they could not consequently improve their teacher qualifications. One participant in the study indicated that she had tried numerous times to get access to an institution of higher learning but was prevented access because she did not meet the minimum entry requirements (Makhatsane, 2020).

ACCOUNTING FOR LIMITED IMPLEMENTATION AND ACTUALIZATION OF ALO POTENTIALS IN UNIVERSITY EDUCATION

The introduction of ALO regulatory approval in many nations' university sectors over the past decade was designed, in part, to facilitate greater inclusion in formal education and training for those who have not had enough opportunities to do so previously, thus creating a win-win situation for learners, universities, employers and the wider society. With few exceptions such as in some Croatian and South African universities, the number of applicants for ALO has been too low to stimulate realisation of its lofty objectives. National aggregate figure for the uptake of ALO has been consistently lower than 5% of eligible students in most nations, with vulnerable equity groups (e.g., learners with disability) having relatively lower rates of ALO uptake. In general, ALO was more likely to be received by older students, and by students who were studying part-time and working full time. Unemployed students are most unlikely to receive ALO. Thus, ALO has not quite succeeded as an intervention for social inclusion. To successfully apply for ALO, learners are confronted with barriers of low awareness, sub-optimal process perception, complex processes, inadequate support, and confusing language. Students applying for ALO are required to have confidence, knowledge of the academic conventions of written expression, facility in language use and conceptual thought – the same benchmarks that have perpetuated underrepresentation of vulnerable equity groups to date (McGreal et al, 2014).

As few learners have applied for ALO, and due to its limited scope particularly at postgraduate level, the impact of its implementation for reducing cost of higher education for learners has been negligible at population level. The ALO payments typically accounts for about 15% of total costs of credit transfer sought, and it is non-refundable if applicants fail challenge exams. Universities have not benefitted from increased admissions based primarily on availability of ALO policy options. Employers and third parties may not always be enthusiastic in providing reference letters for learners. Many learners wish to keep their academic development private if it is not sponsored by their respective work organizations. Thus, the requirements for related testimonials and portfolio development may impair learners' enthusiasm for ALO application. Indeed some learners prefer to have only examinations comparable to those students in formal education take as the ALO assessment yardstick (Tuomainen, 2018).

The potential of ALO to improve employability, mobility, lifelong learning, social inclusion, and self-esteem remains largely unrealised relative to projections of those that may benefit. Awareness and publicity of ALO activities in universities is low, and university funded ALO facilitators and counselors are in short supply. In ideal settings, these staff assist a candidate in deciding whether to apply for

ALO, and for which qualification, and at what level. Assessors need a myriad of tools to determine comparability between skills acquired outside of academic settings and the learning outcomes expected to be achieved (Garnett and Cavaye, 2015).

Effective implementation of ALO initiatives requires well-crafted policies and procedures as a critical starting point. Many universities have not developed refined ALO policies to make it transparent, and to assure the quality of the recognition, validation and certification processes. The few universities which have crafted and resourced appropriate policies and procedures for ALO have been able to attract learners who otherwise would not have applied for university education. In some countries such as South Africa, successfully completed assessment by third party agencies leads to the award of certificates to applicants, which may then be utilized for credit transfer at universities.

Quality assurance of ALO assessment and accreditation approaches vary widely. Commonly used approaches include:

- Ensuring the availability of competent ALO practitioners
- Establishing common standards
- Collaborating with employers' and workers' organizations and other relevant stakeholders to determine skills mix, skills requirements, and skills gaps
- Developing assessment tools and methodologies, accrediting third party ALO centres or developing and resourcing competent in-house ALO counsellors, facilitators and assessors
- Monitoring and evaluation frameworks, and development of an appeal process.

These quality assurance processes should constitute an integral part of ALO policies and procedures. South Africa established three quality councils for ALO: Council for Quality Assurance in General and Further Education and Training for general and further education and training qualifications; Quality Council for Trades and Occupations for work-based qualifications, and; Council on Higher Education for higher education qualifications.

PROPOSED FRAMEWORK FOR ALO ADOPTION NATIONALLY AND INTERNATIONALLY

Based on the proposed operational definitions of formal, informal, non-formal learning, as indicated in Table 1, we propose the following framework (Figure 1 and Figure 2) for ALO adoption and implementation nationally and internationally. This framework was compared against well-known and published frameworks internationally (Singh, 2015).

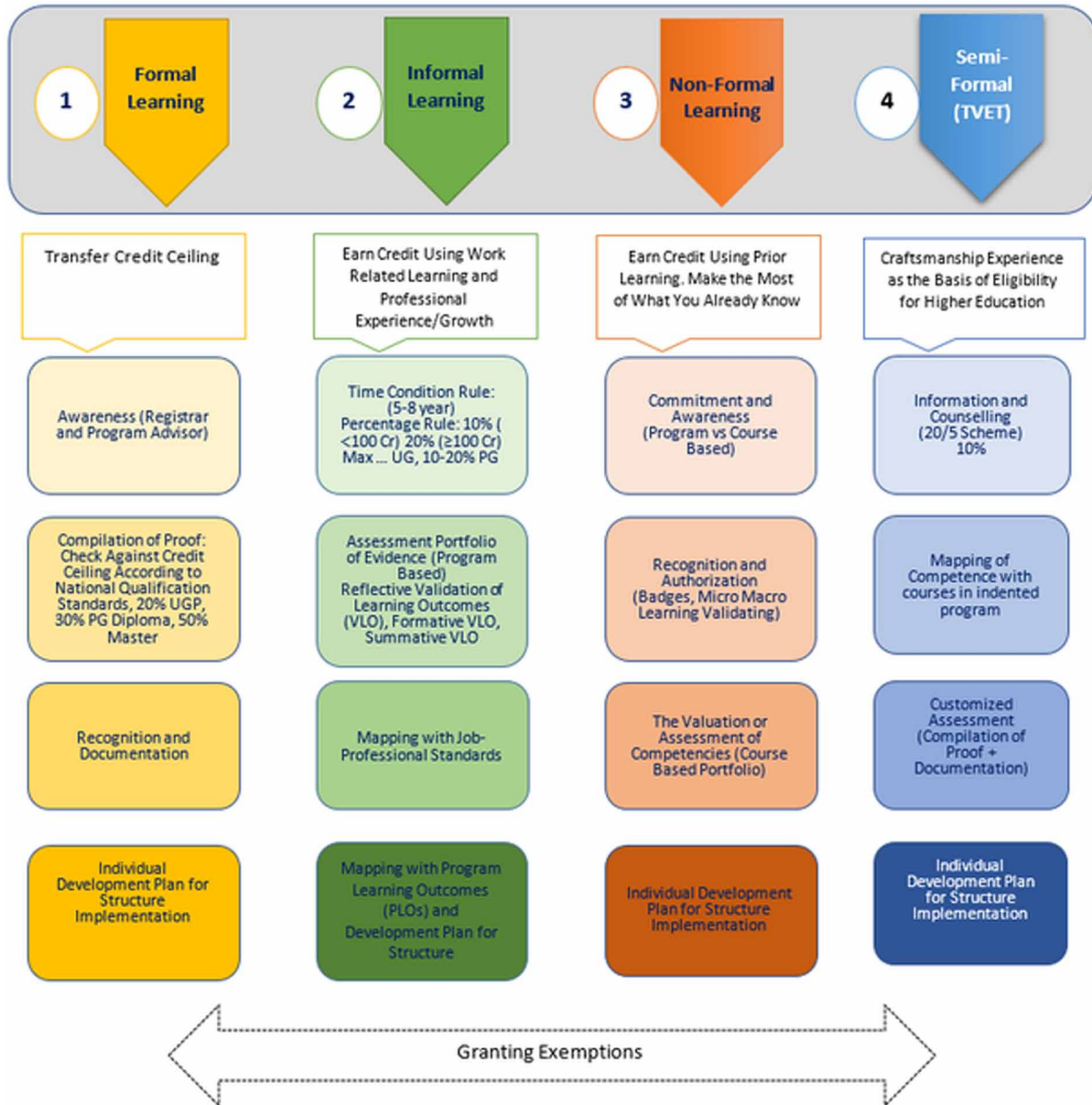
We believe that the suggested framework is a responsive framework for ALO because of the following:

- It recognises an individual's learning outcomes according to fixed standards (the case of formal learning path);
- It relates an individual's learning outcomes to skills required and professional organization standards set of industrial or economic sectors (the case of informal, non-formal learning paths);
- It provides equal opportunity to recognise and accredit an individual's learning outcomes gained from vocational and career experience and eligible for a higher education (the case of semi-formal path);

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- It has a systematic process (figure 2) that could be adopted across the board for the four paths.

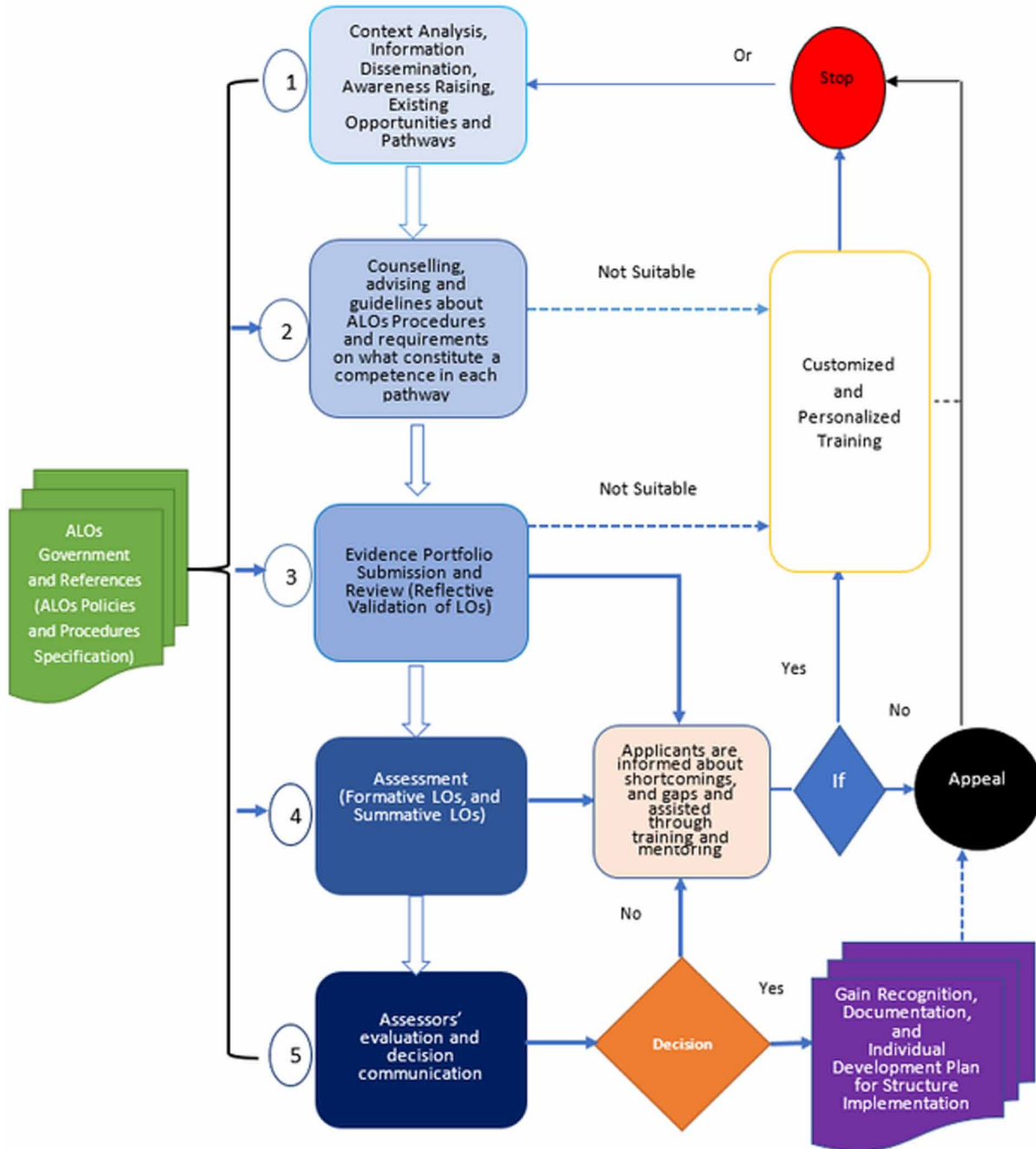
Figure 1. ALO framework (Note: TVET = Technical Vocational Assessment of Training)



The above suggested framework requires as supportive mechanism to facilitate the implementation process in each of the proposed paths. The following flow chart summarizes a five steps mechanism that supports ALO applicant.

In the following section, we present examples to address each of the major steps and sub-steps shown in figure 2.

Figure 2. Five steps mechanism to apply ALO framework



1. ALOs Government and References

ALOs policies, procedures, bylaws and guidelines are prepared, written and made accessible for internal and external stakeholders and candidates.

2. Awareness and Information Availability

Information made available to potential candidates on ALO including benefits, cost timeframe, requirements, recognition process, pathways to programs, support, templates, or other related documents. This information may be provided in: University website, information sessions, marketing materials, program brochures, ALOs information pack, individual interviews, and advising sessions.

3. Counselling, Advising and Guidelines about ALOs Procedures

In this major step, proactive psychological counselling and academic advising are given to each individual applicant based on the track (path) she/he selected or applied for. This proactive approach will be used as a feedforward increasing and maximizing the applicant's opportunity, readiness, and self-satisfaction to continue. It may guide the applicant to solve any unexpected problem she/he may face and how to sort this issue out to prepare his/her ALO profile and evidence portfolio.

4. Evidence Portfolio Submission and Review (Reflective Validation of ALOs)

In this step, the applicant prepares and submits his/her evidence portfolio and applies for ALOs. Interested candidates contacting the university registration unit will receive guidance from the ALO contact to allow him/her to make a decision about whether or not to apply for recognition. Information provided to interested applicants should include: course outcomes, the process of claiming a course using ALO, suggested evidence—observation in the workplace, documents, demonstrations, completion of projects, line manager recommendation letter, self-assessment guidance and/or tools, how long the process will take, expectations and possible feedback scenarios, cost associated with ALO. Forms of evidence may also include: documentary, video, or other evidence mapped against Course Learning Outcomes (CLO), observation checklists for the candidate at the workplace, authenticated work /portfolio of work relevant to CLOs, records of nonformal learning completed (badges, microcredentials, etc.).

5. Assessment (Formative Validation of Prior Learning [VPL], and Summative Validation of Prior Learning [VPL])

The objective of this step is to validate the prior learning and CLOs formatively and summatively. Formative evaluation and validation of ALO may include, but are not limited to, the ability of the applicant to present and showcase of his/her previous experiences, projects, and success stories in several work conditions and situations, the impact of his/her experience in a specific work context or personal and professional development outputs. Summative evaluation and validation of ALO should include challenge test, writing a comprehensive report about previous experience, interviewing the candidate, among other options.

6. Assessors' Evaluation and Decision Communication

Evidence and challenge test results are reviewed by the assessors (e.g. committee of Program chair, Department Head, Subject Matter Expert (internal/external), and University Independent Assessor) using the ALOs assessment guide and regulations. Assessors may interview the candidates to: further

explore the extent of knowledge of the candidate, and seek further clarification about items included in the submitted evidence package/portfolio. Based on the assessor evaluation, the decision is made and shared with the applicant for further actions: Gain Recognition of Learning Outcomes or Appeal against the decision.

CONCLUSION

A paradox of ALO is that it assumes most applicants possess the necessary cultural capital to successfully apply for accreditation. The low uptake of the few existing ALO options in universities globally shows that this assumption is mistaken. For optimal results, planning for ALO programs in tertiary education should be coordinated between regional bodies, national governments, employers, and university authorities. Typically, accreditation under ALO is carried out against standards prescribed for a qualification or degree program. Since potential ALO candidates have acquired a significant portion of their learning at the workplace, there needs to be a close matching of occupational standards with academic qualification standards. Matching acquired ALO competencies with specified learning outcomes requires regulatory support at national level, and comprehensive policies and procedures, backed by funding for related activities such as workforce and quality assurance. Such policies, procedures, processes, and structures are currently inadequate in the Middle East and North African region.

Effective policies for ALO should address the following challenges:

- Reliability—validation outcomes are replicable
- Validity—the workplace or other experiential learning the appropriate learning content for course credit accreditation
- Security and confidentiality—candidates' evidentiary documents are shared only with stakeholders
- Referential—the benchmarks for content and level of learning are well defined
- Transparency—process of accreditation is clearly explained to applicants
- Impartiality—the process is impartial and avoids conflict of interest
- Cost-efficiency—the personal, organizational and societal benefits of the process exceed its implementation costs.

Methods for assessing the evidence provided by applicants for ALO include interviews, declarations, certified evidence of activity completion, and oral or written examinations.

As an assessment mode, the portfolio method may be daunting for many applicants, particularly those with limited formal education. In the South African NPDE context, applicants were required to submit a portfolio of evidence worth up to 120 credits. Participants indicated that the portfolio development process was daunting but worth completing as it enabled them to reflect on their experiential learning. Participants also mentioned that all relevant information pertaining to the compilation of the portfolio was given to them beforehand and included in the study guide, another indication of the exemplary structure of South Africa's ALO programs. Current ALO guides remain too academic for a significant proportion of applicants. Some countries are concentrating on making the portfolio method more user-friendly, using e-portfolio and providing extensive support to candidates. Alternative assessments such as interviews, context-based observations, 360-degree assessments, examinations, and simulation may

/ be considered. The ALO model that is implemented should be aligned with the outcomes, goals and objectives of the University qualification sought by applicants.

Finally, the dissonance in the terminology related to accreditation of learning that is not formal needs to be addressed globally and nationally, as this adds to confusion for learners. Frequently used terminology include: APEL - Assessment of prior experiential learning; APL/PLA - Assessment of prior learning; PLAR - Prior learning assessment and recognition; RAC - Recognition of acquired competences; RAS - Recognition of acquired skills; RCC - Recognition of current competences; RNFIL - Recognition of non-formal and informal learning; RPL - Recognition of prior learning; RVCC - Recognition, validation, and certification of competences; VNFIL Validation of non-formal and informal learning. The authors propose the term: Recognition of Learning Outcomes as an inclusive phrase for informal, non-formal and semi-formal learning.

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Chapter 9

A Competency–Based Lens for Exploring Higher Education Opportunities

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ABSTRACT

In the current fast-paced environment, learners want flexibility in timing and content as they seek relevant credentials to be successful. For institutions of higher education (IHEs) to be relevant, they must address the educational needs of learners through a strategy rooted in innovation and agility. The UW Flexible Option (Flex) is the University of Wisconsin System’s implementation of competency-based education (CBE). University of Wisconsin-Parkside (UWP) has implemented the Flex Bachelor of Science in Business Administration and a certificate in Project Management that allows learners to master competencies and achieve degree completion at their own pace. This chapter describes UWP’s journey, discusses a strategic framework for serving different types of learners, and suggests pathways to implement this framework through a CBE/Flex lens. It offers guidance on how IHEs can plan for the future by focusing on competencies, researching potential markets via the Ansoff Matrix, and implementing successful educational pathways for learners through partnerships.

Competency-based education (CBE) offers students potential tuition savings, the ability to “bookmark” learning, and the flexibility to progress as fast or slow through coursework as their work-life constraints permit. UW Flexible Option (Flex) is the University of Wisconsin (UW) System’s implementation of CBE in Wisconsin. UW-Parkside (UWP) currently offers two Flex programs, and it is arguably one of the more accomplished institutions of higher education (IHEs) in this sector. The UW Flex Bachelor of Science in Business Administration (Flex BSBA), which transitioned to UWP in March 2019, is the first and the only CBE program accredited by the prestigious Association to Advance Collegiate Schools

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of Business-International (AACSB). Prior to the AACSB peer review team's visit in November 2020, Flex BSBA received two separate successful accreditation reviews from HLC (January 2019 and June 2020). A second program, the Flex Project Management Certificate for both credit-seeking and non-credit students, permits UW-Parkside to learn new use cases and innovate pathways from non-credit to credit-bearing programs. In this chapter, we summarize CBE, highlight the culture and strategy that led to CBE implementation at UWP, summarize results of these efforts, propose a framework to guide strategic thinking around CBE, and use that framework to describe UWP's plans.

The rest of this chapter is organized as follows. The next two sections describe CBE and its implementation at UW-Parkside. After this review, the chapter combines concepts from Ansoff matrix, competency frameworks, and stakeholder alliances to propose potential paths for IHE growth. Finally, we conclude the chapter with future plans at UWP and how they help serve the life-long learning needs of nontraditional students.

COMPETENCY-BASED EDUCATION

The U.S. Department of Education (2021) describes CBE as,

transitioning away from seat time, in favor of a structure that creates flexibility, allows students to progress as they demonstrate mastery of academic content, regardless of time, place, or pace of learning. Competency-based strategies provide flexibility in the way that credit can be earned or awarded, and provide students with personalized learning opportunities.

While this definition primarily focuses on flexibility and personalized learning from a student perspective, an operational definition of CBE from an institutional perspective is:

CBE is defined as an outcome-based approach to education that incorporates modes of instructional delivery and assessment efforts designed to evaluate mastery of learning by students through their demonstration of the knowledge, attitudes, values, skills, and behaviors required for the degree sought. (Gervais, 2016, p. 99)

In other words, students advance in CBE when they master the competencies associated with a class regardless of the time it takes to master these competencies, while institutions design competencies, content, and support structures for students to succeed. The Society of Human Resource Management (SHRM, 2021) defines competency as:

A cluster of highly interrelated attributes, including knowledge, skills, and abilities (KSAs) that give rise to the behaviors needed to perform a given job effectively. Competencies can be either technical or behavioral. Technical competencies reflect the knowledge required to perform a specific role. Behavioral competencies describe the KSAs that facilitate the application of technical knowledge to job-related behavior.

CBE in the UW System was motivated in 2011 by discussions between then-Governor Scott Walker and then-UW System President Kevin Reilly. What would become UW Extended Campus, then a divi-

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sion of UW-Extension, began working with multiple campuses to build a portfolio of CBE programs under the umbrella, UW Flexible Option (Flex) (Specht-Boardman, et al., 2021). A primary motivation for Flex was to increase the percentage of Wisconsin adults who hold a bachelor's degree.

Flex programs are attractive for adult, non-traditional students for several reasons: (1) Flexible starts: Students can start any month; (2) Affordable, relatively low tuition: A tuition of \$2250 per subscription period (12 weeks) allows students to register for and complete as many credits as they are capable of completing; (3) Flexible timeline: Student learning can progress at their own pace and they can “bookmark” their work by stopping after any subscription period and return in the future with no penalties (as would be the case when taking an incomplete); (4) Authentic curriculum: curriculum aligned with practical, hands-on work that students are expected to experience during their careers; (5) Specialized accreditation for certain programs such as Flex BSBA and curricular alignment with recognized industry credentials such as Society of Human Resource Management (SHRM) and Project Management Professional (PMP).

Faculty in the UW Flexible Option take on a unique but recognizable role as they design curricula, assess student learning, and support students in their education journey. Flex faculty work can be summarized in the following principles:

1. Work with stakeholders to develop program-level competencies, course-level competencies, and outcomes that demonstrate those competencies.
2. Design authentic assessments and exercises used to demonstrate mastery of the competencies.
3. Create and curate the online content used by students to acquire knowledge and skills required for the competencies.
4. Work with students as they have questions about the content.
5. Assess student submissions to determine whether they have mastered the competencies.

Students do not work with faculty alone. They are surrounded by a team, including student success coaches that guide them throughout the program providing course advising, strategies for learning, as well as work-life balance counseling.

CBE, of course, did not begin in the UW System. Early work on using an outcomes-based approach to education can be traced to at least the 1970s as part of performance-based vocational teacher education programs (Kerka, 1998). Outcomes-based approaches also became popular in the 1990s as part of national movements to standardize vocational education and training (Kerka, 1998). In addition, the early 2000s witnessed some medical curriculum groups advocating a form of CBE (Morcke, et al., 2013). The popularity of competency-based programs has ebbed and flowed throughout the years. Critics of outcomes-based education were worried about its focus on observable over less observable traits, such as culture, aesthetics, ethics, and the ability to learn (Morcke, et al., 2013; Vasquez, et al., 2021; Wheelahan & Moodie, 2021). Those in favor of outcomes-based education focused on its strengths in program evaluation and accountability. Advocates for the current form of CBE highlight its attention on individual student needs and point out its requirement that students master all competencies compared to a traditional class, which focuses on average performance over a specified period of time.

Today institutions, such as Western Governors University, and Northern Arizona University, are well known for CBE programs. Southern New Hampshire University (SNHU) offers CBE programs through partnerships with employers. In addition, many two-year colleges have implemented forms of CBE. The Competency-Based Education Network (C-BEN) is devoted to developing and sharing best practices in CBE and has over 140 members.

STRATEGY AND HISTORY OF CBE AT UW-PARKSIDE

The impetus for CBE at UWP was influenced by its mission, strategies, opportunities, environment, and culture. UWP is one of 13 four-year universities in the UW System. It was originally designed to be a large research institution similar to UW-Madison, but a couple of years after its founding in 1968, the state reorganized its public universities and UWP became one of the smaller regional comprehensive universities. The mission of UWP, its four colleges and departments, reflect its focus on southeastern Wisconsin.

UW-Parkside is located in the Milwaukee-Chicago corridor. Once known for its large manufacturing base, the region is slowly transforming to a services-based economy. Percentagewise, UWP is the most diverse campus in the UW System, and has a high proportion of first-generation and working students compared to other universities in the UW System. The region also has a lower percentage of adults with a bachelor's degree compared to averages across the U.S. and in neighboring regions.

The Department of Business historically catered to the needs of its students by offering pathways to degree completion at night. In 2006, the department received a grant to offer classes and a project management certificate online. UW-Parkside was also a founding member of the UW System MBA consortium that first started offering an online MBA degree in 2006.

Enrollment at UW-Parkside has fluctuated significantly since its founding, peaking at roughly 6000 students in 1983 and dropping to 4300 in 2021. The number of high school graduates in Wisconsin has been relatively flat since 2012 and is projected to decline by a few percentage points through 2026 (Applied Population Laboratory, 2017). Consequently, for many years, the university has focused on increasing enrollment through new programs, better marketing, improved admission processes, and higher retention and graduation rates. A budget model rewards colleges for increasing enrollments and is based on the student credit hours taught, number of majors, and number of graduates per college. The deans, department chairs, and many of the faculty are driven to experiment with new programs that will increase enrollment. Consequently, while college- and department-level strategy is influenced by the university's strategic and academic plans, many initiatives work from the middle out. That is, the actions undertaken begin with department and college level proposals, bubble up for university level support, and flow to the faculty for approval and implementation.

Ray Cross, the former Chancellor of UW-Extension and President of UW System until 2020, and Aaron Brower, Provost of UW-Extension (who later became founding Executive Director of UW Extended Campus), went on a speaking tour of the UW System campuses in 2013 to gain support for Flex. Administrative and faculty audiences were skeptical. Many felt that present and budding online programs were already in place to reach the adult market. Other concerns included retention, quality, and negative effects on the universities' brands. Some felt there was a poor match between their traditional full-time, residential campuses and Flex programs. Business deans in the UW System were also concerned with potential AACSB accreditation challenges. The dean of the College of Business, Economics, and Computing at UWP discussed the Flex program with the college advisory board and this board had similar concerns. The lack of enthusiasm for Flex in business programs was problematic since these programs are in high demand by adult students.

Nevertheless, partially due to UWP's past success working with UW Extension, its strong need to increase enrollment, and its culture of experimenting with new ideas, administration and key faculty were open to exploring CBE further through piloting credit-based CBE certificates.

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UW-Parkside first implemented CBE programs in 2015. In partnership with UW-Extension, UWP created three credit-based CBE certificates: Global Skills, Project Management, and Sales. These three certificates were expected to eventually be part of the stackable-certificates degree completion program, “Integrative Professional Studies.” From an enrollment perspective, the original plan was not successful. The Integrative Professional Studies program was never implemented. In addition, the Global Skills and Sales CBE certificates were discontinued in 2018 due to modest enrollments. A survey indicated two factors contributed to lack of demand. First, at that time, students preferred degree credentials over certificates. Second, low enrollments may have been due to poor marketing. A third factor may have also played a role. These certificates were designed as direct-assessment CBE rather than credit-based CBE. Federal regulations define a direct assessment program as a program that,

in lieu of credit or clock hours as the measure of student learning, utilizes direct assessment of student learning, or recognizes the direct assessment of student learning by others. The assessment must be consistent with the accreditation of the institution or program utilizing the results of the assessment. (Code of Federal Regulations, 2022).

In a credit-based model, the expected work of students to master each competency must be translated back to credits. Credit-based programs are less stringent in terms of federal requirements compared to direct-assessment programs. Under federal regulations, students are not allowed to mix direct-assessment programs with any type of credit-bearing programs (F2F, Online, CBE) during the same semester. Consequently, unlike other certificates, UWP degree-seeking students were not able to enroll in the CBE certificates. Although the original CBE certificates did not result in enrollment increases, this initial effort allowed UWP to gain experience in the CBE arena.

While UWP was experimenting with CBE certificates, UW-Extension successfully collaborated with several UW institutions to implement a few collaborative CBE/Flex degrees including one in Nursing and another in Information Science and Technology. These degrees are granted by the participating universities. The Bachelor of Science in Business Administration Flexible Option degree (Flex BSBA) followed a different path. At the time, UWP did not have the faculty resources to fully implement the Flex BSBA, and the other business programs in the UW were not interested in collaborating. Consequently, the Flex BSBA degree was to be granted by UW-Extension, and several faculty members at UWP played significant roles in its development. Suresh Chalasani, an author of this chapter, was the founding director.

In October 2017, UW-Extension was reorganized, spinning off UW Extended Campus to take on management of UW Flex and other adult-serving online programs. Because of UWP’s leadership and engagement, President Ray Cross asked the campus to take over administration of the Flex BSBA. An extensive effort ensued and culminated in approval from the UW Board of Regents (June 2018) and the Higher Learning Commission (HLC) (January 2019). In March 2019, UWP became the academic home for the degree and began enrolling students. UWP, in partnership with UW Extended Campus, sought regional accreditation and federal financial aid approvals. In addition, because UWP is AACSB-accredited, the Flex BSBA was now subject to these standards. In 2020, UW-Parkside successfully received Higher Learning Commission approval for the credit-based version of the Flex BSBA and, as a byproduct of this approval, Flex BSBA became eligible for federal financial aid (for more information on CBE and accreditation see Eaton, 2016). In 2021, the BSBA, as part of UWP’s business program offerings, was approved for continued AACSB accreditation, becoming the first and only AACSB accredited CBE business program in the world. As part of affirmation of AACSB accreditation, UWP needed to show

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that Flex BSBA was aligned with the business program's mission, that faculty and students were actively engaged in learning, that students received necessary support, that students in Flex BSBA demonstrated a similar level of success as traditional students, that qualified faculty taught in the program, and that assessment results were used for program improvement. AACSB and the peer review team reviewing the program were receptive to CBE, offered advice, and AACSB updated their *Interpretive Guidance for AACSB Standards* in light of what they learned about Flex BSBA at UWP.

In addition to working with the various external review agencies, implementation of Flex BSBA required numerous meetings and changes to internal processes. As a result of UWP's and the Department of Business's experience reaching out to nontraditional students, Flex BSBA was consistent with UWP's and the department's missions. However, faculty needed to approve the program at the department and university level. In addition, faculty and Advisory Board buy-in was key. Additional resources offered by UW Extended Campus helped as well as the culture of experimentation that was already established within the department. For example, prior to implementing Flex BSBA at UWP, the Department of Business had successfully launched its own online MBA degree, with the help of an Online Program Manager (OPM), that grew to nearly 500 students in three years. The positive experience with the online MBA, as well as other recent programs, contributed to the environment that led to acceptance of Flex BSBA.

The Director of Flex BSBA met with several internal campus groups to help adjust their processes and plan for a future environment that could accommodate CBE programs. The following were key to the implementation of Flex BSBA at UWP:

- The original certificates and BSBA were approved through the faculty governance process. This meant educating faculty and staff about CBE and how it fits into the mission of the university.
- Several changes needed to be made to academic policies. These policies included grading (Flex uses Master, Master with Distinction instead of letter grades), academic honors, grade appeals, academic standing, computation of GPA, and the foreign language requirement.
- Students in the program pay for three-month subscription periods that start at the beginning of every month. The cashier and financial aid offices needed to update systems to support subscription period billing and distributing financial aid.
- Changes were made to student registration and information systems to accommodate rolling subscription periods, grades, and CBE transcripts.
- A new grading academic policy was developed to emphasize mastery of competencies and allow time flexibility. A central feature of this grading policy is the *In Progress* ("PR") grade, which permitted students to "bookmark" their work, stop and resume their progress with academic work in a flexible manner across noncontiguous subscription periods without penalty.
- Admissions processes needed to be updated and counselors required training to make appropriate transfer decisions and to work with UW Extended Campus personnel on admissions qualifications.
- Faculty were trained on CBE pedagogy.
- Faculty subgroups were created as part of the Undergraduate Curriculum Committee to develop and update program and course-level competencies, assessment methods, and course content.
- New faculty workload and compensation methods were devised based on the flexible enrollment schedule and student enrollment.
- Faculty policies were updated to redefine *participating* and *supporting* faculty for AACSB accreditation purposes.

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- Flex-focused assessment plans were designed for measuring learner success and for continuous improvement.
- A financial model permitted initial investments by UW Extended Campus and subsequent revenues to be split by the partners.

Implementation of CBE at UWP posed and continues to pose some challenges in terms of organizational processes and systems implementation. For example, the CBE grading policy did not award letter grades for completed courses, which meant that the grades of Mastery (M) and Mastery with Distinction (MD) needed to be translated into numeric GPA for several purposes, including determining academic honors and student's academic status. Similarly, a new policy limits the number of PR grades for students. If a student does not successfully master a course within the allotted number of PR grades, his grade transitions to a "Fail" grade. The processes to detect/alert students approaching the PR grade limit are currently manual.

A second challenge was in systems implementation. To accommodate the non-term rolling subscription periods and faculty assignment to courses, the PeopleSoft system, which is very effective for traditional semester-based system, was modified. Since the system did not lend itself naturally to non-term programs, the registrar's office needed to manually implement courses and faculty assignments for each rolling subscription period. Initial implementation also required faculty to record grades for each course as well as each course-level competency, which led to additional manual processing for both faculty and the registrar's office.

From an organizational perspective, faculty workload is a significant factor in CBE implementations. At UWP, faculty governance approved the Flex BSBA CBE program in 2018. Despite the governance approval and subsequent approvals by HLC and AACSB, CBE was not well-understood by a large segment of the UWP faculty. With their growing enrollment and significance, CBE programs are drawing more interest and scrutiny. As CBE enrollments grow, faculty workload issues are being reexamined. Thus far, a majority of the faculty have taught CBE courses on an overload basis. Translating CBE enrollments to in-load is an inexact science. New subscription periods start each month. An instructor is assigned classes across overlapping subscription periods. If the enrollments in a subscription period in all CBE courses taught by a faculty member are summed, divided by the average enrollment in an undergraduate business class, and then adjusted for the subscription-period duration, a rough translation to traditional course load is obtained. However, those who teach in CBE programs often cite that the following factors lead to additional workload in CBE: personalized attention to students, 365 days per year work, strict grading turnaround times, rich and constructive feedback, irregular/flexible student submissions, and monthly grade submissions to the registrar office. Further complicating the calculation, some students turn in very little work for a particular class during a subscription period, taking a PR grade to a later subscription period. For these reasons, enrollment numbers in Flex classes do not necessarily measure the same work effort as enrollment numbers in traditional classes.

Over time, it is crucial that CBE, through the Flex programs, become part of the fabric of the university. That is, CBE needs to be woven into the strategic and academic plans of the university and its colleges, departments, and operational units, as well as become part of the standard workloads for faculty and staff. Further processes and practices require changing and monitoring to ensure the success of Flex students.

Positively, the Flex BSBA program at UWP has experienced significant growth. In spring 2019, 29 students enrolled, and this grew to 130 in spring 2021. Surveys show program features students appreciate include the ability to complete competencies at their own pace, the real-world authentic cases used to

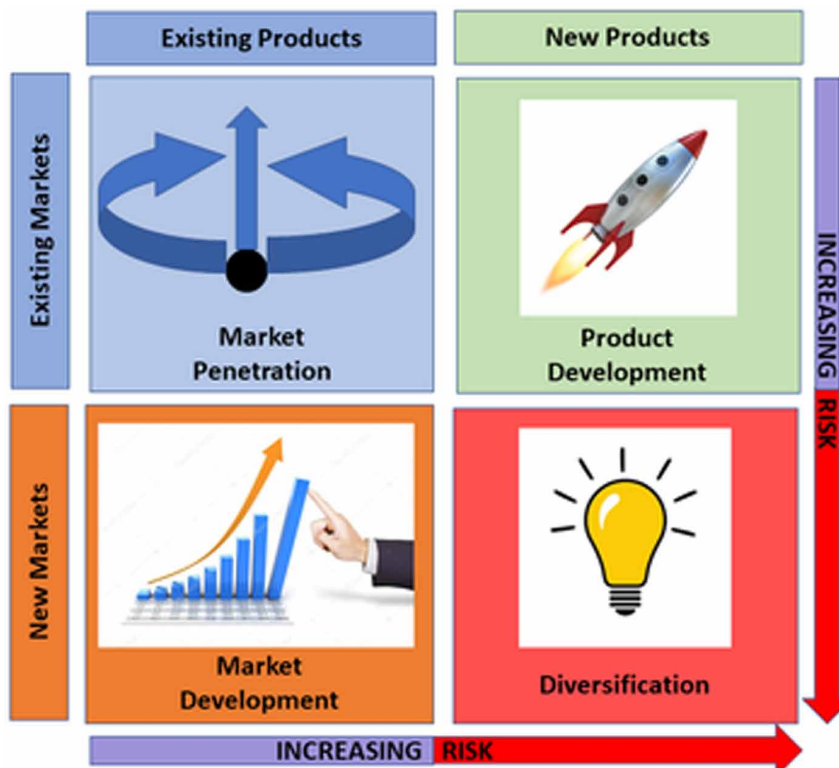
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assess their competencies, opportunities to use their skills at work, and the wrap-around support services that facilitate their progress. While scaling CBE will require addressing faculty workload, information technology challenges, and process issues, we are confident that these items can be resolved through collective brainstorming, partnering with Extended Campus, and the existing foundation for CBE at UWP.

EVALUATING NEW MARKETS AND ANSOFF MATRIX

The Flex BSBA and Flex Project Management certificate were new programs at UWP that were directed at a somewhat different learner profile compared to the learners that UWP traditionally supported. The decision to enter this market required time and experimentation, and the implementation of the programs were challenging. Faculty, staff, and administrators had to break out of their traditional views of higher education. For centuries, the basic model used by IHEs was fundamentally the same. That is, students chose their university, came to a physical campus, took face-to-face classes, and worked toward earning degrees in some standard time. Many regional IHEs filled their mission by catering to traditional students, many of whom resided in the region. Of course, there were some exceptions. The creation of courses by correspondence, for example, was an early attempt to reach a different group of students. As the number of traditional age students decline (Causey et al., 2021) and the competition for students increases through distance education, many IHEs find themselves looking for ways to survive and grow. Well known business models can help guide strategic thinking around IHE growth.

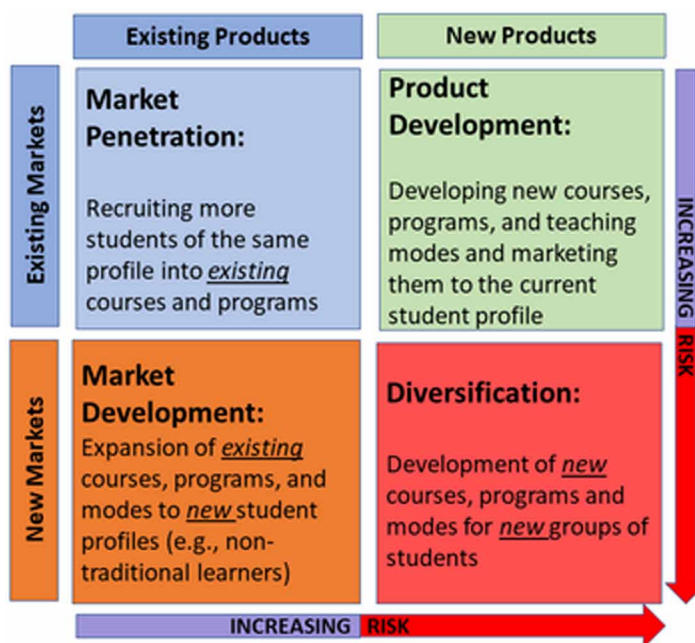
Figure 1. Ansoff Matrix



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The Ansoff Matrix is one way to brainstorm and evaluate growth strategies (Ansoff, 1957). The management form of the matrix is represented in Figure 1. An IHEs-specific Ansoff Matrix is presented in Figure 2. The two-by-two matrix identifies strategies based on the newness of the product (e.g., program or delivery method) and the newness of the market (for a similar model see Salmon, 2005).

Figure 2. Ansoff Matrix adapted for institutions of higher education IHE (adapted from Ahmed, et al., 2015, p. 42)



Market penetration promotes growth through enhanced marketing of an IHE’s existing programs to its current prospect profile. A new social media marketing campaign is an example of action designed to increase market penetration. Product development requires the development of new programs (e.g., new majors or delivery methods) that are marketed to an IHE’s current prospect profile. Market development markets existing programs to a different student profile. Finally, diversification involves marketing new programs or delivery methods to a new student profile.

As a result of the declining high school graduate population in much of the U.S., many universities attempted to grow through increased international recruiting. This is an example of market development. Developing a new online sustainable management program for a new international market is an example of diversification. Market penetration is seen as the least risky strategy, while diversification is seen as the riskiest strategy. Similar to an investment, the potential for high returns tends to be accompanied by higher risk. In general, businesses attempt to create a balanced portfolio consisting of initiatives across the cells of the Ansoff Matrix. An IHE that relies completely on market penetration suffers from stagnation in its programs and may be displaced by a competitor. An IHE that overloads in the diversification cell may overlook less risky opportunities to enhance its current portfolio of programs and markets. IHEs can also take steps to mitigate risk across their entire portfolio.

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The traditional online project management certificate at UWP was a new program designed to reach nontraditional students who were not currently pursuing an undergraduate degree (diversification). However, traditional undergraduate students were also allowed to pursue the certificate (product development). While only a few nondegree seeking students registered for the certificate, many degree seeking students completed the certificate. Since the growth strategy crossed more than one cell, the overall risk of failure decreased. The original Flex certificates in project management, sales, and global skills did not have the luxury of degree seeking student enrollment and fell completely into the riskier diversification strategy. Only the Flex project management certificate survived.

The degree of familiarity with a market, the reputation of the learning provider, strength of the marketing operation, and alliances influence the risk of these growth strategies. Markets in education can be described through several attributes including age (K-12, traditional undergraduate, adult), degree level (undergraduate, graduate), geographic region (regional, national, international), desired credential type (degree vs continuing education), and prior relationship (e.g., alumni). Regional IHEs, for example, may have more success developing certificates for alumni in their region compared to non-connected prospects outside of their region. On the other hand, reputation in a certain competency may transcend local markets. For example, IHEs known for strong Artificial Intelligence programs have successfully marketed AI certificates nationally and internationally. Private firms entering the education market likely find similar risks to success. Google and Microsoft, for example, offer certificates and badges related to their own products that are marketed internationally. On the other hand, it remains to be seen whether this success can translate to more general business or liberal arts areas.

Forming alliances is another way to reduce risk and influence success. UWP has partnered with several organizations in order to implement growth strategies across all four cells of the Ansoff Matrix. For example, memorandums of understanding were formed with international universities to support an international market development strategy. The international partner benefits because it can market opportunities to study abroad. UWP benefits from access to international students and the expertise of the international university in attracting these students to UWP. The Flex BSBA is a market diversification strategy that is enhanced by UWP's partnership with UW Extended Campus. UW Extended Campus provides resources (e.g., project management, success coaches, instructional designers), expertise in CBE, and marketing expertise. Alliances help partners share risks and optimize resources as they develop new products and deliver to expanding markets (Veiga & Franco, 2015). Of courses, alliances also have costs (e.g., shared revenue) that must be carefully evaluated. The following paragraphs provide examples of alliances that can help each growth strategy:

Market Penetration. UWP has developed articulation agreements with two-year colleges that enhance the pathway from a two-year degree to a bachelor's degree. Dual credits from high school to college are another means to grow a learner base in an existing market.

Product Development. Alliances with other universities in the form of collaborative degrees allow the universities to share resources. UWP participates in collaborative programs in sustainable management and healthcare management. Each university provides faculty resources to support the programs. As another example, partnering with an OPM can provide instructional design resources that may not be available at a smaller IHE.

Market Development. UWP partners with an OPM to provide resources and expertise that have significantly grown the online MBA program. Many universities do not have the level of digital marketing expertise in-house to enhance online growth. Market development can also be supported by aligning curriculum with national organizations such as SHRM and PMI. This type of alliance can help broaden

the brand of a program beyond a local region. Finally, partnering with businesses can help attract employees to degree and nondegree programs. Southern New Hampshire University offers customized CBE program through alliances with business in its College for America program.

Market Diversification. Some alliances help both product and market development. The partnership between UWP and UW Extended Campus to support the Flex program is an example of this type of alliance.

The Ansoff Matrix is a good way to begin general strategizing for IHE growth. Combining competencies with the Ansoff Matrix can further support discussions and plans around product development, market growth, and alliance formation. For example, product development might require IHEs to teach and assess new competencies. Alternatively, existing competencies could be repackaged into new programs or offered in different formats (e.g., face-to-face, online, or CBE). Market development requires research on competency needs of new markets and communication to these markets on competencies offered. Market diversification requires aspects of both product and market development. Finally, alliances are formed when competencies between partners align. Mixing Ansoff Matrix strategies with a solid understanding of competencies, supports short-term practical planning and long-term visioning and dreaming.

COMPETENCY FRAMEWORKS AND MARKETS

Competencies are the underlying knowledge, skills, and abilities that support decision making, problem solving, and success in performing a task. A given situation requires a set of competencies and these competencies differ along a variety of different dimensions. The U.S. Department of Labor, Employment and Training Administration, and industry partners have developed models of the competencies that are suggested for certain careers. As stated on their website, “The goal of the effort is to promote an understanding of the skill sets and competencies that are essential to educate and train a globally competitive workforce” (Competency Model Clearing House, 2022a). An example related to healthcare information management is provided in Figure 3.

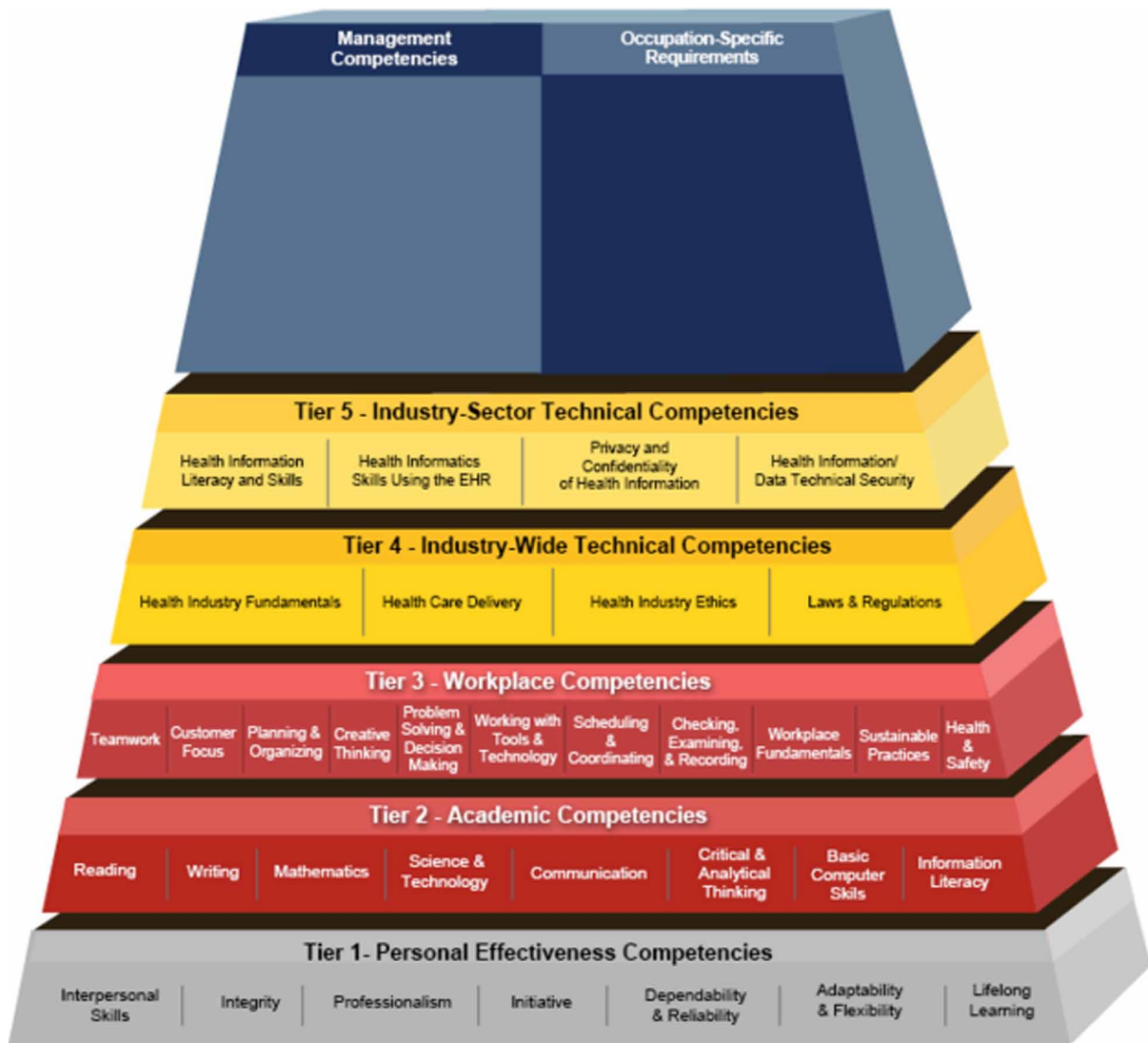
These models specify industry-specific competencies on top of fundamental and behavior competencies. The bottom three tiers of competencies tend to be the same across industries.

We propose a “competency cube” conceptual model to supplement the tiered Department of Labor framework (see Figure 4). The model consists of three dimensions. The breadth of a competency is similar to competencies in the Department of Labor framework. For example, university majors are part of the breadth dimension. The depth dimension refers to the degree of knowledge someone has within a competency, and the Bloom Taxonomy dimension refers to the person’s ability within a competency area. There is some correlation likely between the depth and Bloom’s Taxonomy.

As an example, within the healthcare information management industry, employees may want to predict the cost for treatment of a particular disease. One employee might have the competency to use an established reporting tool that averages the cost of past patients. This person would need the competency to use the tool and understand the healthcare area. Another person may have deeper statistical knowledge (depth), knowledge of the required data (breadth), and the ability to use the software tool to create a forecasting model that has not been developed before (Create on Bloom’s Taxonomy).

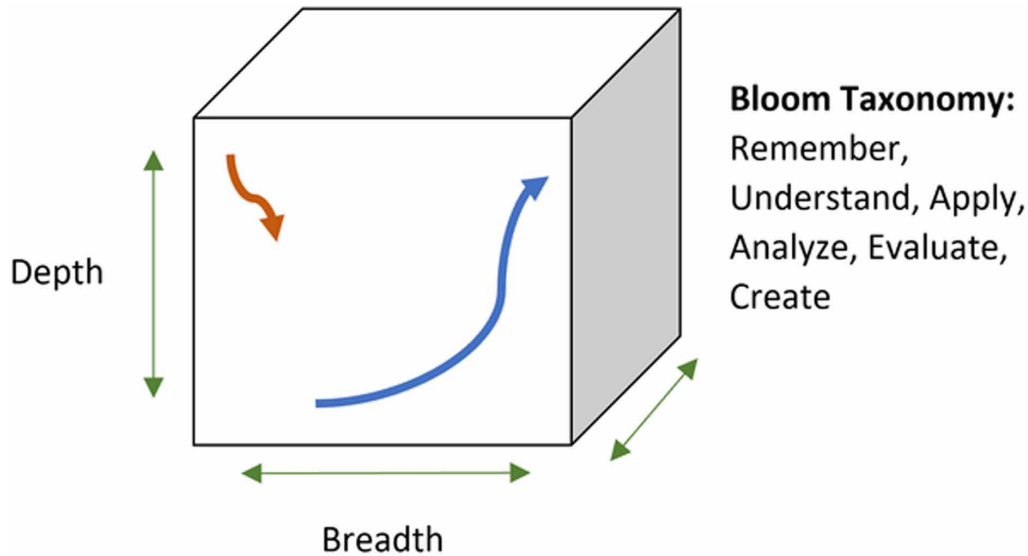
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Figure 3. Health information management competency model (Competency Model Clearing House 2022b)



The goal of learning providers is to develop students’ competencies in general, help students specialize for particular professions, and allow them to become proficient with enough breadth, depth, and ability to apply, analyze, and create within a particular domain. Educational providers provide pathways for these competencies. Some providers specialize in breadth regardless of industries (e.g., liberal arts IHE), some focus on particular industries and may start with more surface skills (e.g., technical colleges), and some focus on using particular technology (e.g., software certifications). IHEs should develop a comprehensive understanding of competency needs, design programs to meet those needs (Product Development), develop alliances to support the programs, and market those programs (Market Development) in order to help students navigate immediate and long-term educational paths.

Figure 4. Competency cube (The blue arrow represents the typical learning path in a liberal arts university: a breadth of foundational knowledge supports major specific learning learned later in the degree program. The red arrow represents a typical path in two-year technical colleges or certificate programs: industry specific techniques are learned, and depth is gained through practice)



Competencies, Stakeholders, and Relationships

A society benefits from a portfolio of competencies among its population. Many individuals and organizations have a stake in developing these competencies. Individuals learn, and potentially pay for, competencies through formal education, training, and apprenticeships. Business and non-profit organizations define the competencies needed in their organizations, hire employees with certain competencies, and develop competencies through training. Educational institutions earn revenue through creating and implementing programs that develop competencies. Finally, governments advocate and may subsidize the development of competencies through partial funding of educational institutions. As quality of life depends on advancement through learning and innovation, competency development is a lifelong need for all societies and their stakeholders.

Ironically, although competency development is vital, stakeholders have not devised sufficiently clear educational pathways. Often, individuals are left to navigate complex transfer rules or prior learning processes to allow education earned one way to be “counted” in another. A report by the Government Accountability Office found that students lost about 43% of their earned credit when transferring between institutions (United States. Government Accountability Office, 2017). Further, approximately only 15% of two-year college students continue to complete a bachelor’s degree in less than six years (Shapiro et al., 2017).

Those involved in the development of articulation agreements between two-year vocational or technical colleges that offer applied associate degrees and four-year IHEs experience a common challenge. Students in a four-year IHE typically spend their first two years taking general education classes designed to teach a breadth of academic competencies (see Tier 2 in Figure 3). The competencies developed are

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foundational and are the basis on which upper division major classes rest. On the other hand, two-year applied programs begin with major specific competencies designed for particular professions. Although classes across these two institutions may have similar titles, students enrolled in classes at two-year technical colleges may not have developed the depth, breadth, or attained Bloom's learning level without the prerequisite foundation. Although 70% of the content in similarly-labeled classes in two-and four-year institutions may be similar, and students may have developed depth of competency through experience, these students are typically required to retake such classes when they transfer to four-year IHEs. The problems are even more difficult when universities consider job training from a private business.

Conceptually, CBE improves mobility from one institution or program to another. In Flex, students are able to demonstrate mastery quickly when they have already developed some of the competencies for a class at a prior IHE or through other career or life experiences. Further, CBE enables efficient demonstration of mastery by those who have completed training from organizations such as LinkedIn Learning. Nevertheless, in practice, demonstrating mastery often proves to be challenging when students switch institutions throughout their lifetimes as they commonly do.

UWP has proposed the use of **competency connectors** to facilitate transfer between traditional programs. A *competency connector* is defined as an assessment that students complete to demonstrate their knowledge, skills and abilities (KSA) in one or more competencies for the purpose of enhancing student learning and awarding credit for a degree/credential requirement. Competency connectors differ from traditional courses in the following aspects. The main purpose of a competency connector is to bridge the gap between the learner's current competencies and a degree requirement.

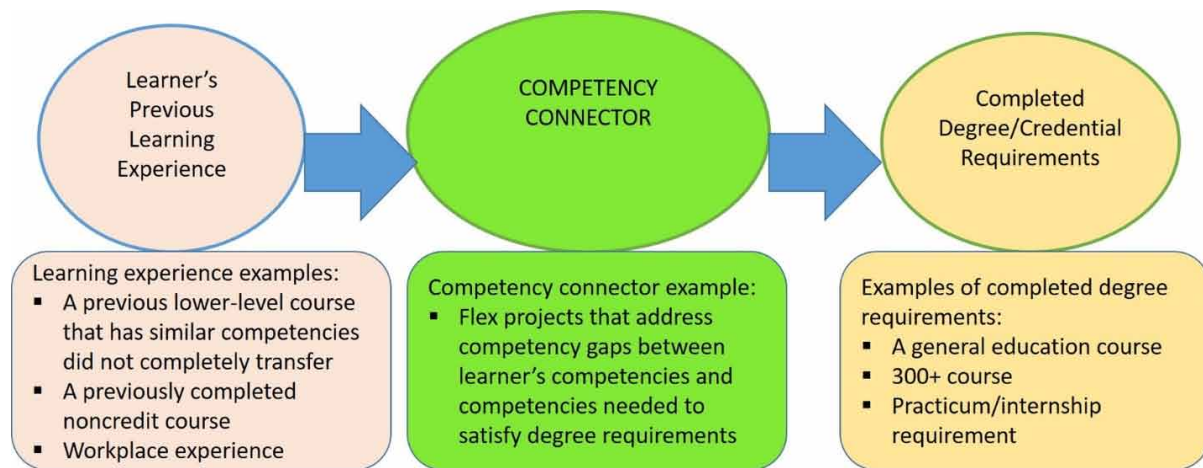
For example, a learner might have completed a course at a two-year institution, but at too low of level in Bloom's Taxonomy to enable transfer for degree credit at a four-year institution. Or, the learner may have completed noncredit courses or gained work experience that are in-line with some of the degree competencies. In both cases, a competency connector provides a conduit for the learner to demonstrate mastery of the competencies required for the degree.

Our vision is to implement competency connectors using authentic assessments and a project-based approach via the UW Flex option. With this approach, competency gaps in breadth, depth, or Bloom Taxonomy levels are identified between classes to be transferred, and those part of the intended degree, and then learning materials and assignments are created that help students bridge these gaps. Through the use of competency connectors, students can transfer classes and credits not previously transferable (e.g., for example, a three-credit competency connector class might support the transfer of nine credits from the other institution). One approach to implement competency connectors is through prior learning assessment (PLA). We describe one specific implementation of competency connectors using PLA connectors in a later section of this chapter. Figure 5 depicts the competency connector approach.

Competency connectors and CBE programs are two ways to facilitate smoother and more efficient movement from one program to another. Further efficiencies can be gained through collaboration with organizations involved in competency development. This collaboration can also lead to better outcomes and reduced risk for the various Ansoff Matrix growth strategies.

Beneficial relationships can be developed between organizations of the same or different types as they look to enhance the competency of their employees and students. A sampling of several possibilities is explored below.

Figure 5. Competency connector approach



Vocational/Technical College and Four-Year IHE

The vocational/technical college alumni market is an underserved market by many four-year IHEs. Creating a pathway from a nearby two-year technical college to a four-year IHE is one way to mitigate risk in a market development strategy. As stated previously, a major issue is a mismatch between two-year technical college classes and the four-year IHE. Basing credit transfers on competencies, rather than class-to-class transfers will clear pathways. Although classes may differ, competency development in communication, critical thinking, and other general education areas may allow students to demonstrate prior learning and waive a larger percentage of general education requirements. Competency connector classes may also help students fulfill major class requirements as well. Two-year programs could also update their curricula to better match the competencies required by four-year university partners. Similar strategies could be used between four-year IHEs.

Business and IHE

The learning relationship between businesses and IHEs has traditionally involved internships and co-ops. In some cases, graduate programs have been offered onsite at large companies. Market development and diversification is possible through forging stronger relationships. Businesses hire employees with a desired set of competencies and train employees so that they acquire more specific competencies. IHEs could work with businesses so that additional competency development occurs through the IHE in credit or noncredit formats. In addition, businesses could partner with IHEs by aligning their training and employee projects with the learning and assessment requirements of IHEs. For example, IHEs and businesses desire students/employees to give professional presentations. An assessment of a non-confidential business presentation could be used by a business and also be used to demonstrate mastery of this competency by the IHE. A relationship that reduces training costs for businesses could incentivize businesses to fund continuing education of their employees. Collaborations between businesses would further support this relationship by forging a market with local industry employees.

Private Sector Education and IHE

Private Sector Education (PSE) and Massive Open Online Courses (MOOCs) continue to grow and include providers such as LinkedIn Learning, Coursera, Udemy, Google Career Certificates, AWS Online Courses, and Microsoft Learn. Most of these PSE providers issue badges or certificates to those who complete one or more classes. Some employers offer pathways to employment through earning these certificates. IHEs have primarily viewed PSE and MOOCs as competition. However, there is some evidence that these courses have a positive impact on outcomes in higher education (Alhazzani, 2020). At minimum, CBE classes could use PSE/MOOCs as part of its curated content supporting students' mastery of competencies. An opportunity exists to forge new relationships by comparing certificate and badge competencies with competencies in classes. Pathways from PSE and MOOCs to degrees support market development for IHEs. IHEs can also align their classes with PSE certificates in a product development strategy (for example, the PMP certificate in Project Management) to provide additional value to IHE classes.

Continuing Education and IHE Degrees

Similar to PSE and MOOCs, universities frequently offer continuing education programs. IHEs have erected barriers between continuing education and degree classes based on organizational structure and cost. Aligning competencies and developing methods to address competency gaps will create better pathways between continuing education and degree classes supporting product development, market development, and market diversification. Very few campuses are intentional about aligning noncredit and credit offerings. Campuses such as The Louisiana Community and Technical College System (LCTCS) are implementing synergies between noncredit and for-credit programs (Cintron 2021). In the environment of increased competition from organizations such as Coursera, it is beneficial for IHEs to design noncredit and for-credit programs as it may help conserve resources, unlock operational efficiencies, and streamline offerings to different types of learners.

K-12 to IHE

The high school (H.S.) graduate pathway to admission in IHEs is the traditional market. Specification of competencies in IHEs can be used to clarify outcomes required for H.S. graduates. Dual enrollment courses offered for college credit in H.S. can be used to speed up the time to graduation and support market penetration. CBE classes open to H.S. students could be considered for appropriately qualified H.S. students.

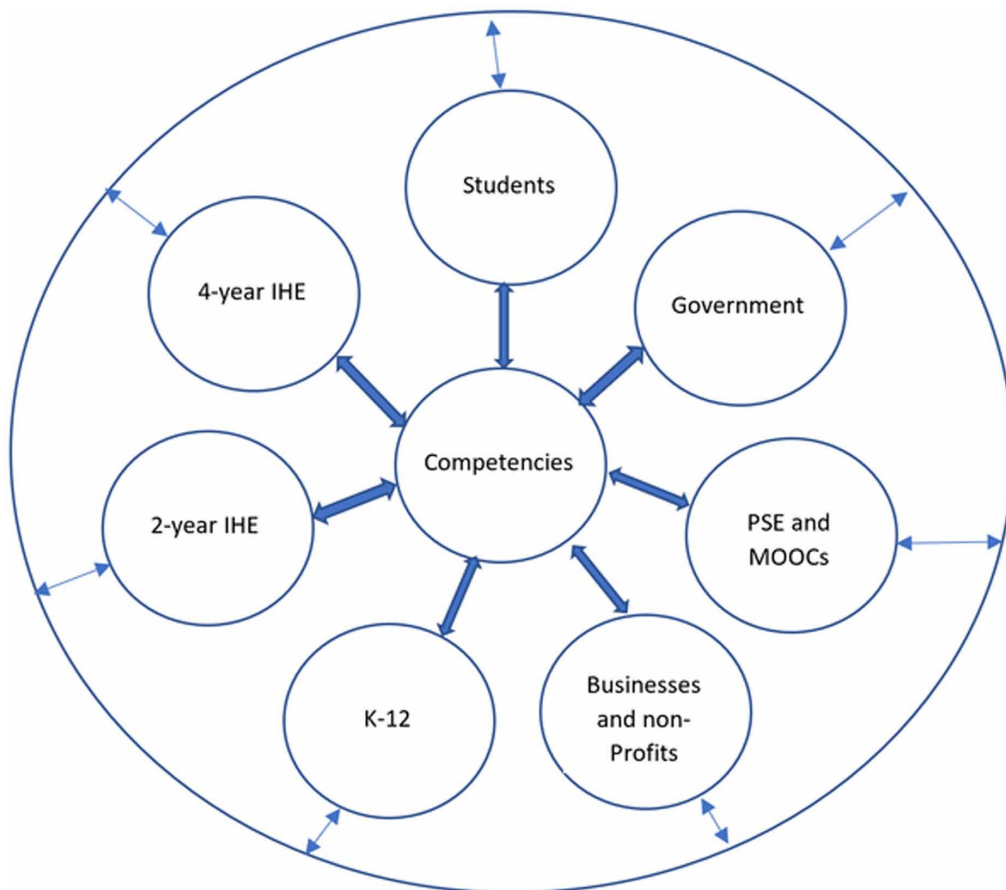
COMPETENCIES AS PRIMARY TRANSACTIONAL UNITS

One of the difficulties implementing CBE is that most of the world is not CBE. Consequently, CBE programs must find ways to interface with the non-CBE world. This not only effects implementation, it effects planning. Competency connectors, for example, are one way to make use of competencies in a more traditional environment.

A bolder vision for IHEs can be articulated. One way to restructure/reorganize IHEs is to make the competencies the primary transactional units and reorient institutional structures and processes around competencies. In this model, competencies that an IHE teaches are at the front and center. Departments and colleges within the IHE collaborate to deliver instruction related to competencies. Admissions and student support units examine an incoming student's competencies and provide a pathway for success. Students select competencies that they are interested in and acquiring a credential (e.g. a degree or certificate) becomes a secondary outcome while the primary outcome is to master the competencies that they need. This would be a significant departure from the current program-based structure and rewards based on student credit hours (SCH), which can inherently promote departments to work in silos. In this model, transactions between different IHEs will also be centered on competencies. Students transfer competencies rather than courses from one IHE to another, and this may yield better retention and graduation. Organizations hiring students will review the detailed competencies rather than coursework. Reward systems for IHEs and students will be redesigned to utilize mastery of competencies by students.

Figure 6 highlights relationships amongst stakeholders in this competency centered model. The primary relationship between stakeholders occurs through competencies. The outside ring represents the various other relationship that occur in the educational ecosystem (e.g., economic relationships).

Figure 6. Relationship between stakeholders and competencies



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While this model centered around competencies sounds idealistic, there are projects within the UW System and at UWP that are making progress toward this model. In the next sections, we describe examples of implementing this model at UWP.

FUTURE PLANS AT UW-PARKSIDE

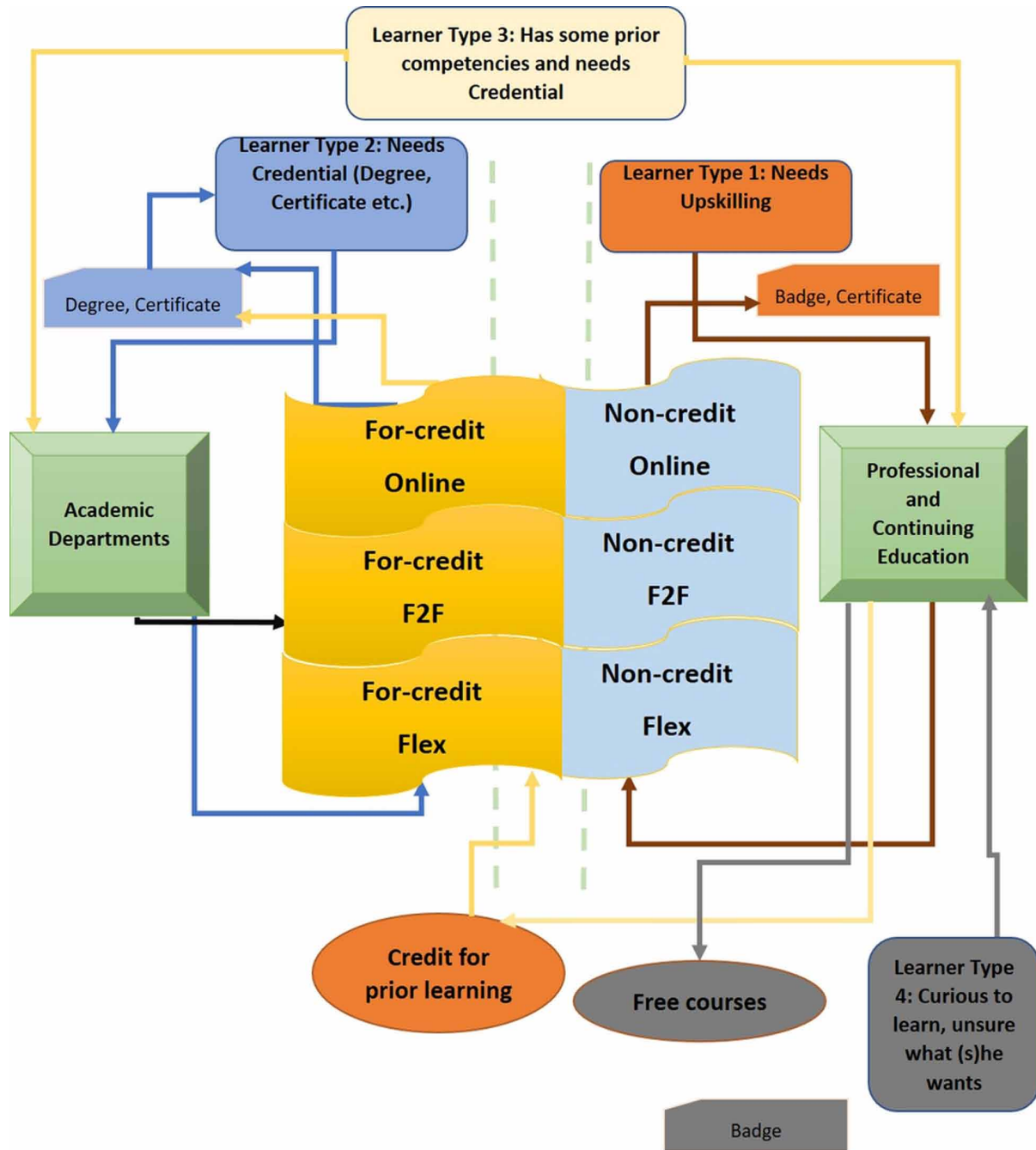
As we learned from the successes and challenges of implementing CBE programs, we are discovering new use cases. In the past decade, IHEs have faced significant competition. As student learning became more mobile and flexible, new models of teaching have become a central part of the U.S. educational system. For example, Coursera offers thousands of non-credit training programs and partners with the University of Illinois to offer an iMBA degree. Entities like Coursera cater to employees who need to upskill quickly for changing roles, business processes, or technologies (Ralston, 2021). With the success of entities like Coursera, the lines between corporate training institutions and traditional IHEs are becoming increasingly blurred. As IHEs face enrollment challenges and dwindling government resources, it is imperative that they continue to evolve while serving face-to-face (F2F), traditional online, and CBE students. We believe the key question for IHEs in the next decade—and the central theme of this edited volume—is how to effectively serve the needs of these different types of learners through both non-credit and for-credit programs while also providing seamless transitions from non-credit to for-credit as well as from one modality to another. While no IHE has yet to devise a perfect solution, a learner-centric strategy with a focus on competencies, markets, and relationships provides a framework for IHEs to serve learners and other stakeholders. The next three subsections discuss the future plans at UWP for serving different types of learners through a competency-centric approach.

Needs of Different Types of Learners

The key idea that we at UWP are striving to implement is to recruit and retain learners at every stage of their career, and serve their learning needs for life. To accomplish this, there needs to be a deep recognition that learners approach a campus with different needs and requirements. IHEs that can serve different types of learners with minimal duplication of resources will gain competitive advantage. Figure 7 illustrates a learner-centric model, primarily focused on CBE, that is being used at UWP. This figure presents four different types of learners and the paths they are likely to take through an IHE's infrastructure and programs to obtain a credential/badge. The four different types of learners have distinct needs. The challenge for IHEs is, within resource constraints, to implement nimble programs, policies, and infrastructure that help all learners. Table 1 indicates, in a nutshell, the learner-centric strategic priorities where IHEs may need to pay particular attention. Each of the strategic priorities may require partnerships with UW Extended Campus and external entities such as OPMs for successful implementation.

Here, we will primarily focus on the needs of learner types 1 and 3. Learner type 1 requires upskilling quickly. To partially meet this need, UW-Parkside's Professional and Continuing Education (PCE) is partnering with academic departments to design and implement non-credit certificates in areas where the departments already have programs and/or expertise with the relevant competencies. For example, a non-credit certificate in Project Management has been implemented and is about to be launched in March 2022. Similarly, a non-credit certificate in Human Resource Management (HRM) that aligns with SHRM certification is in development.

Figure 7. Different types of learners and how they can be served through for-credit and non-credit options



Non-credit training that targets professional development is viewed as market development at PCE and the academic departments. PCE has been successful with personal development programs (e.g., Spanish language) and basic work skills (e.g., MS Office), but less successful in professional development. However, recent success with customized project management workshops that came about as a result of

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UWP’s reputation in for-credit project management created an opportunity with the non-credit Project Management certificate. The HRM certification was driven by input from regional HR professionals who desired SHRM certification and maintenance. Consistent with Ansoff’s Matrix, bringing an existing program (Project Management and HR) to a new market is market development and results in moderate risk. UWP is capitalizing on its regional reputation with these programs to help mitigate the risk.

Table 1. Strategic priorities for IHEs to serve different types of learners

Learner Type	Key Learner Needs	Strategic Priority
All types of learners	Direct pathway from start to credential	Design and implement non-credit Flex option programs that are in sync with for-credit programs. Implement consistent and shareable badges for all modalities and all learners to encourage achievement.
Learner Type 1: Nontraditional Adult, Needs training	Need to upskill quickly	Provide Flex non-credit options in areas of demand.
Learner Type 2: Traditional College Age Student	Four-Year Degree Completion	Enhance support systems for students to succeed and improve retention/graduation rates.
Learner Type 3: Nontraditional Adult with varied prior learning and needs college credential	Direct pathway and timeline that helps achieve degree completion while leveraging prior learning	Implement mixing and matching of different modalities of courses: Flex, Online, and F2F. Design and implement pathways for prior learning through Flex non-credit options and competency connectors. Increase degree completion options by allowing learners to “build” flexible degrees through stackable credentials.
Learner Type 4: Nontraditional Adult who is curious to learn, but unsure about the credential.	Stress-free learning with minimal constraints	Offer free courses on popular topics through the Flex option which learners can complete at their own pace.

To conserve resources, PCE partnered with UW System and became a participant in a UW System-wide grant titled “All Learning Counts” received from the Lumina Foundation. The primary purpose of this grant is to design and promote degree-completion strategies for adult learners. To promote degree-completion efforts, UW-Parkside proposed and implemented a version of competency connectors known as PLA connectors to help students achieve college credit for prior learning and non-credit certificate completion. In terms of agility, the non-credit certificate has been adapted from a credit-bearing project management certificate, revised, and fully launched in less than six months. This experience helped reinforce the following principles: (1) Where possible, design and develop once and deliver to different types of learners; (2) Recognize and embrace the needs of different types of learners and provide structures to support different types of learners, even if the subject/content is similar; and (3) Utilize grant opportunities from private and public organizations to help develop content for upskilling. We discuss this effort in more detail in the next section.

PLA Connectors and Non-Credit to Credit Pathways for Learner Types 1 and 3

For learner Type 3, we are intentional about implementing non-credit-to-credit pathways through prior learning assessment (PLA). As part of UWP’s Lumina grant work, we implemented the concept of PLA connectors to help learners obtain credit for their prior learning. In the Ansoff Matrix, recruiting prospective students from UWP’s non-credit classes is a form of market penetration.

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Although the content between credit and non-credit programs are similar, differences exist. For example, the credit-based project management programs provide deeper knowledge of the mathematics behind scheduling and resource allocation. They also require more exercises that demonstrate the ability to apply advanced learning concepts in Bloom's Taxonomy.

Students who complete a certificate via the non-credit option may subsequently wish to receive credit for the program, and the established PLA process provides an existing mechanism to allow students to complete a non-credit-to-credit conversion by facilitating evaluation of learning from experience outside a traditional classroom setting via testing or portfolio development. The PCE division at UW-Parkside provides support for both students and faculty throughout the PLA process.

A PLA connector is a specific implementation of the competency connector. A PLA connector is defined as an artifact that students use to demonstrate their mastery of a competency for PLA purposes. There may be several PLA connectors that students need to complete in order to obtain credits for a typical three-credit course that UW-Parkside offers.

There are several approaches to design PLA connectors:

- Approach 1: In some cases, the non-credit and for-credit versions are similar, especially for Flex option delivery. In such cases, utilize assigned work from the non-credit version as PLA connectors (similar to what is in the non-credit version of a course) to competencies in the credit version.
- Approach 2: Student reviews the competencies and brings in artifacts similar to the required assignments from prior/current work experience. The artifacts that students submit constitute PLA connectors. Students can also work on a portfolio based on the curricular content available in the non-credit courses.
- Approach 3: Student chooses to take a test with randomized questions. In this approach, the test will constitute a PLA connector.
- Approach 4: Students complete an exercise or project that demonstrates mastery of the missing competency.

A few principles of the PLA connector approach are outlined below:

- Subject Matter Experts (SMEs) define the PLA connectors for each of the above approaches and work with students on questions related to competencies.
- Regardless of the approach, students are able to proceed at their own pace.
- The resources for students to succeed are available in the learning management system (LMS) as they work on the PLA connectors.
- Students need to complete each PLA connector at a score of 80% or higher to demonstrate mastery. Students will have three attempts to successfully complete each PLA connector. If a student is unable to complete in three attempts, additional attempts may be granted at the discretion of the SME.
- Robust communication and check-ins with a PLA coordinator will be in place to assist students through the PLA process.
- Detailed feedback will be provided by the SME as students work on PLA connectors.

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We categorize students seeking PLA credit into three areas:

- Category A: Students who completed the non-credit version of the certificate in the past and return to obtain college credit.
- Category B: Students who did not complete the non-credit certificate but would like to proceed with a portfolio approach for PLA credits. Students in this category likely have very good experience in the subject area through their current or prior work. Category B students are expected to demonstrate mastery of competencies through their work experience.
- Category C: Students who did not complete the non-credit certificate but would like to proceed with a test or project. Typically, these students have had either prior course work that did not transfer or some work experience in the subject area and want to demonstrate mastery of the competency.

Figure 8. Process for category A students

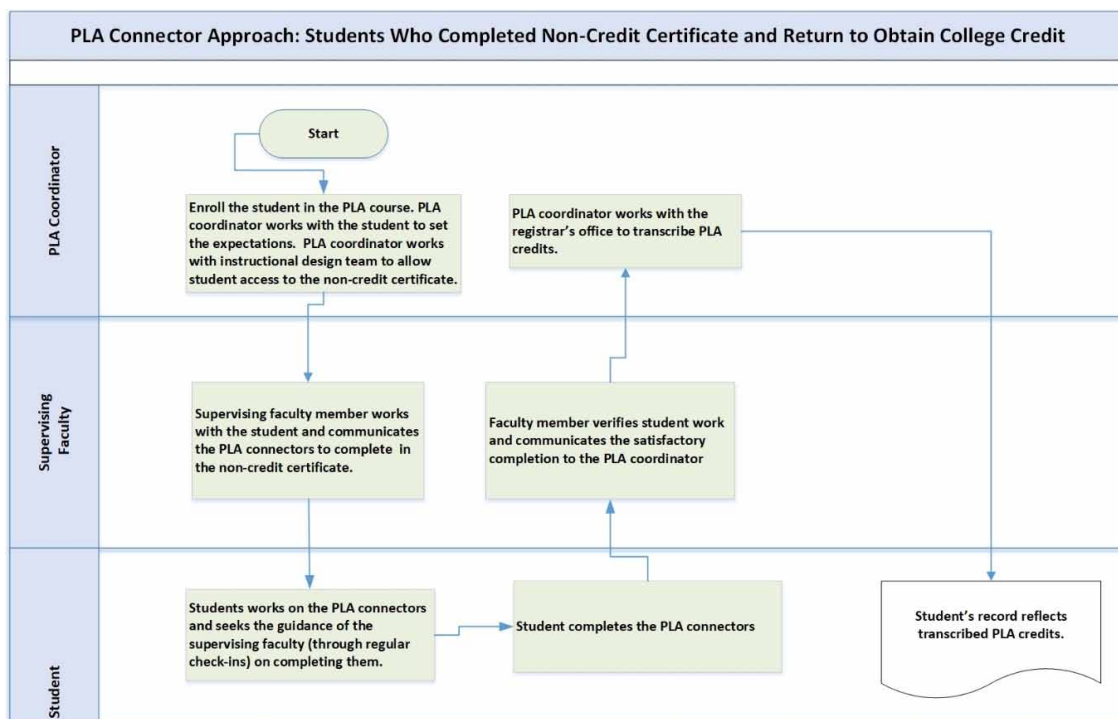


Figure 8 depicts the process flow we implemented at UWP for Category A learners seeking credit for prior learning using the Flex model. We developed similar process flows for Category B and Category C learners. The key difference among these three process flows is in the details of the PLA connectors for each type of learner. The similarities are in utilizing the Flex certificate as a foundation for PLA connectors and utilizing the existing PLA process at UWP to grant credit for prior learning. These models help us utilize our resources efficiently and rely on existing content and processes. We continue to refine the approach outlined in this section to serve adult, non-traditional students better.

Stackable Certificates Model for Learner Type 3

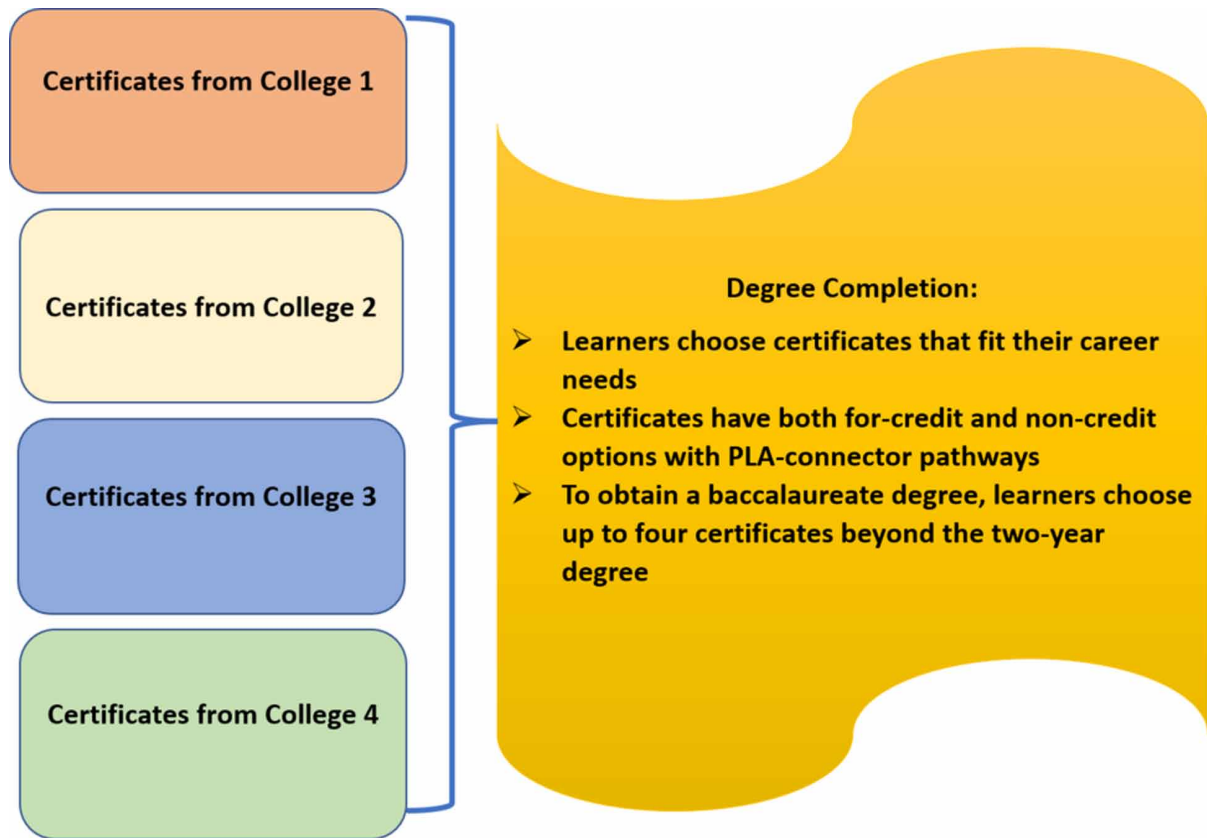
Many learners, especially Type 3 learners, want flexibility in timing and content in obtaining their credential. UW Flex option addresses time flexibility. In terms of content flexibility, it can be implemented at either the credential (macro) or course-level (micro). As faculty pay attention to achieving equity in the classroom for learners with different backgrounds, they are implementing different assessment methods for the same competency from which students can choose. This course-level or micro-level flexibility, though not yet widespread, is gaining traction and has the potential to become mainstream as IHEs strive to foster improved outcomes for learners with different educational and socio-economic backgrounds.

At the macro-level, students expect flexibility in building their own degree to fit their career paths through stackable credentials (Education, 2021). The stackable certificates model we envisioned at the beginning of UWP's Flex journey provides a viable option for students to build their own degree by pursuing several certificates of their choice. This model is indicated in Figure 9. This figure depicts a scenario in which a university has four colleges, and each college offers certificates in addition to their degree programs. These certificates are anticipated to be in high-demand areas such as digital skills, healthcare, business, communication, analytics, human resource management, project management, etc. Each certificate is expected to have 12 or more credits. A non-traditional working adult who has completed a two-year associate's degree with general education requirements will be able to pursue certificates that fit with their career trajectory/goals. Approximately four such certificates will be needed to complete the second two years of a four-year degree. A progressive IHE may also consider awarding a limited number of credits to students who complete non-credit offerings through entities such as LinkedIn Learning, Coursera, Udemy, etc. As the delineation between credit and non-credit offerings blurs, IHEs that can systematize the process of awarding credits for learning completed elsewhere stand to benefit in the long-run, though such practices may be viewed as a threat in the short-term. In implementing this model, IHEs need to work internally with key stakeholders on the following aspects: (a) faculty to obtain necessary approvals to grant a degree based on stackable certificates; (b) deans and administration on a fair model to allocate student credit hours to different colleges based on the certificate enrollments; (c) a robust support system through advising and success coaches for students to succeed in the model; (d) an administrative unit responsible for addressing the unique needs of students enrolled in the program.

CONCLUSION

Individuals and communities benefit when individuals develop and enhance their competencies. The knowledge, skills, abilities, and behaviors reflected by competencies span multiple dimensions of a competency cube: breadth, depth, and ability (as reflected in Bloom's Taxonomy). The competencies also specialize according to field and industry. Fortunately, there are many sources that help individuals develop these competencies, including four-year IHEs, two-year IHEs, MOOCs, and private sector education. These programs are offered in face-to-face, online, and competency-based formats. Unfortunately, individuals must navigate their own pathways through these providers in order to earn certifications or degrees that recognize their competencies. As illustrated by the relatively high number of students who have some college credit but do not receive a four-year college degree, the pathway can be challenging.

Figure 9. Stackable certificates model



In this chapter, we advocate for IHEs to view their educational mission and strategy through a competency lens. IHEs should take inventory of the type of competencies currently taught, research the market to determine competencies needed, determine competencies that should be added to the IHE’s repertoire, and develop alliances that could help the IHE develop and communicate educational pathways to their target learners. The Ansoff Matrix is a useful tool that can help with planning. Due to resource constraints, IHEs must be strategic in their offerings. New product or programs can be developed by adding new competencies or repackaging competencies that already exist. Market development occurs by attempting to reach new groups of learners at various points in their educational journey. Alliances with other stakeholders can increase the probability of success. These stakeholders include OPMs (whether “in house,” similar to UW Extended Campus, or external), businesses, other IHEs, government agencies, and K-12 education.

We believe that more universities should develop CBE programs. CBE programs explicitly recognize mastery of competencies as their goal and address the educational needs of many nontraditional students. In theory, a large network of CBE programs could facilitate transfers between CBE programs. However, as demonstrated by UWP’s experience, developing CBE programs requires policy, process, culture, and infrastructure changes. IHEs can start down this path if it fits their mission and culture. Experimentation in the form of certificates and badges can provide a good starting point in order to build experiences.

Even if an IHE does not wish to develop CBE programs, elements of CBE can be used. Competency connectors, for example, can be used to facilitate transfer between traditional programs. Competency connectors consist of projects, tests, and curated content that allow classes at one IHE or program to transfer to another IHE or program. The connectors demonstrate that a student has mastered competencies at a level required in the receiving program. IHEs could consider adding competency connectors to their prior learning assessment process.

IHEs can also establish pathways based on competencies between their own non-credit and credit program. UWP is establishing pathways between professional continuing education programs and academic programs. These pathways are motivated through the recognition of four different types of learners: Nontraditional adults who need training, traditional students who desire a degree, nontraditional adults with varied prior learning and need college credentials, and nontraditional adults who are curious to learn but unsure about the credential. Competency connectors provide pathways for these various groups of students. The different pathways help establish new programs and new markets for UWP.

Through a competency lens and strategic thinking, IHEs and their partners can establish pathways to improve the lives of their learners and contribute to vibrant communities.

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KEY TERMS AND DEFINITIONS

AACSB: Association to Advance Collegiate Schools of Business – International. The leading institute for accrediting business programs at IHEs.

Ansoff Matrix: A matrix used to help firms define growth opportunities through classifying strategies based on two dimensions: Markets (existing or new markets) and Products (existing or new products).

BSBA: Bachelor of Science in Business Administration program offered by UW-Parkside with support from UW Extended Campus in the UW Flexible Option format.

Competency: The underlying knowledge, skills, and abilities that support decision making, problem solving, and success in performing a task. Competencies may be technical or behavioral.

Competency Connector: An assessment that students complete to demonstrate their knowledge, skills, and abilities (KSA) in one or more competencies for the purpose of enhancing student learning and awarding credit for a degree/credential requirement.

Competency-Based Education (CBE): An outcome-based approach to education that prioritizes a student's mastery of competencies over time spent in a class. Students complete a class when they have demonstrated mastery of all competencies in the class.

Digital Badge: A verifiable electronic certificate that attests to the competencies mastered by a learner. Digital badges are typically associated with micro-credentials and awarded for a limited number of competencies. Digital badges are designed so that they are easy to share on various social media platforms.

Higher Learning Commission (HLC): A regional accrediting body that accredits degree-granting post-secondary educational institutions in the United States.

Institutions of Higher Education (IHEs): Institutions that offer education beyond the post-secondary level. These include institutions that offer technical, professional as well as other traditional programs.

Knowledge, Skills, and Abilities (KSAs): See the term competency.

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Micro-Credential: A credential obtained by a learner for a limited set of competencies often through a non-credit course of short duration.

Online Program Manager (OPM): Service providers, external to an institution, that work with institutions of higher education to help launch and recruit new online academic programs or support existing online programs.

PLA Connector: A specific implementation of the competency connector and is defined as an artifact that students use to demonstrate their mastery of a competency for PLA purposes.

Prior Learning Assessment (PLA): The assessment of an individual's learning that may have occurred outside the normal academic setting (e.g., training programs, work experience) in order to award possible college credit.

Professional and Continuing Education (PCE): Divisions at universities that offer upskilling and training opportunities to professionals; much of the training is offered via non-credit programs.

Project Management Institute (PMI): A professional organization that provides resources, educational opportunities, and certifications for individuals and organizations to learn project management competencies.

Project Management Professional (PMP) Certification: One specific certification offered by PMI.

Society of Human Resource Management (SHRM): A professional organization that provides resources, educational opportunities, and certifications for individuals and organizations to learn human resource management competencies.

Stackable Certificate/Credential Model: A model in which learners can complete a degree program by completing and stacking certificates to reach the required number of credits. Stackable credentials allow learners to seek credit for learning from other avenues and entities beyond the certificates offered by an institution.

Subject Matter Experts (SMEs): Experts who provide guidance for designing and teaching competencies in academic and non-credit educational programs.

UW Flexible Option (Flex): The University of Wisconsin System's implementation of competency-based education.

Chapter 10

Competency–Based Education: The Future of Higher Education

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ABSTRACT

This chapter will review what competency-based education is and how delivering traditional educational credentials and degrees in a non-traditional, non-term program can better engage students and promote their success in the new higher educational market. It will discuss how the CBE model can benefit students, especially non-traditional populations. Students can leverage this type of “just in time” flexible education to obtain credentials, degrees, and certificates needed to meet professional goals and career requirements in the current job market. The chapter will summarize some of the common challenges administrators can face while administering CBE programs related to information technology barriers, student retention and motivation, and faculty perception and make recommendations for addressing these challenges. This discussion will better-prepare institutions of higher education in creating and implementing their own CBE programs.

The current state of affairs within the higher education industry is under intense scrutiny. Tuition increases have fueled a \$1.5 trillion student loan debt crisis (Goldrick-Rab & Steinbaum, 2020), six-year completion rates are at a dismal 62%, the highest they have reached in years (NSC Blog, 2022), and enrollment rates have continued to drop by 2.6% annually since 2010 (Hanson, 2021; Saul, 2022). In fact, enrollment has declined by a staggering 6.6% since fall 2019 (Saul, 2022). Furthermore, the higher education system, in its current state, has landed the United States 12th in world rankings when it comes to undergraduate degree attainment for the 25–34-year-old demographic (OECD Data, n.d.).

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Another piece to this puzzle is the shifting demographic of today's college students. The average age of a full-time student enrolled in an undergraduate program is 21.8 years old. The average age of a part-time student is 27.2, and over half (52%) of the university students in the United States are 20 years old or older (Hanson, 2021). As the market shifts, innovative approaches, such as competency-based education, are being explored that allow students choices on how to receive their post-secondary education.

Competency-based Education (CBE) models are gaining traction in the higher education sector because of the flexible alternative pathway they provide to earning a college degree. Although the first higher education CBE models appeared in the 1970s, there were still only twenty documented CBE programs in the United States by 2012 (Gallagher, 2014; Krauss, 2017). Despite their slow start, CBE programs increased exponentially by 2017 to over five hundred programs. In fact, the US Department of Education Undersecretary at the time, Ted Mitchell, described CBE as “the single-most important innovation in higher education” (Krauss, 2017).

In a study conducted by the American Institutes for Research (AIR), Mason et al. (2021) completed three annual surveys from 2018 – 2020 and compiled a report titled, *State of the Field: Findings from the 2020 National Survey of Postsecondary Competency-Based Education*. The mission of the project was to gain an understanding and track perceptions of CBE, interest in CBE, implementation, and adoption progress. The researchers of this study highlighted two key takeaways among the many findings. First, while barriers remain, such as internal business processes and costs and external regulation, respondents remain optimistic about the future of CBE. Additionally, the number of CBE programs continued to grow despite the COVID-19 disruptions. In fact, report findings show COVID-19 may have had an influence on institutional interests in CBE in some cases.

Although CBE lacks a universal definition within the higher education industry, the most often cited definition is that from the Competency-Based Education Network (C-BEN) (n.d.):

Competency-based education combines an intentional and transparent approach to curricular design with an academic model in which the time it takes to demonstrate competencies varies and the expectations about learning are held constant. Students acquire and demonstrate their knowledge and skills by engaging in learning exercises, activities, and experiences that align with clearly defined programmatic outcomes. Students receive proactive guidance and support from faculty and staff. Learners earn credentials by demonstrating mastery through multiple forms of assessment, often at a personalized pace.

Despite the lack of an industry-wide definition, there are five hallmarks among competency-based programs, alluded to in the above C-BEN definition, as well as outlined by Bushway et al. (2018). These hallmarks include a focus on learning (rather than time spent in a classroom), a required demonstration of mastery of all course material, a rigorous assessment process to determine a student's mastery of material, a focus on the learner's journey that is guided by faculty throughout the educational experience, and, lastly, a flexible, self-paced environment allowing students to move as quickly or as slowly as they need to demonstrate competence in the material (Bushway et al., 2018). Institutions interested in offering a competency-based model to education will need to consider these hallmarks and the barriers associated with each when outlining their implementation strategy.

This chapter will review what competency-based education is and how delivering traditional educational credentials and degrees in a non-traditional, non-term program can better engage students and promote their success in the new higher educational market. It will cover a brief history of CBE and its growth in higher education and discuss how the CBE model can benefit students, especially non-traditional

populations. Students can leverage this type of “just in time” education to obtain credentials, degrees, and certificates needed to meet professional goals and career requirements in the current job market. The chapter will also summarize some of the challenges associated with administering CBE programs related to information technology barriers, student retention and motivation, and faculty perception. This discussion will better-prepare institutions of higher education (IHE) in creating and implementing their own CBE programs.

BACKGROUND

The University of Massachusetts (UMass) Global, a non-profit university and affiliate of the University of Massachusetts, is a leader in competency-based education. Launched in August 2014, the fully online competency-based modality offers an Associates of Arts in General Business, Bachelor of Business Administration, Bachelor of Science in Information Technology, and a Master of Arts in Organizational Leadership. The program is characterized by its flexible, non-term structure. Students enrolled in the “MyPath” CBE program at UMass Global can start their program at any time, and progress at their own pace through their courses (competencies). There is no fixed schedule, no semester or trimester start and end dates, no assignment due dates, and there are no scheduled exam dates. Students can complete as many courses as possible within defined 24-week sessions. Courses are successfully completed by the demonstration of mastery of the subject matter, and students can move through the program at their own pace with the support and guidance of program-specific faculty and staff. The MyPath competency-based program utilizes a “subscription-based” model of tuition pricing, in which students pay a fixed price for each session and are therefore able to complete as many courses as they can under the set tuition rate.

A survey cited by Lurie and Garrett (2017) indicated that institutions may be interested in CBE but have no clear direction and may become “stuck” in the interest or “aspirational” phase rather than moving on to implementation. In constructing this chapter, we have drawn upon our years of professional experience working in and helping to administer the UMass Global MyPath competency-based program. As we will be making recommendations and suggestions to address potential barriers and roadblocks in the implementation of CBE programs, it may be helpful to provide a brief background of our experience, roles, program, and department for greater context.

The UMass Global MyPath program supports a growing student population of around 1000, comprised of undergraduate and graduate students, many of whom are considered “non-traditional” students and are working adults needing greater flexibility in their degree programs than a term-based program can offer. The Academic Coach and One Stop Specialist roles that make up the student-facing section of our program provide customized guidance to students in the areas of academic support and financial advisement. We have also drawn upon industry experience by interviewing several leaders in competency-based education in academic, technological, and institutional roles. We do wish to note the experiences and recommendations included here, as based on our individual professional experience in CBE, may be naturally influenced and bound by our levels of expertise and our roles within the university.

PRIOR TO IMPLEMENTATION

Before embarking on the journey of planning and implementing a competency-based education program, an institution can help best-prepare itself by posing relevant questions, identifying needs and readiness, and forecasting what required essentials must be in place to support the process. Implementing a CBE program is no small feat, and in starting out, the organization must understand that it will not initially be an easy or efficient process (B. Bourdon, personal communication, January 27, 2022).

Defining the CBE Model

Prior to beginning, the institution will need to first define their version of the CBE model—so implementation can align with the definition—and choose the way the program will be delivered. As stated previously, there is no agreed-upon universal definition of competency-based education. An institution will need to ask itself what type of CBE model will best meet the needs of the institution, students, staff, and faculty: will the program be cohort-based, non-cohort, term-based, non-term-based, individual self-paced, online, or blended (Lurie & Garrett, 2017)? How will the institution structure its tuition model? Collaboration between key stakeholders will be instrumental in answering these questions that will first define the version of CBE the college or university hopes to offer, which will in turn help them understand the institutional needs and readiness to offer such a program.

The institution should decide early on between a direct assessment or credit-based model. A direct assessment CBE program does not default to the traditional credit hour or “seat time” to measure student learning and success. Instead, direct assessment involves a structure where students demonstrate proof of mastery of the subject matter within variable, high-touch, self-paced timeframes (Gervais, 2016; Kelchen, 2016; Lowe et. al., 2021, Nodine, 2016). Conversely, credit-based CBE models similarly offer flexible learning in which students demonstrate competency, but the coursework is still measured by credit hour or clock time (Gervais, 2016; Nodine, 2016). Students enrolled in credit-hour based CBE programs may still be able to learn at their own pace, but with some limitations. For example, a student may be able to complete a certain number of credit hours within a certain timeframe, at their own pace, within that defined timeframe.

While the direct assessment model may be considered to offer the most flexibility for students and potential to be customized by the institution, the implementation process may be more challenging than opting for a credit-hour model. Using a credit-hour model may allow institutions to adapt existing policies, practices, and technology to be used for the CBE program, if the existing infrastructure is already based on credit-hour degree programs and practices. Although direct assessment CBE is eligible for Title IV funding, federal financial aid, and other methods of financial assistance such as military benefits, these financing options are typically structured around and are most compatible with credit-hour based programs and associated tuition models. The IHE may find unique challenges arise that are specifically related to direct assessment CBE programs, so evaluating readiness to address these challenges early in the implementation process will be key.

Institutional Support

If an organizational culture does not already exist that supports innovation, flexibility, and collaboration, all of which are necessary to implementing a successful CBE program, institutional mindset will need

to be changed. Culture shifts can potentially take a long time, and often must be initiated by leadership. When the MyPath CBE program was initially planned and launched at UMass Global, competency-based education industry leader Laurie Dodge noted that success in the implementation phase was partly due to a culture of support from the board and senior leadership (L. Dodge, personal communication, January 27, 2022). Since an institution is unlikely to see immediate measurable success when beginning a new program such as CBE, having strong visible support from those in executive leadership positions can help create buy-in and should be considered a top organizational need.

The institution should also assess its available resources to determine what internal infrastructure may already be in place to support program implementation. Are there already policies which may be adapted to support the unique structure of a CBE program? Are there processes and methods that may be adapted to support the new program, and are the right individuals in place to help conduct these processes? When answering these questions, representatives from both academic affairs and student affairs should be “in the room” to help each other understand the implications such policies may have in the future. As academic affairs leadership build academic policies around the new CBE program, student affairs leaders can proactively prepare their departments for the unique changes that will be necessary for successful implementation. It is possible that CBE initiatives may fail when significant changes or overhauls to existing business processes are required, so it may be to the benefit of the institution to start with small changes to existing structures (L. Johnston, personal communication, January 28, 2022). Lastly, an institution should ask itself *why* it wants to implement a CBE program. Answering this question can help assess the potential level of commitment to a process that may be both lengthy and challenging.

PROGRAM DEVELOPMENT

In 2017, the Competency-Based Education Network (C-BEN) released the *Quality Framework for Competency-based Education Programs*. This publication includes universal principles and standards that can inform an institution’s development and implementation process. Thirty institutions, four state university systems, and over one hundred individuals across the country offered input to the C-BEN Quality Standards Task Force. Regardless of an institution’s chosen CBE model, the principles and standards suggested in this publication can be used as a guide in the CBE implementation process. Additionally, the standards outlined can be used by policymakers and accreditors as guideposts in regulating the field.

The *Quality Framework for Competency-based Education Programs* (2017) outlines the following eight elements of quality:

1. Demonstrated Institutional Commitment to and Capacity for CBE Innovation
2. Clear, Measurable, Meaningful, and Integrated Competencies
3. Coherent Program and Curriculum Design
4. Credential- level Assessment Strategy with Robust Implementation
5. Intentionally Designed and Engaged Learner Experience
6. Collaborative Engagement with External Partners
7. Transparency of Student Learning
8. Evidence-driven Continuous Improvement

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For each element, the guiding principle of the element is defined, several standards are outlined, and several performance indicators are identified.

In our experience, we have found program development to fall into the hands of both Academic Affairs and Student Affairs. Academic Affairs is tasked with competency development, learning platform development, faculty development and accreditation. Meanwhile, Student Affairs develops the administrative structures that help students navigate admissions, financial aid, and a myriad of student services, such as academic coaching, tutoring, and the library. While these units each play a unique role in the overall CBE program development, both units will want to connect as much as possible to understand the barriers faced by each side. Constant communication can help each side quickly understand any new pain points that have been identified and adjust to meet the needs of the university and the student.

For example, a bi-weekly MyPath Tutorial Faculty meeting allows multiple departments to come together to provide updates on initiatives, pain points, and maintenance issues happening between each unit. These meetings are facilitated by the Associate Dean of Curriculum, Assurance Learning and Competency-Based Education, and include the following representatives: faculty (represented by all tutorial faculty), academic affairs (represented by the Dean), and student affairs (represented by the academic coaches). Such meetings allow multiple departments to understand the big picture and collaborate when changes are needed or wanted. Additionally, this allows the coaches and faculty, both of whom are the student-facing representatives of the university, to face students with educated answers to the many questions that arise in various situations. In our experience, it has been vital for key players to meet regularly to compare notes and adjust dysfunctional patterns early to support student success.

Competency Development

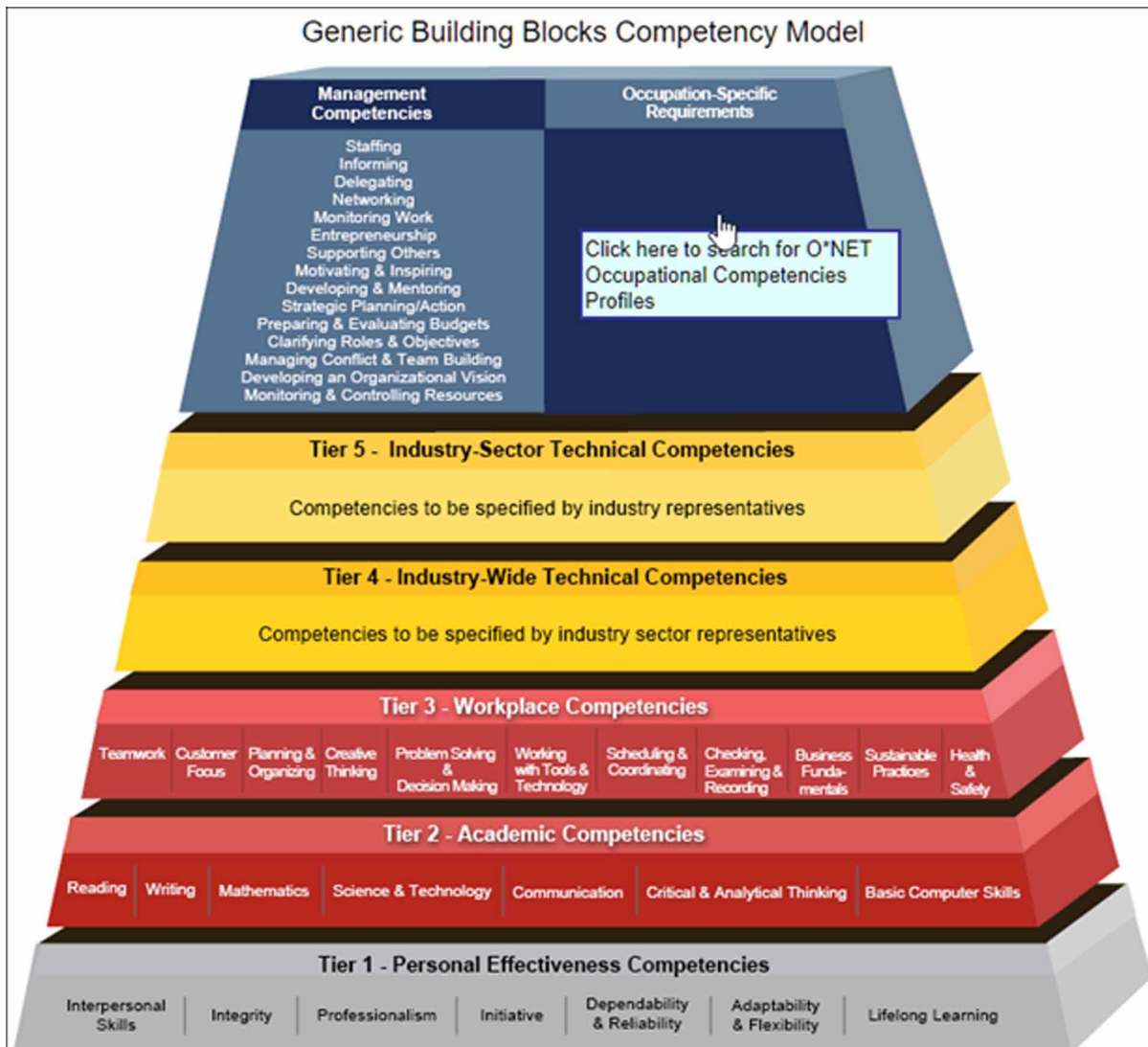
The Cambridge Dictionary (n.d.) defines competency as “an important skill that is needed to do a job.” If the goal of an institution’s competency-based education program is to produce graduates that will be entering the workforce, it will be important to not only include the academic minds of the institution, but also employers in developing the list of skills, knowledge, and abilities students should be competent in upon program completion. Developing an advisory board that includes industry leaders can be a good place to start when deciding what competencies should be included in curriculum development (Western Governors University, 2022).

Industry leaders can provide valuable information about the competencies needed to be successful in the workplace upon graduation. Additionally, Margolin (2017) cites further resources in their research that aid educational leaders in defining the industry competencies necessary for students entering specific professions. Through a grant from the U.S. Department of Labor/Employment and Training Administration, the North Carolina Department of Commerce developed the Occupational Information Network (O*NET). The O*Net program provides a free database that is regularly updated to include occupation specific descriptors covering approximately 1,000 jobs over the entire U.S. economy. O*NET collects data from incumbents, occupational experts, and occupational analysts to gather specifics on tasks, work activities, work styles, abilities, and skills to provide a comprehensive analysis of the needed competencies for each job within the database. This allows industry leaders or academics to review the necessary competencies that could be used as a starting point for curriculum development (O*NET, 2022).

A similar database cited in Margolin’s (2017) research was CareerOneStop, also sponsored by the U.S. Department of Labor. CareerOneStop.org is a website serving many stakeholders: job seekers, business leaders, educators, and career advisors among them. For educators interested in developing competency-

based curriculum, the website provides a Competency Model Clearinghouse where industry partners and The Employment and Training Administration (ETA) work together to maintain competencies that are needed to support the development of a workforce that can compete in a global market (CareerOneStop, 2022). The Building Blocks Model (Figure 1), offered by CareerOneStop, is a useful resource for leaders interested in the development of a competency-based modality as it outlines the specific areas that should be considered when developing the CBE program.

Figure 1. Generic building blocks competency model (CareerOneStop, 2022)



This competency model is the beginning of curriculum development. It is a resource that can be used by program planners and curriculum developers in the planning, development, and curriculum evaluation phases. Additionally, the Occupation-Specific Requirements section of the model, when viewed from the

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CareerOneStop website, allows you to choose the occupation you wish to research to view more specific competencies for specific jobs and disciplines. Using this model, the foundational workplace knowledge and skills that today's workforce needs can be mapped back to specific classes or assignments offered in the CBE program. Once competencies are identified for programs offered, faculty will take on the role of curriculum development.

Once desired competencies have been laid out for an industry, they are inherently laid out for the program educating the students who plan to enter that industry, and the development phase moves into the faculty's hands (Bushway et al., 2016; Echols, 2018). The design process should start with faculty members identifying learning outcomes, creating learning materials to support students' mastery of the competencies, and developing assessments where students can show their mastery of the material (Bushway et al., 2016). This is a backward design process and may not be the typical way faculty have designed curriculum in the past. In many cases, faculty's prior curriculum design experience may come from the development of traditional coursework where the curriculum was designed around a certain outline for a textbook (Echols et al., 2018).

Faculty Development

Although faculty can take on many roles in a CBE program, Bushway et al. (2018) cite the primary role of faculty in any CBE program is developing the curriculum and assessments. Stewart (2021) agrees and further adds the obvious significant role faculty play in course delivery as well. While this is the case, Kellogg (2018) points out the differences in what course delivery means in CBE versus traditional programs. Faculty skepticism can arise in CBE programs from no longer being what Kellogg (2018) refers to as the "sage on the stage" (p. 28), and faculty will need to adjust to a huge change in roles and job descriptions (Kellogg, 2018). As the new roles emerge, faculty are finding themselves more involved in areas they may not have direct experience in and feel fully prepared for (Kellogg, 2018). Although the faculty role may change in CBE programs, faculty remain just as important as ever.

Institutions cannot deny the critical role faculty play and would be wise to focus on establishing a comfort level among faculty regarding how to create CBE curriculum and how to deliver instruction as a subject matter expert (SME) (Echols et al., 2018; Stewart, 2021). In fact, Echols et al.'s (2018) research suggests faculty member's perceived levels of confidence in CBE curriculum development skills are affected by the type and amount of training they receive. Echols et al. (2018) found a significant relationship between the number of hours faculty spent in training and level of competence faculty feel in curriculum development. It is recommended to train faculty in content development, assessment development, technical skills, collaboration skills, and communication skills, because faculty are likely to be more engaged based on their level of competence (Echols et al., 2018).

Student Support Services Development

Faculty and staff are an important part of program design and implementation for any CBE model. If one were to review models within the current CBE programs today, they are not likely to find a universal model among institutions. Position titles at one institution may be responsible for an entirely different aspect of the job as the same title at another institution (Bushway et al., 2018). For example, a faculty mentor in a competency-based model at Western Governors University may perform much of the same role as an academic coach at UMass Global. For any institution interested in developing their own CBE

program, it will be important to understand the distinct roles needed for student success and decide on the model that the structure of their institution can support.

Academic Coaching

There are several names for the service an academic coach provides, such as success coach, academic advisor, and mentor. Regardless of name, the role plays a critical part in student success. Stanford University scholars, Bettinger & Baker (2014), conducted a seminal study on academic coaching in higher education. Their research evaluated 13,555 students across eight universities, including public, private, and proprietary universities. Through random selection, some students received academic coaching consisting of goal setting, skill building, self-advocacy, and study skills. Researchers tracked the persistence of coached versus non-coached students over a period of two years and found statistically significant differences in retention and completion rates. Coached students were found more likely to persist than non-coached students by a staggering five percentage points (Bettinger & Baker, 2014).

There is plenty of research on college student retention stating one of the best predictors of student success and persistence is meaningful interaction with someone from the college (Drake, 2011; Kuh et al., 2005; Pascarella & Terenzini, 1977). For many institutions, the role of the academic coach in CBE programs is a constant through the student's academic journey and oftentimes a perfect place for the student to build a meaningful relationship with a college representative. Many students start a relationship with their academic coach immediately after the admission process. Regular meetings thereafter can provide diverse levels of support that are outside faculty's purview. For example, as outlined in Bushway et al. (2018), academic coaches are there to explain how CBE differs from the traditional approach, track students' overall progress in the program, help students navigate the competency sets, set goals of completion, and provide motivation to students to reach their goals. Additionally, coaches proactively check in with students, identify at-risk students, and refer students to campus resources when appropriate (Bushway et al., 2018).

Just as important with faculty, proper training for academic coaches will be important to ensure the coaching being provided to students aligns with the core principles of the coaching model. Coaching aims to promote choice by the student. The student must choose the path they want to take for the follow-through on implementation to occur (Sepulveda, 2021). Without proper coaching training, academic coaches may end up providing standard academic advising services. Although similar in relationship building, advising and coaching do provide a different aspect to the student experience (NACADA, 2022). Academic coaches will use many advising strategies in their day-to-day operations, such as helping students understand degree requirements. Coaches will take the relationship a step further and help students develop confidence in their own skills over time. Both roles, advisor and coach, make positive impacts on student retention and persistence, however, while an advisor can help a student understand what the semester goals are, the academic coach helps a student break down weekly or bi-weekly goals (Sepulveda, 2021).

TECHNOLOGICAL CHALLENGES

Early in the implementation process, the institution may ask the questions: how do we want to deliver instruction and curriculum in a competency-based program? If the program will be entirely virtual, do

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we have an online learning system that will support this? Do we have faculty and staff in place with the knowledge and skills needed to work with any new technology needed?

The CBE program at the UMass Global is considered a fully online program, and because of this, is characterized by a high level of flexibility and accessibility. In a fully online program such as this one, the student engages with the curriculum, faculty, and university staff in an online environment. Students access and engage with all coursework using an online platform, and virtual resources are used by faculty and staff to support students through the use of learning management systems (LMS) (Bushway et al., 2018). Other online systems include those used to administer financial aid and manage registration of competency-based coursework. The institution will need to assess whether an existing financial aid or registration system can support the functionality needed for a non-term model, or if they will need to consider adopting entirely new technologies, such as Regent Technologies for financial aid administration, or Strut Learning as a learning management system.

A survey by Kellogg (2018) indicated that many participating institutions encountered challenges when trying to adapt existing systems, including LMS and financial aid, to fit a self-paced CBE program. The existing systems may be designed specifically for traditional and term-based academic programs, and so issues were identified in processes such as registration, billing, and financial aid. Traditional technological systems may simply not be capable of accurately handling any of these back-end processes for a non-term, self-paced program. In these cases, the institution may encounter significant difficulties in accurately managing federal financial aid awards for CBE program students, tuition billing and payment challenges, insufficient virtual support for students, and registration issues. All these challenges have the potential to disrupt the student experience and cause significant barriers to success.

FINANCIAL CHALLENGES

Cummins and Floten (2016) cite the steps of determining how to apply federal financial aid rules to a non-term program as a potential hurdle in CBE implementation, and a perceived lack of compatibility with federal financial aid was identified as a significant barrier in surveyed institutions (Lurie and Garrett, 2017). If the institution wishes to offer a program in which students may utilize federal financial aid, they must take the necessary steps to receive Department of Education approval for federal funding. Since federal financial aid is often based on time or hours spent in a classroom and the structure of a traditional academic year, both areas in which most CBE programs differ, understanding how to fit a flexible CBE program into time-based financial aid regulations may present a necessary hurdle for many institutions. However, if an institution wishes to implement a competency-based program to appeal to a demographic of students in need of more flexibility, not only in the academic sense but also in terms of tuition and finances, *not* offering federal financial aid may prove to be a detriment to success.

Basic federal financial aid requirements state that a student must be enrolled at least half-time within an academic year, and maintain sufficient academic progress, or SAP (U.S. Department of Education, 2022). An institution wishing to implement a CBE program with approval for federal aid must decide how to define half-time enrollment and academic progress within non-traditional terms or sessions which may not be defined by traditional time constraints or academic calendar dates. Per the Department of Education rules on satisfactory academic progress, the maximum time frame in an undergraduate program may be no longer than the published length of the program multiplied by 1.5. An institution must make a reasonable determination regarding the expected time from start to completion in a non-term

program and use that determination as its published length in adherence with this rule (CBE Network, 2016). The most flexible competency-based education programs, including UMass Global MyPath, are characterized by self-paced sessions with no defined end date. This presents a unique challenge in deciding how to implement and reinforce a definition of satisfactory academic progress. Additionally, the GPA and grade-point calculations which define SAP may be challenging to adapt and apply to a program in which students demonstrate mastery or a subject area, rather than passing, failing, or receiving a traditional letter grade (Porter, 2016).

Many competency-based programs, particularly subscription-based models, are characterized by the offering of a set tuition price for an “all you can (compl)eat” amount of courses or credits, rather than billing tuition per unit, credit, or hour. While this affordable tuition model has the potential to attract more students and can be highly beneficial to those looking to maximize their federal financial aid or out-of-pocket expenses, and also can help address the greater issue of climbing student loan default rates, it also poses more unique financial challenges for the institution. The lack of defined deadlines for students in a self-paced program may allow them to progress either too slowly or too quickly, which can in turn result in lower revenue from overall tuition per student for the institution. A college or university interested in offering a CBE program with a flexible or lower-priced tuition model will need to determine how to show that there will be a return on investment from a financial perspective. The key factor of showing a financial return on investment should be considered as important in maintaining commitment and buy-in from all involved, particularly as the implementation of a CBE program has the potential to be significantly rigorous and time-consuming (Bushway et al 2018).

Understanding and planning how to structure a CBE program to be eligible for federal financial aid, determining what tuition model is best-suited for the program and the institution – a unique rate, subscription model, equivalent to the institution’s traditional rates – are all major components of the decision-making process that the institution must engage in when in the planning and implementation stages (L. Dodge, personal communication, January 27, 2022).

IMPORTANT AREAS OF COLLABORATION

Successful implementation of a new competency-based program will rely heavily on the contribution and collaboration of almost all key stakeholders and departments within the institution and may require the development of an institutional culture that supports the innovation and collaboration needed for a CBE program to succeed (Bushway et al., 2018). An ongoing process of collaboration may help to address and alleviate identified roadblocks and barriers. Beginning and building a sustainable collaboration process, and setting shared expectations and goals, can help the institution engage in a process of continuous and evolving improvement.

The first step in the collaboration process can be to establish a cross-functional team of key individuals who will be instrumental in understanding and addressing any barriers the institution may face. UMass Global utilized working groups with individuals from areas such as admissions, academic advising, financial aid, faculty, institutional research, and information technology. A cross-functional group should have the ability to meet weekly or bi-weekly in the implementation process, but it is important to maintain established collaborative meetings well beyond implementation so that any unforeseen or future roadblocks can be met with a group, solution-oriented, effort. For example, it can be vitally important for communication between faculty and academic coaches to remain consistent and open so that the

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impact of new policies or developments on staff and students may be best understood and shared. Having one or more individuals in executive leadership positions who openly support the implementation of a competency-based program at the institution can also help unify the collaborative group and champion efforts surrounding the new program. Establishing a working group or committee who are dedicated to meeting on a regular and ongoing basis will also help alleviate any information silos that have the potential to develop in larger organizations. Working groups can optimize the sharing of knowledge and ideas from each department with responsibilities towards implementation of the new program.

CBE program implementation and success requires proactivity, open collaboration, data-sharing, negotiations, and adjustments between faculty, administrators, and learners, which needs sustained effort from all groups (Curry and Docherty 2017). The institutional culture must be one which is supportive of the proactive and innovative approaches needed to meet the unique challenges of CBE.

THE FUTURE OF COMPETENCY-BASED EDUCATION

In general, higher education is under intense scrutiny. Between rising tuition costs, the trillion-dollar student debt crisis, low retention rates, and slumping enrollments, higher education institutions are finding themselves providing a traditional model that is unable to accommodate the needs of today's labor force. The American job market is producing more jobs that require a postsecondary degree than there are students graduating with said degrees (Carnevale et al., 2020; Smalley, 2021). Innovation and change will be required if institutions are to keep up with the needs of the American workforce, and competency-based education could very well be a fitting solution.

As more institutions across the country adopt CBE programs, we should consider the innovative potential for CBE programs to adapt to the changing needs of today's students and workforce. This is especially true as enrollment trends shift toward a majority population of non-traditional students. As non-traditional students enter college to become re-skilled and thus more competitive for today's job market, CBE is playing a significant role in their choice of program (Kelchen, 2016). We believe CBE programs will continue to gain momentum in the adult learning sector and can become a hybrid part of the traditional model. Students may find the ability to take both traditional courses while also taking CBE courses, rather than having to choose one model or another.

Additionally, the idea of badging and microcredentials (such as the "Credential as you Go" initiative by SUNY Empire State College) are beginning to emerge in the higher education landscape. As it stands now, far too many students start college but leave before a degree is earned. CBE could be a valuable resource to help students take classes on their own terms and earn microcredentials, or badges, which will have value in the workforce should the student decide to stop out. The student can then have the option to return and complete further competencies in the future.

Competencies could also be aligned with the job tracks students would like to follow, meaning students could complete competencies that earn them a microcredential, gain meaningful employment due to the microcredential, step out to gain the experience in the field, and return to a set of competencies or a new set of microcredentials when they are ready to move up again in the workforce. Employers may also wish to leverage competency-based credential programs to "up-skill" their workforce for the future long-term success of their organization. Understandably, this particular facet of the future of CBE will require the federal government and regional accreditors to understand the benefits and change policies to allow CBE programs to issue microcredentials and badges as an accredited credential.

RECOMMENDATIONS

The roadblocks and challenges described in this chapter are ones that we have both encountered in our professional careers in a competency-based program, and those that have been identified in contemporary research and described by leaders in higher education. An institution of higher education interested in implementing a new competency-based program should expect to manage and overcome any number of these technological, academic, financial, and organizational challenges. Below is a summary of recommendations that we, our colleagues, and our institution have utilized to remove roadblocks and address challenges, both in the implementation process and as part of the work in ensuring ongoing and sustainable success:

- Assess organizational readiness to adopt a CBE program. Ask key questions: does the institution support a culture of innovation, commitment, and flexibility?
- Align the program and implementation process to the institutional mission, vision, and strategic plan to create buy-in and unified goals.
- Encourage and support ongoing collaboration and working groups between key individuals and departments.
- Understand the importance of assessing and reassessing the definition of program and student success – will new degree programs be needed? What can be established in the implementation phase to ensure continued growth?
- Create ways to collect data to measure and show program success for students, staff, and leadership.
- Hire the “right people in the right places” before the program is launched.
- Get key players in regular meetings during the initial and early phases of the implementation process.
- Set expectations – a new CBE program may not be immediately successful or show a quick return on investment.
- Identify and provide specific training, support, and resources for faculty and staff.

Organizational Readiness and Support

As discussed, a vital component to the successful implementation of a CBE program is organizational readiness and support, from the top down. Existing resources, technology, commitment and buy-in from stakeholders, and an innovative environment can all be leveraged to address the readiness factor.

One recommendation to establish and sustain a culture of support and readiness is to provide structured and ongoing training processes for faculty and administrative personnel involved in implementing and administering the CBE program. Developing required training sessions that focus on the CBE learning process, the learning platform and systems, and how to best guide and support students enrolled in the CBE program is recommended as a best practice, as it creates a culture of support for faculty and administrators and equips stakeholders with the skills and knowledge needed to feel ready and proficient to effectively deliver online instruction and advising (Echols et. al., 2021).

Ensuring that the program and implementation process are aligned with the overall mission and vision of the institution can be important to creating support and buy-in, as a project as substantial as adding a CBE program can represent major organizational change. We recommend that the institution take this

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a step further by crafting a customized mission and vision specifically for their CBE program that can help remind all involved stakeholders of their shared goals and commitment to the project.

Measuring Student Success

The nature of a CBE program can imply that institutions, faculty, and staff may need to reframe how they traditionally define student success. Although we may be accustomed to viewing student success through the lens of semester or trimester progression, traditional letter grades, and unit completion, a CBE program (and a direct assessment model in particular) requires that the institution develop new ways of measuring student success, and the overall success of the program itself once implemented.

We have found many students who enroll in the CBE program at UMass Global tend to be working adults, professionals with families, non-traditional students who are returning to school after stopping out, and those who need more flexibility in their degree programs and additional levels of support. Since our CBE program is entirely virtual, our system of student support and resources is delivered in a fully online environment. Meaningful and consistent support and communication in a CBE program have shown to be a key factor in academic success and retention (Echols et. al., 2021). In the UMass Global MyPath program, we have seen significant effectiveness on the administrative side by employing a three-point advising model composed of program-specific Academic Coaches, One Stop Student Services Specialists, and Tutorial Faculty. Our program's Academic Coaches provide administrative academic guidance and motivational support to students, One Stop Specialists guide students through all financial processes, and Tutorial Faculty are readily available to guide students through any curricula questions. Additionally, institutions may wish to evaluate existing online support services, such as remote tutoring services and library support, already in place that could be used by students in a virtual CBE program.

The IHE should determine how to measure and show student success in the CBE program. In the MyPath program at UMass Global, we actively track data points involving student retention, student progression and pace through academic sessions, graduation rates, conversion, and revenue from tuition paid. Managing this process internally allows our team an in-depth look at trends which can be indicative of overall student success and the health of our program. Since the most flexible self-paced, direct assessment models allow students an indefinite amount of time to master CBE coursework, we recommend that the implementing IHE determine how to set rules and standards regarding sufficient academic progress. For example, in building policies for the new CBE program, consider if students must meet set benchmarks or deadlines of academic progress, or show a certain amount of degree completion or completed coursework within an established timeframe.

Addressing Financial Challenges

Although most CBE programs are eligible or can gain eligibility for Title IV funding or other financing methods such as military benefits, those programs are typically structured around and are most compatible with credit-hour based programs and associated tuition models. Institutional staff involved in the implementation and management of the CBE program should be prepared to work closely with the IHE's financial aid department as a critical area of collaboration to gain an in-depth understanding of how financial aid will be awarded and applied to self-paced, non-term academic sessions.

Traditional financial aid models may be typically based on enrolled credit hours, letter grades, GPA, and standard academic progress requirements. Furthermore, "all you can (compl)eat" subscription-based

CBE models may involve tuition being billed at a flat-rate amount, rather than itemized or per-credit, which does not always easily align with financial aid practices, military benefits, and other methods students may use to finance their education. IHE's will need to consider how to structure their tuition billing for CBE programs early on in consideration of the methods of payment and financing that students will be most likely to use. The advising and student support model at UMass Global allows our student-facing staff to develop proficient knowledge of how federal funding is applied to competency-based sessions, which becomes important in coaching students through any financial roadblocks or confusion they may encounter. For institutions looking to adopt a similar advising model, we would highly recommend on-going training and collaboration between student services staff and financial aid administrators.

Virtual Student Support

Just as internal business processes need to be reimagined to serve CBE needs, so must student support services. The typical student population in CBE programs are non-traditional age students, because CBE programs allow adults to manage school on their terms. Self-paced programs allow adults to manage full-time work, family obligations, community involvement, and school without having to rearrange much of their lives to accommodate a traditional school schedule. The same concepts driving the CBE program model should be considered for student support services.

Academic coaching services, financial aid services, faculty involvement, tutoring services, and disability services should all be offered in a virtual format that allow students access on the student's terms. Additionally, the non-traditional nature of CBE programs and student population call for a non-traditional approach to staffing the services needed. Faculty and staff will need non-traditional work schedules to accommodate the needs of students on the students' terms. Just as students are unable to attend class during their work hours, they cannot be expected to take advantage of such things as tutoring services during those same working hours. Offering staff a non-traditional schedule can benefit the university in two ways. First, it allows faculty and staff to meet the students' needs when the students need the service. Additionally, virtual services can be provided from anywhere, and a remote work agreement with a flexible schedule can be considered as part of an employee's benefit package. Much of today's workforce appreciates the opportunities remote work provides and it allows the university to hire and retain top talent from anywhere. This arrangement is a win-win-win for students, the university, and faculty and staff.

A virtual model of student support also allows an institution to develop virtual student communities. Most adult students tend to avoid student communities on traditional campuses due to their focus on traditional age students' needs. However, virtual student communities can be an opportunity for adult students to take advantage of a support service on their own terms. CBE programs are very individualized. Students move through the program at their own pace and would not connect with peers in a classroom, virtual or otherwise. Virtual platforms, such as Slack, Facebook, Twitter, What'sApp, Discord, or communication features within the already used student learning platform can be utilized to help students connect with their peers. Regardless of age, students are interested in who their peers are and how they are doing in the program. Students can gauge their own progress compared to how fast or slow their peers are going. Connecting with peers provides motivation, accountability, camaraderie, and a sense of community. Virtual student communities help students identify as a student, rather than simply identifying as someone who is just going to school. Being able to identify as a student allows one to build habits of that identity and become more likely to succeed (Clear, 2018).

Regular Meetings with Key Players

During the implementation process, frequent meetings with departmental leaders are necessary to discuss barriers and strategies to overcome those barriers. It is often said in the UMass Global MyPath department, the program is a square peg trying to fit into a round hole. This is due to the non-traditional nature of the CBE model trying to fit into the traditional processes and systems built for term-based programs. For example, the financial aid software used by UMass Global, Regent Education, has had a challenging time adjusting to tracking CBE students. Regent's programming was written to accommodate traditional term-based data and adopting the non-term-based tracking needs of CBE took much time and effort between MyPath staff, financial aid staff, and Regent programmers. Regular meetings allow departments to break down silos by sharing information regarding the resources needed to adopt the CBE model within the financial aid department.

Regular meetings with key players at UMass Global consisted of each department within the university system; Admissions, Enrollment Services, Academic Coaching, One Stop Student Services, Academic Program Specialists (Transfer Articulation), Marketing, the Executive Vice Chancellor for Enrollment and Student Affairs, and the Vice Chancellor for Enrollment and Student Success. Weekly meetings included department leads giving updates on CBE integration, barriers faced, and resources needed for solutions. At times when a department leader felt like they did not have a solution, executive leadership would step in to secure necessary resources, allowing the CBE program to thrive.

CONCLUSION

The purpose of this chapter was to identify potential barriers and roadblocks that may prevent institutions of higher education from moving past the aspirational and implementational phases of offering a competency-based education program. The landscape of higher education is changing, and student needs are evolving beyond what traditional educational models may be able to meet. Competency-based education programs have the potential to give colleges and universities the opportunity to meet the needs of diverse groups of learners by offering flexible, timely, and low-cost degree options.

The findings gathered in this chapter through research and professional experience show that institutions seeking to implement a CBE program must be prepared to tackle unique challenges, but that the endeavor will be worthwhile. We hope that the recommendations and experiences shared here will inspire and help other colleges and universities in their future CBE projects. Implementing a CBE program can be a challenging and daunting task but can also allow institutions to engage their students in innovative programs with an eye on the future of higher education. Asking key questions, assessing organizational needs and readiness, fostering a culture of collaboration and innovation, remaining patient and flexible, and keeping the needs of students, staff, faculty, and key stakeholders in mind will help contribute to implementation success and beyond.

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Chapter 11

Enabling Lifelong Learning in California Community Colleges: Coordinated State and Local Efforts

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ABSTRACT

Creating flexible pathways for students, especially those who are caregiving, balancing working and learning, and/or acquiring skills and knowledge outside of classrooms, requires coordinated state- and college-level actions. This chapter describes how the California Community Colleges Chancellor's Office and its supporting Success Center, undergirded by the system's north star, the Vision for Success, established an infrastructure of policy and resources at the state level, especially through credit for prior learning and competency-based education, to enable colleges to better support students' lifelong learning. Colleges such as Shasta College leveraged these pre-conditions to advance new reforms and accelerate existing ones to transform student journeys.

Janet Hubbert left the University of California - Berkeley at age 19 when she was placed on medical leave due to mental health. Returning home to her parents was not an option, and she found full-time employment to support herself. Every time she thought about going back to school, the financial burden loomed over her, and Janet knew her education was no longer in sight. So, she settled down and started a family. Janet stopped working when daycare became too expensive; she wanted to return to school but wasn't sure how to start. "I went back to being a stay-at-home mom with no education, no degree, no anything," she said. "The big question for me was, can I afford to [go back to school]? Do I know what I want to do?" Janet found the **Accelerated College Education (ACE) Program at Shasta College**,

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specifically designed to help adult learners balance education, work, and family obligations. Inspired by the level of commitment of ACE’s counselors and other staff to the students, she earned a temporary part-time position as a student success facilitator for the ACE program—a role she had not imagined for herself, but which she found she loved. “It’s rewarding for me. I know where they’re coming from, I know their struggles. And students know that,” said Janet. “I’m not just saying, ‘oh, you’ll be fine.’”

In 2018, the California Community Colleges Chancellor’s Office, with the support of the Success Center at the Foundation for California Community Colleges¹, initiated two strategic innovations to create more flexible and personalized pathways for adult learners² like Janet Hubbert: 1) save students time and money by offering credit for the college-level skills and knowledge that students acquire outside of college classrooms (credit for prior learning, or CPL); and 2) make programs more accessible by modularizing learning and enabling students to demonstrate mastery of content at their own pace outside the confines of the traditional credit hour (direct assessment competency-based education, or CBE) (Burnette, 2016; McDonald, 2018; Parsons et al., 2016;). Driving these efforts was the *Vision for Success*, a set of bold goals and core commitments guiding California community colleges to center students’ experiences in the design of pathways, policies, and processes.

This chapter first describes the California Community Colleges system, its students, and the imperative to create flexible pathways for students and the state. The chapter outlines concepts established in research about the needs of adult learners, evidence for CPL and CBE as promising practices, and conditions necessary within higher education systems to transform institutions. The literature helps explain why the Chancellor’s Office and Success Center prioritized actions at the system level first to create flexible pathways through CPL and CBE. The chapter next describes what actions the Chancellor’s Office and Success Center took to lay a policy and resource infrastructure for CPL and CBE, and early results of how the colleges are responding by implementing these reforms. The story of these system-level actions is told through the lessons learned, such as why it was important for the system to leverage actions of the state legislature. The chapter continues with an overview of Shasta College as a pilot college implementing CPL and CBE and as a leader in creating flexible pathways for students like Janet. The lessons may support other systems seeking to take similar actions.

BACKGROUND

About California Community Colleges

California leaders established community colleges as the most accessible higher education segment for students from all backgrounds, ages, socioeconomic status, and lived experiences (California Department of Education, 1960). The California Community Colleges system comprises 116 colleges governed by 73 districts with locally elected boards of trustees. District boards approve local policy and set student success goals. The system is overseen by the Chancellor’s Office, which has about 140 staff in nine divisions providing support to the colleges, overseeing compliance, and reporting to the state. The Chancellor’s Office receives guidance from its Board of Governors (“board”). A system-level Academic Senate represents unionized faculty, with local branches of this Academic Senate representing faculty across colleges. As part of a participatory governance process, a Consultation Council that includes representatives of the Academic Senate reviews proposed policy changes before they are presented to the board for approval. In this decentralized system, the Chancellor’s Office works in concert with fac-

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ulty and other representative associations to establish policies and goals to support student success, but implementation is largely driven by local control. The California Legislature mandates many statewide activities and programs that are overseen and implemented by the Chancellor's Office.

California community colleges served about 2.4 million students in 2019-20; 42 percent are age 25 and over (Management Information Systems Data Mart, n.d.). The system's students are incredibly diverse in race/ethnicity, age, socioeconomic status, and life circumstances. About 69 percent of students are people of color from diverse race and ethnic backgrounds (California Community Colleges Chancellor's Office, n.d.). Nearly 1 in 10 students is a parent who applied for financial aid (Reed et al., 2021). About one-third of students took a full-time course load of 12 or more units in the 2019-20 academic year (Management Information Systems Data Mart, n.d.).

In 2017, Chancellor Eloy Ortiz Oakley and the board introduced a strategic plan that catalyzed significant transformation at the system and institutional levels. The *Vision for Success* set goals and core commitments centered on equity and the student experience, aligned with California's workforce needs (Table 1). Each district set local goals aligned with the state *Vision for Success* goals, and Guided Pathways was established as the framework for implementation (Figure 1). A key element of Guided Pathways is that it empowers colleges to establish practices that work for their students and communities. Therefore, while many policy, fiscal, and program reforms are begun at the state level, such as developmental education reform, implementation of these reforms can look very different across colleges due to Guided Pathways and a decentralized governance structure.

The system's actions are driven by the *Vision for Success* but are also closely aligned with the priorities outlined by the governor's *Recovery with Equity* post-pandemic roadmap to focus on those without postsecondary credentials—especially from historically underserved and marginalized communities—who may need to upskill or reskill to compete in today's workplace (California Governor's Council for Postsecondary Education, 2021). There are more than 6.8 million Californians aged 25-54 without postsecondary degrees (California Competes, 2020). More than 4 million of those Californians without postsecondary degrees are people of color. Helping them access high-value postsecondary credentials will serve the state's workforce needs and will help colleges close persistent equity gaps. The Chancellor's Office continues to emphasize the urgent need to dismantle racist structures to close equity gaps, as outlined in its "Call to Action" after the murder of George Floyd in 2020 (California Community Colleges Chancellor's Office Executive Office Memo, 2020) and continues to prioritize Diversity, Equity, Inclusion, and Accessibility efforts (California Community Colleges Chancellor's Office, n.d.).

Research Outlines Barriers for Adult Learners and the Role of System Leaders in Transformational Change

Within this framework of the *Vision for Success*, Guided Pathways, and state priorities, the Chancellor's Office and Success Center in 2018 began to consider systemwide actions that could better meet the diverse needs of students, especially adult students (age 25+) and younger "adulting" students who have unique life circumstances that the research has shown can be barriers to completion. Settersten and Schneider (2018) found that responsibilities like parenting or caregiving and working full-time increase the opportunity costs of higher education, which can become a barrier to completion. Reed et al. (2021) found that student parents, on average, have greater financial need than non-parenting students, attempt and accumulate fewer credits per term, have slightly higher GPAs than non-parents in their first year, and are less likely to enroll full-time, persist from year to year, and earn a degree or certificate. Horn

and Carroll (1996) found that part-time students are less likely to complete their degrees in five years. They are also ineligible for some financial aid programs (Settersten & Lovegreen, 1998) which can also negatively impact their outcomes (Bettinger, 2004). Davis et al. (2022) found that students identified three main reasons for leaving college: 1) needing to find employment to meet their basic needs, 2) raising and supporting children and a family, and 3) reprioritizing work, family, and school. Students identified what they needed to be successful when returning: 1) flexible course offerings, such as evening and online options, 2), the option of earning credit based on skills they have already learned, such as through credit for prior learning (CPL), and 3) assistance from academic advisors or counselors who understand and can support their needs. Horwitz and Stevens (2021) posit that over the course of longer lives, humans

Table 1. California Community Colleges vision for success

Systemwide Goals (2017-2022)	Core Commitments
1 Increase completion of degrees, credentials, certificates, and job-specific skill sets by 20% between 2017 and 2022	1 Focus relentlessly on students' end goals.
2 Increase transfers to University of California and California State University by 35% between 2017 and 2022	2 Always design and decide with the student in mind.
3 Decrease the average number of units accumulated by associate degree earners to 79 units by 2022 (down from an average of 87 units in 2017)	3 Pair high expectations with high support.
4 Increase the number of exiting CTE students employed in their field of study to 76% by 2022 (up from 60% in 2017)	4 Foster the use of data, inquiry, and evidence.
5 Reduce equity gaps by 40% across all the above measures by 2022, and fully close those gaps by 2027	5 Take ownership of goals and performance.
6 Close regional gaps across all of the above measures by 2027	6 Enable action and thoughtful innovation.
	7 Lead the work of partnering across systems.

(California Community College Chancellor's Office, n.d.)

Figure 1. Policy, fiscal, and program reforms are aligned through the four pillars of the Guided Pathways framework to impact Vision for Success goals and students (California Community College Chancellor's Office, n.d.)



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are more likely to transition among different jobs, requiring them to acquire new knowledge and skills throughout their lives. As colleges seek to welcome returning students, leaders must tailor programs and services to meet their unique needs.

A landscape analysis by the Success Center identified many challenges for adult learners in California community colleges, where most policies and practices are geared toward students following a linear, school-to-work pipeline. With equity gaps persisting and an economic imperative to help more Californians earn a degree, Chancellor's Office leaders wanted to enable education to be more of a continuum over a lifetime versus something that a student experiences post-high school and pre-career. In considering the scope and depth of actions, system leaders relied on evidence that identified best practices in creating flexible pathways and literature related to transformational change in higher education.

CBE and CPL Emerge in Research as Leading Practices

Evidence demonstrating the benefits of CBE was compelling. Research centered on adult learners suggested that CBE programs provide better social, academic, and professional outcomes for their students compared to traditional four-year pathways (Decelle, 2016; Kim & Baker, 2015; Navarre Cleary & Breathnach, 2017; Parsons et al., 2016; Rivers & Sebesta, 2017). Parsons et al. (2016) also found that because CBE programs are more directly associated with college and career readiness and flexible course pacing, CBE students show higher changes in intrinsic self-management, motivation, and cognitive control, which benefit them in situations and environments outside of the classroom setting (Redding & Surr, 2017). Ultimately, this enables them to complete their programs with higher satisfaction rates, better grades, more confidence about the next step in their professional careers, and improved ability to find a job with a significant wage increase (Kim & Baker, 2015; Lopez et al., 2017).

California community college leaders centered their research on direct assessment CBE because it enabled colleges to completely redesign the student experience by offering a more equitable and flexible learning modality (Brunette, 2016). CBE programs can help students overcome discrimination, oppression, bigotry, and biases that are barriers for students from minoritized communities (Lopez et al., 2017). CBE offers learning opportunities that are structured to provide meaningful and measurable competencies and assessments that align program content with the real-time needs of employers (Krauss, 2017). It offers adult learners a transparent and straightforward credentialing pathway with flexibility and a personalized format (Krauss, 2017; Mayeshiba et al, 2018). Lastly, CBE creates a learning environment that engages adult learners and prepares them for graduation and future educational and employment opportunities (Krauss, 2017).

Research on CPL also demonstrated strong benefits for adult learners. CPL is college credit earned for college-level skills and knowledge attained outside of classrooms, such as through military or workplace training, public service academies, industry credentials, and/or volunteer/civic service. Students who earn CPL units are more likely to complete degrees than their peers who do not participate in CPL (Hayward & Williams, 2015; Klein-Collins & Hudson, 2017; McKay et al., 2016; Rust & Ikard, 2016), even when accounting for selection bias (Klein-Collins, 2010; Klein-Collins & Olson, 2014;). Students earning CPL units persisted two times faster and had 50 percent lower attrition rates than their non-CPL peers (Klein-Collins, 2010; Klein-Collins & Olson, 2014; Plumlee & Klein-Collins, 2017; Rust & Ikard, 2016). On average, students who receive CPL complete more units at an institution than their counterparts who do not receive CPL (Klein-Collins et al., 2020). In addition, Klein-Collins et al. (2020) found

that CPL was a particularly effective tool in increasing educational attainment of veterans, who remain a priority affinity group for the Chancellor's Office and the state legislature.

While strong evidence supported CBE and CPL as promising practices that provide more flexible pathways for learners, the Chancellor's Office and Success Center knew that implementing these transformational practices would require significant shifts in policy and culture. Research established the critical role of leadership in implementing innovative teaching and learning practices or policies. Harper and Hurtado (2007) describe transformational change as a holistic institutional, cultural upheaval that must be guided by key administrative leadership. Support from leadership allows for the redesign of policies, practices and the promotion of behaviors that change the status quo (Burnette, 2016; Nodine & Johnstone, 2015). Transformational change disrupts the foundation of a system and leads to opportunities for creativity and the creation of new systems (Hecht, 2013). The ability of any organization to create change is limited by existing policies, practices, and resources (Kania et al., 2018). Therefore, leaders, specifically visionary leaders who wish to lead transformational change, must dedicate their time to bring people with diverse perspectives and roles to work collaboratively and be comfortable taking on the role of norm-setters and norm-breakers (Hetch, 2013; Simsek, 2013). Furthermore, transforming a system is about transforming relationships and bringing people into a relationship for collective impact (Kania et al., 2018). In a study exploring the pressing issues faced by leaders and the transformational leadership practices needed to address those issues, Basham (2012) found that a barrier to change is the historical structures of culture, and leaders must demonstrate a strong commitment to persistence to motivate stakeholders to advance innovation and change.

System-Level Actions Aim to Lay a Foundation to Transform Student Experiences

Based on the literature, Chancellor's Office and Success Center leaders knew that CPL and CBE were monumental shifts that would be most successful if initiated at the system level but activated collaboratively with faculty and college leaders. Further, true transformation for students would require implementation with fidelity at colleges, due to the system's shared governance culture.

Leaders of the CPL and CBE efforts, including the authors, learned a great deal about the challenges and opportunities of driving these reforms at the system level, particularly in a decentralized system where faculty associations had not long ago expressed discontent with system-level actions. Bold leadership from the Chancellor's Office provided space to take risks with these initiatives, to approach them more collaboratively than had been done before, and to measure progress by the development of local policies, processes, and resources. Implementation teams are still learning and are deep in the thick of activating reforms but have achieved tremendous success and learned a few things along the way about centering working learners. Most importantly, they have learned that improving student success often requires a coordinated effort at the state and local level: state leaders may start the race by establishing a policy and resource infrastructure that enables the change they wish to see for students, yet faculty, staff, and college leaders must grab the baton, leveraging state actions and driving changes that meet the unique needs of their students, local economy, and community.

The next section tells the story of the CPL and CBE initiatives through the lens of lessons learned so far.

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Table 2. Differences between credit for prior learning and competency-based education in California Community Colleges

CPL	CBE
<p>Credit for prior learning is college credit awarded for validated college-level skills and knowledge gained outside of a college classroom. Students' knowledge and skills might be gained through experiences such as:</p> <ul style="list-style-type: none"> • Military training • Industry training • State/federal government training • Volunteer and civic activities (e.g. Peace Corps) • Apprenticeships, internships, work-based learning, or other industry-based experiential learning 	<p>Direct assessment competency-based education is an intentional outcomes-based and equity-minded approach to earning a college degree in which the expectations of learning are held constant, but time is variable through a flexible, self-paced, high-touch and innovative learning practice.</p>

(5 CCR §55050; 5 CCR § 55270-55270.13)

LESSONS LEARNED

State Legislation and Budget Actions were Critical Levers to Advance Innovation

At the time of initiating the planning and policy development phase for CPL and CBE, the political context influenced the pace at which regulations could be developed and approved by the board. Leaders in the Chancellor’s Office leveraged state legislation, budget actions, and policymaker interest and support to advance the CPL and CBE initiatives.

Three bills initiated by the California Legislature influenced CPL. The bills were primarily driven by policymakers who sought to ensure that veteran and military students received credit for their skills and knowledge acquired through service: Assembly Bill 2462 (3 California Education Code §66025.7, 2012), Senate Bill 1071 (3 California Education Code §66025.71, 2018), and Assembly Bill 1786 (3 California Education Code §66025.7, 2019). These laws required the system to compile a list of courses for which veteran students could receive CPL, implement a consistent policy to award credit for veteran and military students using their Joint Services Transcripts, and expand the use of course credit at the California Community Colleges for students with prior learning.

These actions were necessary catalysts for the system, which had historically done a poor job of saving students time and money by offering credit for their pre-existing college-level skills and knowledge. For example, credit for prior learning was not a new concept to colleges when the bills were introduced. Regulation at the time enabled colleges to offer students “credit by exam,” whereby a student could work with a faculty member to test for course credit. Colleges also offered credit ad hoc for military training by evaluating Joint Services Transcripts. However, results of a statewide survey in 2018 revealed that use of these assessments varied widely by college and student utilization of these methods was very low. A student would face wildly different processes, prior learning assessment methods, and credit awards across the 116 colleges, which created significant inequities and placed undue burden on students. All evidence indicated that existing processes of awarding credit for prior learning were not equitably benefiting students. Therefore, the state legislation was a significant lever to develop a statewide CPL policy and pilot that could expand credit opportunities and make processes and credit awards more equitable for all students. At the same time, system leaders also leveraged philanthropic funds to support the CPL

initiative, significantly expanding the capacity of the system to act deliberately and collaboratively. The philanthropic funds also enabled the system to expand the policies and resources to support CPL for all students – not just military and veteran students as identified in the bills.

For CBE, the Governor’s 2020-2021 revised budget language set the expectation for California’s public postsecondary institutions to maximize access and equity through innovative practices such as competency-based education (California Department of Finance, 2020). The system used state interest in CBE as an opportunity to focus on direct assessment CBE for degree-applicable programs as this would support the statewide goal of increasing student degree attainment. In response to the state interest in CBE, the Chancellor’s Office presented a set of recommendations to the Board of Governors to encourage the use and development of direct assessment CBE programs (California Community College Board of Governors, 2020).

While state interest in CPL and CBE helped create a sense of urgency for the system, it also complicated efforts. For example, throughout the process the Chancellor’s Office had to navigate and manage legislative expectations regarding project completion and outcomes. The legislature wanted things done expeditiously and sought to see results right away. To address these concerns, the Success Center worked closely with the Chancellor’s Office Government Relations Division to keep legislative staff, the governor’s staff, and the Department of Finance apprised of progress, which helped mitigate further interference that might inhibit collaborative efforts. Multiple meetings and presentations to state policy staff were coordinated to be explicit about the objectives and expected outcomes. Legislation and state budget actions also created tension among faculty and other internal stakeholders who felt the innovations were being imposed on them as a state mandate rather than an institution-led innovation to better serve students.

State legislation and budget actions were ultimately a much-needed catalyst for the system. To mitigate any tension or complication caused by the state actions, the Chancellor’s Office and Success Center approached implementation of CPL and CBE much more collaboratively than had been done with past reform efforts, resulting in actions that informed the next lessons.

Data Built the Case for Transformational Change and the Redesign of Teaching and Learning Modalities

Chancellor’s Office and Success Center leaders knew that CPL and CBE would be difficult to implement because these modalities challenged long-held beliefs about teaching and learning. Therefore, the initiatives’ leaders established a theory of change substantiated by data: to meet goals such as closing equity gaps and increasing certificate and degree completion and placement in living-wage jobs, colleges must redesign teaching, programs, and pathways to meet the unique needs of vast numbers of current and prospective learners without postsecondary credentials. They relied on the following data points to guide the development of a set of principles to frame this work.

First, declining numbers of high school graduates in California could further erode enrollment in community colleges, as numbers are expected to decline by 2024, continuing through at least 2037 (California Department of Finance, 2021). To bolster enrollment, there is an “untapped opportunity” of 6.8 million Californians aged 25-54 without postsecondary credentials (California Competes, 2020a). Experts anticipate that these workers will increasingly require new skills to compete in the future of work (Ellingrud et al., 2020). Also, specific to workforce participation, adults in the “Baby Boom” generation will increasingly exit the workforce over the next decade and newer generations will need

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industry-valued credentials to acquire jobs with living wages (Fry, 2020). However, opportunities for this newer generation to acquire jobs with living wages are limited (California Competes, 2020b). For example, Black and Latino/a Californians experience disproportionately low educational attainment and are over-represented in low-wage jobs in fields such as construction and extraction, office and administrative support, transportation, and material moving, which significantly impacts their economic mobility (California Competes, 2020a). These Californians should be an important enrollment pool for community colleges, yet data showed that learners are increasingly turning to for-profit colleges that often offer expensive degrees that fail to hold value among employers (California Department of Justice, n.d.). While undergraduate enrollment in public community colleges declined by 9% in Fall 2020, enrollment in for-profit colleges increased by 3% (Cellini, 2021). As a result, the Chancellor's Office adopted the following principles to ensure that colleges can meet students most in need where they are:

- Without high-quality, affordable, self-paced options, millions of Californians, particularly those from historically excluded populations, will remain behind in educational attainment.
- Our institutions must evolve and innovate to meet the needs of students. Our current system is a mismatch for many working adults who need greater flexibility.
- We need to shift from a deficit mindset to an assets-based one that recognizes students' lived experiences, strengths, and capabilities.
- Evolution is necessary in order to fulfill the mission of the California Community Colleges and to meet the goals of the Vision for Success.

With strong evidence indicating that CBE and CPL could be a critical part of an excellence in education ecosystem within the system's Guided Pathways framework, the Chancellor's Office and the Success Center recruited stakeholders to drive implementation, which informed the next lessons.

A Collaborative Learning and Policy Development Approach Resulted in Successful Policy Changes

The expertise needed to successfully implement CPL and CBE resided in California's community college practitioners—mainly faculty—and therefore their partnership in establishing a policy and resource foundation were critical. The Chancellor's Office employed a collaborative learning approach, different from the way previous state-level workgroups, task forces, and committees had been engaged to drive reform.

Two separate advisory committees were established to drive the desired change. The CPL committee comprised approximately 20 leaders from across the state from diverse roles such as instructional and counseling faculty, registrar, chief instructional officer, president, dean, articulation officer, and student. The committee included representatives from University of California and California State University (four-year transfer destinations for the majority of California community college students) and from industry through the Los Angeles Chamber of Commerce. The state-level academic senate was also represented on the committee. This committee's charge was to:

- Advise the development of draft policy recommendations that would help the Chancellor's Office achieve a more consistent system-wide approach to credit for prior learning.
- Inform the development of resources, templates, and professional development to ensure more consistent practices across campuses.

For CBE, the California Community Colleges Curriculum Committee (5C) served as the advisory entity responsible for the development of a Title 5 regulatory structure for direct assessment CBE programs. A subgroup of the CBE committee comprised seven members representing faculty, academic administrators, service administrators, and curriculum specialists who worked closely with the Chancellor's Office and the Success Center to draft language for 5C to present as their formal recommendation to the board.

The committees for CPL and CBE were different from previous Chancellor's Office committees in the following ways:

- The participating stakeholders represented multiple roles at the state and college level, including faculty and students, as well as external and four-year partners.
- The committees were not assembled to comply with a mandate, as was the case with other initiatives, but rather to develop a common understanding of the problem and chart a path for the proposed solutions to be implemented in an equity-grounded, student-centered fashion.

In their roles, the committee members became liaisons with respect to CPL and CBE between colleges, the Chancellor's Office, state associations, and external partners. They became the subject matter experts within the system on these innovations.

Logistically, the committees convened over the course of 12 months, often in daylong meetings established as a safe space for dialogue, learning, and vetting. Because the committees included external partners and were supported by external subject matter experts (see next lesson), we normalized the expectation that stakeholders were learning from each other as much as they were learning together about new teaching and learning models. This approach helped to flatten any hierarchy within the task forces based on individuals' understanding of the issues. Each meeting included a learning component, followed by discussion or the application of the learning, and smaller group interactions. Participants were given pre-readings or assignments that they then collaborated on with other stakeholder types to encourage cross-pollination of ideas and perspectives. Stakeholders were encouraged to question and challenge assumptions, as well as raise concerns and fears.

This collaborative approach to stakeholder engagement helped committee members collectively learn, develop a shared understanding of the problems, analyze existing policies and practices, identify gaps, and draft new policies to achieve the solution they collectively envisioned. As a result, they took ownership of the innovations and did the hard work of vetting the proposed solutions. This buy-in was key to achieving the following outcomes:

- The CPL committee collaboratively drafted proposed language for a new state policy on CPL, which was adopted by the board in 2019 (5 CCR §55050, 2019). The proposed policy faced no significant opposition when it was reviewed by Consultation Council and approved by the board.
- The CPL committee collaboratively developed a proposed statewide definition of CPL, standards to guide local policy development, and recommendations for local policies based on best practice, which were codified in an implementation toolkit shared on the system's professional development platform (California Community Colleges, 2020).
- Based on recommendations by the 5C CBE committee, the board approved regulations to authorize direct assessment CBE programs in California Community Colleges (5 CCR § 55270, 2021). Table 2 outlines how the regulations define CPL and CBE. Table 3 describes the key elements of the regulations.

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- Importantly, the CBE regulations were adopted to enable a pilot, which would inform future revisions and program design. This is the first time the board adopted regulations to empower and inform a new approach rather than codify and mandate a set of activities.

Table 3. Key elements of revised CPL and CBE regulations

CPL (5 CCR § 55050)	CBE (5 CCR § 55270 et seq)
Create one policy that encompasses all prior learning assessment methods (expands beyond credit by exam)	Create greater flexibility for students and colleges
Requires students to be automatically referred for prior learning assessment if students 1) are a veteran or military student; 2) hold an industry-recognized credential; or 3) request credit for prior learning	Differentiate between direct assessment CBE and other programs
Requires CPL for general education or program courses first and electives as a last resort to mitigate award of excess, non-applicable credits	Enable colleges to maximize state and federal funding for CBE programs
Gives students an opportunity to accept or decline credit awards to mitigate impact on financial aid	Informed by national practices and standards for CBE and adapted to the California community colleges by aligning program and module quality standards to degree programs and degree-applicable credit courses
Requires that students who receive CPL have developed an educational plan, ensuring they received guidance from a faculty counselor	Center equity because they are designed around the student journey

Subject Matter Experts from Outside California Community Colleges were Key to Success

The CPL and CBE committee learning sessions were successful due to the contributions of subject matter experts and external partners. Implementing innovative programs can be a daunting experience for any postsecondary system office, but CPL and CBE were especially tricky because they challenged existing cultural and procedural norms. External partners played a key role in providing much needed capacity and expertise.

As a state agency, the Chancellor’s Office has limited staff positions and cannot add capacity for new initiatives, which too often can stunt innovation and reform. To boost their capacity, the Chancellor’s Office and Success Center engaged with reputable organizations with proven track records in higher education reform, CPL, and CBE. External partners helped develop content and design agendas for committee meetings, facilitated conversations, and contributed program design expertise. The partners also supported colleges in pilots, such as the following activities with the CBE collaborative pilot:

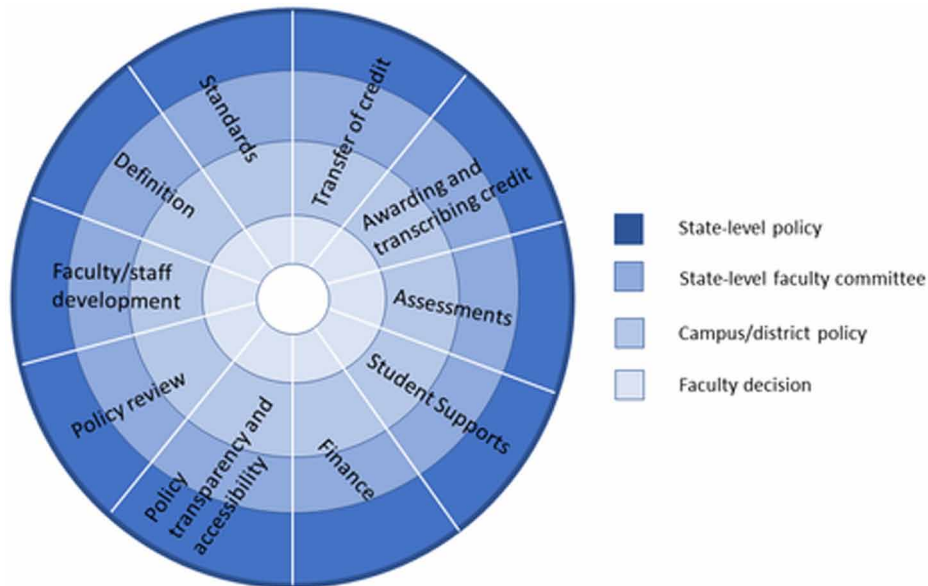
- Develop college programs centered around the student journey and key artifacts such as implementation team charters, competency statements, revising local policies, and onboarding plans.
- Create an organizational framework that incorporates peer learning sessions (six to seven per year) into phases of program development and create a Canvas Portal with exemplar artifacts, key documents, and content modules.
- Provide one-on-one technical support and ongoing feedback.

Support from a reputable partner organization gave the pilot colleges the confidence to be pioneers because they were provided adequate support and on-time interventions to be successful.

External partners also brought subject matter expertise and fresh perspectives. The California Community Colleges system was not the first to implement CPL and CBE and had much to learn from other higher education systems. Experts brought research-informed best practice ideas and helped the committees understand how they might adapt them to California’s context. As shown in Figure 2, one partner created a visual to help participants understand that components of CPL must be addressed at multiple policy levels – not just state policy. This helped mitigate concern among committee members that the system would over-step at the state level on a matter related to the award of credit, which is traditionally within faculty purview. Partners also lent their expertise to review documents and college artifacts. The benefit of having external partner organizations is that it challenges perspectives and assumptions while allowing both the internal planning team and the collaborative pilot colleges to think outside the box.

External partners have also been engaged to help evaluate the initiatives. For example, the Chancellor’s Office partnered with RAND Corporation to conduct a mixed-method evaluation of CBE implementation both from the college and system perspective. The Chancellor’s Office will apply the learning to continuously improve implementation.

Figure 2. The Success Center and JFF developed for the CPL Advisory Committee a framework of components related to CPL that are typically addressed by policies at the state, district, or institution levels. At committee meetings, the initiative team provided background on each component, contextual information related to California’s higher education systems, policy alternatives to address the component, and examples of how other states address the component. (California Community Colleges, 2020a)



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Finally, it was important that key partners supported the committees from a neutral position. The partners facilitated difficult conversations among committee members, especially in the early learning phases as stakeholders challenged assumptions and long-held beliefs about student learning. They helped stakeholders communicate effectively, calmed tensions, facilitated shared understanding, and kept participants moving forward.

To date, the colleges still have questions about CPL and CBE and the system does not have all the answers. A shared learning process supported by vital external expertise is the path to co-creating those answers.

Implementing Innovation Requires Funding to Support Experimentation

As noted previously, the peer learning approach for the CPL and CBE committees was instrumental in setting state-level policies. The Chancellor's Office similarly took an innovative, peer-learning approach with respect to local implementation.

Historically, funding had been provided to colleges in exchange for compliance in implementing new initiatives. In CPL and CBE, the Chancellor's Office took an asset-based approach by funding pilot colleges to develop critical processes and resources to enable scaling. Seed funding was provided to support pilot colleges in CBE and CPL for two reasons. First, innovation is not possible if faculty and staff with the expertise needed are unable to participate and be compensated for their time. Second, in providing colleges with funding, the Chancellor's Office wanted those involved to become peer leaders and change agents to support full implementation at scale. Having trusted partners leading innovation and sharing best practices allows the system to grow its own cohort of experts.

A small number of colleges established contracts with the Chancellor's Office with the understanding that they would need to invest additional funding to launch and sustain the program. Funding was provided with clear expectations that colleges would submit artifacts such as evidence of local policies passed, processes established, meeting minutes, and implementation committee charters. This encouraged colleges to take seriously the responsibility to implement innovative teaching and learning modalities.

Pilot colleges helped inform developing policy by testing out practices and engaging stakeholders at their colleges to provide feedback. Change agents from those colleges continue to lead professional development activities across the system with additional funding from the Chancellor's Office. For example, one college funded to be a CPL pilot was instrumental in developing artifacts for the CPL policy implementation toolkit (California Community Colleges, 2020) and built a comprehensive CPL website that continues to be an example for other colleges (Palomar College, n.d.). The college's CPL team pioneered issues such as how to include CPL assessment methods on transcripts, which required them to hire technology support to adjust their data systems (which would have been difficult, maybe impossible, without pilot funding). In addition to making countless presentations on CPL at system-wide meetings, the team continues to hold monthly "office hours" where other practitioners implementing CPL can drop in and ask questions. As a result of the state policy and implementation support, all districts have established local CPL policies aligned with the state policy and are in the process of changing students' experiences. The CBE collaborative pilot is still being activated and includes eight colleges implementing CBE in eight pathways.

In the CPL and CBE initiatives, the Chancellor's Office modeled risk-taking to encourage colleges to similarly innovate without fear of failure. Implementation of these reforms is not nearly complete, and the Success Center and Chancellor's Office continue to learn and support colleges as they do the

hard work of adopting aligned local policies, changing back-office processes, developing procedures for students and staff, and monitoring effectiveness through data. This work is being led by the pilot colleges, and one college was instrumental as a pilot in both the CPL and CBE initiatives. The case study that follows demonstrates what it takes for a college to leverage system-level reforms and implement in a way that works best for their unique students and communities.

LESSONS LEARNED IN CREATING FLEXIBLE PATHWAYS FOR ADULTS: A CASE STUDY OF SHASTA COLLEGE

Leaders at Shasta College, through their work with a collective impact organization, North State Together, knew that they had to increase educational attainment in northern California communities by creating flexible pathways for learners. Shasta College sought to leverage the policy and resource structure established by *Vision for Success* reforms, which empowered them to take risks with innovative teaching and learning models for adult learners. As a pilot, they received funding that enabled student-centered design of reforms and opportunities to be a peer leader to scale best practices in CPL and CBE.

Shasta College is part of the Shasta-Tehama-Trinity Joint Community College District and is the only public postsecondary institution in a 10,132 square mile, rural region of northern California. Shasta College's main campus is in Redding, but the college serves a three-county region through extended education campuses and online instruction in Tehama County, Trinity County, and far eastern Shasta County. Like many rural-serving community colleges, Shasta College has a broad mission beyond just a postsecondary education provider. Shasta College is active in workforce development efforts and is committed to cultivating relationships that enhance individual, economic and community growth.

Shasta College is currently a member of the CBE pilot project and was a leader in the CPL pilot. This case study includes a reflection back to pre-2016 and contrasts the college's experience then with what has occurred since the *Vision for Success* was implemented and the CPL and CBE initiatives opened doors for a new, more flexible way of serving adult learners.

Data Revealed a Need to Better Serve Adults with Some College but No Degree in Northern California

In 2012, a partnership with the Shasta County Public Health department prompted campus-wide reflection and subsequent changes in Shasta College's operations. The Public Health Department named the region one of the "least healthy" regions in California, and these health indicators were directly correlated with low postsecondary attainment rates. Data revealed that the north state had one of the highest percentages of adults in the state with some college but no degree—nearly 1 in 3 adults in the region compared to 1 in 5 adults state-wide (United States Census Bureau, 2019). This was a wakeup call for Shasta College and prompted its leaders to think differently about the programs and services that the college offered.

Prior to this, as the only public, postsecondary provider in a vast region, Shasta leaders had a level of complacency in how they delivered services. As the "only game in town," they had a high enrollment rate with students transitioning from the local K-12 schools, and good relationships with employers, but they had not done a great deal of reflecting on their delivery model or how their community demographics were changing. Shasta College began to look at how they could engage more students, especially adults, with a theory of change that higher education can serve as a lever for individual and community health.

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Interviews, surveys, and focus groups of adult learners revealed gaps at the college in serving students that were working full time and/or had parenting responsibilities, including limited access to courses and support services. It also emphasized the reality that Shasta College needed to rethink their service models. The average age of students was older, yet their models were built for a student demographic that was 18, transitioning out of high school, and able to take courses during the day.

The data and partnerships stimulated the reflection and the need for change, but early attempts to enhance services for adult learners were challenging. Courses were predominantly offered face-to-face at the main campus, limiting access for working adults and students from outlying parts of the large, rural region. Students often tested into remedial math and English, which added more courses and time to degree and limited student success. CPL, CBE, and other modalities that provided flexibility for adult learners were minimally understood in 2012 and conversations about any alternative delivery methods were nascent on the campus. Because funding mechanisms at the time focused on attendance, colleges were not incentivized to advance completion.

Despite challenges, Shasta College was committed to local reform. Dr. Joe Wyse, the new President/Superintendent at the time, challenged the campus community through a new Vision Statement which forecasted the intention that “Shasta College is a nationally recognized model community college engaging its communities through innovation in student learning and growth” (Shasta College, n.d.). The campus rose to these challenges with engagement by faculty, staff, and administration and a deep commitment to partnerships. The college attained philanthropic funds to join national networks for community partnerships, analyzed data and best practices focused on adult learners, and reflected on how existing practices aid or hinder working and parenting adult students. Becoming recognized for its reform efforts, Shasta College earned three Innovation Awards through the California state budget in 2015 to create more flexible pathways for adult learners, build dual enrollment pathways for K-12 students, and expand access to degrees for court-involved adults.

Accelerated College Education (ACE) Provides Support and Stability for Adult Learners

One of the Innovation Awards helped fund the Accelerated College Education (ACE) program at Shasta College, designed for people who are working and/or have family responsibilities but would like to attend college full-time, have a predictable schedule, and receive tailored support. ACE originally featured compressed coursework that was hybrid (in-person instruction in the evenings, plus online instruction) as well as fully online. Along with individualized support tailored for adult learners, ACE offers “the five Cs”: consistent schedules, comprehensive pathways, compressed classes, community, and case management. Based on student feedback, the model has now evolved to feature eight-week compressed classes that are fully online. This structure allows a student to complete their certificate or degree within 4 to 24 months. Importantly, restructuring the curriculum in this way enables ACE students to be considered full-time students, which gives them access to financial aid and other extensive resources available only to those with a full academic load. This significantly expanded opportunities for adult learners.

ACE was a new model on campus and therefore was a challenge to implement. College leaders overcame this by incorporating activities that were already happening on campus. For example, many faculty had been teaching compressed courses through summer school and ACE’s leaders used those models to build its courses; many categorical support programs on campus already used a cohort model with case management and those practices were applied to ACE; comprehensive degree pathways existed in career

and technical education programs, and they applied that approach to other programs in ACE. Leaders prioritized open communication with department-level faculty and the Academic Senate.

Despite growth in retention and completion, barriers to progress still existed. For example, Shasta College's existing math and English placement rules meant that more than 90 percent of ACE's first cohort were placed in remedial math. This would make it nearly impossible for adults to finish within the condensed time. Also, in their work with returning adults, they found that many brought a wealth of skills and knowledge from their careers, but credit for prior learning was not yet institutionalized at Shasta College. A perfect example was an individual who had been a Chief Business Officer yet was required to take an Introduction to Accounting class. The college yet lacked the policies and procedures to assess this student's skills and knowledge and compare them to course outcomes.

At the time, ACE was serving a relatively small number of students. College leaders knew that their innovation was powerful, but the principles of this service model could not be scaled in a systematic way. They became increasingly aware that they were making the changes that they could, but that lasting change needed to be a combination of campus-based change and statewide policy reform.

State-Level Reforms Helped Shasta College Accelerate Institutional Change

With the introduction of the *Vision for Success* and related reforms in 2017, Shasta College leaders gained a powerful voice, support, and resources from the state level to assist it with its goals. The introduction of the *Vision for Success* provided a clear north star, shared measurements, and clear expectations for the system. The goals greatly influenced how the college thought about its mission and work. In addition, the burden to mitigate some of the thorniest regulatory barriers to flexible pathways was assumed by the Chancellor's Office. For example, developmental education was reformed through the passage of Assembly Bill 705, which enabled students to be placed directly into transfer-level math and English, solving one issue for ACE students (3 California Education Code §78213, 2019). The new Student Centered Funding Formula rewarded colleges for advancing equity and completion, which helped pave the way for colleges to move away from "butts in seats" funding and commit to reforms like CPL that increase completion. The commitment to engage statewide partners (including Academic Senate) in decision-making and ideation, such as through the CPL and CBE initiatives, ensured that faculty expertise and engagement were central to proposed policy changes led by the system office. Collectively, the state-level actions driven by the *Vision for Success* created a culture that engaged colleges as partners in transformational change, rather than mandating them to change, which was key to sustainability.

With the pre-conditions set at the state level, options for students fundamentally changed and Shasta College's commitment to innovation was able to flourish. Deeper understanding of the wealth of knowledge and abilities that adult learners bring to the campus prompted Shasta College to join the CPL and CBE pilots.

Pilots Help Shasta College Design and Scale Flexible Pathways

Although the CPL and CBE pilots operated differently and independently of one another, they shared some commonalities that were particularly beneficial to Shasta College. First and foremost, colleges received funding to participate. This provided Shasta College the flexibility to buy out faculty and/or administrator time to focus on creating resources and implementing the reform. Key stakeholders can meet monthly, and a coordinator ensures that all outcomes are met. The college's leaders created a Canvas

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page about CPL that could be accessed by any practitioner across the system looking to implement CPL. As a leader in career and technical education pathways connected to employers, Shasta College helped articulate for other colleges how CPL could be used to incorporate industry certifications and military service experiences for credit in pathways.

Second, colleges had access to national best practices and expert advice shared through the initiatives. As mentioned above, external subject matter experts helped Shasta College's teams learn about the experiences of other systems in implementing CPL and CBE. These experts help the Shasta College team rethink all operations at the college—not just the program pathways. CBE requires a complete paradigm shift to embrace that the learning is fixed and time is the variable, instead of the other way around.

Third, colleges in the pilot operated as a community of practice, collectively learning and sharing ideas and resources specific to California Community Colleges. For example, CPL pilot colleges shared their board policies and administrative procedures to help Shasta draft its own policies (Shasta College, n.d.). Shasta College engaged regional colleges in a community of practice, allowing smaller, rural colleges with less faculty and less administrative capacity to learn together and share tools and resources to assist in implementation. Shasta College is first learning and co-creating direct assessment competency-based education pathways in the Early Childhood Education Program and will soon add high-interest pathways such as Health Information Technology.

Shasta College's experience is that this approach—providing pilot colleges with funding, external partner support, and a community of practice—enables sustained, college-based change and provide a blueprint for scaling the work throughout the system.

Shasta's Flexible Pathways Work is Benefiting All Students During and Beyond the Pandemic

The results of the synergy and alignment between local goals and systems support has been powerful at Shasta College. ACE is no longer an innovation that lies on the fringe of Shasta College. The ACE team were leaders in ensuring that students had flexible pathways when COVID-19 forced the pivot to online learning. Prior to the shutdown, Janet Hubbert, the ACE program's student success facilitator, had become an expert in providing tailored, remote support for busy adult learners. Janet shared her expertise with other student success facilitators when the college switched to remote learning, and key elements learned through ACE, especially holistic wrap-around student supports, have informed the design of Shasta College's new Basic Needs Center. At the instructional level, several instructional programs, including Industrial Technology, Early Childhood Education, and Health Information Technology, are recognizing the instructional value of having students focus on only two classes at one time, which is a game-changer for adult learners. Those faculty are reconfiguring their coursework entirely in eight-week blocks, based on a cohort pathway.

Through its collaboration with key partners focused on centering adult learners, Shasta College is empowered to work with other colleges that seek to advance adult reengagement at their own institutions. To that end, Shasta College launched SCAILE (Shasta College Attainment and Innovation Lab for Equity), designed to explore where policy, practice, inquiry, and applied research can foster innovation in educational attainment and reduce equity gaps, especially in rural communities. The Success Center and SCAILE partnered to create a toolkit to help colleges explore how their policies and practices aid or hinder adult student success (SCAILE and Success Center, 2021). The goal is to help transform colleges

that remain grounded in policies and practices designed for younger students on the linear, outdated school-to-work pipeline.

CONCLUSION

California Community Colleges is one of the largest higher education systems in the world, has a decentralized structure with a strong culture of shared governance, and serves some of the most diverse, resilient, and committed students in the state. This work of redesigning policies and processes that center 18-to-22-year-old learners demands a partnership between colleges and the Chancellor's Office. Through the CPL and CBE initiatives, the Chancellor's Office and Success Center led regulatory changes and developed a resource infrastructure for colleges to create flexible pathways for students. The teams learned the importance of leveraging legislation and policymakers' attention to drive change; using data to create the imperative for reform; taking a collaborative learning and policy development approach with reforms that challenged deeply entrenched culture; engaging external partners for added capacity and neutral facilitation; and providing funding to seed reforms. The efforts also suggest that transformational change requires not only strong leadership, but also partnership: the system can race to reform by removing barriers through regulation, installing financial incentives, and providing resources, but colleges must grab the baton in the relay when it comes to local implementation.

Shasta College—just one example of a college that is leveraging the conditions set in place at the state level to benefit students—is fueled by the impact of efforts on students like Janet Hubbert, who has now completed a bachelor's degree and is working on a master's degree. She knows exactly how important flexible pathways like those in the ACE program and those being created by CPL and CBE are for adult learners. "ACE is here for students who work hard to provide for others but need someone to work for them," said Janet. "We offer hope for students who have fallen through the cracks, students who don't know where to start, and students who need validation that they belong here." On-going, coordinated efforts by the Chancellor's Office and colleges, bolstered by support from the California Governor and Legislature, will ensure that adult learners stay centered in future changes to policy and practice.

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ENDNOTES

¹ The Success Center is part of the Foundation for California Community Colleges, a non-profit auxiliary to the California Community Colleges system. The Success Center partners with the Chancellor's Office to implement reforms and, in some cases, leverages philanthropic funding to drive the efforts.

² All students aged 18 and older are adults. In using the term “adult learners,” we use age as a proxy to reflect the life circumstances that students aged 25 and older are more likely to face that may affect their educational journey such as caring for dependents (children, parents, siblings), being financially independent, and balancing working and learning. However, the policies, practices, and programs we design for “adult learners” are meant to support students of any age who share those circumstances.

Chapter 12

Alverno Accelerate: A Paradigm–Changing Program for Professional and Personal Success

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ABSTRACT

With 50 years of experience in outcome-based, assessment-driven education, Alverno faculty understand the value of student-centered learning as the cornerstone of curriculum design and pedagogical practice. On the scaffold of the authors' experiences as senior faculty in Alverno's curriculum, this chapter explores how pedagogical and pragmatic considerations helped the Alverno Accelerate design team create a program that carefully considers its participants and puts the learner at the center of learning. Alverno Accelerate lets go of many of the canon principles of higher education, welcomes unbundled credits and work/life experiences, and collaborates with adult learners on their individual journeys to their bachelor's degree.

MEET ERIKA

When Erika left higher education years ago, she was frustrated. She felt as if she'd "wasted [her] education" (White, 2020). Too much of what she was doing in the classroom did not meet her educational needs and too much of what she was doing outside of the classroom "didn't count." Yet, while she was juggling the needs of four children attending three different schools that all went virtual during the Covid-19 pandemic, Erika began to toy with the idea of returning to college to complete her bachelor's degree. More than ever, Erika needed a degree program that would fit her life as a single parent and an experienced learner. Erika had already been a student in three different universities where she earned a total

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of 78 credits. She needed a program that would both value and accept those credits and be flexible and accountable to her as a learner. Erika enrolled in **Alverno Accelerate**, a program that would do just that.

The Alverno Accelerate design team¹ had Erika and students like her in mind when we first explored what it would mean to create a degree program that honored the way adult learners, as Erika puts it, “think and interact” with the world, and that validated their past professional and personal experiences. Building on Alverno College’s fifty years of experience in outcomes-based, assessment driven education, the design team understood the value of student-centered learning as the cornerstone of curriculum design and pedagogical practice (Loacker & Rogers, 2005; Mentkowski & Associates, 2000). Our team was intent to apply our Alverno experiences with outcomes to create a program that encompasses diversity, inclusion, individuation, and affordability; welcomes unbundled credits and work/life experiences; and collaborates with adult learners on their individual journeys to their bachelor’s degree.

BACKGROUND

Alverno Accelerate launched in 2020 and is an innovative, fully online program. The curriculum is built around five program outcomes that reflect the fundamentals of liberal arts education and the skills that graduates need to be successful in the twenty-first century workforce. Incorporating concepts and frameworks from various disciplines, including the arts, humanities, psychology, business, communication, and science, students earn a bachelor’s degree in leadership. While the program is designed so that students can complete their degree in three years, Alverno Accelerate learners are encouraged to move through the program at their own pace. Learners are placed in the program based on their prior experiences and accumulated credits. They complete learning activities individually and asynchronously with faculty providing developmental feedback that students use along with their own self-assessment to deepen their understanding of themselves as learners, professionals, and leaders. Their demonstration of outcomes becomes increasingly individualized as they progress through the program. Students understand the relevancy of what they are learning by applying it in real life situations at their workplace, in their communities, and with family and friends. In one of her initial self-assessments for the program’s orientation, Erika wrote that:

[Alverno] Accelerate gives me hope that what I will be learning will be valuable to me as a person and to the way I think and interact with my world. When I was considering returning to school and joining a more traditional program, I was left feeling . . . like finishing my degree was basically just a big gesture of ‘going through the motions’ . . . this program is really going to add value to me as a person and the way I function in my life and the world. (White, 2020)

From the start of Alverno Accelerate’s design process, the faculty team set out to counter the all too visible and disturbing defects in American higher education. The American educational system was formed in the late 18th century as a foundation for the guiding principles of democracy: to educate a select few individuals, mostly white middle- and upper-class males, in the ideas of a free society and prepare them for participation in civic life (Shapiro, 2009; Stevens & Kirst, 2015). Since then, higher education has shifted from its purpose and has become narrowly career-focused, content-heavy, and financially out of reach for many. Higher education has tried to adapt to a changing student population, but its structures and methodologies have remained fixed in antiquated and racist structures (hooks, 1994;

Minnich, 2005; Rich, 1979). On top of the shift in higher education's civic ideals, higher education has moved to a business model of administration.

Alverno Accelerate is no ordinary online program where students are tethered to their computers for vast amounts of time. Accelerate students engage with their communities throughout the curriculum, which is made up of innovative Experiential Learning Modules (ELMs) instead of traditional courses. ELMs are rich, integrated outcome-based experiences that allow students to move forward in their learning with increasing depth across three levels: beginning, intermediate, and advanced. Each ELM takes a developmental, multi-disciplinary, community-based approach to acquiring the knowledge and skills to demonstrate the program's outcomes. Students achieve the outcomes through practice, repetition, and application in varied 21st century contexts.

The genesis of Alverno Accelerate's ELMs was to avoid traditional academic pre-conceptions of who our students are based on our own classroom experiences. Accelerate has multiple pathways for students to demonstrate the program outcomes. Instruction and demonstration of learning is conveyed through a diversity of texts (e.g., written, visual, audio) and modalities (e.g., interviews, walks in the community, observances of items in the kitchen, applications of theory). The team regularly revises ELMs to break away from the rigidity of using written texts and presenting online input via videos and to make sure that ELMs remain fresh and valuable to student learning.

Alverno Accelerate strives to create learning experiences that move students beyond the computer screen to engage with their community, family, and friends in their studies. To do this, each ELM contains a required civic engagement element that moves the learner away from their computer and into their community. For example, the communication outcome is reinforced by the individual and group interactions students participate in during their daily lives. In a beginning ELM, students learn about group behaviors and set up a conversation about a current issue with people they know. The assignment asks them to use specific criteria to evaluate the behaviors of those with whom they discussed the issue as well as their own participation. These behaviors are reinforced in an advanced ELM in which they coordinate a group interaction for a specific purpose and analyze their behaviors using advanced social interaction categories and emotional intelligence skills. In this advanced ELM, students study mindful communication, reflect, and report back on a conversation in which they intentionally employed those strategies. The integrity of the learning is affirmed by the engagement of outcomes and the assessments that show students the path to demonstration of learning.

BUILDING ALVERNO ACCELERATE USING PRINCIPLES OF ASSESSMENT AS LEARNING

Alverno's acclaimed outcome-based and assessment-driven curriculum was first imagined in the late 1960s to provide a just and equitable education that re-conceptualized learning to meet the democratic values originally espoused by higher education (Allen, 2016; Erlich, 2000; Mentkowski & Associates, 2000). Alverno's ability-based curriculum was intended to be a liberal arts education free of traditional biases, one that would educate all women regardless of background or previous experience. Based on a desire to disengage education from the prejudgments of professors who often evaluate student performance against their own successes and accomplishments, Alverno College developed a curriculum around these principles of assessment-as-learning. In this context, eight abilities (competencies in the current parlance) were identified to define what it means to be a successfully educated student.

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In various constellations at the advanced level, the eight abilities make up the college's graduation outcomes. Over the years, Alverno faculty articulated a set of developmental criteria for each ability to ensure that students could successfully demonstrate the ability through a developmental process in the context of specific disciplinary courses. Consequently, knowledge competency served the development of specific outcomes and specific outcomes served in the development of knowledge mastery. Periodically, criteria are reviewed and refined considering changing times and the distinct experiences and identities of students.

Alverno's clear philosophy of education, radical sense of fairness in implementing strategies for learning, and coherent curricular structure that guides students to graduation served the Alverno Accelerate team well when we began the design work. One of our first decisions as a team was to use our outcome-based and assessment driven pedagogy combined with online technology to create a curriculum for student-driven learning without compromising the value and integrity of a complex and robust learning environment (Savagian, 2009).

CREATING DEVELOPMENTAL OUTCOMES FOR A MULTI-DISCIPLINARY PROGRAM

After extensive research into the skills employers are looking for in the 21st century and thinking about what it means to be a citizen of the world, the team articulated five outcomes that would be crucial for a student to be a creative and moral leader in today's ever-changing world. Particularly strong attention was given to outcomes that would be important to lifelong learners like Erika, students who had a passion for bettering society and leading others in ways commensurate with their own personalities and values.

Each outcome of this multi-disciplinary program is scaffolded across the program's three levels: beginning, intermediate and advanced. These aspirational, multi-dimensional, and pragmatic outcomes include a focus on leadership for solving problems, critical thinking skills based on disciplinary frameworks for identifying and investigating issues in the world, and communication skills for speaking and writing effectively and creatively. They also center on identity and its importance for shaping perspectives and understanding worldviews. However, the outcome that is perhaps the most distinctive to Accelerate, and the one that captures the core of our collaboration with our learners through their implementation of a leadership initiative at the advanced level (more on this later in the chapter), is the fifth outcome of developing moral agency.

Using clear articulation of outcomes in the context of ELMs allows students to demonstrate their understanding in creative ways specific to their own learning. With clearly stated outcomes there is no guessing what is expected; students learn the meaning of outcomes as they find ways to articulate knowledge and explore meaning in a variety of contexts.

- Understands problems and leads groups to address them.
- Uses knowledge, frameworks, and theories to interpret the world.
- Professionally and creatively uses various modes of communication.
- Makes meaning out of the complexity and significance of diverse identities, perspectives, and ways of being.
- Develops role as a moral agent in the world.

Not only do these outcomes communicate to students what they are expected to accomplish over the course of their studies, but they also clearly express the relevancy of Alverno Accelerate for personal and professional development in their lives as students, working professionals, and members of their communities.

It is important to note here that outcomes must be measurable and teachable, incorporating an integration of processes or abilities with necessary content. This means that criteria for assessments within an ELM reflect Alverno Accelerate outcomes at explicit levels. Part of the design process for an ELM is to identify explicit criteria for an assignment; these are distinct from assignment directions. In working with criteria, the student not only learns to know and understand what it means to fulfill an assignment, but criteria give the learner the opportunity to demonstrate the outcomes in unique and personal ways. Alverno Accelerate's processes and pedagogy endorse and encourage unique student performances. For instance, in the ELM, "Investigating Mindfulness," the final assessment requires the student to create a PREZI that integrates their understanding of mindfulness in their personal and professional lives. The audience is faculty and students in Alverno Accelerate. Though the learner is given direction in terms of the structure (a PREZI etc.), they can produce whatever they want to demonstrate their grasp of the material in relation to the criteria.

USING OUTCOMES FOR CULTURALLY RESPONSIBLE CREDIT FOR PRIOR LEARNING

These five outcomes allow our team to think more broadly and to be more culturally responsible about credit for prior learning. Transfer processes that seek to match credits to existing courses frustrate and often defeat the efforts of many adult-learners because the requirement of additional courses is a costly burden. An essential aspect of Alverno Accelerate is that the program accepts all past credits a student completed from accredited institutions. This commitment to accept all credits earned from accredited higher education institutions led to challenging conversations about what constitutes college-level learning at Alverno and how the college evaluates prior learning from other institutions. As an example, we accepted all credits from a student who previously attended a technical college and brought in credits earned towards a plumbing certificate, allowing this student quickly to move from the beginning level of the program to demonstrating the intermediate level outcomes.

The transfer policy also includes a flexible and easily accessible process for prior learning credit. In the initial stages of their program students are encouraged to articulate how the work they may have done in their personal or professional life might address one or more of the outcomes of the program. Because students apply the language of outcomes to self-assess their unbundled experiences, they can substantively apply their prior learning in new contexts, specifically to the learning at hand. Using Alverno Accelerate's outcomes, learners build a narrative around their past and future learning experiences.

Meet Antoine

Antoine joined Alverno Accelerate with 84 credits from other institutions and several years as a community organizer. Through the transfer process and credit for prior learning, Antoine started the work toward his degree at Accelerate's advanced level. Antoine sought out Alverno Accelerate to help ground his organizing experiences with more mindful approaches and theories on leadership as well as to develop

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greater confidence in his communication skills. In a self-assessment on a capstone project, Antoine wrote that “[i]f there ever was a perfect storm to culminate in the person I felt I could be and catapulting that into real life,” it was the work he was doing for this project. He continued, “Every single book I read in that course gave me crucial tools to take what I felt I knew inside and provide language to that and other ideas that are now foundational” (Carter, 2021a).

Alverno Accelerate’s attention to the self-assessment of learners’ own values and the interrogation of their actions in the world through leadership theories brought Antoine’s community engagement into sharp focus. Antoine’s first module, “Investigating your Future,” introduced him to all five program outcomes through an application of frameworks from a variety of disciplines, all designed to help him think about his gifts, skills, and interests, as well as how to manifest them more fully in the world. Antoine noted in an intellectual autobiography that closed out his studies that,

this ELM really helped me take tools such as mindful communication and being intentional and intense in finding your dharma and apply them to my coworkers and partners. Thinking about things like having my cup full so that I can fill other people’s cups was a series of words before this class. Taking the time to give myself a mental break or to admit I’m not okay was viewed as a weakness before this class. Together these experiences bring out a man who has seen 1st hand what struggle looks like, who has learned about the struggle of others and who is using his best skill sets to make change and dive deeper to fill my cup to help others. (Carter, 2021b)

Antoine’s experiences highlight one of the conceptual strengths of an ELM. Instead of courses that rely on credit hours, seat time, and traditional pedagogical models such as lectures and quizzes, ELMs are conceptualized to be incorporated into a student’s everyday lives, meeting them where they work, live, and play. And they emphasize learning and self-assessment rather than meeting expectations that often seem arbitrary and irrelevant to students.

TEACHING WITH FEEDBACK

When a student enters the program, they are assigned a coach. Our coaches are the same full-time tenured faculty who developed Accelerate. The one-on-one coaching relationship in education is built on trust and goals established by the coachee. In coaching, the necessary deep listening demonstrates the respect adult students want. This approach allows coaches to mirror for the student how they are addressing program outcomes and invites students to use self-assessment to craft plans for development.

Coaching as a model of student engagement has proven to be a more equitable and productive approach than traditional faculty advising. A question-based approach to coaching brings to light what each individual student needs as well as revealing systemic biases that can impede them from meeting their goals. The coaching model we have adopted helps us directly address the structural inequities, racism, and classism inherent in higher education. Coaching is about transformation, for the student as well as the system of higher education (Aguilar, 2013).

Coaches are students’ primary contact with the program and with Alverno. Coaching helps us to know individual students, learn about their educational needs, and strategize with them about individual plans for addressing each ELM, ensuring a truly student-centered experience. Together the student and their coach plan a flexible pathway toward meeting the program’s outcomes. The coach also gives critical

feedback in foundational ELMs. The design team knew coaches needed more professional development to bring this model of engagement fully to our program, so within the first year of our launch, coaches in Alverno Accelerate enrolled in a coaching training program to learn how coaching is an art form designed for transformation. The more we learned about coaching as a specific skill set and role, the more we realized how well it aligned with our program outcomes and long-term aspirations.

Students who have often felt that education is not for them discover that the more equitable coaching process Alverno Accelerate offers allows them to see how learning is valuable to them because they are part of creating their own path. As a design team, we are acutely aware that just because someone is teaching does not mean students are learning. Learning is not something an instructor predetermines; instead, students need to see their learning in action in meaningful contexts.

When Sarah, a recent graduate from the program, had just begun working on an ELM, “Diversity and Equity,” she was asked to read “Culture and Socialization” from *Is Everyone Really Equal?* by Ozlem Sensoy and Robin DiAngelo. Sarah was tasked with creating a visual to represent two to three of her cultural or social groups and apply her understanding of Sensoy and DiAngelo’s thesis. Sarah created a Venn diagram, exploring school, work and family and then relating them to her understanding of the reading. Her coach noted in feedback that the interlocking portion of the diagram was empty; work, family, and school did not intersect. The coach inquired if that was deliberate. Sarah responded almost immediately:

Thank you! Unfortunately . . . I was hyper-focused on my external stressors. LOL. I did intentionally leave the middle blank . . . to imply that I catch myself masking my identity, to accommodate those I’m around and depending on my environment. (Reeves, 2021)

As this example shows, the coaching model reflects a fundamental principle of Alverno’s assessment as learning curriculum that feedback is teaching (Alverno College Faculty, 2015). Feedback must go beyond measuring student performance in a formal assessment. Feedback must be used regularly in formal and informal ways. Across the Alverno Accelerate program, feedback is designed to engage students in a dialogue on their learning, rather than merely to identify what they did right or wrong. Coupled with the program’s emphasis on flexibility and individual pacing, the more immediate feedback loops we can create, the better. This means that faculty in the program try to connect with students within 72 hours of the student posting work.

Given these critical expectations around feedback, Alverno Accelerate needed a learning platform that met our programmatic needs and pedagogical vision. Because students engage with Alverno Accelerate individually and asynchronously, we needed a platform that was transparent and that students could easily navigate no matter their technological savvy. Program assessment and updates need to be quick and seamless so that student experience is not compromised. After a year of researching and exploring online platforms, we partnered with STRUT Learning, a competency-based program management system. STRUT has been and continues to be a nimble partner. Open to feedback, revising promptly, and adjusting aspects of their platform to meet Alverno Accelerate’s needs, STRUT allows our team to measure progress towards learning outcomes in developmental steps based on faculty feedback. STRUT’s course design tools and its competency-based structure support well our uniform design requirements for Alverno Accelerate’s ELMs.

Meet Marco

Already a successful artist and social activist, Marco came to Alverno Accelerate with 83 credits and real questions about the real-life relevance of research papers and traditional academic approaches to learning. Marco wanted and needed opportunities to bring together his academic learning with his professional life and Alverno Accelerate provided this for him. For an assessment in an advanced level ELM focused on self-reflection and social interaction, Marco used an art education project that he led to meet the criteria. This video project designed during the pandemic taught children in elementary and middle school about emotional intelligence. In addition, Marco's coach helped him team up with an Art faculty member for an independent study that focused on the creation and exhibition of his original art at a local gallery.

The design of the program enabled Marco to use his own professional goals as his focus within several ELMs to achieve real world outcomes. It secured a real context for his learning. The learning in these ELMs, as it is across the Accelerate curriculum, is designed not only to teach students the significance of the work in which they are engaged, but also to show them how the Accelerate outcomes contribute to their professional and personal lives. To address inequities in course design that often occur in traditional curricula, we require that ELM workload and expectations be consistent. Each ELM requires two formative assessments and one summative assessment; corresponding self-assessments must accompany each assessment. All assessments are required to have public performance criteria. Without criteria any assessment loses its integrity and fails to provide opportunities for unbiased feedback and appropriate self-assessment.

The criteria are used to challenge and direct students to independently apply their learning through a variety of technologies, learning modes, and strategies. For example, a student in an ELM using the frameworks of history to demonstrate Program Outcome 2 at the Beginning Level examines public monuments to understand their community's attitudes and the historical issues surrounding those monuments. In the ELM "Investigating Community Issues," students explore their family's food practices and their relationship to the cultural interplay among historical, social, and ethnic identities. In another ELM, "Mindful and Moral Leadership," students enlist leadership frameworks to examine their own and others' practices in professional or volunteer settings. Corresponding ELM labs offer students opportunities to apply their theories even further in the contexts of their professional and personal lives.

ACCELERATE'S NON-NEGOTIABLES

Along with our required design elements for all ELMs, pedagogy scaffolded on Alverno's principles of assessment as learning, and a generous transfer policy, the team built several other non-negotiables into the overall program design.

The first is that Alverno Accelerate must be flexible. Adult students often mull over the decision to return to school for years. When they finally make the decision, they want to start right away. Therefore, Alverno Accelerate has six start dates throughout the calendar year. As much as possible, the program works to break the tyranny of time associated with uniform learning deadlines. Final deadlines still exist for financial aid compliance, but the pace within an eight-week session is fluid, reflecting the vagaries of our learners' daily lives. A commitment to flexibility means that students are working asynchronously at their own pace throughout each ELM and across the program's levels. This non-negotiable also re-

inforces a principle of the program that all higher education might do well to embrace that measuring time, whether seat-time or credits in a semester, does not measure learning (LeBlanc, 2021).

A second non-negotiable was that all students imagine and implement a leadership initiative that integrates their prior learning, whether from Alverno Accelerate or from other programs, with their professional goals. The student adopts an activist's approach to their initiative, taking it through a robust process that includes imagining a solution to a problem, pitching to stakeholders, and implementing the initiative over the course of eight weeks. Their leadership initiative can be implemented at their workplace, in a volunteer-based organization, or created as a stand-alone project. For example, Marco's leadership initiative, "Forget-Them-Not: Making Art for Social Change," was part of a Milwaukee-based fund-raising initiative, Justice in Bloom, implemented in response to the murder of George Floyd. Marco hand-crafted flower sculptures and dedicated each one to victims of recent police violence. The proceeds were distributed among community organizations working on Black Lives Matter initiatives. In Marco's final self-assessment for the course, he articulated how this leadership initiative achieved the program's moral agency outcome.

A third non-negotiable grounded in Alverno's outcomes-based curriculum is our philosophical opposition to using credits and grades as evidence of student learning. We have found ways to provide students with a grade point equivalency that does not require grade attainment for each ELM. This shifts students' focus from grades to feedback and the developmental nature of their learning in the program. Because of external constraints, however, Alverno Accelerate still uses credits for financial aid and to count student progress toward degree completion at 120 credits.

Students seeking to complete their degrees have often exhausted their financial aid resources. This led us to create the non-negotiable that Alverno Accelerate must be affordable and not burden returning students with more debt. Before deciding on a lower per credit rate for tuition, the team explored other tuition models. We also supported housing Alverno Accelerate within Alverno's School for Adult Learning and New Initiatives. This calmed our administration's fears that the program would siphon students from our undergraduate program. It also allowed Accelerate to be more affordable than Alverno's other four-year undergraduate degree programs.

The question of how to charge tuition creatively and affordably is still alive in our discussions and drives our engagement in national discussions about financial aid (LeBlanc, 2021). Higher education must do better to bring the cost of a bachelor's degree under control, without saddling students with immense debt. Pedagogically, tuition models need to allow space for students to take risks and even fail, as these are important learning experiences as well. Alverno College as a whole and Accelerate as an individual program wants and needs to build stronger partnerships with lower cost community and tech colleges. Moving from these institutions to Alverno Accelerate is another way that adults build their way to a bachelor's degree on their own terms.

Meet Angie

When Angie came to the program, she had already earned 133 credits at several technical colleges beginning 20 years ago. She is one of many adult students who needed the lower cost of community colleges to begin her bachelor's degree and now needs an equally affordable way to complete it. Angie's most recent experience provided strong mentorship and opportunities to grow in her leadership skills that motivated her to keep moving forward with her education. Angie faced personal hardships as she

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began Alverno Accelerate, but because of our flexible approach to individual pathways, she was able to regroup, catch-up, and move forward. Angie writes,

For a long period of time, I used these [hardships] to describe me. They described how I interacted on a daily basis both professionally and personally. Having these events ever so present made it easy for me to fall back on them. It made it easy for me to live in the past and not recognize my full potential. Once I realized that every obstacle that I faced was a crucial part in my personal and professional journey I have felt more content, happy, successful, and resilient. (Haney, 2021)

At the beginning of her second session, Angie was hired in a leadership position at a nonprofit organization. In her ELM work, Angie clearly identifies both the traumas and triumphs of her life as important learning experiences. Angie's road to a bachelor's degree was long and bumpy, but it led her to an exciting new place as a community leader. In recognition of her now strong voice and accomplishments, Alverno selected Angie to be the coordinator of ceremonies at the undergraduate ceremony in which she received her diploma.

EVALUATING ALVERNO ACCELERATE

Building Community

After two years of Alverno Accelerate, we have had many triumphs and have maintained and built on our program's non-negotiables. We continue to work on several areas. College collegiality is one. We want Alverno Accelerate learners to have as close to a college community experience as our traditional undergraduate students. Asynchronous learning does not translate easily to creating a community of learners. Alverno Accelerate students have no course or enrollment cohort. Most are already working full time with families and with well-established social networks. We came to realize, however, that some of our students want and need college relationships. Therefore, we are currently working to revise our capstone ELMs, create online book discussions of texts all students read, and connect students to professional interest groups to better create an Alverno community for our Accelerate students. Whatever we create must be value-added propositions for our students as they balance school, work, and family responsibilities.

Strengthening Retention

The retention rate for on-line programs remains a challenge for Alverno Accelerate, especially learners with limited or slow on-line access to technology (Wladis et al., 2016). As a team, we are finding new ways to accommodate students who prefer "old" technologies such as the telephone and we are exploring other ways to keep them connected beyond email.

An applicant to Alverno Accelerate is expected to self-select, though we have discovered that not all students understand or are even aware of their limitations as learners until they start our program. Accelerate plans to address this more directly in our admissions and orientation processes, especially in beginning ELMs. We are working more directly with Alverno's counselors and additional Alverno services to build better bridges for such students. Strong relationships among students and their coaches,

collaborative problem solving, and ongoing encouragement are some ways we can help keep students enrolled in our program and be successful. Our team also has discovered that Alverno Accelerate students have been looking for robust intellectual relationships with faculty in their education, but traditional undergraduate systems, where interaction typically means regurgitating information and fulfilling a checklist of expectations, have often stood in their way. We also have started to ask different questions to solve challenges with online learning retention rates (Boston & Ice, 2010). For example, what if our assumptions about the difficulties students experience with this mode of education can be explained by something else entirely? We are beginning to research the possible percentage of neurodiverse students in online programs. The requirements of traditional education, including time and project management, long lectures, and even the tying of the traditional academic calendar to dark winter months can be challenging for neurodiverse students and those with other mental health struggles. We are not mental health experts or special education instructors, but we are exploring techniques from experts on ADHD and neurodiverse ways of being that we might incorporate into our pedagogy and student support that could be beneficial for students with or without diagnosed learning challenges (ADDitude; Dolmage, 2017; Hallowell & Ratey, 2021; Silberman, 2016).

Addressing Program Challenges

Alverno Accelerate continues to face several infrastructure challenges internally and externally. The most critical one continues to be financial aid. Financial aid processes and deadlines in higher education are designed for a specific traditional age population and institutions organized around seat time, not learning (LeBlanc, 2021). Current financial aid requirements give little wiggle room for cohort and non-traditional sessions. Until we can disrupt the national systems for inequities that are built into financial aid, our own internal systems will continue to force Accelerate students and our program into traditional modes of record keeping.

Despite Alverno's progressive pedagogical roots, our commitment to putting the student at the center of our work, and our principles of ability-based assessment as learning, the program continues to experience similar challenges in relation to other offices and their inflexible structures and requirements. Innovative programs for nontraditional students require us to move from a "there's nothing I can do" mindset to an activist model for educational reform and creative problem solving for students.

It has not all been a challenge, though. Alverno Accelerate has successfully worked with several offices at Alverno to meet our ongoing systemic needs, particularly in our continual rethinking of credit for prior learning, and our ongoing persistence to shift higher education away from the transactional approach to education where credits are currency toward a more transformational approach with a broader understanding of what learning means.

For the team, Alverno Accelerate has reinvigorated our commitment to and professional development of the core principles of Alverno's model for teaching and learning. This is an ongoing process. The team is also bringing what we have learned through the development and implementation of Accelerate to our campus's DEI efforts.

Meet Eleni

Eleni brought 63 credits from prior college work, credit hours from other institutions, and varied work experience including owning her own business. She also brought health struggles that affected her execu-

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tive functioning. Right away, Eleni was asked to be her full authentic self in her learning, to recognize the value of feedback and self-assessment, but also to embrace the vulnerability that these processes invited. It took Eleni some time to acclimate to the program's approach to teaching and learning. In an early self-assessment, she writes,

[T]his has been a HUGE [sic] learning experience on how to manage just how much of our personal experience helps us and how much hinders . . . I have found that once I was honest with myself, then honest with those . . . mentoring me, I was able to receive the support and guidance to both find and trust my own moral agent. (Tsioulos, personal communication, January 12, 2022)

Eleni came to appreciate how Alverno Accelerate was inviting her to create a new vision for her future and could help her devise strategies to make this future a reality. Eleni concluded that although,

this ELM was especially poignant for me and took me on an internal journey . . . I needed to step back until I could reengage authentically and in alignment with how I truly feel about the community issues presented in this ELM . . . I have realized that I am not an island, that sharing vulnerabilities and uncertainty can be more productive than just processing myself . . . To express is to expose, to acknowledge without judgment is to disarm. Both of which take vulnerability by both the seeker and the sayer (Tsioulos, 2021).

NEXT STEPS

When our team presents to fellow educators, we ask them to think about the traditional paradigms that are holding back innovation at their institutions, making it difficult to create programs that are equitable and inclusive. It's often a long list, including letter grades that are not tied to clear learning outcomes, faculty bias in course design and assessment, limited worldviews of administrators, and the privileging of disciplinary content over student learning. Our Alverno Accelerate team hopes that our principles and on-going practice presented in this chapter will contribute to the larger conversation about the changing needs of students and challenge faculty and leaders in higher education to rethink their pedagogy, their public responsibilities, and their procedures.

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ENDNOTE

- ¹ Along with the authors, Accelerate's designers included Robert O'Brien-Hokanson, Professor of English at Alverno College; Mimi Czarnik, Professor of English at Alverno College; Jonathan Little, Professor of English at Alverno College.

Section 4

Small but Mighty: Unbundling Learning to Facilitate Customized Multimodality Learning Pathways

Chapter 13

Seeking Equity, Quality, and Purpose as Higher Education Transforms: Liberal Arts Colleges Respond

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ABSTRACT

Taking account of the dramatic shifts in the make-up and educational and social needs of today's college students, the authors explore how to steer future reforms in ways that will advance goals related to equity and educational quality. The chapter begins with an overview of the major trends in who today's students are, what we now know about teaching and learning that advances equitable student success, and the changing global economy and workplace. Building on that analysis, the chapter explores the strengths and weaknesses of unbundling and proposes a potential new avenue for reform in liberal arts colleges making use of both unbundling and "re-bundling" of educational experiences proven to advance quality and equity.

In the face of unprecedented challenges and opportunities to higher education institutions of all sorts—some that were emerging prior to the pandemic, others directly associated with it—we seek to explore the question of how to respond effectively from two angles. First, we will articulate the broad trends and challenges that all institutions of higher education are confronting. Then, because we believe that few authors have delved deeply into what these trends mean particularly for liberal arts colleges and because the existential challenges now confronting these institutions are testing the strengths and advantages they have long embraced, we explore that sector in some detail. We examine the ways that liberal arts

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colleges can address multi-faceted challenges and offer guidance and encouragement to higher education in general. How can these kinds of institutions build on their distinctive strengths while making significant changes in their programs, structures, and target student populations? That question is one that all institutions must address in one way or another. Thus, in the second part of our essay, we focus on a specific case study, that of Hollins University, which is demonstrating a leadership role in ways that have something to teach virtually any institution.

A COMPELLING NEED FOR CHANGE

Across nearly every sector of American life, the coronavirus pandemic has exposed problems and accelerated trends that are affecting society significantly – for good and ill. In higher education, the forced shift to remote instruction highlighted profound inequities in the lives of today’s students. Some lacked housing security or access to broadband internet. Others endured challenging life situations that remote learning both revealed and often compounded. But the shift to remote teaching and learning also brought long-overdue attention to instructional designers and online learning experts. These professionals stepped up to help others design better learning experiences in the light of the challenges faced by students and professors.

Even before the pandemic, several trends in higher education had been pushing institutions toward reform. Advocates sought improvements in the design of programs, student support systems, and institutional business models. Such changes are clearly needed to serve a markedly different population of students and a new economy—one that requires wholly new talent pipelines. These challenges and opportunities are now nearly universal. While there had been conversation, even prior to the pandemic, about larger institutions and those providing exclusively online learning addressing these issues, we now see institutions of all sorts navigating these issues. Across the sector, the pandemic has accelerated these trends.

The question now is: How can we steer these accelerating trends and use the lessons learned during the pandemic to prioritize a commitment to quality, equity, and purpose? And how might we think about these lessons across institution types, from large research universities to small liberal arts institutions? We must reform our institutions to better serve today’s students. We must prepare students to thrive through leadership in a dynamic, knowledge-based, technology-dependent economy. We must equip them to help bolster a fragile and fractured democracy in a global community facing unprecedented challenges.

But if we are to chart a productive course for higher education reform, we must more fully understand four of the longer-term trends affecting all of higher education that accelerated during the pandemic.

Confidence and Enrollment Trends

For many years, public confidence in higher education has declined, as has overall enrollment—especially of traditional-age students. Much of the drop in enrollment in some states has been caused by regional demographic shifts, but declining confidence in institutions of higher education is a likely factor in most states. Only about half of American adults surveyed by the Pew Research Center in 2019 believed that higher education was having a positive impact on the country. About four in ten (38 percent) said the sector was having a negative impact—up from 26 percent in 2012. A 2018 Pew survey found that more than 60 percent believed higher education was heading in the wrong direction (Parker, 2019).

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The impact is not limited to enrollment. It is a matter of record, reported by The National Student Clearinghouse, that students are voting with their feet—responding to real and perceived challenges related to college costs but also to the basic demands of life and the pandemic’s impact on their mental health and well-being. The Clearinghouse reports a nearly 8 percent decline in undergraduate enrollment since 2019 (National Student Clearinghouse, 2021). There have been steep enrollment declines at community colleges and for-profit institutions, particularly during the early months of the pandemic. More recently, similar declines have hit public four-year institutions. A recent survey found that nine in ten college students believe there is a mental health crisis on college campuses. Seventy percent say they, themselves, are experiencing pandemic-related distress or anxiety (TimelyMD, 2022). This trend – beginning before the pandemic and accelerating during it – occurs just as the economy demands a much more highly educated workforce.

Today’s Students

Along with these declines in enrollment and confidence, there is another important trend. For many decades, the composition of the student body has been changing. Today’s college students are, on average, older. More of them come from lower-income families, and many with child-care responsibilities are working full time. Also, many more of today’s college students are from Black and Brown communities (Lumina Foundation, 2019). Historically, colleges and universities have either restricted such students from access or have not served them well. Too few institutions have provided supportive campus climates and/or culturally responsive and sustaining teaching and learning methods (Horowitz, 1988).

One explanation for such inequity is that much of our higher education system is built to serve a traditional-age, middle-class student educated in a high-quality college prep K-12 program with financial support from parents. But most of today’s students do not fit this mold. Thirty-seven percent of today’s students are 25 years or older; 42 percent are students of color; 46 percent are first-generation college students; and nearly one-quarter have children or other dependents. Fifty-seven percent live independently, and only 13 percent live on campus. More than half are from families living at or below twice the poverty level (Lumina Foundation, 2019). These students face significant challenges both in attaining a high-quality credential beyond high school and in navigating today’s complex job market.

A Globalized, Technology Fueled Economy

Today’s global economy demands a more highly educated workforce and a talent “mix” offering far more sophisticated combinations of human, business, and digital skills. Between the 2008 recession and 2016, 11.6 million jobs were created—11.5 million of which required learning beyond high school (Carnevale et al., 2016). Employers are seeking more workers with higher education credentials because the demands of the workplace are rising. Today’s workplace needs more individuals that combine critical thinking, problem-solving skills, and written, oral, and visual communication skills (traditionally cultivated in four-year degree programs) with the kinds of fast-changing technical skills shorter-term programs can offer.

Although many commentators have sounded the alarm about technology replacing jobs done by humans, that view is short-sighted. In his book, *Human Work in the Age of Smart Machines*, Jamie Merisotis (2020) notes that, while technology may lead to some job losses, the more important trend will be preparing people for jobs that engage with technology—jobs that only humans can do. He notes

that “human work ... blends our human traits, such as compassion, empathy, ethics, and personal communication, with our developed human capabilities, such as critical analysis, judgment of quality, and anticipation of what others might do. [Human work] requires knowledge and skill” (Merisotis, 2020, p. 32). The need for a more complex set of skills required for ever-changing technologies will present a particularly acute challenge. Postsecondary education must develop the right mix of learning pathways and curricular models to meet talent demands of the future.

Teaching, Learning and Technology

The fourth important trend that accelerated during the pandemic involves new teaching and learning models and methods built on both (a) new research about how adults learn and (b) the availability of new digital learning technologies. We now know far more about the kinds of active and community-based learning approaches that work especially well for today’s students (Kuh et al., 2013). However, we also know that many more students have access to online skill-building tools that may reduce the need for residential education.

During the pandemic, for instance, enrollment soared in individual courses offered by Coursera, a well-known provider of massive open online courses (MOOCs). During a one-month period in the spring of 2020, Coursera enrollment totaled 10.3 million—up from just 1.6 million during the same month in 2019 (Imprey, 2020). We don’t know how those numbers will shift as the pandemic eases, but clearly millions of students around the world are taking advantage of online learning opportunities that complement traditional higher education. It is also important to note, however, that the current environment offers a complex mix of educational modes and methods—not a simple, binary choice of face-to-face vs. online instruction.

BUNDLING AND UNBUNDLING

All four of these trends—declining enrollment, changing characteristics of today’s students, changes in the global economy, and new learning approaches—are propelling significant reforms across higher education. Some higher education institutions and other education and training providers have responded by “unbundling” traditional models of teaching and learning. Others have moved to “rebundle” student supports and educational pathway guidance to facilitate student success. Pulling apart aspects of the educational experience can help more students from a wider array of backgrounds attain skills and knowledge more quickly. This can give them better access to higher-paying, in-demand jobs or to promotions at their current workplaces.

On the other hand, and as we will see in the case study to follow, by offering better advising, coherent curricula, and bundled supports, institutions have significantly improved persistence and graduation rates, especially for first-generation and minoritized students (Jenkins et al., 2018). With both these approaches, what is as yet unclear is how the *unbundling* skill-building trend can be married to the new “bundled” models so that more students can develop the skills that our economy and society now require.

It is also unclear what the impact of unbundling opportunities will be on the first-generation and minoritized traditional-age students who now benefit most from traversing bundled, coherent curricular paths in supportive learning communities. We face a clear challenge in realizing the advantages of unbundling while also increasing the number of Americans with the skills and knowledge that research

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suggests may be compounded through a “bundled” and “sequenced” set of learning experiences. As Anthony Carnevale and his colleagues (2020) note in a report titled *The Overlooked Value of Certificates and Associate’s Degrees*, “[u]ltimately, the most valuable education over the long term is the one that provides the most marketable *combination* [emphasis added] of specific and general skill” (p. 4).

If quality and equity are priorities, higher education must face this challenge head on. How do we ensure that we equitably provide that “most valuable education?” How can we best provide both specific and general skills at high enough levels to ensure long-term success for today’s students and tomorrow’s economy and democracy?

Higher education institutions, of course, were responding to these trends even before the pandemic began. Many of the institutions leading this effort have been large “mega” universities that scale online learning opportunities to serve large numbers of working adults (e.g., Southern New Hampshire University, Western Governors University, and Kaplan University). Others are nontraditional providers focused on developing specific technical and digital skills (e.g., General Assembly offering boot camps for computer coding, and Google offering certifications in IT support, data analytics, UX design and Android development). Yet as we will see, the most traditional and familiar sector, that of the liberal arts college, may paradoxically be especially well positioned to capture these trends through creative initiatives.

To fully meet the needs of our economy and society, ensure equity and assure that higher education truly enables economic opportunity and long-term social mobility, we need a broader mix of educational options—one that both unbundles and re-bundles educational opportunities for today’s students. We need models that offer all types of students the supportive communities of learning we know are crucial to their success. This challenge must be accepted not only by mega-universities offering fully online programs, but also by institutions. All must provide high-quality learning communities and educate students from a wide array of backgrounds.

We must examine the advantages and disadvantages of different models of higher education to ensure that we are responsibly confronting the current challenges. We must navigate these trends in ways that prioritize the genuine needs of today’s students while responding to the pressing talent needs of our changing economy and society. Several important issues have yet to be addressed despite the existing responses to these trends. If some students are steered to shorter-term training programs while others have access to a broader educational experience, are we perpetuating an unjust, two-tiered system of education? Are we limiting the economic opportunities and social mobility of students from less privileged backgrounds? As the economy changes, how can we be sure that an unbundled system gives individuals a skill set that is broad and transferable enough for them to navigate *new* challenges and adapt to *new* technologies? How can we make certain not to sacrifice quality in the name of efficiency? How can we be sure that our higher education system has the strength and diversity to equitably build a citizenry with the knowledge and skills necessary to guard and strengthen our democracy?

To this point, we have scanned the broad landscape of higher education, seeking to identify the trends to which all institutions must respond. But to answer the above questions and help guide the reform effort, it may help to sharpen our focus by examining responses within a specific sector of higher education: smaller, liberal arts colleges. What role can these institutions play in realizing the dual commitment to quality and equity in higher education? How can they build on their strengths while responding forcefully to these trends? And how may the example they provide prove useful to other sectors?

THE ROLE OF LIBERAL ARTS COLLEGES

Liberal arts institutions have long held a prominent place in higher education. Distinct from comprehensive and research universities, these colleges—often smaller institutions—have consistently emphasized high-quality teaching and learning and intensive student-faculty engagement. They have stressed intellectual liberation, in part through the campus environment itself: residential and student-focused. The liberal arts tradition teaches also by the way it is organized and lived out. Therefore, liberal arts institutions rely heavily on both the curriculum and co-curriculum. They seek to offer a holistic experience offering broad and positive outcomes for students.

While some public narratives may suggest that liberal arts colleges have outlived their relevance, research suggests otherwise. Liberal arts colleges do, indeed, face some significant challenges to their traditional business models, but research consistently suggests positive outcomes for students graduating from these institutions. Many surveys of employers affirm that the broad outcomes liberal arts colleges develop in students through high-impact and engaged learning are highly valued and rewarded in the workplace by employers (Finley, 2021).

Other research suggests that specific features of liberal arts colleges produce particularly positive impacts for all students and especially for students of color and first-generation college students (Kezar & Maxey, 2014). Peter Felten and Leo Lambert (2020) argue persuasively that the kind of “relationship-rich education” offered in liberal arts colleges is particularly valuable to today’s students. They note that:

As alumni look back on their undergraduate experiences, what they will value most about college are the relationships they formed—the people who afforded them a sense of belonging, helped shape their professional and personal identities, and guided them in discerning their purpose in the world and the values that are most meaningful to them. (p. 147)

They note further how “decades of research demonstrate that peer-to-peer, student-faculty, and student-staff relationships are the foundation of learning, belonging and achieving in college.” These interactions influence positively a wide array of outcomes for students including “retention and graduation rates” but also “critical thinking, identity development, communication skills, and leadership abilities” (Felton & Lambert, 2020, p. 5).

These findings are further affirmed in the recent research project described by Richard A. Detweiler (2021) in *The Evidence Liberal Arts Needs*. His research demonstrates that students experiencing the broader educational focus and the authentic learning communities offered by liberal arts colleges are far more likely to exercise leadership in work and life post-graduation. Students who reported having closer relationships with faculty, having campus mentors, and being involved in campus activities were more likely to report fulfillment in their lives post-graduation. Ultimately, their research suggests that “the more social or human interaction-based aspects of a liberal arts education are more consistently related to life impact than is the content of college study” (Detweiler, 2021, p. 171).

Despite these robust findings, because the campus and classroom experience are considered equally important and the costs of providing these experiences are significant, liberal arts institutions may still be especially vulnerable to the vagaries of unbundling education. Wouldn’t these institutions lose their very essence if education were repackaged at the course level? In fact, this thinking has often prevented liberal arts institutions from even considering new ways to offer credentials.

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To be sure, liberal arts institutions have often been innovators at the forefront of new models. For example, as student demographics began to shift, many of these institutions began to reimagine their missions and find better ways to serve a more diverse and complex student body. And that effort paid off. Today's liberal arts institutions serve and graduate a larger proportion of low-income students, first-generation students, and students of color than ever before. As Mary B. Marcy makes clear in *The Small College Imperative: Models for Sustainable Futures*, many smaller liberal arts colleges have developed innovative approaches to retaining their many strengths while offering alternative models serving broader populations of students (Marcy, 2020).

To be true to their mission and to best serve the needs of their students, liberal arts colleges can and should consider even more how new models of providing credentials—unbundled, rebundled or both—can be leveraged on their campuses while still providing the positive outcomes that come from relationship-rich educational environments.

In fact, there are three compelling reasons to look towards liberal arts institutions as an example of how to create equity, quality, and purpose in higher education through unbundling and new pathways. Reputationally, many institutions have garnered the trust of community members, including traditional and adult learners, therefore making the institutions themselves feel more accessible. Next, the generally small size and rapid flow of information between areas and programs makes communication more transparent at liberal arts institutions. This communication flow enhances the development and implementation of new programs. Additionally, the strong tradition of participatory governance, especially so far as curriculum is concerned, allows for the thoughtful, faculty-engaged development of curriculum. These same processes also allow for the rapid assessment of the impact of new initiatives to enhance successes and correct missteps. The following case study explores these factors in practice.

THE EXAMPLE OF HOLLINS UNIVERSITY

Hollins University was founded in 1842 in Roanoke, Virginia. An undergraduate college for women at its founding, Hollins became a pioneer among women's colleges in developing a co-educational graduate program, a Master of Arts in psychology, in 1958. Building on its strengths, it introduced additional graduate programs in the '60s and in the '90s. Graduate programs began to accelerate in the late '90s and into the 2000s. Today, Hollins offers 10 graduate degrees:

- Children's Literature MA and MFA
- Children's Book Writing and Illustrating MFA
- Creative Writing MFA
- Dance MFA
- Liberal Studies MALS
- Playwriting MFA
- Screenwriting MFA
- Screenwriting and Film Studies MA and MFA
- Teaching MA (including Licensure)
- Teaching and Learning MA

Hollins also offers five certificate programs. Its education program is the most popular offering, followed by its creative writing MFA.

Alongside this growth in programs, Hollins has experienced a seismic shift in its student population similar to that we have documented in postsecondary education as a whole. It is no less important for selective smaller institutions to recognize that students served by new programs and credentials may differ from those previously served. Although Hollins began admitting African American students in 1966, until the mid-'90s racial and ethnic diversity on campus was limited. Today, at the undergraduate level, approximately one-third of students are American students of color, 10 percent are international, and nearly 40 percent are from low-income families. Approximately 40 percent are first-generation college students. Among Hollins graduates, 71 percent are women, approximately 27 percent would be classified as low-income, and 18 percent are students of color.

Demographic shifts—including the sector-wide growth in adult learners—hold important implications for Hollins. As the education market began to shift, it became clear that, to ensure long-term sustainability, the university would need to do more than simply maintain the high quality of its undergraduate programs – even though this basic strategy had long been effective.

As the adult learner market began to expand in the mid- to late-2000s, Hollins began to pay significant attention to its graduate programs and their capacity to generate revenue. It amplified these early steps by hiring of a director of graduate programs in 2018. With the arrival of a new president in 2020 and the hiring of a vice president for graduate and continuing studies in 2021, Hollins intensified its efforts to improve graduate and continuing education programs and to engage adult learners.

At many small liberal arts colleges, continuing studies and graduate programs are viewed primarily as revenue-generating arms that support the undergraduate college. A guiding principle at Hollins is to recognize that the graduate programs exist to *complement*, not support, the undergraduate program. Indeed, as noted earlier, the goal is to prioritize the genuine needs of today's students and respond responsibly to the changing economy.

Therefore, investing in graduate education created numerous opportunities for Hollins as a whole. The opportunities and challenges before the institution cover three key areas: (1) academic and mission opportunities, (2) economic opportunities, and (3) opportunities to develop a culture of equity and inclusive excellence.

Opportunities

Many of today's students, at all levels, are seeking credentials, certificates, and educational opportunities outside traditional degree programs. Small liberal arts institutions can seize this opportunity by developing a deep understanding of their curricula's aims and purposes, and then reimagining how they might be applied in this moment. Colleges must also examine how more flexible and accessible pathways and programs can be created by unbundling and repurposing existing curricular segments. This sort of rearrangement can help learners take finite educational steps, steps that can then be put together to lead to degrees.

Nearly all institutions seek to increase revenue. This need is especially acute at small liberal arts colleges, which confront both a demographic cliff for serving traditional-age undergraduates and increasing financial pressures, particularly post-COVID. However, citing mission purity, many institutions immediately reject the business case as a viable reason to add programs. It is critically important, therefore, that campuses frame—and honestly craft—proposed programs and models not only as financial drivers,

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but as an extension of their respective missions. Expanding and/or unbundling program, degree, and certificate offerings is an opportunity to create programs that generate revenue *and* academic excellence.

Academic and Mission Focus

To do this work well, it is critically important to start with instruction – and to align instruction with marketplace needs and demand. It is clear that both adult learners and traditional undergraduates seek multiple ways to move toward degree completion. The case for a more highly developed workforce is compelling, but equally compelling is the need to ensure that education is of high quality. As documented earlier, small liberal arts colleges like Hollins, which have long delivered high-quality academic programs, have an advantage in intentionally focusing on developing the human skills that are essential to attain employment and that lead to professional growth and civic engagement. When developing (or unbundling) programs, institutions must be sure to retain this combination of strengths.

In order for this unbundling and repurposing to be effective, however, it must begin with a comprehensive and collaborative partnership with teaching faculty. As we have noted, a strong tradition of faculty engagement in curricular development is one of the strengths of liberal-arts colleges. Without the guidance of those most deeply engaged with a discipline, a new program's components may lack intellectual cohesion. Through such collaboration, we are exploring how we can reorganize academic curricula to create new credentials and programs. Without deep understanding and faculty partnership, however, the new offerings may not achieve the level of academic excellence we see as essential.

It is also important to note that unbundling and rebundling is more than merely a way to provide an education in shorter increments. Rather, it is essential that the learning remain coherent and intellectually progressive—academically uncompromised. To parse out education without coherence is to ignore the fact that learning is cumulative. Worse, in some instances, it privileges revenue generation over academic integrity. To avoid that dichotomy, faculty must help ensure that academic credibility is maintained during unbundling and rebundling.

Economics

The commitment to maintain academic excellence when creating new programs is far from universal. Indeed, at many institutions, the first charge is to generate revenue and the second to make the new program fit the mission. Unfortunately, this approach poses numerous concerns and increases the risk of failure.

First, when programs are developed and planned primarily to generate revenue, they are far less likely to align with the mission and purposes of the institution. Such programs are bound to lack faculty support; misalignment with the mission may make them short-lived. In this way, they pose considerable risk to the institution's reputation.

Second, if designed solely from an internal perspective—i.e., how to generate revenue for the college—new programs may also fail to align with the needs of the market. To be effective, new programs must meet at the critical intersection of mission and market demand. They must serve an external need clearly informed by understanding of market data. They must also ensure academic excellence, be mission-aligned, and support and enhance the reputation of the institution.

In short, when unbundling education to create new programs, liberal arts institutions must do so with a multifaceted focus, one not fixed solely on revenue generation. At Hollins, the following model,

which illustrates the interlocking nature of the university's mission, its campus climate and culture, and the need for revenue generation, has proven successful.

Further, as a campus committed to diversity, equity, and inclusion, Hollins uses the unbundling of education to create pathways and credentials that can help and support those who have historically been excluded from higher education. As noted earlier, given the complex ecosystem of higher education, we must prioritize equity and seek to mitigate any negative impact on learners from low-income and minoritized backgrounds.

Figure 1. Strategic considerations for institutional change



Inclusive Excellence

While racial and ethnic diversity in graduate programs does not reach the level seen in undergraduate ones, it is important to note that unbundled offerings such as certificates and other non-degree credentials may be more valuable and accessible for students from low-income communities and communities of color.

Across higher education, many small liberal arts colleges have worked hard to become more accessible and equitable. While relatively few campuses have achieved inclusive excellence, the work to create communities of belonging, to eliminate achievement gaps, and to provide inclusive education is widely shared. These same priorities must also apply to the adult learners on liberal arts campuses. Like other institutions, Hollins has much work to do to achieve its inclusion aspirations. However, as the university begins to assess new program offerings for adult learners, it is working to identify fields and forge connections in the region that can help build a more just community. For example, this priority appears in the recent approval of a new master's degree in Equity and Healthcare. It is a program that is mission-aligned, market-serving, and institutionally and culturally relevant.

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Being an inclusive institution also means making sure that students in nontraditional programs get the full measure of support that students need to flourish. Extensive research has shown that high-impact practices have a significant influence in supporting student success (Conefrey, 2018; Valentine & Price, 2021). The reimagining of curriculum also gives liberal arts institutions an opportunity to reimagine how to build community among a new, non-residential student population. For decades, higher education has built community in difficult times and navigated alongside students. To expect less with new credential models is to ignore a critical strength of liberal arts institutions. Many of our new students' concerns—childcare, poverty, pay equity, etc.—require significant societal change beyond the purview of a college campus. However, our ability to create communities of support and practice, to extend support in the face of stressors, and to serve as advocates for our students can be another way to help students succeed.

Launching a New Certificate Program: A Case Study

Hollins University is working to launch a new certificate program called Galleries, Libraries, Archives, and Museums (GLAM) Studies. This faculty-designed program shows how academic excellence, a promising financial model, and a commitment to inclusion can be aligned and reflected in a program. GLAM began after faculty cited increased student interest in careers in museums, libraries, archives, and similar cultural institutions. The program is also rooted in an awareness that, to advance racial equity, society must rethink and restructure the role that these institutions play.

GLAM is designed to help students become skilled in supporting the preservation of our shared cultural heritage in a way that emphasizes equity, inclusion, and cultural sensitivity. The curriculum combines critical tools, cultural contexts, and an awareness of the importance of representation in how artifacts and artwork are collected, displayed, and studied. Offering opportunities for students to gain hands-on experience, the certificate will introduce them to the goals, roles, and purposes of GLAM institutions in preserving cultural heritage. At the same time, their interdisciplinary academic perspectives will enable students to critically evaluate the work of these institutions.

The program arrives at a critical time. For a generation or more, observers have worried about declining enrollments in humanities programs. A 2017 study published by the American Academy of Arts and Sciences shows a significant decline in the number of undergraduate degrees granted in art history, English, history, and philosophy (American Academy of Arts and Sciences, 2017). At least in part as a reaction, many institutions have turned toward the “applied” humanities. This is reflected in new courses, reimagined curricula, and experiential learning opportunities that place the academic and analytical work of the humanities in a variety of “real world” workplaces.

The GLAM program embraces deeply meaningful questions about the human experience and positions them within a career path that underscores the essential purposes of the humanities. Instead of diluting the humanities to serve the needs of the occupational marketplace, the GLAM program encourages students to ask how cultural institutions can be resources that examine these foundational human questions. Aligning with its mission, Hollins wants to produce students who will make our cultural institutions both responsible stewards of complicated histories and thought-provoking repositories for politically and culturally significant artifacts. The goal is to give students tools to do deeply meaningful work in the “real world” without asking them to sacrifice the deeper insights and demanding perspectives of a penetrating humanities-based education.

In its current configuration, the program would create a new credential that Hollins undergraduates can add to their bachelor's degree. However, the university also is exploring a companion non-degree

program to operate alongside the current undergraduate-focused program. These programs could, in time, enroll as many students as the undergraduate-focused program and could take on several forms.

For example, the program can readily be configured as a pre-bachelor's program for graduates from community colleges, offering a certificate to students who have accomplished an associate degree at the community college level. If well-designed, this certificate also could provide additional transferable credits for students, shortening the distance from the AA to the BA. As an alternative, the program can be offered as a graduate-level certificate for students from other institutions or for entry-level curators and museum employees who want to prepare for careers (or career advancement) in galleries, libraries, archives, or museums.

Likewise, a graduate-level certificate could provide a new option for students in Hollins' Master of Arts in Liberal Studies (MALS) programs. Students could receive the MALS, a GLAM certificate, and a broad liberal arts education, much like their undergraduate classmates. Adding online courses could create additional valuable content for the program—even for traditional residential Hollins undergraduates. This could include courses (or course segments) that could be taken anytime, anywhere, and folded into other classes. The certificate could also be offered to cultural institutions for professional enhancement of staff and curators. Open-enrollment options could be extended to school librarians, museum educators, gallery managers, and others who want to focus on preserving, cataloging, and sharing cultural collections, including digital collections.

As this example reflects, the opportunity to generate revenue can, and must, be aligned with an institution's mission. Creatively imagining, unbundling, and rebundling the curriculum offers numerous opportunities to not only meet the needs of today's students, but also to create sustainable, thriving institutions.

WHERE ARE WE HEADED AND WHAT IS NEEDED NOW?

In the coming years, institutions such as Hollins University must develop and launch new programs like those described above that offer students flexible and multi-faceted learning opportunities. As these pioneering institutions develop new models, philanthropic and research organizations can help shape the reform effort in at least three ways. They can invest in new approaches and models, taking on the risk that new ventures always present until they can garner full public support. They also can evaluate reforms—particularly in ways that highlight their impact among minoritized students and students from lower-income backgrounds. For instance, Burning Glass Technologies has researched the credentialing landscape and mapped how different credentials open up different kinds of job opportunities and affect career trajectories.

The Burning Glass Report: When Is a Job Just a Job—and When Can It Launch a Career

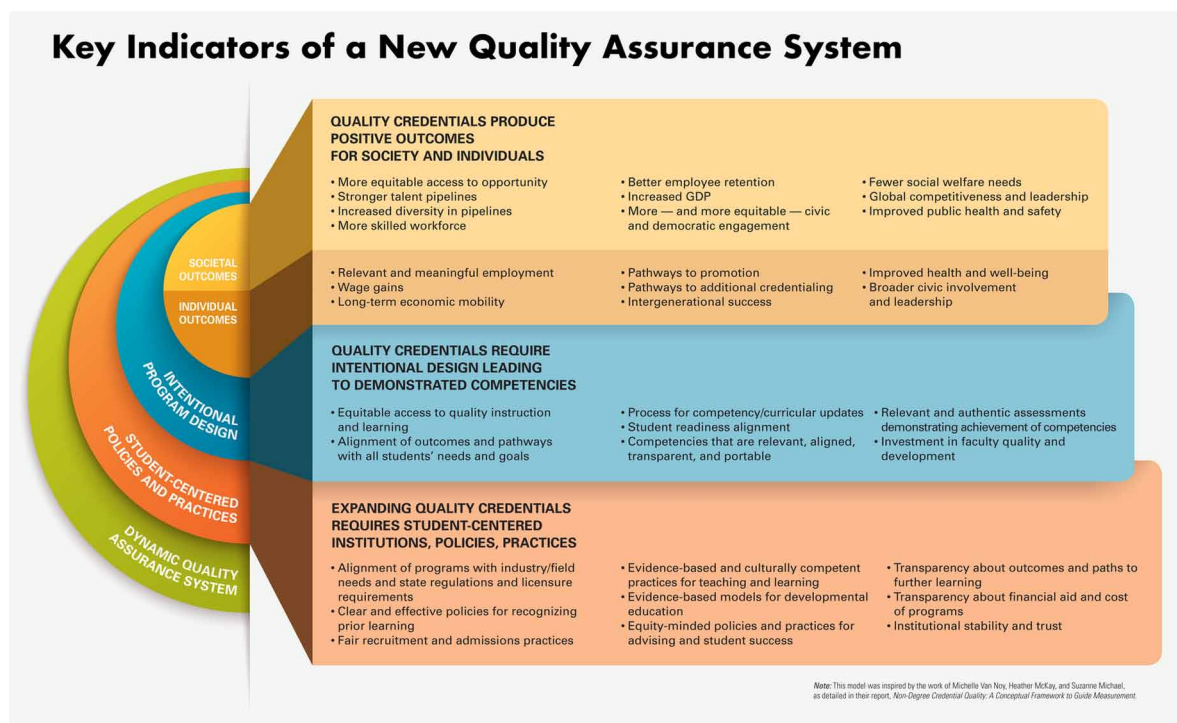
The report examines in detail jobs that require some education beyond high school—a two-year associate degree or a short-term credential—but less than a bachelor's degree, i.e., the kind of jobs that make up more than half of the U.S. labor market. Many pay reasonable wages and have a degree of stability. However, not all do. The research suggests that the of jobs studied can be separated into three categories. There are middle-skill jobs that are "lifetime jobs," paying well and offering long-term stability. Jobs such as dental hygienist fall into this category. Other jobs are "springboard jobs" that pay reasonable wages but also offer career advancement. Unfortunately, there are also "static jobs" which offer much lower pay and very low potential for advancement (Lamback et al., 2018).

Seeking Equity, Quality, and Purpose as Higher Education Transforms

Philanthropy can play a role in tracking the impact of “new credentials” such as those studied by Burning Glass to determine which ones really propel individuals into those more valuable lifetime or springboard jobs. Finally, philanthropy can help develop a new vision for a reformed higher education sector—one that reflects the core values related to quality and equity. It can do this by synthesizing and using existing research, examining historical patterns, and tapping the perspectives of a diverse set of educational leaders.

One example of this is the 2019 report developed by Lumina Foundation’s Quality Credentials Task Force, *Unlocking the Nation’s Potential: A Model to Advance Quality and Equity in Education Beyond High School* (Humphreys & Gaston, 2019). This article’s authors, Debra Humphreys and Mary Hinton, respectively co-chaired and served on the task force that produced the report. Though developed prior to the pandemic, *Unlocking the Nation’s Potential* presents a vision of quality and equity that is especially relevant in light of many of the trends discussed above, trends that have accelerated in recent years. It presents a framework and set of indicators of quality and equity that can be used to test new models of education, including such trends as unbundling and accelerated online learning options. In short, the report offers tools to answer vital questions such as: In a new unbundled environment, how can we assure the presence of evidence-based and student-centered policies and practices? How can we make sure that all educational programs are designed to ensure that students gain skills and knowledge that are valued in today’s workplace and needed in today’s society? (See Figure 2 for the Quality Credentials Task Force “Key Indicators to Improve Programs and Assure Quality.”) (Humphreys & Gaston, 2019)

Figure 2. Key indicators to improve programs and assure quality



CONCLUSION

At the height of the COVID-19 pandemic, higher education was forced to rapidly pivot from face-to-face learning to online teaching and learning. As we transition to a new phase and look beyond the pandemic, conversations are emerging about “what to keep” from the COVID era, e.g. the prominent role technology can play on our campuses. At the same time, higher education has become more aware of entrenched inequities and pedagogical shortcomings. What we have called for in this chapter leans into these two inflection points in higher education by reimagining how we offer programs and how we can better prioritize expanded outreach to students and communities.

Without a doubt, higher education institutions, whether they use new online technologies, follow the practices of traditional, residential liberal arts campuses, or fall at some other part on the spectrum, have the capacity to change. They must rethink their models and offerings so they can meet all students where they are in their learning and so they can help meet the needs of the workplace. At the same time, higher education has the responsibility to provide high-quality educational programs to those who have historically been excluded from higher education. We have attempted to illustrate how colleges and universities can pursue both excellence and equity in these efforts. This is a critical moment for higher education to be responsive. The sustainability of our missions, our institutions, our students, and our democracy all hang in the balance.

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Chapter 14

A Step-by-Step Guide for Developing a Microcredentialing Program

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ABSTRACT

This chapter describes how institutions of higher education (IHEs) can create a multi-faceted microcredentialing/digital badging program that includes industry specific skills, transferrable skill development (career readiness skills), and reskilling/upskilling for regional community workforce partners. Drawing from the direct experience of Florida Gulf Coast University (FGCU), a regional, state comprehensive university, this chapter provides a blueprint for cultivating relationships with diverse constituencies, such as industry partners, faculty, staff, and students, to create a successful, comprehensive digital badging initiative.

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A Step-by-Step Guide for Developing a Microcredentialing Program

Microcredentials are a powerful and innovative vehicle institutions of higher education (IHEs) can utilize to provide students with specific skills identified by employers (Mulligan, 2022). Essentially, microcredentials reflect competencies required or desired by industry (Naidoo & Kinzel, 2022). Microcredentials are not intended to replace the traditional bachelor's degree; instead, they complement the degree by providing students with additional in-demand competencies, and by recognizing skills that are invisible in a standard transcript. In contrast to the broad scope of a bachelor's degree program, microcredentials focus on demonstrating mastery of a particular skill or area of knowledge. Thus, digital badges are a way to make visible a learner's successful completion of educational activities that lead to specific competencies and skills (Hickey, 2012). This chapter presents a toolkit to help IHEs create microcredentialing initiatives that meet the workforce development needs of regional and national employers.

Microcredentials are new in higher education, so there are few established best practices or models for creating robust digital badging initiatives (Hijden, 2019). This chapter proposes some best practices, based on the authors' ongoing experience implementing a multifaceted digital badging initiative at Florida Gulf Coast University (FGCU). Use the chapter as a guide to help your institution work through the critical implementation stages of launching a microcredential program strategically, and to avoid costly administrative missteps.

BACKGROUND

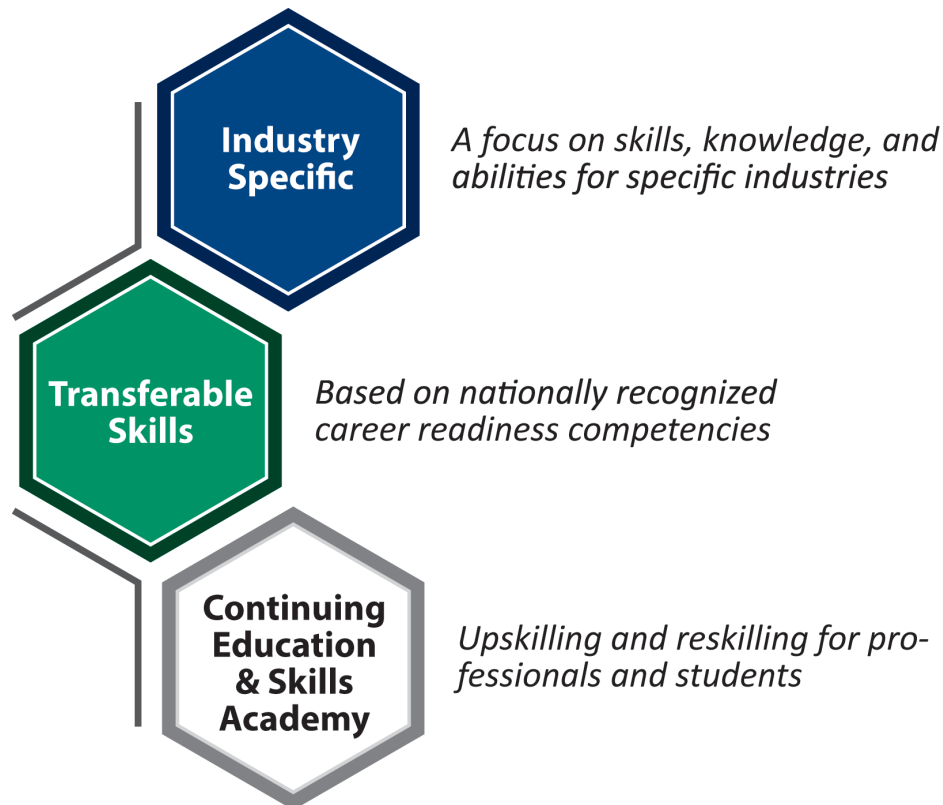
At FGCU and for the purpose of this chapter, a microcredential is defined as a credential issued to a student by an IHE for demonstrating competencies in a focused subject. It can be an addition, alternative, complement to or component of another program (Naidoo & Kinzel, 2022). A digital badge is the verifiable credential that allows students to show the skills they have demonstrated, while earning a microcredential that is shared with an external audience via platforms such as LinkedIn (Fein, 2021). For simplicity, we will use the terms interchangeably in this chapter. In essence, microcredentials and digital badges offer students the opportunity to gain focused, in-demand skills that complement their degree programs. Badges efficiently share and demonstrate student mastery with an external audience through digital badging technology which provides an intentional use of meta-data (listing learning outcomes, skills and competencies, linked to student work) (Proctor, 2021).

Effective microcredentialing programs can take a variety of forms, as the authors discovered through our experience at FGCU—a regional state comprehensive university of 16,000 students in Southwest Florida. Our analysis of the skills gaps in the region and of the barriers to effective communication of student skill achievements led us to develop three distinct forms of microcredentials (Figure 1):

- Badges associated with courses that have significant content developed in collaboration with industry partners. Students earn industry-specific badges through an assessment process over and above the requirements for the course.
- Badges that make transferrable career readiness skills visible. To earn these badges, students create a portfolio of artifacts to show how they developed specific transferable skills through a variety of course work and co/extracurricular activities.
- Badges that serve as alternative workplace credentials for anyone looking to expand their skills. Through stand-alone courses that do not bear academic credit, students, alumni, and working

professionals earn badges for upskilling or reskilling competencies such as cyber security and artificial intelligence.

Figure 1. FGCU microcredential categories: industry specific, transferable skills, and continuing education and skills academy



FGCU launched all three forms of microcredential at the same time, making our experience broadly applicable to a variety of IHEs' missions and priorities. Further, as a doctoral granting institution with 63 undergraduate degrees, 26 master's degrees, 7 doctoral degrees, and 17 academic certificates, FGCU's reach and variety of programs provide examples that will resonate with a broad spectrum of IHEs. As a regional comprehensive institution, investing and launching the badging program fits directly into the mission of the university.

With any initiative one must evaluate the return on investment (ROI); however, this initiative was driven by FGCU's mission and desire to connect industry with their university in a unique way. For us, the primary ROI sought is improving student employment outcomes, in line with our strategic plan and performance metrics. We do not envision the initiative as an opportunity to generate revenue, and, consistent with our priority on student career outcomes, we have committed to making badging opportunities no-cost or low-cost to current students. As much as that is true, we do expect indirect ROI from future philanthropic support from employer partners, and increased support from happy alumni. Additionally,

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this initiative pays off in better connections with industry partners, which impacts not just the badging initiative, but other areas of the university as well.

In addition to outlining the steps toward creating a microcredentialing program, this chapter provides a blueprint for cultivating relationships with diverse constituencies, such as industry partners, faculty, staff, and students, in order to create a successful and comprehensive microcredentialing initiative. The needs, opportunities, and challenges of your institution and region will be specific; the strategies we present are designed to provide a flexible framework for creating a digital badging initiative applicable in many institutions. For each major step in implementing a digital badging initiative, we include general advice and information about best practices, followed by an account of FGCU's experience, to provide an example of implementing those principles in a specific institutional context.

The objectives of the chapter are:

- Describe the value of digital badging for IHEs
- Provide a step-by-step process for conceptualizing and implementing a university-wide digital badging initiative.
- Suggest ways to assess institutional readiness to implement a digital badging initiative.

The Value of Digital Badging for IHEs

Badging and microcredentialing initiatives are growing at IHEs primarily in response to student employability concerns posed by two related and much-discussed workplace trends: The future of work and the skills gap.

The future of work is itself the confluence of two long-term trends, namely the technological transformation of the workplace and longer working lives (Weise et al., 2018). Technologies such as artificial intelligence, robotics, and productivity software are revolutionizing the type of work people do, the modes and places in which they do it, even the kinds of jobs available for humans. These changes are taking place at an ever-accelerating pace. Meanwhile, people are living longer due to medical breakthroughs and lifestyle changes, and, increasingly, professionals are working longer, whether by choice or necessity (Crawford, 2021).

These accelerating changes in the workplace, in turn, drive a second workplace challenge: The skills gap. Workers starting their careers today can expect to see technology transform their workplace multiple times through their working lives. This is true not only for those who work in technologically-specialized STEM fields such as engineering or medicine; the rise of workplace productivity technologies and the migration of communication and creative work to online media increasingly means that everyone will need some degree of technological competency to get by. For employers, these changes lead to a mismatch between the new skills they need workers to have and the skills possessed by their current workforce or job candidates (Murphy, 2021).

Ironically, the very changes that are driving demand that employees become more tech-savvy are also increasing the value of those skills that are not commonly associated with technology. Recent research shows robust future demand not only for technological skills, but for the social/emotional, communication, and critical judgment skills computers cannot easily duplicate (Bughin et al., 2018). Future workers will need the right mix of human and technical/specialized skills to be competitive, and will need to re-skill or up-skill multiple times through their working lives.

A Step-by-Step Guide for Developing a Microcredentialing Program

The skills gap is not a passing trend; it requires strategic and long-term solutions from colleges and universities. Badging initiatives can help higher education adapt to these challenges, and IHEs should exercise strong leadership to develop short-term credentialing programs that meet institution-wide goals (Rodenfels, 2021).

First, badges can be thought of as a bridge between a college education and a specific job. This is by no means a new challenge—almost by definition, college degrees are general and jobs are specific. However, the pace of change and specificity of skills needed in the workplace mean that students increasingly need on-ramps to particular career options, and IHEs need some educational tools that can be developed, deployed, and discarded more quickly than traditional university curricula. Once again, this is not an argument for replacing traditional college education with short-term badges or boot camps (Mulligan, 2022). To the contrary, today’s students desperately need core disciplinary understanding to apply new technological tools effectively, and they need strong human skills to lead, communicate, persuade, and make strategic use of information—and these are precisely the lasting skills a college education is designed to develop. Adding badging programs to traditional degree offerings allows IHEs to deliver a balance of lifelong-learning skills and the specific skills employers need today (Sullivan, 2021).

Second, badges can enable IHEs to extend needed education beyond the end point of a traditional degree program. In a future in which people will experience multiple and far-reaching shifts to their workplaces, people will need to dip back into education throughout their lives for shorter-term experiences. They will need to re-skill in order to be able to do the same job in a new technological context, and to up-skill to pivot to new opportunities (Blumennstyk, 2019).

Finally, badging programs enable IHEs to be players in the growing arena of continuing education, and to keep their core programs attuned to workplace change and employer needs. In short, the advantages of badging to higher education can be summed up as “the power of and:” Degrees and badges, education and training, human and job-specific skills, college and continuing education, enduring skills and timely trends. To adequately serve our students today, IHEs must preserve the type of education they have always done well, and develop new educational tools created to respond to the changes of the new world of work.

STEP-BY-STEP IMPLEMENTATION OF A DIGITAL BADGING INITIATIVE

We offer these 12 steps as a guide to the development of a badging initiative, based on our ongoing experience at FGCU. We stress that FGCU itself is currently on this path of development, not done with it. Currently, our institution is working actively on steps 8 through 10, and planning for steps 11 and 12.

Step 1: Identify which of the institution’s strategic goals digital badging will support.

Step 2: Recruit a core team from across the institution to develop the initiative to ensure varied contexts and challenges are represented.

Step 3: Write a white paper conceptualizing a badging initiative to address institutional strategic goals, taking into account best practices.

Step 4: Present a concise plan to campus stakeholders for buy-in, and to institutional leadership to secure necessary resources and support.

Step 5: Broaden campus involvement by establishing a steering committee.

Step 6: Collaborate with employer stakeholders to develop initial badging pilot programs.

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Step 7: Identify and implement the technology necessary to support the institution's badging plan.

Step 8: Conduct an inventory of existing curricular elements and cocurricular experiences to develop pathways for skills badges.

Step 9: Develop new courses and other activities associated with microcredentials to further initiative goals.

Step 10: Create branding and marketing materials and strategies, including a Web site, to inform multiple constituencies about the growing initiative.

Step 11: Determine appropriate staffing needs for continuing oversight, growth, and support of the initiative.

Step 12: Identify long-term budget models to ensure program scalability and sustainability.

Step 1: Identify Which of Your Institution's Strategic Goals Digital Badging Will Support

The main and most obvious goal supported by badging and microcredentialing is the one guiding FGCU's initiative, namely, improving employment outcomes for graduates. In today's tight labor market, employers struggle to fill vacancies with skilled workers. Each month since 2015, the number of monthly job vacancies has exceeded the number of monthly hires in the U.S. (Gallup, 2022). The skills employers need workers to have range from basic employability skills to industry-specific or technical skills. Sometimes, students need to develop these skills in order to be competitive. Sometimes, graduating students actually have the skills employers need, but employers are unable to ascertain that through school transcripts, or students are not adept at articulating how their academic and cocurricular experiences demonstrate achievement in those skills. Here, too, badges can identify and make visible competencies students acquire, particularly when employers use digital search tools for recruiting and hiring. Thus, a goal to meet rapidly-changing labor market demands will likely include both helping learners gain new skills and making visible their existing skills and knowledge.

The first step in creating a plan to achieve this goal is spending time with employers to ascertain what the changing workforce needs are. Rather than inventing a credential to launch and hoping that it finds an audience of learners and employers, it will be more strategic to determine the necessary competencies in partnership with employers and then collaborate with those employers to create a microcredentialing program that meets their needs. Through close collaboration with industry, IHEs can create microcredentials that enable students to graduate with a degree and an additional credential to launch them on a career path.

FGCU tied the badging initiative to our 2017 strategic plan, which included a pillar for "Community Engagement and Outreach," which focuses on opportunities for innovative educational partnerships in Southwest Florida. The specific objective for this pillar was:

FOCUS on building partnerships and relationships with our five county school districts, area businesses and organizations to optimize opportunities to put FGCU expertise to work to support the region's economy, model innovative and sustainable practices and advance the community (Florida Gulf Coast University, 2017, p. 10).

With a focus on working with local employers, monitoring national trends in skill needs, and creating a structure to address skill gaps, we created a microcredentialing initiative in order to address FGCU's

multidimensional strategic goal. We explain more about the process that led to this structure in the section on writing a white paper.

Step 2: Recruit a Core Team From Across the Institution to Develop the Initiative to Ensure Varied Context and Challenges are Represented

Recruiting a diverse team of initial champions is an essential step toward building an institutionally sustainable badging model and achieving buy-in for the initiative, because microcredentialing is a new paradigm in higher education. IHEs have historically viewed the credit-bearing course as the basic building block of the curriculum. At FGCU, microcredentials can be related to coursework, but they do not bear credit, are not tied to a specific major, department or academic college, and are not required by any degree program. Unlike traditional courses, microcredentials can step outside the credit-bearing curriculum to make strategic use of cocurricular activities; also, unlike the for-credit curriculum, which is rightly the province of the faculty, microcredentials may be designed and assessed by teams of IHE faculty and outside industry partners. Thus, implementing a large-scale microcredentialing initiative requires a cultural shift, which, in turn, requires input from diverse stakeholders to represent an array of opportunities and challenges across the university.

For all these reasons, introducing microcredentials to the IHE community can be fraught with misunderstanding, and vulnerable to opposition, at least initially. From the inception of the initiative, a core team of innovative and persuasive faculty, administrator, and staff champions should provide organizational leadership and strategic vision to engage faculty and staff. The initial executive committee should be relatively small. At the inception of the digital badging initiative, it is imperative to work quickly and efficiently by assigning specific projects to team members. A large committee will slow down these efforts and diffuse individual responsibility for assigned projects. The following items are good principles to consider in the construction of your team:

- The team should have different areas of expertise and professional responsibilities.
- If possible, you should identify potential team members who are already working on initiatives that align with the goals of digital badging. This could be faculty already working on skills pedagogy or career readiness, or an administrator already working with local industry to identify workforce needs.
- You should invite interested faculty members and staff members into conversations with employers to develop shared assumptions about employer needs.
- You should share literature about best practices and successful examples of microcredentialing programs.
- You should invest time in personal meetings with potential team members. They need to understand first-hand how microcredentialing fits into the IHE's mission, benefits students, and connects to their own professional expertise and goals. This takes time.
- You should engage senior leadership who can listen, articulate the benefits of the institution's initiative, and connect diverse teams across it.

At FGCU, the Vice President and Vice Provost for Strategy and Program Innovation led the recruitment of the initial digital badging executive committee. This committee included the Dean of the Honors College, Associate Dean of the College of Arts and Sciences, and the Director of Digital Learning.

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Each person brought to the executive committee relevant knowledge and experiences, including prior experience with digital badging and curricular innovation, substantial connections with local industry, programmatic experience related to transferrable skills, technological expertise, and significant experience with workforce readiness.

Even though FGCU's digital badging executive committee developed a shared vision, not everyone was initially equally familiar with digital badging. Much of the early work of the committee focused on developing a common understanding of digital badging and the workplace challenges it responds to, familiarizing members with the literature on the subject, and developing a common strategy for creating and implementing a plan. It was an enjoyable and collegial process, but it was not quick or easy. Institutions launching this type of initiative should not expect everyone on an executive committee to start at the same conceptual place in terms of digital badging. The early goal is to create that common vision and then quickly start spreading it to the rest of campus. After the initial pilots have been launched, the executive committee should be expanded to include those in charge of implementing the full initiative. At FGCU, the Assistant Vice President of Innovative Education and Partnerships was added after the initial stage to oversee the microcredentialing initiative.

Step 3: Write a White Paper Conceptualizing a Badging Initiative to Address Institutional Strategic Goals, Taking into Account Best Practices

A white paper is commonly used to highlight a complex issue, or promote a project, solution, challenge or methodology. Once the microcredentials idea has been circulating among university faculty and staff and local industry leaders, developing a white paper is a natural next step to formalizing a proposed strategic initiative. This white paper is also a way of getting buy-in across the institution, because it provides a systematic overview of the initiative, answers potential questions, and helps the institution understand how the initiative is tied to the identified strategic goals.

The purpose of this white paper is threefold:

1. To provide an overview of alternative digital credential programs across IHEs, as potential models and strategies for your own institution.
2. To identify potential successes and failures for the institution, based on assessing the published literature in light of institutional and regional context.
3. To develop, explain, and recommend a conceptual framework for the microcredentialing initiative at the institution.

The major points of the white paper should include:

- Why this initiative?—tied to the published literature, to information from surveys of employers, and to the institution's mission
- Benefits to students and employers.
- Benefits to the institution, including defining who you serve.
- The basics of badging.
- Best practices.
- Conceptual framework for microcredentials.
- Technology needs.

- Funding needs
- Proposed next steps.

FGCU's white paper incorporated the above elements to address the needs of students, employers, and established workers while achieving the University's strategic goal of community engagement and outreach (Timur et al., 2020). FGCU's analysis of industry skills gaps led the white paper team to recommend a badging framework based on three types of microcredentials to address multiple needs apparent in the ecosystem that is developing between IHEs and employers (Figure 2).

Industry-Specific Microcredentials

FGCU provides a talent pipeline for several industries of strategic importance to regional growth. Through conversations with industry leaders, the team identified credentials, such as a "Fundamentals of the Medical Device Industry" badge, that provide a competitive advantage for FGCU students and create a bridge between a college degree and employment. Current studies indicate that digital credentials created with employer engagement can enable powerful results (Credly, 2017). These microcredentials can also help address the equity and skills gaps found in fast-paced marketplaces.

Transferrable Skills Microcredentials

Employers in the Southwest Florida region talk about transferable skills being as important as technical skills and knowledge in a specific discipline. Research shows this conclusion is widespread (e.g., Emsi/Strada, Robot Ready; MGI, Skill Shift) (Weise et al., 2018). Beyond immediate career outcomes, many IHE leaders and employment researchers believe students who develop these skills will be better prepared to adapt and flourish in an evolving economy (Blumenstyk & Selingo, 2018). FGCU used the National Association of Colleges and Employers (NACE) competencies as a portfolio of core skills widely endorsed by employers, and developed badges for transferable skills such as critical thinking and communication skills, creating opportunities to: (a) Increase student awareness of the importance of general skills alongside the specialized knowledge of a major; (b) empower students to "name and claim" the general skills they are developing in college in an interview context; (c) translate academic transferable skills into the language of the workplace that employers will recognize; (d) acknowledge the value of skills taught in all parts of the curriculum—general education, electives, and cocurriculars as much as the major. The close link of transferable skills to liberal arts education crucially enables buy-in from Arts & Sciences faculty, who are politically powerful, but too often neglected in campus career initiatives.

Continuing Education for Upskilling and Reskilling

Fifty percent of all employees will need upskilling by 2025, as adoption of technology increases (Rodenfels, 2021). Alumni, working professionals, and people who are looking for new careers, will all need additional credentials regardless of their current education. Professionally-focused learning goals require small, simpler, and more applied learning programs that are shaped by industry need and are modest in cost (Fong et al., 2016). A fundamental reality of the future of work is that professionals cannot treat college as the end of their professional education; Our white paper proposes a way for FGCU to meet

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the need for lifelong learning through a Continuing Education and Skills Academy. For FGCU, this is a crucial opportunity to serve our own alumni as well as benefitting professionals in the region.

Figure 2. FGCU digital badges conceptual framework

<u>Industry Specific</u>	<u>Transferrable Skills</u>	<u>Continuing Education</u>
<i>GOAL</i>		
Meeting needs with industry competencies through alignment and partnership for talent pipeline and workforce development.	Increase awareness of the importance of general skills, empower students to articulate their skills to employers, and acknowledge the value of skills taught throughout a curriculum.	Meeting the skill development needs associated with business and/or economic changes and career changes of the workforce.
<i>AVAILABILITY</i>		
Digital badges are integrated into existing academic programs.	Digital badges are embedded throughout a student's experience from start to graduation.	Digital badges are offered through applied learning programs that are shaped by career changes.
<i>OUTCOME</i>		
Industry Readiness	Confidence Building	Upskilling/Reskilling

Step 4: Present a Concise Plan to Campus Stakeholders for Buy-In, and to Institutional Leadership to Secure Necessary Resources and Support

A white paper developed by a core group of campus champions supplies the badging initiative with a coherent vision, a proposed structure, and an estimate of resources needed and benefits expected. However, moving toward piloting and implementation requires that a much larger constituency on campus be invested in the idea. This investment needs to include both political and monetary capital.

A broad and intensive campaign to present the badging plan to stakeholders across campus is a crucial next step toward implementing the ideas in the white paper. This is a little different from an “awareness campaign” that might accompany an already-completed initiative and be designed to recruit student or faculty/staff participation. Instead, in this campaign the badging plan is being presented to the people who will be needed to implement and fund it. The plan should still be considered as evolving at this point. The concerns, ideas, and suggestions of campus stakeholders will need to be heard and may indeed modify the plan. It might be best to consider this stage as a speaking and listening tour rather than a campaign in the marketing sense. There is a balance to be struck, here. Campus stakeholders

may have some legitimate concerns or new ideas that should be considered—one is always well advised to listen to the people who will implement or pay for your plan. At the same time, it is important to preserve the core concepts and goals of the initiative and not let them be watered down or hijacked by other agendas. In many cases, stakeholder reluctance or skepticism is the result of not fully grasping the vision behind badging, or not understanding how it is different from more familiar academic structures and procedures. Skeptical stakeholders may require a second or one-on-one version of the pitch to catch on. If a single stakeholder is still reluctant after this, it may be best to work around that person, where possible; if larger numbers or whole sectors of stakeholders are reluctant, it is probably a sign that the plan needs to be revised.

With this in mind, the core audiences recommended for this speaking and listening tour are faculty and staff, and institutional leadership. For an initiative to be successful, faculty and staff must be able to buy in to the core idea, imagine their own roles in it, see the benefit to themselves and their unit, and have their concerns taken into account. If the core ideas are grasped and accepted, institutional hurdles or roadblocks will be seen as details to be worked out; without that buy-in to the core idea, “Yes, but what about...?” will constantly derail meetings and encourage cynicism about the project. Still, it’s important that the implementation details—and people’s concerns about them—be acknowledged at this stage of the process. Faculty and especially staff are used to having new imperatives come down from administration or regulators, and it is not always the case that their input is sought or their additional time and effort acknowledged or compensated. Faculty and staff should be empowered to see themselves as having important roles in the badging process, to understand how new responsibilities will relate to existing ones, and to see the project as aligned with their values.

Communicating with institutional leadership presents a somewhat different challenge. Upper level administrators, who are constantly hearing about the need for career readiness from legislators, trustees, and employers, are likely to welcome an idea that offers a clear path to such readiness. They also need to understand what makes badging distinct from other career initiatives, so they can communicate that distinction clearly to external constituencies. To address a common concern within IHEs, administrators should be able to explain how badging complements established academic programs without replacing them. Our earlier explanation of the “power of and” was particularly useful at this stage for FGCU. Administrators will also need to know what kind and level of resources they are being asked to provide. At this stage, the badging team will not be able to produce a detailed budget, and administrators likely will not expect one; however, you can outline the kinds of human and financial resources needed for the project. University leaders are often aware of projects and resources across the institution and beyond that might be leveraged to help a badging project get off the ground, so these conversations can be very useful for development of the project. For meetings with upper level administration, we recommend providing the full white paper along with a shorter executive summary and presentation.

At FGCU, badging champions conducted an extensive speaking and listening campaign from the point the white paper was completed through the next semester; a less intensive version of that campaign is still ongoing. An upper level administrator led the white paper group, so administration was aware that a badging initiative was in development well before the plan was completed. Still, a formal presentation to put the full plan in front of leadership was necessary to keep the project in line with institutional imperatives.

For example, in Florida, State University System institutions are rated by the state Board of Governors using a complex system of performance metrics. These metrics are ultimately tied to funding, and are the subject of intense interest from the state and local oversight boards. One metric measures percent of

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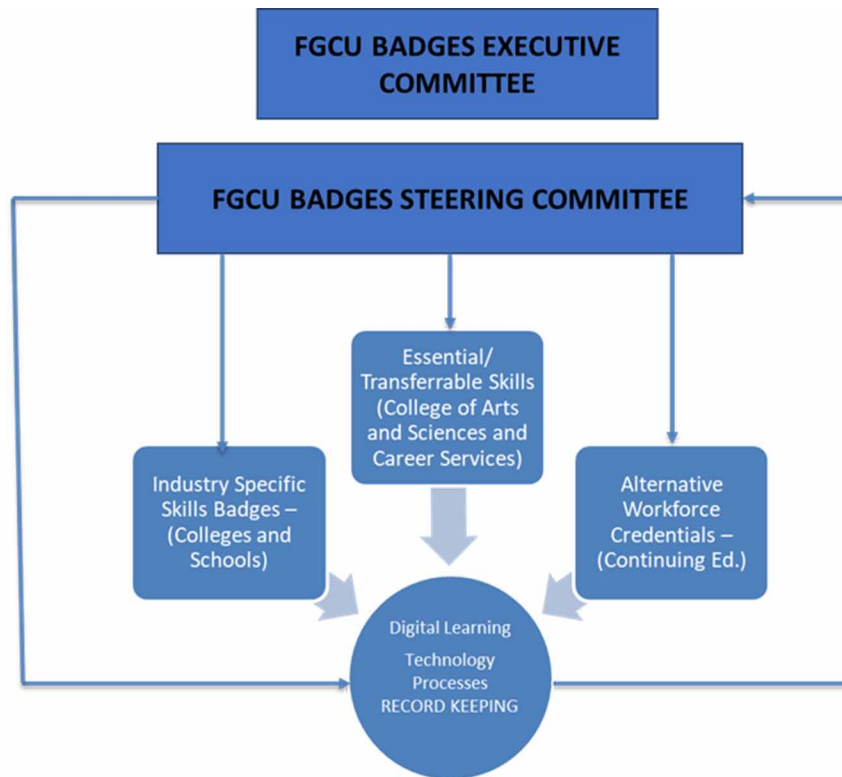
graduates employed above a certain salary threshold one year from graduation. Being able to position the badging program as a remedy to the challenge posed by that metric was an important selling point to administration; the badging initiative in turn gave our administration something concrete to offer in response to trustee and Board of Governors demands for action to improve on this measure. When the Florida state legislature passed a bill mandating implementation of skill badges that students in each State University System institution, FGCU had already been planning and piloting badges for more than a year. Upper administration was attracted to the idea that FGCU could become a leader in the system by going above and beyond what the statute mandated.

On the faculty and staff side, our speaking and listening campaign was more dispersed. Members of the white paper team spoke with faculty from different Colleges and units, including the Academic Engagement unit, which at FGCU encompasses a range of student success functions from internships to career development. Relatedly, forming the FGCU Digital Badges Steering Committee was itself an exercise in building understanding and buy-in. The members FGCU recruited for that team were chosen for their potential to influence their respective units or offices. At your institution, as at FGCU, some units or majors may perceive the benefits of a badging program more readily than others. Also, faculty across the institution may struggle to understand why badges should be structured across academic silos, rather than focused only on students from their own unit. For example, we have had to constantly reinforce the message that we intend to badge transferable skills such as critical thinking in their transferable form, and not just as a measure of competence within one discipline. FGCU's badge pathways guide students to show achievement of core skills across the whole of the college experience (i.e., general education, electives, course in the major, and cocurricular activities), which is different than the major-centered focus to which some faculty may be used. Faculty may also be concerned about how a badging initiative will affect faculty compensation and how it will figure into faculty loads. This is true particularly if badges involve implementing new assessments, as this type of faculty work is frequently uncompensated when undertaken in program or accreditation assessment contexts. It will be vital to have a plan for valuing badging work publicly, and rewarding it fairly.

Step 5: Broaden Campus Involvement by Establishing a Steering Committee

The white paper group is in charge of making the case for badging and creating the initial conceptual framework. The steering committee represents a second stage in development and implementation. The goal of the steering committee is to create a comprehensive plan to design and implement digital credentials in line with the conceptual framework outlined in the white paper. The steering committee focuses on designing a new credential ecosystem and infrastructure within the institution, as well as on working with employers and other stakeholders in the region. Steering committee members bring the voice of the campus community to the University's implementation plan through their engagement with peers. For this communication pipeline to be effective, members of the committee must be diverse, and the committee must include representatives from across the campus, including faculty, staff, and administrators. Within the larger steering committee, an executive committee focuses on defining strategies and researching best practices (Figure 3).

Figure 3. FGCU digital badges committee structure



At FGCU, the Badging Steering Committee was charged by the President to implement the strategic initiative on Microcredentials and Digital Badges as described in the white paper. Core members included:

- Faculty credentialing champions, ideally from each College and School.
- Deans and/or Associate Deans, ideally from each College/School.
- Career Services.
- Student Advisor(s).
- Curriculum specialist(s).
- Representatives from continuing education/Alumni Association.
- Representatives from Digital Learning.

The external employer advisory team includes:

- Targeted Industry Leaders (industry-associated champions)
- Regional workforce initiatives
- Non-profit organizations

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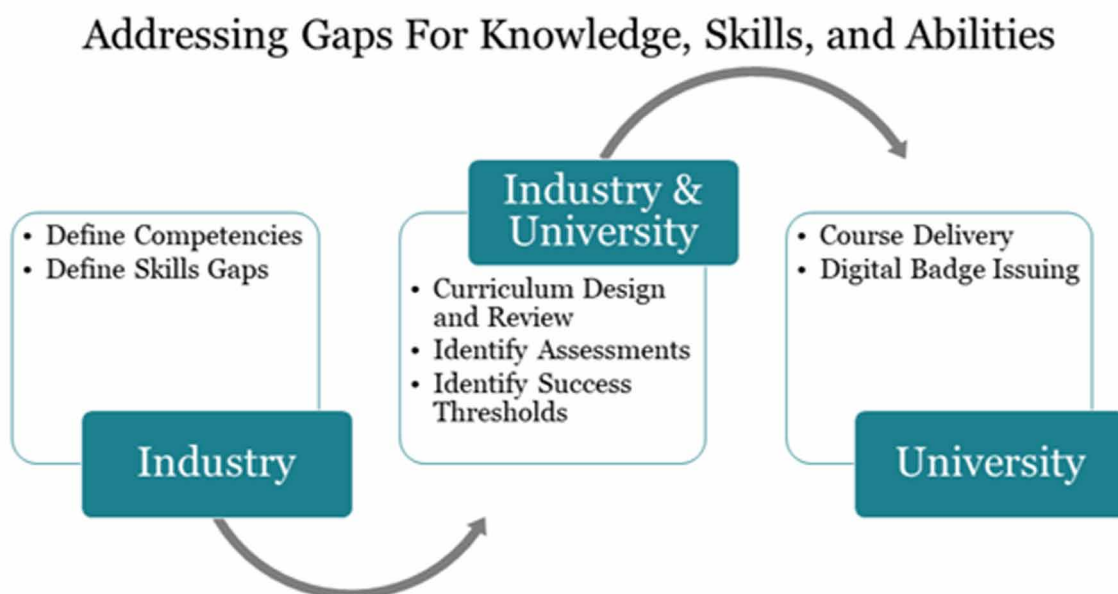
The core objectives of the steering committee include:

- Assessing information coming from pilot badging programs to inform planning for a scaled-up badging initiative within a defined time frame.
- Adapting the badging concept to the needs and strengths of different parts of the university.
- Recommending a sustainable institutional structure, including processes, procedures, policies, and resources.
- Recommending policy changes that may be necessary for adopting digital badges.
- Becoming a team of digital credentials champions.
- Coordinating decision makers at all levels of the institution to adopt the digital credentials through effective processes and procedures.
- Establishing key data points to help inform employers and industries about the needs for a new approach to skills recognition and demonstration.
- Creating internal and external communication and marketing plans to publicize the value of the microcredential initiative.

Step 6: Collaborate with Employer Stakeholders to Develop Initial Badging Pilot Programs

Because the goal of microcredentials and digital badging programs is to respond to specific workforce challenges, partnering with employers is key to the success of your initiative. Working with regional industry partners to design the programs will help you close specific and real skills gaps, secure employer endorsement, and enhance the efficacy and credibility of your program.

Figure 4. Industry and university roles in the development of FGCU's industry specific micro-credentials



IHEs and local industry have mutual goals and interests. Microcredentialing programs are both a consequence of this interdependence, and a catalyst for recognizing and leveraging it. Students are attracted to a regional university in part because they expect high-skills/high-wage employment in the region; but employers can grow employment opportunities in those higher wage jobs only if higher education teaches the competencies needed. Through microcredentialing programs, IHEs and industry can collaborate to create “on ramps” to connect graduates with emerging employment opportunities (Figure 4). If an IHE is to be a driver for economic diversification in the region, it needs to find creative ways to connect general degrees to specific jobs or careers and industries (Felton et al., in press).

To develop microcredentials in partnership with expert faculty members, FGCU dedicated institutional resources to the task and created opportunities to have strategic conversations with industry leaders to identify skills gaps:

- The Office of Strategy and Program Innovation schedules periodic meetings with local employers and industry leaders to talk about competencies needed in specific industries. Once these conversations identify a skills gap that needs addressing, subject matter expert faculty members are invited to these conversations to discuss creating curricula and relevant assessments. Then, the expert faculty member becomes the University point of contact to lead the partnership.
- In the President’s Advisory Circle on Workforce and Economic Development, the FGCU President meets with industry leaders for strategic conversations about building talent pipelines for specific industries. This is an effective channel to identify workforce and professional development needs.
- FGCU is in partnership with a community-based workforce development program, the Southwest Florida FutureMakers Coalition. FGCU representatives attend regional conversations with employers and collaborate to help Southwest Floridians earn the high-quality credentials needed to enter the workforce. The regional goal, which aligns closely with FGCU’s microcredentialing initiative, is to make sure 55% of adults between the ages of 25-64 in the region have education beyond high school by 2025 (Southwest Florida FutureMakers Coalition, 2020).

Step 7: Identify and Implement the Technology Necessary to Support Your Badging Plan

IMS Global Learning Consortium oversees the specifications of Open Badges, a technical standard for microcredentials. Open Badge standards ensure the issuing institution and learner’s identities can be verified, confirm specific criteria were met to receive the badge, empower the badge earner to combine the badges earned at one institution with open badges they have earned elsewhere, and retain student choice over which badges to share (IMS Global Learning Consortium, 2020). A number of badge management systems are compliant with the Open Badges standards (Open Badges, 2020) and, as the market for these products continues to grow, the choices available to IHEs are likely to expand.

Similar functionality exists across the available systems. They all document the requirements for earning a digital badge, track student participation and progress towards meeting badge requirements, award badges when competencies are met, and store and share badges earned. Less common features include pathways that allow multiple badges to be combined or stacked to demonstrate competency of a broader skillset, and a portfolio for students to store artifacts of evidence of the work completed during their skill development journey. Some badge management systems can be integrated with a learning management system (LMS). This allows IHEs to use LMS tools to measure competencies—either within

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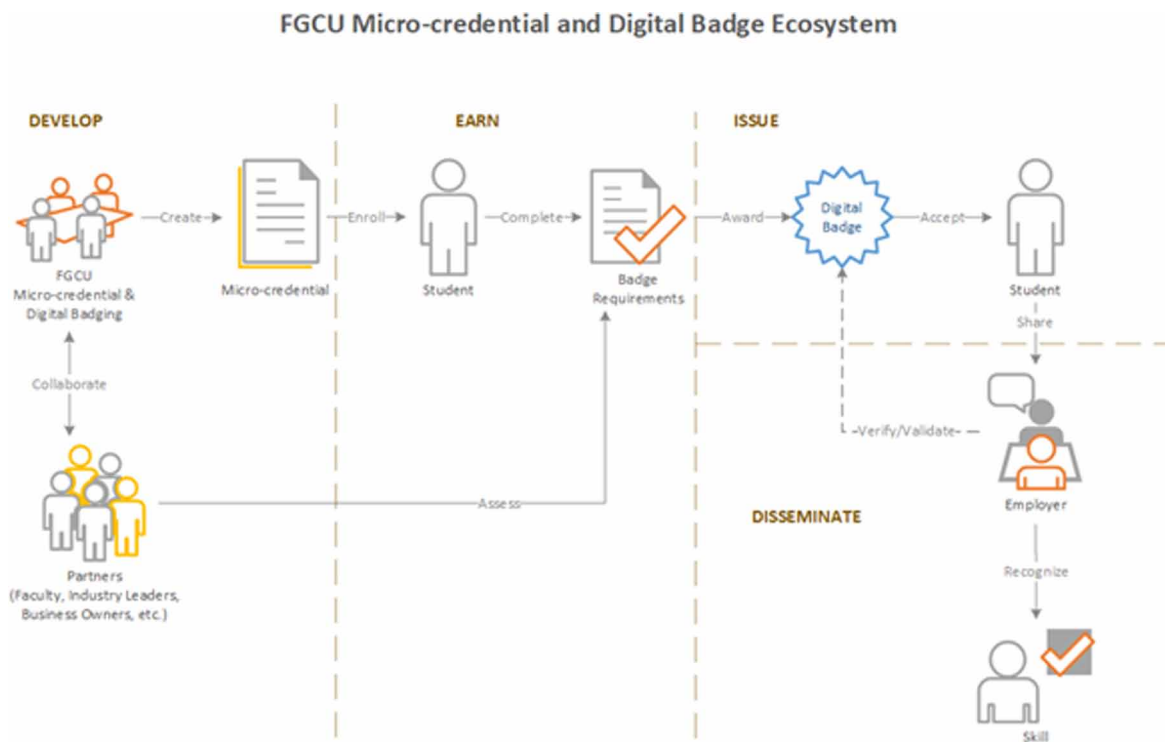
existing courses or within unique badge assessments—and communicate with the badge management system when the criteria for earning a badge are met.

Your institution should consider the following features and functionality during their selection of a badge management system:

- Issuing multiple badges that are independent of each other.
- Issuing badges that can be combined to satisfy requirements of a badging pathway.
- Integration within an LMS.
- Compliance with institutional policies, such as data security.
- Alignment with budget and staffing resources.
- Flexibility to accommodate an expansion from a pilot program to a full scale-up.

Because FGCU plans to develop badging pathways in which multiple digital badges are stacked, we selected an Open Badges certified badge management system that supports this functionality. FGCU's three distinct badge categories (i.e., industry-specific, transferable skills, and continuing education) required slightly different LMS integration and processes, and the institution had to consider the impact scale-up might have. Above all, decisions regarding technology should be driven by the goal of matching available tools to the goals of your comprehensive digital badging ecosystem (Figure 5). FGCU invested significant time on the badge system selection.

Figure 5. FGCU microcredential ecosystem



Implementation of the badge management system took place over a period of two months, leading up to the first pilot program allowing for system administrator training provided by the vendor, process design (e.g., creating the badge issuer profile, setting up unique email accounts for badge communications, and developing naming conventions), and fine-tuning specific responsibilities (e.g., routing of helpdesk calls).

Step 8: Conduct an Inventory of Existing Curricular Elements and Cocurricular Experiences to Develop Pathways for Skills Badges

Badging and microcredentialing may be a new trend in higher education, but IHEs are likely to have in place many of the elements needed to launch a badging program. Indeed, one way to pitch badging initiatives to your institution's internal stakeholders is as a repackaging of things the institution is already doing. To a significant degree, the function of badges is to render the invisible visible by giving recognition to skills that are taught in college, but never explicitly recognized. This invisibility is particularly apparent for transferable skills such as critical thinking, communication, and teamwork. In fact, any IHE offers students multiple opportunities to learn and develop these skills; they just do not show up on a traditional transcript because they are not the name of a course or major. In order to badge skills of this kind, it is not usually necessary for institutions to add additional instructional content. Rather, IHEs need a way to track skills development across courses and academic silos, as well as cocurricular activities where students practice those skills outside the for-credit curriculum.

Recognizing that a badging initiative will utilize elements from across the institution and taking an inventory of existing assignments, events, programs, and offices are important next steps. The goal here is to identify items that might make a suitable component of a badging pathway. This process will engage faculty and staff, which will also help secure buy-in for the initiative. Once you have found components for badging pathways, you will need to sort them according to the skills you wish to badge. The challenge here will be to step outside the traditional boundaries of a specific curriculum or program to recognize which components fit into a given cross-disciplinary badging pathway.

FGCU initially looked to existing assignments and campus activities for badging elements to support our transferable skills badges. By their nature, transferable skills are deployed in a wide variety of contexts—this is what makes them “transferable.” This is true in the workplace, where a core skill (e.g., oral communication) is applied in a sales call, an interview, a product pitch, a shareholder meeting, a video post or a training workshop. It is also true in the college curriculum, where oral communication techniques are formally studied in a course such as Public Speaking, but also developed through assignments in other courses (e.g., a research presentation, a group discussion, a debate, a team project), or in cocurricular or extracurricular activities such as being an admissions tour guide or being in the mock trial club. Understanding the distributed nature of transferable skills in both curriculum and career, we knew it would not be appropriate to identify such skills with a specific course or academic discipline. To capture the wide distribution of transferable skills in the workplace and classroom, the badging initiative needed to cast a similarly wide net.

FGCU's goal was responding to workforce needs identified by employers while ensuring that badges would not tie transferable skills to a single employer. With this balance in mind, we categorized skills according to the competencies developed by NACE, a trade group of corporate recruiters and college career offices (NACE, 2021). These competencies are widely recognized by employers as the core skills

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required for professional success across a range of industries, and we have found that employers are happy to participate in badging events that reference NACE competencies.

For each transferable skill, FGCU wanted to ensure that the student both developed the skill and could articulate the skill to others. To those ends, we structured each transferable skills badge to include three elements: Education on the components of the skill and its workplace application; a pathway of badging artifacts designed to demonstrate achievement in the skill; a communication component in which students articulate their skill achievement in a job interview format. Students may propose both curricular and cocurricular elements as artifacts in a particular badging pathway. The badging subcommittee maintains a list of suggested components and has final authority over which count toward completion of a badging pathway. FGCU's badging system allows students the autonomy to choose their own artifacts—including some the badging committee did not anticipate—while still providing them with guidelines and proven pathways.

Step 9: Develop New Courses and Other Activities Associated with Microcredentials to Further Initiative Goals

As we noted above, microcredentials can take many forms. In some cases, it makes sense to create a new course—either credit bearing or noncredit—to which a badge can be attached. In these cases, the badge is supported by the course content, but the badging assessments are separate from the regular grading structure of the course. Considerations for developing new credit-bearing courses with associated badges include:

- Aligning with the institution's processes and submission deadlines for new curricula.
- Drawing a clear distinction between the grades a student receives in the course and the badging assessment activities. Badging assessments measure specific knowledge, skills, and abilities in a work context, rather than in an academic context. Fencing off badge components from the main graded parts of the course helps IHE's respond to industry-identified needs while protecting the faculty member's academic freedom.

One of the earliest successes of FGCU's microcredentialing initiative was the development of an industry-specific badge tied to a new for-credit course. Faculty followed the curricular approval processes to create an elective open to the entire University: "Medical Device Industry." Developed through an 18-month process working in collaboration with an industry partner who is a leader in the global medical device industry, the Medical Device Industry course and its associated badge created a model for incorporating the industry partner's expertise. In this model, the insight of the employer helps ensure needed competencies are being taught, in much the same way a specialized program accreditor might do; the faculty member determines how best to teach them.

Students receiving a grade of B or higher in the academic course become eligible for the badging assessment, which, in turn, involves several steps: A competency exam on which they need to score at least 80%, a written presentation, and an oral presentation to industry experts at the employer's corporate headquarters. Thus, a passing grade in the academic course does not guarantee achievement of the microcredential badge; rather, the badge is tied to a demonstration of specific knowledge and competencies in a work context.

Step 10: Create Branding and Marketing Materials and Strategies, Including a Web Site, to Inform Multiple Constituencies About the Growing Initiative

Because digital badging is so new in higher education, the initiative will require ongoing marketing to familiarize all stakeholders with the concept and the benefits of the program. It takes succinct and powerful messaging to educate your institution's stakeholders on microcredentials, and to interest students in pursuing badges.

A comprehensive plan will include internal branding and marketing to create organic conversations about microcredentials before the team makes formal presentations to faculty and chairs at the colleges. The process of building a culture of support for the microcredentialing initiative will take time; this is an early and critical step in your branding and marketing campaign. A benefit of starting with less-formal conversations is discovering already existing work by faculty that aligns with the microcredential initiative—these may become your pilot programs. When the microcredentialing initiative is ready to be shared with an external audience, a well-designed Web site can efficiently reach diverse constituencies, quickly motivate them to earn one or more digital badges, and enroll interested students without requiring much staff effort. A Why Earn Digital Badges section should head the Web page, to define digital badges and provide reasons students will want to earn one or more. Videos (either animated or with live actors) are particularly useful to describe how digital badges work, demonstrate how to earn them, and emphasize their value. As with any Web site, the key is to keep the audience's attention. Although academics are inclined towards detailed explanations, student and public facing Web sites work better if they are not text heavy. A Web site with powerful visuals and short videos, along with concise text, can quickly and efficiently educate a diverse audience, including faculty, students, and employer partners.

The Web site can also make enrolling for a digital badge course more efficient. Because earning a digital badge is a completely elective activity, students may not follow through if enrolling in a digital badging pathway is cumbersome or takes an inordinate amount of time. Ideally, students will be able to enroll in a digital badging pathway through the Web site; at minimum, they should be able to enter their contact information and then quickly be contacted by a staff member. The Web site should not be made public until it includes several active digital badge pathways in which students can enroll right away.

A centralized branding campaign for the entire digital badging initiative will complement the Web site and establish the identity of the initiative. This branding effort—whether it is created in-house or through an outside firm—should be led by the microcredential executive committee to ensure all the parts of the initiative are presented accurately, and seen as part of a coherent plan. For example, graphic design elements common to all badges and marketing materials will create cohesive branding. In tandem, faculty and staff champions from different departments and colleges can reinforce the message that this is a strategic and IHE-wide initiative.

At FGCU and with any complex digital badging initiative, we have had to promote (and explain the differences among) badges that fall into different categories. At FGCU, the categories are “industry specific,” “transferrable skills,” and “continuing education and skills academy.” With an eye to demonstrating that these categories are all part of the FGCU microcredential system, we used similar FGCU icons and changed the font and color of the ribbon to make it easy to distinguish the different types of badges (Figure 6).

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Figure 6. FGCU's digital badge designs for each microcredential category



The FGCU digital badging Web site sorts the current and upcoming digital badging opportunities into these three categories, so that an interested student or working professional can quickly find the type of digital badge of interest to them. For example, to learn more about the Oral Communication badge, a prospective badge earner can click into the Transferable Skill Badges subpage and have access to content that explains both transferable skill badges in general and the specific requirements and instructions for earning the Oral Communication badge.

Step 11: Determine Appropriate Staffing Needs for Continuing Oversight, Growth, and Support of the Initiative

A new initiative will make new demands on personnel and resources. A successful comprehensive digital badging initiative requires sufficient staffing for oversight, development, implementation, and support; also, your institution will need to develop a staffing model that allows it to scale the initiative. Badge management system administration, end-user training, and technical support usually operate more efficiently if they are centralized within a single department. The department that supports the technology used to deliver academic courses is often a good choice, although the institution may need to budget for expanded staffing.

During the pilot phase at FGCU, the FGCU Digital Badging Executive Team oversaw the development of new processes and policies related to adding new badges, which provided an opportunity for the team to learn what resources would be needed to implement and oversee this new initiative. Once the pilot phase was in progress, centralized oversight of the FGCU Digital Badges initiative moved to FGCU's Office of Innovative Education and Partnerships, in the Office of Strategy and Program Innovation, which includes the Department of Digital Learning and Continuing Education & Skills Academy. This centralized oversight ensures efficiencies in attending to critical tasks such as reviewing new badge suggestions, continuous review of existing badges, developing new processes and policies related to adding new badges, marketing and dissemination of information, and managing the growth of the program.

We found that, in order to leverage faculty and staff expertise, the task of developing new microcredentials is best divided among a faculty subject matter expert, an instructional designer, and an instructional technologist. Because FGCU instructional designers are assigned to support specific departments/programs, faculty and instructional designers develop a solid and trusting working relationship. These

existing relationships facilitate collaboration on microcredential courses and can expedite the design and development of microcredential courses.

With support from upper administration, new resources have been provided for scaling the micro-credentials programs, including addition of an Assistant Vice President with badging as a major part of her duties, and another staff member attached to the Assistant VP. Funding was also approved for a new Instructional Technologist position whose primary responsibility is administration and support of the badge management system, and one Instructional Designer to offset the workload associated with developing new digital badging courses.

Step 12: Identify Long-Term Budget Models to Ensure Program Scalability and Sustainability

For early start-up costs, most IHEs rely on support from upper administration. However, to ensure scalability and sustainability, your institution will need to identify long-term sources of support for its budget. Promising sources of financial support could be from an industry partner, from philanthropy, legislative budget requests or perhaps through a redistribution of existing resources. It is important to begin these conversations early; faculty champions, Department Chairs, and Deans may have suggestions for auxiliary revenue streams.

Creating standard budget modules will help you explain your budget to potential funders. For example, for a badge that is not associated with a credit-bearing course, you will need to know how much to budget for compensating faculty and expert instructors and how much for administrative and technology support. If a badge is specific to an established course, the institution might need only to compensate the faculty member or course coordinator for the badging competency examinations.

Budget design has been an iterative process at FGCU, and we are still developing best practices. Issues that are likely to surface for microcredentialing programs at IHEs include:

- Standardizing faculty costs across divisions and colleges.
- Establishing the cost of maintaining the badge inventory, including faculty and staff costs, marketing, and Web site design and development.
- Creating compensation models for faculty assessing badge artifacts and interviews for the transferable skill badges.
- Identifying point people with specific expertise in content areas, so that IHEs have human capital devoted to the initiative in multiple areas of the IHE.
- Continually benchmarking against other microcredential programs, so that IHEs do not outprice the market.
- Strategizing about the most efficient and sustainable way to organize the microcredentialing infrastructure at an IHE.
- Timing the scaling of the IHE's program to leverage complementary initiatives.

Next Steps: Developing a Process for Assessment and Quality Assurance

It is necessary to plan and create a process for assessment and continuous improvement of the badging initiative. Because FGCU's is still a new microcredentialing program, we are still developing best practices for assessment and quality assurance. With so many stakeholders (i.e., students, industries,

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faculty, and administration), FGCU's assessment model will need to encompass a number of different strategies to measure:

- The impact of the badge on the learner's employment outcomes.
- The value of the badge to industry.
- The need for new technologies to deliver badges.
- The need for resources such as staff and budget.
- The adequacy of faculty involvement and compensation models.
- The efficacy of marketing strategies.
- The impact of the microcredential program on IHE auxiliary revenues.

CONCLUSION

Rapid changes in the world of work have called for IHEs to rethink their approach to student employability. Some think these changes call for a complete overhaul of undergraduate education, while some even question whether the curriculum and institutional structures of the IHE are equal to the task of preparing students for the future of work. To the contrary, at FGCU, we have found that career preparation can fruitfully be integrated into the traditional college experience; the two do not need to be at cross purposes. Badges and microcredentials can both supplement existing academic programs, creating bridges to specific jobs, and can recognize valuable core career skill development that is already a feature of IHE curriculum. FGCU's experience developing and implementing a comprehensive digital badging initiative has benefited our students, energized our faculty, and created opportunities to partner with regional industry. We believe that microcredentials and digital badges will continue to be a complement to degree programs and a way to verify learning achievement for particular skills, knowledge, and abilities needed to meet employer needs and prepare students for the world of work. The badging initiative being implemented at FGCU will not match exactly your institution's needs or context, but the career preparation need and institutional toolbox are sufficiently similar across IHEs that some of FGCU's practices can likely be adopted by others. We trust that the blueprint they presented in this chapter will provide a foundation for other IHEs creating their own digital badging programs.

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Chapter 15

Implementing a Digital Microcredential Strategy at the University of Washington Continuum College

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ABSTRACT

This chapter explores the emergence of digital microcredentials and describes how the University of Washington's Continuum College is participating in the iterative design of infrastructures and approaches to support these new forms of credentials. The authors explore the current landscape of digital credentials, including the possible benefits, nascent research, and offer a brief introduction to some of the coalitions and formative work underway in many settings. The chapter details a three-pronged strategic approach at the University of Washington's Continuum College. Each of the three efforts is intended to help both the local context served by Continuum College and a new digital credential ecosystem. The three project areas at Continuum College include using digital credentials for university employees, digitally badging the college's extensive portfolio of non-degree programs, and offering digital credentialing as a service to other university departments. The authors describe these ongoing projects, their current state, and implications for further work in digital credentials.

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Opportunities to access formal higher learning are evolving rapidly. We intentionally use the term higher learning, rather than higher education, because the connotation of the current higher education system limits understanding of an increasingly complex and emergent set of systems that are evolving to meet societal needs beyond secondary school. These emergent systems are generally separated from more traditional forms of higher learning and treated as discrete entities. Historically, corporate or military training, apprenticeships, trade schools, and traditional colleges have coexisted with little or no ability for learners to seamlessly demonstrate their learning across these entities. Though specialized services and colleges have emerged to help learners get credit for engagement across these education providers, these services are not evenly available to all learners and offer limited interconnectivity while requiring significant effort on the part of the learner.

A National Student Clearinghouse report (Causey et al., 2022) notes that 39 million Americans have some college credits but no credential as of 2022, up from 36 million in 2019 (Shapiro et al., 2019). As defined by the 2019 report, a credential includes not just bachelor's degrees, but associate degrees and certificates as well. Completion of a credential continues to provide important short term and long term benefits, including a substantial wage premium, particularly for bachelor's degree holders (Abel & Deitz, 2014). Yet a meaningful credential remains out of reach for many learners, in part because of life circumstances that prevent them from effectively studying at traditional institutions. Given that 74% of learners attending college in the United States have at least one characteristic that identifies them as a 'non-traditional' student (U.S. Department of Education, 2015), perhaps this should not be surprising.

Furthermore, completion of a single credential is unlikely to provide the formal learning needed over a lifetime in which current 18-year-old students have a better than 50% chance to live longer than 100 years and will therefore need to work for close to 60 years before retiring (Gratton & Scott, 2017). The mix of learning requirements and opportunities are likely to diversify and blend over this longer life. Learners will create new pathways to and through degree programs as well as other forms of learning programs. The signaling function of paper-based credentials is limited as a detailed means of describing what learners know and can do in this increasingly complex environment. Providing an institution name and degree major on paper are important but not sufficient data about learner capability.

Digital credentials are one crucial component in an evolving ecosystem of higher learning built to serve people over a lifetime, and not just during the traditional formative years of young adulthood. When credentials become digital, they can become more granular and descriptive of what learners know and, more importantly, can do. These digital credentials, when based on open standards, become flexible, unbundled, individualized, equitable pathways allowing everyone to thrive in a globalized, ever-changing world.

DIGITAL CREDENTIAL LANDSCAPE

What is a digital credential? Terminology is still evolving and overlaps in meaning with other learning completion signals. In its *Hallmarks of Excellence in Credential Innovation* (2020), the University Professional and Continuing Education Association (UPCEA) notes that a broader term, alternative credentials, “includes certificates, micro-credentials, digital badges, or micro-certificates— [and they] signal specific competencies, certification, and sometimes licensure” (p. 1).

The UPCEA (2020) definition of 'alternative credentials' elucidates the broadest landscape of credentials outside of traditional undergraduate and graduate programs, regardless of format. For this chapter,

we choose to focus on a subset of alternative credentials: those that are designed to be digital from the outset. Digital credentials have many forms, but it is increasingly common to hear the term ‘digital badge’ used synonymously with digital credential. Critical to the use cases described in this chapter is that these credentials are ‘open’ and can therefore be shared across contexts (business, university, etc.).

Open digital badges emerged from Mozilla Foundation research in 2010, eventually leading to the publication of open standards for creating, displaying, and using them in 2012 (IMS Global Learning, 2022). As defined by the Mozilla Foundation, a digital badge is

A digital representation of a skill, learning achievement or experience. Badges can represent competencies and involvements recognized in online or offline life. Each badge is associated with an image and some metadata. The metadata provides information about what the badge represents and the evidence used to support it. (Mozilla Foundation, 2014)

Mozilla rightly considered the openness of the technology standards, including “metadata specification, APIs, [and] verification framework” to be crucial to widespread adoption of digital badges. They envisioned an ecosystem in which “open infrastructure technology supports independent badge issuers and displayers,” which led to the democratization of badge issuing, collection, and integration under the auspices of the Open Badge Initiative, or OBI (Mozilla Foundation, 2014).

We will use digital credentialing, microcredentialing, and digital badging synonymously throughout the chapter. Unless otherwise noted, the terms are referencing the (2014) Mozilla OBI definitions and presume an approach that centers credentials around the learner and their lifetime needs for education.

Current State of Digital Credentials Research

Though Mozilla launched its Open Badge Initiative over ten years ago, movement has been slow and distributed across several different efforts. As of 2022, however, new consortia are forming and individual efforts are becoming more connected. In 2016, Credential Engine, a nonprofit organization originally funded by the Lumina Foundation, was formally launched to catalog all higher education credentials in the United States (Credential Engine, 2022). Since that time, a steady stream of collaborations have been announced among employers, governments, and higher education institutions to begin creating new, transparent learning pathways for adults (e.g., Badgr Team, 2021; Griffin, 2021; PARIN, 2021; WDI, 2020).

Despite these growing efforts, only a handful of peer-reviewed studies have investigated employment and labor impacts from digital credentialing, though the limited empirical data points to positive outcomes. In a survey study of 73 employers across the UK, Perkins & Pryor (2021) found that simple awareness of digital badges was lacking among nearly all (97%) respondents. Despite this, employers were interested to learn more and to indicate various areas in which they perceived microcredentials could be particularly useful. Moreover, many employers were able to envision microcredentials as useful to the type of competencies that they had already identified as priorities within their organizations, like teamwork, effective written communication, and initiative-taking. The majority of survey respondents indicated that they would be interested in using microcredentials as part of their hiring processes.

In a study of secondary education employers, Gauthier (2020) found that microcredentials are perceived to represent actual skills possessed by the learner, especially when compared to a degree transcript. Microcredential earners were perceived to be job ready in the areas in which they held relevant

microcredentials, unlike some applicants without microcredentials. This led Gauthier to the conclusion that microcredentials may do a better job of indicating to employers what potential employees can actually do, rather than knowledge they have acquired but cannot effectively implement.

Raish and Rimland (2016) surveyed 188 human resources practitioners about their perceptions of digital badges in the context of information literacy. They found that 95% of respondents agreed that seeing detailed information about the skills obtained by applicants would be helpful when compared with typical application materials, with the same percentage either wanting more information or ready to adopt digital badges in their hiring processes. While encouraging, the authors concluded that the nearly two-thirds of human resources professionals who wanted to learn more pointed to the need for additional understanding of digital badges among this group.

In the technology sector, Pitt et al. (2019) conducted in-depth interviews with 11 human resources practitioners and hiring managers in the Seattle area, finding that many employers valued the potential sorting functions provided by badges while being concerned about the potential difficulties of adding badge review to their hiring workflows. Interestingly, many participants both valued and were concerned about the credibility of digital badges, which led the authors to conclude that “digital badges need to be legitimated” on the employer and workforce side before the additional credibility provided by badges can be effectively realized.

It is worth noting, however, that looking at digital credentials from a labor and employment perspective represents only one of the contexts that researchers have explored. Many other educators and scholars are focusing on badges as a motivation mechanism within courses and programs, often under the umbrella concept of “gamification” or “gamified learning” (Fanfarelli & McDaniel, 2017; Gibson, et al., 2015; Jovanovic & Devedzic, 2014; Roy & Clark, 2019). The decision to take a systems-level view reflects the strategic focus of this chapter and our interests as college administrators.

Though collaborative efforts are still nascent, and the research is limited, we are moving ahead to develop a three-pronged strategic approach to microcredentials in the University of Washington’s Continuum College. This approach is initially focused on programs and events that do not lead to a degree and is based on the unique portfolio and position of Continuum College. The remainder of the chapter will describe this work in context and provide some insight into how it functions as a part of broader efforts to increase educational equity, create new success signals, and serve as a framework for a lifetime learning ecosystem.

CONTINUUM COLLEGE STRATEGY AND DIGITAL CREDENTIALING

Since its initial founding in 1912 (as the University of Washington Extension), Continuum College has provided opportunities for educational advancement outside of traditional methods (UW News, 2016). Its original mission was similar to other extension units founded in the late 1800s and 1900s to make elite higher education institutions more accessible to the general public during a time of rising populism and anti-elitist sentiment (Wedemeyer, 1981). The first programs offered by Extension were not degrees and courses typically found on campus, but rather outreach efforts to make the scientific knowledge of the university more practical in everyday usage for the broader population.

Over the ensuing decades, University of Washington’s Extension unit changed names a few times and officially became Continuum College in 2016 (UW News, 2016). By 2022, Continuum College was providing diverse educational offerings to more than 60,000 learners of all ages through more than 300

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programs each year (UW Continuum College, 2022). While mainstream courses and degrees are now a crucial component in those offerings, Continuum College continues to offer a spectrum of pragmatic instructional programs that help people advance in their careers and lives. These offerings include dual credit programs for high school students, academically oriented Youth and Teens camps and online programs, Summer Session courses for traditional students, workforce certificates for mid-career professionals, and the Osher Lifelong Learning Institute for learners over 50. The growing need for formal learning across longer lifespans has led to thinking about how universities can serve learners as they move in and out of educational ecosystems. Several higher education leaders have begun to refer to this movement as the “60-year curriculum” (Branon, 2018; University of California Irvine Extension, 2016; University Professional and Continuing Education Association, 2017).

As outlined in Branon (2021), we are implementing a strategic plan aligned to the emergent concept of a 60-year curriculum. The five strategic pillars of this plan include: developing programming for every stage of a much longer life, different forms of student services, a new technology stack designed for connected learning over a lifetime, changes to funding and policy models, and digital credentialing. Each of the five elements outlined, and perhaps many others, will be critical to creating a formal education system that supports longer lives and rapidly changing societal conditions (Gratton & Scott, 2017). Digital credentials are essential because they enable trusted, robust, and flexible connections between ongoing learning opportunities and meaningful employment opportunities that will continue to change throughout learners’ lives.

To illustrate this point, consider the value of digital microcredentials from a learner’s perspective. Perhaps the simplest example involves a learner displaying a digital credential as part of an employment application. Because this credential was issued using the Open Badges framework, it is directly linked back to the issuing organization (e.g., Continuum College), which allows the potential employer to access additional information about the credential and verify that the applicant has, in fact, earned the credential. The digital credential thus serves as the foundation for increased trust in the hiring process, which benefits both the applicant and the potential employer. Extending this example further, suppose the applicant had multiple digital credentials in a range of role-relevant skills that could be similarly verified. Such a scenario further increases trust in the hiring process, as long as the credential issuer is considered trustworthy by the potential employer.

Furthermore, consider a learner in a job role that changes because of technology innovation. How might this learner remain proficient as their role changes and what evidence of proficiency might they find useful? Or perhaps the learner is in a job role with clearly identified upskilling requirements for a promotion. How might they best make the case to their employer that they meet the promotion requirements? In both cases, the ability to provide specific, trusted, and verifiable digital credentials provides a substantial amount of value to the learner and to the employer.

This concept can be extended several steps further. As part of the credential development process, credentials can be linked to specific skills with known relevance in the broader labor market, such as those identified by labor market data company Emsi Burning Glass (Coffey et al., 2020). In addition to making the credential itself stronger, this dynamic connection to relevant metadata can also provide direct information about job opportunities that require the skills embedded in the credential. Moreover, pilot projects like the Indiana Achievement Wallet, which visually displays a student’s current skills in reference to skills required for in-demand occupations, suggest that as more skill-based credentials are added to a given credential ecosystem, the interconnections between credentials and pathways towards new opportunities also become more apparent for students (Fain et al., 2021).

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This interconnectivity between skills and opportunity is particularly salient for readers of this volume. As students progress in their careers and look to regularly upskill or reskill, the skills-based credential ecosystem makes it much easier for students to flexibly re-engage with education providers. Given the appropriate interconnections with labor market data and skills alignments based in open data standards, digital badges can help students visualize not just their current set of skills, but also how these skills might apply to related, in-demand disciplines. This approach ensures that the skills students have already acquired are recognized today, even as they add to these skills over time.

Digital credentialing also has substantial benefits when viewed from the corporate or organizational perspective. In the Puget Sound region of Washington State, many employers are facing a shortage of qualified employees, including in entry-level positions that require sub-baccalaureate, skills-based credentials (Roberts, 2021). This creates an opportunity for educational institutions to work with local organizations to help them create better hiring pipelines and upskill current employees, anchored by digital credentials. Institutions can also partner with advisory boards, regional employers, and government agencies to validate skills-based credentials and ensure that they are aligned with the needs in the region. This work could provide yet further benefits to students and the communities in which they are embedded by aligning these skills-based credentials to state and local reskilling efforts, which would provide pathways to education through programs for those displaced by the changing business and technology landscape.

Digital microcredentialing is poised to provide substantial benefits to learners and to workforce ecosystems, functioning as crucial connective tissue between learning experiences and employment opportunities, and is thus an important part of our long-term strategy at Continuum College. With this in mind, we set out to design a microcredentialing approach that would allow our learners to take full advantage of these opportunities and develop the internal infrastructure to connect to the emergent microcredentialing ecosystem.

Digital Badge Design Philosophy

Because badges act as signifiers of learning, we decided to focus our design philosophy on making these signifiers as valuable as possible for learners and employers. The core of our design philosophy thus revolves around three questions:

- Why would a student want to display this credential on a résumé, digital wallet, or social media profile?
- What message does the badge send about the learner who earns it?
- What value does the badge represent for potential employers?

Since most of the educational offerings at Continuum College are aligned to employment-relevant skills, answering these questions has not been particularly difficult to date. We have made a distinction, however, between badges that recognize completion of a course or program and those that represent competence in a distinct skill, which we refer to as achievement badges and skill badges, respectively. Achievement badges certify that a learner has completed one of our courses or programs, whereas a skill badge calls out a specific skill that a learner builds within a course or program. To take an example, consider our Engineering Leadership certificate. This four-course program sequence teaches team leadership fundamentals for emerging engineering leaders with a focus on quantitative analysis and project

management. An achievement badge for the program would describe the general knowledge and activities completed as part of the program and the baseline requirements for completing the certificate. A skill badge within the program would isolate a skill like “use decision trees to guide complex decision making” and provide a robust accounting of how the learner demonstrated competence in this skill. An achievement badge functions as a validation of academic work completed, while a skill badge certifies a specific level of competency in an individual skill.

We think this distinction is important for several reasons. First, given the lifelong learning context discussed above, learners will likely build skills in one context that are used in another context later in their career. Unbundling verifiable assertions of skill competence from the programs in which they are embedded is thus valuable for learners as they move across employers, sectors, or careers. Second, achievement badges remain a valuable shorthand for academic achievement and as evidence of sustained attention to professional development. While they do not have the same specificity as individual skill badges, they represent completion of a larger body of academic work and are more easily shared on social media profiles. Third, though skill badges may represent much or even most of the work completed within a program, they do not add up to the totality of a program. The full range of knowledge and understanding built within a program is not captured within the range of skill-based assessments. Fourth, skill badges can be tied directly to skills taxonomies like Emsi Burning Glass labor market skills, Credential Engine competency frameworks, or Open Skills Network Rich Skill Descriptors (described in more detail below), or used within badge wallet frameworks described above. These connections further increase the value that badges provide to students. Finally, providing learners with both types of badges allows them to make decisions about how much information of what type to present for any given opportunity.

Another part of making these badges useful to learners and employers is ensuring that all credentials issued are based on assessments aligned with the content and skillset of the credential. For achievement badges, the existing course assessments are often sufficient, provided they are adequately aligned to the learning outcomes for the course and program. For skill badges, assessments must require students to demonstrate proficiency in use of the skill itself, which is typically described as “authentic assessment” (Wiggins, 1990). Though this type of assessment may already exist in some courses, particularly in courses that were initially developed to align with industry skills, our experience demonstrates that many assessments will need to be changed or overhauled completely to meet this expectation. This means that achievement badges are typically much easier to develop because the assessments are often already in place. Skills badges are more difficult to develop because they require analysis of the skills embedded within courses and programs and the creation of new, robust assessments.

Focusing on the value we can offer to learners through microcredentials guides a design philosophy that prioritizes both flexibility and parsimony in badge offerings as well as sustained attention to assessment. Despite these foundations and our strong belief that learners benefit from digital microcredentials, we must also remain cognizant of the dangers inherent in this effort.

Potential Pitfalls

We have identified several major risks that also guide this microcredentialing effort. First, issuing large numbers of digital credentials may reduce the perceived value of existing credential offerings within Continuum College or even across the University of Washington. Badges, by their nature, can be issued by anyone for any reason and lack the oversight frameworks embedded in many other credential types. As more badges are awarded by different groups inside and outside of academic environments, the risk

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grows of a landscape flooded with credentials and no clear way of filtering meaningful credentials from less valuable ones. College badges, by association with this overwhelming landscape, may be perceived as less valuable as a result. Even worse, rather than opening new doors, creeping “credentialism” could create more barriers for workers than they eliminate (Fuller & Raman, 2018). We intend to mitigate this risk by only issuing credentials that carry specific and meaningful value for learners through clearly-defined assessments aligned to relevant skills or learning outcomes.

Second, digital credentials risk becoming a distraction from the core work of Continuum College. Many early digital credential pilot projects at Continuum College included standing up a new course and a new assessment mechanism outside of our typical operational approach, rather than integrating digital credentials into core work. Digital credentials are not an end in themselves, but rather a means to organize, make visible, and provide verification of learning. Moreover, if students do not find digital credentials valuable even when attached to our core portfolio, these efforts could amount to a substantial and expensive waste of human and financial resources. This risk can be mitigated by using new pilot projects to assess the extent to which badges are claimed by students, posted to social platforms, and visited by potential employers before moving forward with a portfolio-wide implementation.

Third, there is a risk in offering digital badge hosting for partners (described in more detail, below) in addition to those for Continuum College programs. Maintaining clarity between digital credentials issued by Continuum programs, versus those Continuum is issuing on behalf of other entities could be confusing to learners. We plan to mitigate this by issuing different types of digital credentials under different “issuers” within the badging software and distinguishing the visual design of partner badges from those used by Continuum College.

Despite these potential issues, we believe that a robust investment in digital credentialing will provide substantial benefits to students and communities, if sufficient care is taken to mitigate and minimize the potential risks. Creating and enabling high-quality badges that meet individual learner needs and allow them to define flexible pathways towards their goals is directly in line with the mission of Continuum College and the needs of our region.

DIGITAL BADGE IMPLEMENTATION

Continuum College is focused on three different populations as a part of our digital badging efforts:

1. Continuum College staff: Designing and developing badges for internal staff, to test out badge designs, increase internal awareness of what digital credentials can do for learners, and to recognize the substantial amount of on-the-job skill development that is already taking place.
2. Existing non-credit portfolio: Adding digital credentials to the existing portfolio of non-credit learning opportunities, which includes some non-trivial quality improvement work in the courses and programs themselves.
3. Partner organizations: Offering badge design and delivery services to partner organizations at the University of Washington to expand the ecosystem of issuers and normalize microcredentials as an accepted part of the new higher learning landscape.

Design considerations for each of these populations will be described in detail.

Dogfooding¹

One way Continuum College has begun to integrate digital credentials into daily work is to start offering them to staff. Though still a work in progress, the team is starting with newly hired members, who will earn achievement credentials for acquiring foundational knowledge about areas like the structure and history of the unit, how Continuum College is situated within the broader University of Washington context, and Professional and Continuing Education in the United States. Continuum College also plans to use credentials to track important onboarding and compliance training, and will be sourcing additional ideas through surveys, focus groups, and interviews across the organization. The intention is to create more visible career pathways within the organization and to recognize the skills and achievements of staff.

We decided to start with internal employees for several reasons, including an important philosophical concern. If Continuum leadership and staff understand and believe in the usefulness and benefits of earning digital credentials for learners outside the academy, these new credentials should also help them, as university employees, advance in their own careers. It is critical to not view digital credentials as a mechanism only suited for learners without a college degree. It might be tempting to think that universities employ only highly educated workforces. There is, however, wide variation among university staff who cover nearly every job found in a small town (e.g., police, lawn care, food service, healthcare, etc.). In some states, universities are one of the largest, if not the largest employers, which also makes for a robust digital credential research and development environment.

An important step in the process of developing digital badges for Continuum staff is to define functional competencies for individual roles and build pathways to development into those roles. Some roles initially targeted have larger numbers of staff, like learning designers, program managers, learning technologists, operations specialists, and project managers. The first step is to identify specific skills and competencies required for the role and then identify existing training courses for those skills. Continuum College plans to provide digital credentials for successful completion of on-the-job demonstration of skills learned through these existing internal and external training programs. Should no training exist that effectively covers all aspects of a role, we plan to use our in-house learning design team to create new career pathways using digital credentials.

A related, though somewhat distinct, effort involves developing a pathway of teaching preparation credentials. Because most Continuum College certificate instructors have full-time, industry careers rather than a faculty background, they typically do not have much preparation for teaching. They often need training on how to develop courses, engage students, utilize learning technologies, and become competent in other aspects of high-quality instruction. Our instructor development team is developing a modular, intentionally stackable set of trainings that include branching pathways for instructors interested in teaching in different modalities (e.g., fully online) or with different emphasis (e.g., foregrounding equity in the classroom). Offered initially to Continuum College's non-credit instructors as a benefit of working with us, this preparation may eventually become required to teach in Continuum College certificate programs. Though the needs are different, this defined teaching pathway may benefit others at the University of Washington as well, and possibly similar instructors at other universities.

Credentialing the Non-Credit Portfolio

Continuum College offers dozens of certificate programs across a wide range of disciplines, as well as an increasing number of standalone courses, but only a handful of these programs and courses have

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skill or achievement badges attached. The second core element of our digital credentialing approach is thus adding a carefully selected complement of digital credentials to courses and programs within this portfolio. Most of these programs have existing advisory boards consisting of individuals from corporations, non-profits, and government agencies whom we plan to engage in validating the relevance of achievement and skill-based microcredentials. Because the advisory boards are made up of industry experts, this will help ensure that the credentials are aligned to the core skills in various fields, and thus provide maximum value for learners. We also plan to leverage the advisory boards to help describe the skills that students are gaining through programs in language that appeals to potential HR managers and is consistent with the larger hiring landscape.

Most of the work in developing badges for existing programs and courses consists of defining the skills and achievements to badge and ensuring that the assessments allow students to demonstrate proficiency. As described above, sometimes the existing outcome statements and assessments are sufficient, but more often they require substantial redevelopment to be suitable for high-quality microcredentials. Our current strategy to address this gap includes offering substantial professional development to Continuum College staff who manage programs as well as the instructors and course developers involved in each of the programs. Our instructor development team is piloting a training course with a subset of staff and instructors to evaluate the efficacy of this approach before rolling it out across Continuum College.

Several interesting things become possible once we have developed an ecosystem of digital credentials. First, it will be much easier for potential students to understand the discrete skills and knowledge taught within each program and how these relate to labor market trends. Second, it will allow us to evaluate potential skill gaps in existing programs and rectify these gaps in a targeted manner. Third, it will foreground potential overlaps in skill development across Continuum College programs, which may allow us to streamline program offerings. If we find, for instance, that several skills are foundational to many courses, we may consider it worthwhile to create a specific set of modules to teach these skills across programs. This, in turn, will provide a means to focus more intentionally on how we can create longer-term pathways for returning learners by only asking them to focus on areas of curriculum and skill development not covered in their previous engagements with Continuum College.

Taking this a step further, it is not hard to imagine linking these credentials to other programs at the University of Washington or other institutions. Excelsior College, for instance, already recognizes a handful of Continuum College non-credit programs for academic credit towards degree completion (Coufal, 2021). This effort could markedly expand with well-defined credentials that stack into relevant undergraduate or graduate academic credits. Opportunities for collaborations of this type may also increase as we help other units build up their own microcredentialing efforts.

Badging as a Service

The third aspect of Continuum College's digital credentialing strategy involves offering badging as a service to partners across the University of Washington. Continuum College is deeply integrated with other academic units at the UW and partners with them to deliver a wide range of academic programs. We have begun to field requests from schools and colleges to assist with badging within degree programs and certificates. Like our own badging efforts, we are starting by identifying the skills that are integral to a certificate or degree program or the achievements that learners may find valuable to display publicly, in partnership with faculty, program directors, and department chairs, and then providing support to align

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assessments to these microcredentials. Continuum College will also assist programs with aligning skills to external frameworks, like Emsi Burning Glass skills, to make their credentials more valuable to learners.

These partner opportunities include substantial technical and graphic design assistance as well. We assist with new badge designs, implementation of credentials in a badging system, and training for external staff and faculty. We also provide ongoing support of the underlying badge technologies and assist with integrating badge issuing systems with learning management systems.

PROGRESS TO DATE

Though the plans described in the previous section are ambitious, one pilot project is underway in each area and additional pilots are planned to explore different approaches to issuing microcredentials. The first two pilot projects described here are examples of badging-as-a-service. The third is a standalone course with an attached badge adapted from an external design agency, while the fourth is a set of internal training badges for Continuum College staff.

The Confluence Health Emotional Intelligence pathway is a four-part series of group workshops focused on helping people learn to lead themselves and others with emotional intelligence. Completion of each workshop earns a badge and completion of all four badges stacks to a meta-badge. This project helped us understand what a badging project undertaken with a partner might look like and has opened opportunities for expanding this area of work. One key lesson learned is that badging for participation is a much different endeavor than badging for achievement and that the two should be clearly distinguished. Achievement badges should require some assessment element that reliably gauges learning, while simple participation badges need not convey specific information about learning or skill acquisition. This does not mean participation badges have no value, but we quickly recognized through this project that participation and achievement badges have different signaling functions.

The Adaptive Communication & Leadership badge, issued in partnership with the Communication Leadership program at UW, is earned by attending or watching recordings of all three sessions in the UW Communication Leadership series “Community, creativity & leadership in a transformed world” and submitting reflections demonstrating integration of these skills in one’s work and broader context. This project taught us about working with a partner to create and issue a badge that had no real connection to Continuum programs, thus functioning as the first badging-as-a-service offering.

A Collaboration badge, issued in partnership with the Education Design Lab, builds on a training course in clear communication, active listening, empathy, building trust, incorporating diverse perspectives, and focusing on solutions rather than problems. Students are assessed through a series of performance-based workplace scenarios. This badge provided us an opportunity to work closely with an external organization that already had experience in designing and issuing badges and issue our own badge for curriculum designed by an outside entity. Despite this, the digital credential remains peripheral to Continuum College’s core offerings and requires additional staff and grader time each time the program runs.

The first major endeavor in microcredentials for Continuum College staff includes two badges in the Enrollment Services team. Titled “Coaching” and “Advanced Coaching,” these credentials are awarded to Enrollment Services staff members who undertake a rigorous set of training modules and demonstrate high level competencies in their work at Continuum College. The assessment to earn each badge includes a thorough review from a supervisor in areas like feedback from prospective students, review of call recordings, and structured mentoring conversations. This program was the result of sustained

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efforts by the Enrollment Services team to adapt a training plan from an external vendor for use within the organization. The credential will serve as one very high-touch model for other training programs that require intensive supervisor involvement, though it will likely only be suitable for highly structured, public-facing roles in the organization.

Except for the Enrollment Services credentials, all these efforts have one thing in common: they are all based on offerings outside of the core portfolio, often as the result of an additional training. These projects have taught us a substantial amount about the infrastructure and time required to issue credentials, but they have yet to become part of our ongoing work in a meaningful way.

As a result of these pilot projects, Continuum College has made investments in a few key Infrastructure areas. The first key element of infrastructure is commercial software called Canvas Credentials (previously Badgr Pro). The Continuum College-branded instance of Canvas Credentials includes integration with the university's Canvas learning management system (LMS). This integration means the awarding of badges can be automatic, based on events that occur within Canvas (i.e., a successful exam completion within the LMS can automatically award a digital credential). The Canvas Credentials instance also allows the system to scan skills from external job databases, like Emsi Burning Glass, and compare that data to credentialed skills. In addition, we have developed two reusable badge templates and a style guide for iconography. In line with the approach to digital credentials outlined above, we have also developed guideline documents for issuing skills-based, achievement-based, and participation-based badges.

We also participated in a Skills Collaborative project through the Open Skills Network (OSN) to increase the value of skills-based microcredentials by attaching detailed descriptions of the skills indicated by each badge. These skills are packaged in a new open taxonomy called Rich Skill Descriptions (RSDs), which are “machine-readable, searchable data that include the context behind a skill, giving users a common definition for a particular skill” (Open Skills Network, 2022). Western Governor's University (WGU), a major force behind OSN, has already authored thousands of RSDs and is managing them through a software product called the Open Skills Management Tool (OSMT). As part of the pilot, OSN made OSMT available to other institutions for the first time, as well as providing copies of RSDs from the WGU database in areas of interest to pilot project participants. Through these mechanisms, OSN is working towards “skills interoperability in credentials, education and training opportunities, job profiles, and learner records” (OSN, n.d.). The core of our project was to evaluate relevant RSDs from the WGU database to see how they fit with a few non-credit programs within Continuum College and attach these existing RSDs, as applicable, to the badges we develop for these programs.

While these pilots provide a good foothold for future implementations, they represent just a fraction of the necessary investment to realize the strategic vision described earlier. We hope that describing the nascent state of our own efforts to contribute to the digital badge ecosystem at the University of Washington will encourage other groups and institutions to undertake their own projects and research in this rapidly evolving space.

CONCLUSION

University extension units, like the University of Washington's Continuum College, have worked since the late 1800s to expand formal higher learning beyond the boundaries of the physical university (Wedemeyer, 1981). Increasingly, the work of such units is focused on not only extending outward but also vertically upward in age as individual learners face much longer lives in a world that is changing more rapidly than

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ever before (Gratton & Scott, 2017). As learners continue to engage with learning across the lifespan and expect more flexible learning environments where they have increasing control, new infrastructures are needed to support these approaches (Branon, 2021). Continuum College is among many institutions and organizations iteratively building and researching this future. Digital credentialing is only one part of this complex work, but it will be essential in helping learners navigate new learning opportunities.

Where will Continuum College's work in digital credentials ultimately lead? Ideally, we believe it will lead to a higher learning environment in which students can move seamlessly into educational opportunities on an as-needed basis, with full recognition of the skills they already possess and clearly defined pathways to the skillsets that will enable them to stay relevant in a changing workplace and world. A robust ecosystem of digital microcredentials that are aligned to skills and verified by reputable institutions form the backbone of this emerging system, based on the concept of the 60-year curriculum. To realize this vision, however, digital microcredentials must have real meaning to learners by truly representing their skills and real meaning to employers by enabling truly skills-based hiring.

Accomplishing this future state will be no easy task. Higher learning institutions must learn to articulate the specific skills that students build in each of their offerings, properly evaluate these skills, package them in meaningful digital microcredentials, and then be receptive to feedback from industry partners about the usefulness of these credentials. Employers must learn to recognize the value of skill-based credentials and have a way to filter credentials by quality.

Though Continuum College is still in the early phases of a multi-year digital microcredential initiative, we believe that we are laying the groundwork for achieving this future vision. The three-pronged approach to issuing microcredentials – providing on-the-job credentialing for Continuum staff, as part of non-credit programs, and enabling partners to issue badges – mirrors the ways in which digital microcredentials can anchor the skills ecosystem of the future. Along with other higher learning organizations, corporate partners, non-profit organizations, and government entities, Continuum College can help create a new higher learning system that can better match the needs of learners, employers, and society.

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KEY TERMS AND DEFINITIONS

60-Year Curriculum: Framework for lifelong learning that recognizes the need for ongoing upskilling and reskilling because of increasing lifespans.

Achievement Badge: Award for participation and/or completion of an event, course, or other experience. May or may not include a robust assessment framework.

Digital Badge: Image file with embedded metadata (e.g., award criteria, earner identity, issuer) designed to be machine-readable and -verifiable.

Dogfooding: Using a new process, system, or technology internally before releasing it to a broader audience. Based on a 1970's TV commercial from the Alpo dog food company in which an actor demonstrates his trust in the product by feeding it to his own dog.

Rich Skill Description: Detailed and thorough definition of a competency or skill in a machine-readable format that can be easily attached to a digital credential.

Skill Badge: Award for mastery of a particular skill or set of related skills, assessed through authentic use of this skill in a transferable environmental context.

Stackable Credentials: Badges or other achievements that can be combined toward higher-level credentials. Common examples include a set of badges that lead to a meta-badge or several badges that lead to another type of credential (e.g., certificate, degree, etc.).

ENDNOTE

¹ The term “dogfooding” has an amorphous etymology but likely references a 1970's TV commercial from the Alpo dog food company in which an actor demonstrates his trust in the product by feeding it to his own dog. In modern language, a company will use their own products before putting those products in front of customers. In this context, Continuum College is using digital credentials for its own staff as an important means of learning and making sure that what the org does for learners is something the College would do for its own learners.

Chapter 16

Microcredentials, Macro Learning: One University's Path Toward Unbundling

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ABSTRACT

This chapter tells the story of one university's ongoing work to explore and ultimately define an institution-wide approach for awarding microcredentials, specifically digital badges, and the discoveries this work enabled. It documents the initial badging pilot, highlighting the specific steps taken, and the challenges and opportunities they presented. From the limitations of our common academic vernacular to the benefits of effective change leadership and cross-functional collaboration, these efforts offer a real-world view of the challenges and opportunities of unbundling. Sharing and reflecting on this initiative may provide other higher education institutions (IHEs) with insights about this complex change process and factors that contribute to why new models may flourish or fail.

An Open Badge is a type of microcredential that acknowledges and validates a discrete learning event, skill, or competency (IMS Global Learning Consortium, 2022). Open badges are issued through certified Open Badges platforms such as Credly or Badgr. As digital assets, badges are shareable by the earner via social and professional networks and other electronic media, such as a digital resumé. Clicking on the digital asset enables the viewer to access detailed information about what the badge signifies, such as the entity issuing and validating it, the skills and knowledge it represents, and the specific criteria associated with earning it. Since a badge can represent learning that occurs within and/or outside of credit-bearing learning contexts, it is especially well-suited to the task of acknowledging lifelong learning events and opportunities as they occur.

Within the past decade, institutions of higher education (IHE) have increasingly embraced badging to recognize learning especially within the professional and continuing education space. As of 2016, one in five institutions with professional, continuing and online education units, offered some form of microcredential (Fong, 2016). Between 2018 and 2020, the number of earnable badges worldwide had

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increased by an impressive 82% (IMS Global, 2020). Growing discontentment with the cost of higher education, increased demand for skills-based hiring, and an acute need for reskilling or upskilling in the wake of the COVID-19 pandemic have contributed to the rise of microcredentials (Gallagher, 2018; Golden et al., 2021; Lorenzo, 2021; Wellspring, 2021) making them nearly impossible for observers of higher education trends to disregard, or for IHE administrators to ignore.

Early adopters such as Colorado Community College System, Illinois State University (Fain, 2016), the State University of New York (SUNY) system, and others, blazed pathways for Northeastern University and many other IHEs to follow. These early adopters, coupled with substantial research initiatives such as those by the Lumina Foundation, Strada Education Network, and the Council for Adult and Experiential Learning (CAEL), have advanced the conversation on microcredentials in higher education by highlighting their relevance to broader employment and hiring trends.

Digital badging has been a bellwether of the transformations taking place in higher education. Northeastern's ongoing, multi-year effort to implement an institution-wide approach to digital badging offers a glimpse of a global, research university engaged in the complex work of unbundling the curriculum to better serve modern learners. In documenting and reflecting on this work in progress, this chapter describes how it has enabled the university's broader unbundling. As John Dewey observed, "Mere activity does not constitute experience... When an activity is continued into the undergoing of consequences, when the change made by action is reflected back into a change made in us, the mere flux is loaded with significance. We learn something" (Dewey, 1916, Ch. 11, para. 1).

Northeastern's badging initiative can be examined in two distinct phases to date: the Pilot phase (between 2017-2020), and the Implementation phase (2020-present). The specific activities we engaged in during each, the themes that subsequently emerged, and the ways in which those themes shaped and informed subsequent decisions and actions, constitute the focus of this discussion. As this work is still unfolding at the time of this writing, the intent is not to assess the impact of microcredentialing, nor does this purport to be an example of "best practice." Rather, it offers a view of a university actively engaged in *unbundling* curricula from traditional modes of delivery, i.e., of defining its value proposition as one that is fluid rather than static. For readers situated in IHEs considering their own unbundled future, this chapter describes the granular aspects of that process.

BACKGROUND

What's Old is New

Northeastern University is a private, tier 1 research university consisting of 12 campuses on two continents, serving over 40,000 combined undergraduate and graduate students across 9 Colleges (Northeastern University 2021 Facts and Figures 2021, 2021). The main campus in Boston, Massachusetts was founded in 1898 during a time of unprecedented growth in the number of higher education institutions in the United States. The late 19th century was also marked by a proliferation of new academic disciplines and fields of study, which contributed to the sector's overall growth (Goldin & Katz, 1999). During the first quarter-century of its existence, Northeastern's colleges and curricula were organized and reorganized several times in response to broader societal and technological shifts that defined the era and higher education's efforts at bundling them together in ways that made sense for both scholars and students.

Microcredentials, Macro Learning

A Civil Service School, an Automotive School, and a Steam Engineering Department were established during this period, reflecting the institution's intentionality around preparing students for the emerging knowledge economy (Golden and Katz, 1999). Then, as now, educating learners to respond to emerging societal challenges and industry needs was core to the university's ethos and have contributed to its flourishing in this Fourth Industrial Revolution.¹

Fast forwarding over 100 years since Northeastern conferred its first degrees, one arrives at what the 2021 Academic Plan describes as an "inflection point" for the university. While the turn-of-the-century progressive mandates that shaped the university's mission remain palpable, its current strategic plan calls for a shift *away from* the traditional molds that have shaped higher education historically, and instead calls upon the university to deliver learning "untethered from the limitations imposed by traditional academic pillars such as disciplines and departments" and set its sights on education "wholly immersed in experience" (Northeastern University, 2021). Global experiential learning, in fact, resides at the core of the institution's identity. Its longstanding co-operative education (co-op) model enables students at all levels of study to alternate between completing coursework, and working in professional contexts related to their field of study. The net gain of this integration is employability; 93% of Northeastern graduates are employed, or enrolled in graduate school within 9 months of graduating (Northeastern University, 2022). Digital badges, as signifiers of professional and/or Industry-specific skills with recognizable value in the global workforce, have the potential to shine light on one's professional skills and experiences in ways that an academic transcript alone, cannot. Thus, Northeastern's decision to explore badging was a strategic one, given the potential of badges to compliment the university's experiential brand.

In the last decade, new experiential models have taken root alongside co-op in an effort to better serve working professionals, continuing education seekers, and those returning to College to finish a degree after time away. The Experiential Network (XN) model, for example, provides shorter duration, fully virtual project engagements with employers, offering greater flexibility for working adult learners for whom a 6-month, full-time co-op position is impractical. In its four years alone, the XN model went from serving 50 learners to serving over 6000 (Kilfoye, 2019). Employer-sponsored XN projects, along with service-learning, global experiences and study abroad options, ensure that a variety of real-world experiential learning is a fundamental and accessible component of a Northeastern learning experience.

The Case for Badging at Northeastern University

According to 2021 Strada Education Network survey of over 3000, nationally representative alumni who graduated with a bachelor's degree after 2001, public confidence in the value of a credential or degree from an IHE has waned in recent years. Several factors have contributed to this erosion of confidence including the disconnect between the academic curriculum and job-readiness (Brown, 2018; NEBHE 2018; Business Roundtable, 2019) as well as widely held perceptions that higher education is slow to change and adapt (Dua et al., 2020). Unlike degrees, IHE-issued badges can be positioned at the nexus of learning that occurs within the university and in the world of work. They can function as emblems of lifelong learning in service to Northeastern's vision of enabling "learning that happens anywhere, and at any time, throughout students' lives" (St. Martin, 2019). Given their portability, earners can share badges they earn when, and with whomever they want, via the digital networks they choose. When leveraged in this way, badges can open doors for learners to new co-op opportunities, employer-sponsored projects and internships, and ultimately, employment.

In addition to serving degree-seekers, badges can provide value to career advancers interested in boosting their employment prospects. A 2018 survey conducted at Northeastern focusing on the needs of career advancers and those looking to upskill noted that participants with undergraduate degrees expressed a slight preference for shorter duration, non-credit offerings that focused on acquiring professional skills (65%) as compared to full degree programs (53%). This preference was especially pronounced among those interested (67%) or very interested (78%) in advancing in, or changing their careers (Casual Course Takers User Testing, 2018). Northeastern President Joseph Aoun's 2018 book *Robot-Proof: Higher Education in the Age of Artificial Intelligence*, and *The Center for the Future of Higher Education and Talent Strategy (CFHETS)*, also contributed to the growing body of research suggesting that advancements in technology were necessitating the shift toward more continuous, lifelong learning approaches (Gallagher, 2018). This study also noted that awareness of badging and other microcredentials was still relatively low among employers (Gallagher, 2018). Thus, the opportunity to develop and implement a university-wide badging approach that is responsive to learners' and employers' needs presented a strategic opportunity to serve the university's mission of helping learners adapt quickly to a rapidly changing world of work.

As the pandemic hit in early 2020, it caused a global tidal wave of unemployment that no doubt contributed to remarkable shifts in employer's views on microcredentials. During this unprecedented time of instability and uncertainty, many workers accessed opportunities to upskill or reskill. A 2022 study by the Society for Human Resource Management (SHRM) suggests increasing openness to badges as 91% of HR professionals agreed that alternative credentials are valuable for employee development, while 72% indicated they add credibility to an employee's profile. Despite these gains in how employers perceive badges, there remains considerable ambivalence among HR professional regarding whether, and/or to what extent, badges correlate with better performance. In fact, while the HR professionals, supervisors, and executives participating in that survey all ranked experience as the most important factor in hiring decisions, they simultaneously ranked "alternative credentials," which includes badges, as the least important factor. This suggests that while awareness and general acceptance of microcredentials have increased in recent years, employers remain ambivalent about whether they are trustworthy indicators of one's job readiness (SHRM, 2022). For IHEs observing these trends and contemplating their own microcredentialing strategy, the message is clear: badges must be credible and consistently reliable, and leave little ambiguity as to the specific learning accomplishment they portend.

PHASE I | DIGITAL BADGING PILOTS: THE BEGINNINGS OF UNBUNDLING

An Initial Charge

In Fall 2017, Northeastern's Professional Advancement Network (PAN) leadership team established an exploratory committee to investigate the value of digital badges for Northeastern learners. The group was tasked with producing a white paper framing the value proposition and offering a framework to anchor a Northeastern-specific badging approach.

The group was also charged with identifying and testing platform solutions for digital badging, and vetting their integration within Northeastern's broader technical infrastructure. PAN's Online Experiential Learning (OEL) unit, in collaboration with the Academic Technologies team (AT), engaged in a needs analysis project to identify and document initial requirements for a badging platform solution. This analysis was informed by discussions with stakeholders from academic and business units across

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the university system. They included faculty, college administrators, and staff from alumni relations, academic operations, student support services, marketing and enrollment, and the Registrar's office.

Applying user-centered approaches, the team developed personas and created user scenarios capturing a variety of potential badge creators, issuers, earners, and viewers (Appendix 1). From these, they drew a comprehensive list of business requirements and developed a plan to engage in a 4-month, university-wide badging pilot with participation from 5 of the university's 9 colleges and schools (Appendix 2). The pilot objectives included testing the applicability, flexibility, and efficacy of the emerging badging framework across distinct use cases and learner audiences; and defining the business requirements for an enterprise-wide platform solution for badging.

Three elements contributed to the pilot's success: (1) the development and use of personas to guide the design of the pilot projects, (2) a modest number of pilot objectives, and (3) a pilot team consisting of stakeholders from a variety of functional areas. Each of these elements provided guardrails around the pilot's scope, enabling us to delve more deeply into a few focused areas as opposed to asking open-ended questions that may or may not have revealed relevant business requirements. Overall, the pilot experience helped us fine-tune the framework and discover new business requirements. For example, we assumed any career advancer, regardless of their industry, would view badges as assets that helped advance them toward career goals. We were therefore surprised when an extremely low number of General Electric (GE) employees, after having successfully completed a rigorous, 3-part course, subsequently 'claimed' then 'shared' the badge (i.e., posted it publicly) where others could view it. We understood later that most of the GE-based learners and supervisors were unfamiliar with badges (one person asked "isn't that a Boy Scouts thing?"), and very few of those earners used LinkedIn, or even checked their email accounts regularly. Similarly, within the university, it was clear that while some academic units saw a benefit in issuing badges alongside course credits, other units felt that doing so potentially blurred the lines between credit and non-credit learning experiences. This led to some general apprehension, particularly among faculty and academic administrators, that these distinctions might not be clear to the earners and viewers of our badges. This compelled us to spend considerable time developing and describing a distinctive taxonomy and framework.

An Emerging Taxonomy and Framework

In developing the initial framework for badging, the exploratory committee kept several considerations top of mind. The first was that Northeastern's approach to badging should be distinctive. Accordingly, the group considered how experiential learning might factor into the framework's design. Second, the value of the badge must be germane to the wide variety of learner populations Northeastern serves. In other words, both an undergraduate residential student and a corporate-based executive should derive value in earning and sharing a Northeastern badge, even if the value propositions are different for each learner. Third, the approach should support Northeastern's broader efforts to recognize and validate learning where, and when, it occurs, over time.

These design requirements made it immediately clear that a unified approach would require both a taxonomy, describing different types of badges, and a framework that would facilitate a shared understanding of each badge type. Once again, the cross-functional composition of the exploratory committee was important because it enabled a more comprehensive exploration of whether, and to what extent, the framework held up across diverse populations. For instance, the alumni relations team saw potential value in using badges to build or deepen alumni affinity with the university. Along similar lines,

one committee member who leads partnerships at the D'Amore-McKim School of Business (DMSB) framed the value of a badge in those contexts as 'an invitation to continue learning and engaging with Northeastern,'² and an opportunity to associate their internal training efforts with Northeastern's brand. At the opposite end of this spectrum, faculty members—particularly those teaching in professional program areas—saw benefits in recognizing skills gained en route to a degree. For degree seekers, badges functioned as spotlights on specific, high-value skills students were developing and demonstrating as part of course requirements. Faculty hypothesized that, in these instances, badges might provide earners with a competitive advantage as they applied for co-op jobs and career opportunities.

The exploratory committee quickly identified the need for a classification system describing multiple levels of badges, with each corresponding to a low, medium, or high earning threshold (Appendix 3). This simple taxonomy offered multiple points of entry for colleges and other units across the university to integrate microcredentials into their portfolio of offerings in ways that supported their learners' goals and their overall product strategy. For example, a low-threshold, "Level 1" badge might capture the affinity-building value advantageous to alumni, or in units such as the Executive Education group in DMSB that offered non-credit programming. This definition differed from higher level badges that have value to the Master's degree candidate studying Project Management who wants to highlight her experience with agile techniques to potential employers. In all cases, a Northeastern badge would demonstrate a learner's continuous engagement with learning, unlike a final destination that a degree might suggest.

Having established a straightforward taxonomy of badges, the group's next task was to envision an uncomplicated framework with which to determine the badge level. It was important this framework be easy to apply and easy for badge earners and viewers to understand. Accordingly, the committee identified three elements found in most CPS learning experiences: (1) an articulation of the skill or competency on which the experience is focused; (2) the level of proficiency a learner can expect to gain in relation to the skill or competency; and (3) the extent of experiential engagement required. These guides provided the badge issuer with a consistent threshold for assigning a badge level to individual learning experiences.

By juxtaposing the skill or competency and associated levels of proficiency and experiential engagement on a matrix as shown in Figure 1, the badge creator can situate the experience on a continuum of lower- to higher-order learning to assign the appropriate badge level. Further layering a well-understood framework such as Bloom's Revised Taxonomy (Airasian & Cruikshank, 2001) across the proficiency / engagement matrix creates a harmonized approach that balances simplicity and ease of use alongside widely accepted learning design concepts (Figure 1).

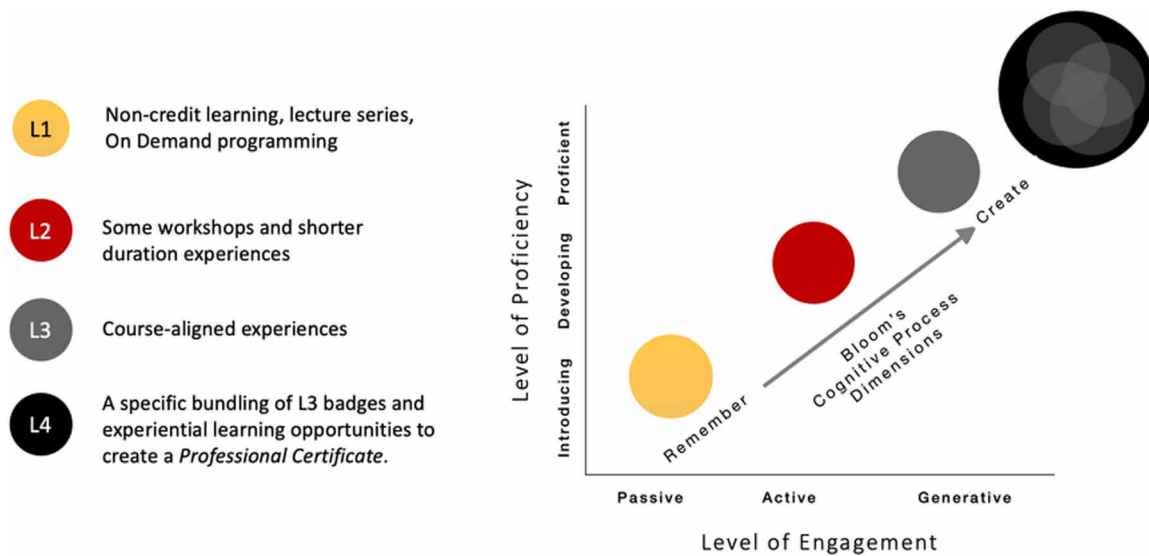
With an initial framework established and badging platform vendors, Credly and Acclaim, selected, the exploratory committee recruited five of the nine Northeastern colleges to develop and issue one or more badges in conjunction with specific offerings. The pilot was launched in March 2018 and ended 4 months later. By September 2018, the committee had submitted a preliminary report on its findings.

Unexpected Twists

During and immediately following the pilot, two significant shifts occurred: first, Credly acquired Acclaim and announced plans to ultimately merge the two platforms into a single solution. Credly advised the exploratory committee to continue evaluating both platforms individually in an effort to provide all parties with a fuller understanding of how well each system supported Northeastern's business requirements.

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Figure 1. Northeastern university's proficiency / engagement matrix for establishing badge levels



Though this announcement had little (if any) impact on the badge earner's experience, and it did not require us to change how we applied the badging framework, it did make it difficult to determine with any confidence whether, and to what extent, each platform met our core business requirements. In more than a few instances, one platform sufficiently met our needs, while the other did not. We realized that the new product roadmap would look considerably different once the dust settled around the merge, though it was not clear exactly how, or even if, we would know what those changes might be during the pilot period.

Another shift occurred in January 2019 when the university announced major plans to shift to a matrix organizational structure. This new structure established an Office of the Chancellor to oversee student-centered functions, while the Office of the Provost would continue to oversee Northeastern's academic and research enterprise ("Northeastern 2025 Strategic Reorganization," 2019). While the Credly/Acclaim merge made it more difficult to thoroughly vet the tools against business requirement, this organizational shift raised fundamental questions around ownership, operational supports, success metrics, and the potential to scale the initiative.

Lacking an institutional owner, and with an uncertain path forward, several participating colleges continued to create and issue badges in conjunction with the relative safety of the non-credit learning space. Instead of languishing, the unanticipated extension of the pilot over several months enabled us to gain new insights and provided lessons that may be valuable to other IHEs similarly interested in developing their microcredential strategy. These key learnings are summarized and discussed below.

A clear and uncomplicated badging framework that reflects both the institution's core values and distinctive value can provide a critical anchor point.

Our 4-level badge taxonomy was created in response to the broad interest in exploring badges across a variety of learner audiences at Northeastern. The initial objective in developing a comprehensive framework for issuing badges was to ensure that any Northeastern-issued badge clearly conveyed value

and meaning. Issuing badges with a clear and verifiable value proposition is especially critical; the proliferation of microcredentials in recent years, along with a growing trend toward employer-issued microcredentials which articulate into university credentials, necessitate this.

Beyond signaling their value in the marketplace, an institutional taxonomy and framework provide important benchmarks for quality assurance. Just as accreditation and academic governance processes provide these scaffolds within the context of certificates and degrees, a well-defined framework with guidance on how to apply it lays the foundation for quality control of badges.

Importantly, university-issued badges provide learners with a form of currency in the credential value chain that is not necessarily tied to academic credits. Northeastern's digital badges are designed to recognize and describe learning that occurs at a more granular level, potentially offering a more nuanced view of one's learning journey over time. The framework and taxonomy together provide an architecture and a classification system that gives this currency its value. Our hope is that this intentional focus on transparency and consistency will work toward reducing the noted ambivalence among employers about whether badges are yet well-understood indicators of one's skills (Gallagher, 2019). Given the rapidly growing movement toward more skills-based hiring practices (SHRM, 2022), it is therefore important for IHE-issued badges speak to one's skills in reliable and verifiable ways.

While the badging framework provided the necessary structure and transparency, we quickly realized that we also needed oversight protocols that would help ensure the framework was applied consistently. Given the wide range of use cases for our badges, some committee members were concerned that badging might become the 'wild west,' lacking the transparency, structure, and quality oversight that any Northeastern credential should represent. While we did not solve for this during the pilot stage, we nevertheless flagged this as a necessity for broader implementation. How we work toward solving for this is discussed later in the chapter.

Microcredentialing strategy can serve as a catalyst for broader institutional conversations about unbundling the academic curriculum.

Northeastern's badging exploration sparked a much larger, university-wide conversation about 'unbundling' the academic curriculum in ways that more readily meet growing market demand for skills-focused, shorter-duration learning. Establishing a framework required us to define *what* learning experiences to badge, while developing a multi-level taxonomy helped define *how* we badge. From the start, we knew our badges should highlight high-value skills—many of which were embedded already in the graduate, professional program curricula. The somewhat harder question, then, was how to redesign these experiences into smaller configurations and make them accessible via non-credit learning channels, such as executive education and/or continuing education programming.

We considered what delivery formats might be most appropriate for skills-based, short duration learning for non-degree seeking learners. Several groups had begun to explore modular design models with an eye toward delivering learning experiences in smaller bundles outside of the degree context. We quickly discovered that offering modular, badged learning experiences in the non-credit realm presented a host of systemic challenges that are not easily solved. For example, as with most IHEs, Northeastern's financial model is based on credit-hour tuition rates set by the college offering the degree program. Those rates are based on a constellation of costs associated with every aspect of a degree-seekers' experience from recruitment to alumni engagement. Thus, delivering modular learning experiences that fall outside this channel posed challenges from both a technological and organizational perspective. For example,

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how do we track student completion of these experiences? How do we enable a seamless registration process for non-degree seeking students? How much should we charge per module? What rules should we follow when evaluating whether a learning experience stacks into academic credits?

While answers to these questions are beyond the scope of this chapter, the questions themselves speak to fundamental themes addressed in this book. The opportunity to examine what an institutional strategy for microcredentials might look like had the effect of shining a bright light on many of the systems integration issues and organizational assumptions that, if left unaddressed, would preclude unbundling in many other ways. Thus, the institution's willingness to acknowledge these issues, along with their readiness to address them, can have a profound impact on these types of initiatives.

Just because it can be badged does not mean it should be badged.

The pilot helped demonstrate that Northeastern's framework strikes a healthy balance between providing an overarching structure while giving the colleges a voice in defining what specific offerings within their portfolio should be associated with badges. However, this flexibility was a double-edged sword; while the university's framework created a wide opportunity space for badging, creating and issuing too many badges could result in the undesirable effect of diluting the value and meaning of *any* Northeastern-issued badge. The colleges needed to approach badging strategically or risk oversaturating the market.

To address this, several colleges defined an internal strategy for badging in an effort to ensure consistency and quality, and reduce the potential for redundancy. For example, one college tapped faculty directors with defining and owning the badging strategy within their program areas. Other colleges created clear demarcations for badges, choosing to associate them only with executive education programming, or with continuing education delivered to corporate partners. This strategy of empowering each college to decide 'what' to badge, while relying on the university to address 'how' to badge has proven thus far to be an effective division of labor for a university such as Northeastern, with its nine, autonomously governed Colleges and Schools, and the wide range of learners it serves.

Identify opportunities early-on to capture learner and employer feedback on NU badges.

A clear challenge during and since the pilot has been the paucity of research on what impact IHE-issued badges are having on an earner's employment and career advancement prospects over time. As mentioned previously, while it is increasingly common for IHEs to issue microcredentials alongside degrees and certificates, ambivalence among employers with regard to their relative value as signifiers of job-relevant skills remains high. Recent studies, including the Society for Human Resources Management's (SHRM) 2022 report on *The Rise of Digital Credentials in Hiring*, and the Wellspring Initiative's 2021 *Phase II Employer Readiness Survey and Report*, indicate that in the past two to three years there has been an increasing level of awareness about badges among HR professionals. What is not clear, however, is what, if any, impact IHE-issued badges might have on one's career trajectory over time. Thus, the extent to which Northeastern-issued badges impact hiring and promotion decisions in some contexts remains largely elusive, with only anecdotal observations based on conversations with employer partners.

That said, IHEs can and should take steps to understand the value proposition of the badge from the perspectives of both earners and employers as soon as possible. In one such example, NU's Office of Alumni Relations (OAR), whose popular Learning On Demand series of courses ran several times

throughout the academic year and were offered to alumni for free, issued the greatest volume of Northeastern badges and had the highest rates of badges shared, e.g., on LinkedIn, by the earner. OAR added a badge-related question to their end-of-course survey which deployed at the conclusion of each Learning On Demand course. In it, participants were asked what factors influenced their decision to claim and/or share their digital badge. Most (91%) felt the badge helped them demonstrate personal initiative around lifelong learning, and/or highlight their interest in the topic (64%). A significant number (59%) also found value in using the badge to highlight their ongoing connection to Northeastern.

Though these responses reflected the perspectives of a small percentage of the total Northeastern alumni population, they seemed to resonate with views captured in the 2018 NU Alumni Survey, which netted over 2,000 responses. According to that survey, “[a]cross all respondents, Lifelong Learning Opportunities (53%), Networking with Other Alumni (49%) and Career Services (47%) ranked most important (rated either “Extremely Important” or “Very Important”) ways in which they wanted to connect to Northeastern” (NU Alumni Survey Report, 2018). In addition to the alumni feedback streams, the DMSB’s Executive Education team continued exploring the value proposition of badges during post-session debriefings with corporate partners, and a survey was deployed to faculty and staff members who had issued a badge to that point. Asked to comment on what value digital badges provided to the learners and partners they served, survey respondents identified qualities such as the badge’s “digital visibility” and its “stickiness,” given the ability to post and share these microcredentials over social and professional networking sites. Some also noted the badge’s unique capacity to highlight very specific, industry-, or employer-relevant, high-demand skills. While there was simply not enough data collected through these channels to have any real influence on institutional decision-making, these additional findings shed some light on earners’ perspectives.

PHASE II: DIGITAL BADGING IMPLEMENTATION

Toward Broader Institutional Ownership

The university’s organizational realignment in 2019 had ripple effects that made the fate of the broader microcredentialing strategy uncertain in the months following the pilot. Questions about institutional oversight and support for microcredentialing were eclipsed by fundamentally more pressing questions about where various business and operational functions should live within the University’s new organizational structure. As a type of credential validated and issued by Northeastern, badges could arguably be aligned to the Provost’s realm where academic policy and governance decisions reside. Yet the vast majority of badging use cases to that point had been anchored to non-credit continuing and executive education programming, or had been associated with affinity-building experiences developed for Northeastern alumni. It was therefore difficult to determine exactly where badges fit in relation to known-product types and delivery models, such as courses and degrees.

Despite this institutional stasis, enthusiasm and support for badging remained strong within several pockets of Northeastern. The College of Professional Studies, with its portfolio of graduate professional programming and its focus on serving ‘non-traditional’ learner populations, was especially motivated to adopt a broader College-wide plan for badging. The CPS Dean therefore convened a working group of faculty and administrators to explore what a College-wide implementation might look like, and recommend a proposed approach.

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The resulting report included minor refinements to the framework and taxonomy, and discussed several considerations a broader implementation plan would need to address. Perhaps more importantly than the sum of all these recommendations was the Dean's decision to socialize the report with other college deans and leaders through various, institutional strategy-, and decision-making, channels. This had the overall effect of raising broader awareness about the Colleges experiments with badging to date. It demonstrated the sustained efforts of multiple colleges to define a uniquely-Northeastern framework that could be aligned to a wide variety of learners and learning experiences. Importantly, while there were strong proponents of badging on both the vertical and horizontal axis of the university's relatively new matrix structure, the task of implementing an institutional policy and creating guiderails around its use was a matter of academic governance, and hence, within the purview of the Provost's Office. Recognizing the opportunity to consider an institutional implementation strategy, Northeastern's Executive Vice Provost (EVP) assembled a university-wide working group tasked with updating senior leadership on the current state of badging, and advising on a plan for centralized record-keeping and governance.

In this new working group, the cross-functional composition of the original exploratory committee was preserved and expanded to include voices from the marketing team, Registrar's Office, and Academic Technology area, as well as representatives from a few other colleges or schools who had expressed interest in exploring microcredentials. Given their collective knowledge and experience, this group would now collaborate to guide an institutional implementation approach.

The Right Kind of Leadership

Out of the gate, experience and expertise, not role and rank, served as guideposts for this group's work. By virtue of the range of experience around the table, every member offered unique and valuable perspectives on the challenges and opportunities related to institutional implementation. Each member also faced a learning curve, as many of these challenges fell outside their individual realms of expertise and experience and required interdisciplinary solutions. The effect of this unlikely 'mash-up' was immediate and significant, as senior academic administrators relied on the expertise of instructional technologists to contextualize the key challenges related to systems integration, and a host of other technical and operational nuances. Similarly, staff operating on the front lines encountered the complexity of SHEP-HERDING systems-level change within a complex organization.

In a very real sense, admitting that *we did not always know what we did not know* became the great equalizer, and helped establish a solutions-oriented team of collaborators. Critically, this team was guided by a senior university administrator extremely adept at prioritizing issues and creating space and time to examine institutional barriers and identify workarounds (if not immediate solutions). As the pandemic raged on, the group met regularly to methodically address barriers, pulling in experts from other areas of the university to advise and support, as needed. The group resolved issues that were relatively easy to solve, e.g., establishing a coding schema for non-credit modules, and chiseled away at the more complex ones, e.g., developing new financial models, or onboarding new systems and operational workflows to support the delivery of modular, non-credit learning. As Michael Fullan (2001) observed, "Leadership... is not mobilizing others to solve problems we already know how to solve, but to help them confront problems that have never yet been successfully addressed" (p. 3). This cross-functional approach to problem solving that relies on the varied experience and creative thinking of those closest to the work and empowers them to devise solutions, not merely enact them, has been a highly effective approach. As one participant remarked, it has been a masterclass in leading complex change.

Defining an Institutional Policy for Modules and Badging

Setting out, the Committee honed in on several questions the pilot had raised. As noted previously, it became clear very quickly that we needed to more clearly define and label the smaller units of skills-focused learning that tend to be associated with badges. We also needed to understand and clarify the architecture of these smaller units to ensure they were developed in a consistent and high-quality manner. Accordingly, the first step was to define this smaller unit of learning and establish shared vocabulary. Recognizing the potential for these smaller units to be combined with others and potentially ‘stacked’ into academic programming, the University labeled them “modules,” and defined them as follows:

A cohesive and stand-alone unit of learning with a specific start and finish point. The module may or may not be part of a bundled or stacked set of modules eligible for academic credit. The module may or may not be associated with a badge credential. It may or may not have formal summative assessments required as part of completion requirements (Modules & Badging at Northeastern, 2022, Modules at NU section, para. 1).

Questions immediately followed about how to vet the quality of a module, and what criteria must be met when combining modules or stacking them into credit-bearing learning experiences. Tapping their collective knowledge and experience around vetting requirements for awarding credit and using existing mechanisms such as Prior Learning Assessment (PLA) to inform decision-making about stacking, the group worked throughout the winter to develop a policy. That spring, the policy was presented to the Academic Deans Council and received with unanimous support. It was subsequently shared with other University-wide academic stakeholders, including the Graduate Associate Deans, a group consisting of associate deans from each college who oversee graduate programming within their College, and the Faculty Senate Agenda Committee. With the endorsement of the broader academic community, the Provost’s Committee turned their attention toward addressing the most pressing operational requirements to support and enable unbundling at scale, and across the Northeastern network.

An Implementation ‘Punch List’

With new policies and guidelines for modules and badging accepted and endorsed by the academic leadership, the team shifted focus to the implementation requirements called out in the CPS report and others that the group had begun to surface. What emerged were several, connected workstreams that would ultimately constitute the roadmap for implementation that guides Northeastern’s badging roll out to this day, and may also be informative for institutions exploring similar opportunities. Though they are presented below as distinct streams, they are highly connected and fluidly evolving.

1. Adapting the technological infrastructure in ways that support and enable non-degree learning and record-keeping.

One salient issue facing IHEs is the need for technology solutions that enable non-degree seekers to find, register, pay for, access, and keep track of learning experiences they complete outside of an academic program context. Northeastern chose to pilot Catalog, a storefront solution for Canvas by Instructure, given the University’s transition to the Canvas Learning Management System (LMS) in 2020. The goal

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of this pilot was to understand the registration and enrollment workflow requirements for non-degree seekers. Notably, since the University's registration and enrollment system for degree seekers is Banner, this required us to deploy the Catalog solution on a separate instance of Canvas. Beyond the obvious inefficiencies related to managing two Canvas environments, the need for separate instances speaks to an even more significant challenge, i.e., the inability of our current systems to recognize and track both non-credit and credit-bearing learning experiences across a single, learner identity. While solving for this challenge is beyond the scope of the implementation team's work, this issue demonstrates the fundamental challenge imposed by a technological infrastructure that does not recognize learning that happens outside of the academic degree context.

2. Outreach and supports for creating and issuing badges and modules.

As more colleges and student support units propose new modules and badges, a clear need has emerged to communicate institutional policies related to designing and launching modules and badges, and provide faculty and others with the guidance, support, and tools to do so. This is a salient example of the need for agility and flexibility when complex challenges arise that necessitate interdisciplinary solutions. In this instance, the implementation team organized a smaller sub-group consisting of marketing team members, learning designers, digital transformation specialists, and others to create training resources and documentation. We tapped the expertise of colleagues in the Center for Advancing Teaching and Learning Through Research (CATLR) and the Experiential Digital Global Education (EDGE) multimedia development capabilities to design and build training resources and co-facilitate information and training sessions. In conjunction with this outreach, another sub-group developed an internal-to-Northeastern SharePoint site that houses badging- and module-related policies, documentation, and more.

As a burgeoning operational support structure for badging began to emerge within CPS, the Provost's Office requested that the college extend this support temporarily to other colleges and business units until such time University-wide demand necessitated more permanent support resources. This occurred approximately two years into the initiative, when two new full-time positions were created—one within the Academic Technologies group, and a second within the Registrar's Office—to keep up with increasing demand. The anchoring of these new staff to business units that support technology and institutional record-keeping speak to the importance of connecting technology solutions with new institutional practices and process.

3. Processes and systems for record-keeping and quality oversight.

In addition to increasing support for managing module-, and badge-related operations, the implementation group collaborated with the Registrar's Office to develop and implement a new workflow for tracking "continuing education" experiences within CourseLeaf, which serves as Northeastern's system of record for the academic curriculum. In conjunction with this workflow, the Provost's Office established a *Modules and Badges Oversight Committee* (MBOC) tasked with reviewing and approving submissions for new modules and digital badges. Unlike processes that support academic program governance and oversight, the MBOC is comprised not only of faculty, but of staff members and administrators who represent multiple areas of the academic and student experience. Importantly, the Committee serves in an advisory capacity to the colleges only; they meet bi-weekly to review new proposals for modules and badges, offering recommendations and feedback intended to strengthen those proposals while ensuring

their alignment with broader, institutional definitions and policies. While each of these changes appear small and relatively insignificant, taken together, they represent giant leaps toward an unbundled future.

CONCLUSION AND NEXT STEPS

Having identified many of the core requirements for a scalable approach to microcredentialing, the implementation group has expanded its focus to include many of the human and organizational aspects of these changes. We are looking at external and internal messaging strategies that capture and communicate the value of unbundling. We are experimenting with marketing approaches and analytics capabilities that will help us measure the impact of our badges on both earners and employers. We have begun exploring new pricing models and delivery mechanisms for non-credit modules and other badged experiences. And there is greater awareness and understanding of the technological and systems-related challenges that pose obstacles to achieving the University's strategic goals.

Given the ever-increasing value of skills among employers and job seekers, it is perhaps not surprising that Northeastern, with its emphasis on experiential learning and career readiness, would seek to undertake this work. We believe that microcredentials cannot only exist alongside degrees in most IHE settings, but that they can, in fact, complement each other. Exploring microcredentials spurred new ways of imagining the role of IHEs in the future. For example, our collaborations with the Office of Alumni Relations helped us begin to reframe the relationship between an alumna and her alma mater from one that is transactional and time-bound, to one that is enduring, dynamic, and always accessible. The sustained collaboration and cooperation between academic, student support services, and business units prompted us to consider the learner's experience from multiple vantage points and across various stages of a learner's life and career, and our badging framework and taxonomy reflects this less siloed and more holistic perspective.

When this work began in 2017, it was loosely organized around an abstract concept with an uncertain value proposition. Five years later, though we have made important strides toward our goals, we are still in the very early stages of unbundling. In the wake of significant organizational change that left the fate of digital badging at Northeastern uncertain and seemingly devoid of a clear path forward, we continued taking small steps. Ongoing experimentation, coupled with reflection was critical to our success, as was cross-functional collaboration, and effective leadership within our colleges and at the senior levels of University administration. While the COVID-19 pandemic did not make our work any less difficult, it infused it with a sense of urgency to solve, or at least begin to address, some of the more stubborn barriers to unbundling. For academic administrators who find themselves in similarly uncharted waters, the most important step you can make is the first one.

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KEY TERMS AND DEFINITIONS

Digital Badge: Is a visual microcredential that shows that a learner has engaged in skill development at a specified level. When someone clicks on the digital badge, they see a description of the learning

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experience, the skills covered, and the earning criteria. This transparency is what creates the badge's credibility in the marketplace.

Module: Is defined as a cohesive and stand-alone unit of learning with a specific start and finish point. The module may or may not be intended to be part of a bundled or stacked set of modules eligible for academic credit. The module may or may not be associated with a badge credential. It may or may not have formal summative assessments required as part of completion requirements.

Stacking: In higher education contexts, is the process of articulating smaller units of learning together to award credit toward an academic credential.

ENDNOTES

- ¹ The Fourth Industrial Revolution is a concept described by Klaus Schwab in a publication by the same title published in 2016 by the World Economic Forum.
- ² This paraphrased description is attributed to Christina Jaracz, Northeastern University Assistant Vice President of Partnerships; D'Amore-McKim School of Business Assistant Dean of Corporate and Professional Learning, 2017.
- ³ Khoury College intended to offer a badge in conjunction with an Executive Education offering, *AI for Executives*. The workshop, set to deploy from Northeastern Seattle, did not run as anticipated, so Khoury did not have the opportunity to participate.
- ⁴ While Level 1 badges do not require evidence of student learning, they should include evidence of completion. In on ground learning experiences, this evidence may take the form of verified attendance records; in a digital learning environment, completion may be evidenced through knowledge checks at key points throughout the experience.

APPENDIX 1

Sampling of Personas Developed and Used to Elicit Initial Business Requirements

Marta – a working professional in her 30s looking to upskill quickly around a given topic and get noticed by her boss.

Gretchen (Marta’s boss) – a corporate-based hiring manager who consents to pay for a badged skills-focused workshop on Blockchain.

William – a faculty member interested in badging skills within the program curriculum that resonate and have value in the industry.

Jaime – an international student in CPS’ MS in Project Management program who earns a badge for a high-value skill he developed in a course and shares it on his LinkedIn profile.

Eileen – a senior HR director at an insurance company. She partners with Northeastern DMSB’s Executive Education team to develop a custom workshop.

Joe – a Level 1 Inspector at GE Aviation. Not interested in the full BS in Advanced Manufacturing Systems, but required by GE to complete a training program resulting in a badge.

Rose – an NU alumna interested in making a career pivot but not sure she wants to go back to graduate school to study something new. Prefers to first ‘test the waters’ first.

APPENDIX 2

Northeastern Colleges Voluntarily Participating in the 2018 Digital Badging Pilot:

Khoury College of Computer Sciences³

College of Professional Studies (CPS)

College of Science (COS)

College of Social Sciences and Humanities (CSSH)

D’Amore-McKim School of Business (DMSB)

APPENDIX 3

Additional Detail on Northeastern Badge Levels

Level 1 badges are associated with learning experiences that raise learners’ knowledge or understanding around a specific topic, but do not require significant engagement or application of knowledge. A Level 1 badge serves as a digital artifact representing a learning moment in one’s life. Programs issue Level 1 badges as a way to build affinity with lifelong learners and potential degree-seekers. Level 1 badges may also be aligned to internal opportunities for faculty and/or staff development.

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Level 2 badges represent experiences that require some application of relevant knowledge or skills to a given scenario, or within a certain context. While this may involve real-world projects and/or activities, level 2 experiences do not typically call for higher order thinking such as integration or analysis, nor do they necessarily involve reflection.

Level 3 badges correspond to experiences that require sustained engagement with real-world projects and higher-order thinking such as creativity, synthesis, and analysis. These experiences move learners beyond the straightforward application of skills and knowledge within a defined context.

Level 4 As with Levels 1-3, a Level 4 badge describes learning that focuses on a specific skillset; however, Level 4 badges are associated with a bundle of existing, credit-bearing courses, and demonstration of competency, as evidenced by artifacts of experiential engagement and/or application of knowledge and skills to real world scenarios.

Table 1. Comparison of Criteria

	Level 1	Level 2	Level 3	Level 4
Aligned to credit-bearing experiences	Never	Sometimes	Always	Always
Includes evidence/artifacts of student learning	Never ⁴	Sometimes	Always	Always
Engages soft-, or discipline-specific skills	Never	Always	Always	Always
Specifies a “review / refresh by” date to external viewers	Sometimes	Always	Always	Always
Instructional presence and facilitation throughout	Sometimes	Always	Always	Always
Is assessed by a facilitator or instructor according to specific criteria	Never	Sometimes	Always	Always

Chapter 17

Unbundling Credit to Non-Credit: A Framework for Developing Alternative Credentials

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ABSTRACT

The landscape of higher education is moving in a direction of greater variation, leaving traditional academic institutions at risk of obsolescence amidst the myriad of accessible, responsive, flexible learning opportunities increasingly represented in the global learning market. Declining confidence in the value of a college degree forces the higher education industry to open to expanded audiences and diversification of learning opportunities—including embracing the value of alternative credential programming as an institutional priority. This chapter depicts a streamlined model for generating high-quality skills-based microcredentials and professional development offerings with limited resources. To do so, a step-by-step process for identifying opportunities to leverage existing academic content to create more flexible, skills-based learning experiences will be described. The chapter will provide a framework for unbundling credit to non-credit offerings that can be adapted and replicated by other institutions seeking the same outcomes.

The landscape of higher education is moving in a direction of greater variation, leaving traditional academic institutions at risk of obsolescence amidst the myriad of accessible, responsive, flexible learning opportunities increasingly represented in the global learning market. Declining confidence in the value of a college degree forces the higher education industry to open to expanded audiences and diversification of learning opportunities – including embracing the value of alternative credential programming as an institutional priority. Professional and continuing education divisions providing non-credit education are becoming more prominent with increasing interest in alternative credentials and skills-based learn-

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ing as a shift in organizational dynamics. As institutions of higher education (IHEs) seek to expand in the alternative credential marketplace, producing content at a fast pace to meet supply is frequently a barrier within slow-moving academic paradigms. As a path forward, this chapter depicts a streamlined model for generating high-quality microcredentials and professional development offerings with limited resources. To do so, this chapter will describe a step-by-step process to identify opportunities to leverage existing academic content to create more flexible, easily-consumable, skills-based learning experiences in a non-credit format – hereby referred to as “unbundling” curriculum. The goal of this approach is to maximize institutional resources to deliver alternative credential content to expand programming to provide greater access and to increase revenue through a diversified learner audience. The chapter will provide a framework for unbundling credit to non-credit offerings that can be adapted and replicated by other institutions seeking the same outcomes.

THE ADULT LEARNER AND RISE OF ALTERNATIVE CREDENTIALS

Between 2010 and 2020, the National Student Clearinghouse (NSC) reports higher education lost 2.7 million participants (Fong, 2021). These declines can be partly attributed to economic circumstances of the 2020 pandemic and the decreasing number of college-aged students, but other factors and causes are at play such as rising tuition, income limitations, concerns regarding job placement, and perceived lower return on investment (Fong, 2021). Historically, colleges and universities in the U.S. depend on enrolling the traditional student aged 18-22 pursuing a credit-bearing degree for tuition revenue, yet demographics show our society is much more diverse and non-traditional students—adult learners—are a higher proportion of the education demographic (Fong, 2021). While postsecondary providers beyond community colleges are beginning to recognize the potential of the adult learner demographic, many IHEs still inadequately resource professional and continuing education divisions and downplay non-traditional learners and non-credit offerings within the institutional priorities and mission (Fong et al., 2021a). To quickly adapt to the current workforce and learning landscape, IHEs need to provide education today that can apply immediately. In this context, notoriously slow-moving IHEs are at a disadvantage delivering a desirable “product.” As a result, employers and adult learners are often going elsewhere for education and training (Craig, 2020). For this reason, professional and continuing education and workforce-focused divisions providing alternative credentials that recognize acquired knowledge and skills are the ideal innovation incubators for IHEs to champion.

In a 2021 report published by the University Professional and Continuing Education Association (UPCEA), seven in ten college leaders say microcredentialing could boost enrollment and revenue (UPCEA, 2021). Yet many colleges and universities are not well-positioned to quickly deliver these innovative forms of education and training (Fong et al., 2021a). Unbundling credit courses is a logical approach for IHEs to pursue because it leverages existing resources to provide adult learners with fast and useable options for career advancement through targeted alternative credentials and acquisition of new skillsets. To implement unbundling realistically and quickly, academic administrators and faculty must work together to evaluate opportunities for developing alternative credentials without a significant investment of additional institutional resources. In this chapter, the importance of unbundling credit content to non-credit offerings is discussed and a process for creating new alternative credentials is proposed. When this “unbundling” credit-to-non-credit approach is effectively implemented, IHEs can meet the needs of today’s learner – and be positioned to attract the learners of the future.

The objectives of this chapter are to:

- Articulate the value of delivering diverse educational offerings to meet the needs of the learners of today and the future.
- Outline a framework for unbundling credit programs into quality alternative/non-credit offerings through a clear, step-by-step process.
- Discuss varying aspects when unbundling credit-bearing courses into non-credit professional continuing education offerings to allow for individualization to specific institutional contexts.
- Propose additional facets to enhance results, such as developing stackable credentials and implementing unique marketing strategies.

Through the depiction of a pilot case study these objectives are realized. This chapter illuminates how IHEs can deliver alternative credentials through Professional and Continuing Education (PCE) divisions at any institution type.

THE LANDSCAPE OF ALTERNATIVE CREDENTIALS

Alternative credentials are a relatively new term, and a shared definition has not yet been officially defined (Organisation for Economic Co-operation and Development, 2020). For the purposes of this chapter, alternative credentials may be generally categorized into a variety of “educational products” outside the confines of a credit-bearing program, such as non-credit training courses, non-credit certificate programs, digital badges, competency-based education not leading to a credit-bearing academic degree, and boot camps. In some settings, this category of education may also be referred to as “non-degree,” however, this chapter focuses primarily on exclusively non-credit programming in terminology. Broadly, when students demonstrate proficiency in certain knowledge or skills by completing some type of non-degree or non-credit coursework, they earn alternative credentials (Organisation for Economic Co-operation and Development, 2020). A subset of alternative credentials—microcredentials—provide individuals with the option to demonstrate necessary skills on their own timeline rather than through fixed periods, often proving competency or mastery of learning by providing evidence through practical assessments (McGreal, 2022).

Americans’ preference in non-credit options are increasing for reasons related to better value, affordability, better fit for their personal needs and more benefit for their job or career advancement (Strada Center for Consumer Insights, 2020). To match this demand, there are nearly one million credential options and close to \$2 trillion dollars spent annually on education and training (Strada Center for Consumer Insights, 2020). While many college and university enrollments have been declining in recent years, the Massive Open Online Course (MOOC) provider Coursera’s enrollment rose from fifty-three million to seventy-eight million students in the spring 2021—an increase greater than total U.S. higher education enrollment (Levine, 2021). Alternative credentials can be delivered in a variety of formats, but the number of digital credentials issued in 2021 saw a 67% growth, making online learning options increasingly desirable (IBL News, 2022).

The extensive marketplace of credentials and education and training in the U.S. is still thought by many to be vast, complex, confusing, loosely defined, expensive, and inefficient (Credential Engine, 2021). The educational marketplace is expanding with increasing competition from non-higher ed pro-

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viders such as Coursera, EdX, LinkedIn Learning, Google, SkillShare, OpenSesame and others. There are a multitude of individual professional associations and organizations offering their own credentials and continuing education units (CEUs). Additionally, a myriad of commercial providers now offer open learning options for personal interest; for example, Masterclass and Great Courses both feature the appeal of learning online with celebrity instructors. Moreover, virtually anyone with a passion to do so can now launch an online course or “school” through comprehensive online learning platforms like Udemy, Teachable and Thinkific. With the plentitude of non-academic providers saturating the learning market, the questions often asked are: “*Where does higher ed fit? Can higher ed compete with non-academic providers in the continuing education space?*”

The landscape of professional learning is evolving, diverse and increasingly vast, yet where traditional IHEs might retain an advantage compared to the non-academic competition is by leveraging their credibility as accredited, recognized, qualified organizations of higher education. In a national survey of 14,000 adults who pursued a non-credit credential, those participating in non-credit credentials from individual businesses or companies and professional associations received the *lowest* quality and value ratings among non-credit credential issuers (Strada Education Network, 2021). This survey supports the theory that an alternative credential earned through an accredited college or university holds value in a context that is useful to an individuals’ personal development and professional advancement as a credible display of achievement.

To remain competitive in a saturated education environment, IHEs must shift focus from only the pre-set bundled approach to recognize the potential of non-credit programming as equal to credit-bearing degrees and certificates. Consumers base education decisions on what is in it for them, with economic return the highest factor (Fishman, 2015). The difference is that increasingly a degree is not always necessary to achieve those top outcomes (Strada Education Network, 2021). This makes unbundling content a viable strategy for IHEs to consider for diversity of programming and revenue (Craig, 2020).

Based on recent data from various sources, the interest in alternative credentials is increasing. According to Credential Engine’s Counting U.S. Postsecondary and Secondary Credentials Report (2021), an estimate of types of entities issuing credentials breaks down to the following:

- Massive open online course (MOOC) providers—9,390 course completion certificates, microcredentials, and online degrees from foreign (non-U.S. based) universities.
- Secondary schools—48,919 diplomas from public and private secondary schools.
- Postsecondary educational institutions—359,713 degrees and certificates.
- Non-academic providers—549,712 badges, course completion certificates, licenses, certifications, and apprenticeships.

It is worth noting the largest of the four types are *non-academic* providers, associated with 123,038 online course completion certificates and 381,561 digital badges (Credential Engine, 2021). Massive Open Online Courses (MOOCs) have reached 220 million learners with MOOC providers launching over 3,100 courses and 500 microcredentials, with a trend of more alternative credentials being launched by companies rather than universities (Class Central, 2021). These commercial players will become increasingly competitive with traditional IHEs by catering to part-time, older, and adult learners seeking shorter, focused education and training to increase their earnings or change careers (Levine, 2021). This audience is increasingly important to the economy; unfortunately, these learners are often underserved by higher education (Levine, 2021).

Despite the interest in alternative credentials and initiatives to systematize and assign quality standards for them, the landscape of non-credit and alternative credentials is still highly variable and undefined, loosely regulated, and a source of confusion amongst stakeholders – students, workers, employers, and the education and training providers themselves (Credential Engine, 2017). The Non-Degree Credentials Research Network (NDCRN) project of the George Washington Institute of Public Policy at George Washington University (GWU) was established in 2019 through a Lumina Foundation grant to conduct research on the benefits from different types of non-degree credentials (NDCs), how to identify high-quality credentials, how employers are using credentials, and how policymakers can improve the value of NDCs for all parties in the credentialing marketplace (Non-Degree Credentials Research Network et al., 2021). Lumina Foundation’s *Credential As You Go* (CAYG) project initiated in 2019 was created to inform and facilitate the development of a nationally adopted incremental credentialing ecosystem that improves education and employment outcomes for all learners (Credential As You Go, 2021). The efforts of these organizations and others are promising for creating common standards, transparency and useability amidst non-credit credentials and continuing education; yet the nation claims more than 4,000 certification bodies, and less than 10 percent of them are accredited or reviewed by a third party so these activities will take time to produce results (Lumina Foundation, 2015). At this stage, virtually any organization, entity or individual can offer a “credential” of varying degrees, leaving the perception of quality and value largely up to the individual consumer to determine (International Association for Continuing Education and Training, 2016).

As trusted providers of quality education, accredited IHEs could do more to capitalize on the alternative/non-credit education market, yet too often higher education inertia gets in the way of innovation in delivering flexible, skills-focused education. This presents a challenge as higher education as an industry is facing an increasingly relevant question about the value of what they offer amidst growing budgetary and operational challenges (Llopis, 2020). Amidst the swelling demand in alternative options for learning that extend outside the traditional degree boundaries from consumers, there seems to be a recent shift towards a new mentality from IHE leaders, with more interest and excitement around creating accessible, flexible, creative, engaging, high-quality, meaningful learning opportunities for the adult learner (UPCEA, 2021). Paired with increasing emphasis on diversity, equity, and inclusion (DEI) initiatives and expanding educational access, it is an opportune time for Professional and Continuing Education divisions to rise to the forefront to play a larger role. Amidst the crowded and differing definitions within the professional education and development landscape, accredited institutions can draw from their strengths to develop a portfolio of accessible, shorter, more targeted—yet still high-quality—learning experiences. Utilizing an integrated approach, the emphasis on maintaining quality andragogical practices most IHEs uphold balances meeting learners where they are, allowing them to gain a new skill or credential providing immediate return on investment (ROI). These “microcredentials” or “unbundled learning units” can incrementally add up through learning that is personalized, responsive, immediately beneficial, and lifelong.

The Rise of Microcredentials, Online and Hybrid Courses and Skills-Based Learning

For many adult learners, the value of a college degree compared to investment of time and money for traditional education is not in alignment (Llopis, 2020). Even with employer reimbursement benefits offered by some employers, adult learners need to see clear benefits as to why they should invest their limited resources of time and money to go back to school (UPCEA and Thinking Cap Agency, 2021).

Unbundling Credit to Non-Credit

Today and going forward, learning must be lifelong—it does not end with the achievement of a singular degree. The future of work is more diverse and ambiguous than ever, and education/training is needed real-time—for the current job, a promotion, or career change. Consumers have become less patient with the acceleration of technology—we want everything now and how we want it (UPCEA and Thinking Cap Agency, 2021). The same concept can be applied to education, which becomes particularly problematic to deliver within the confines of a traditional semester-based, credit course context. In comparison, a menu of focused educational opportunities that a learner can mix-and-match and pursue on their time can seem more intriguing and useful than a prescribed sequence of courses and set timeframe. This shorter, more flexible format can lead to a person filling their skills gaps for their current job, a new one, or even a side hustle without having to wait. This model is much more desirable in a rapidly changing education and economic environment, particularly if a degree is not needed to realize one's goal. Likewise, employers need to upskill and retrain their current workforce to remain competitive, yet many are developing in-house programs or sending employees to non-academic providers for reasons of more affordability, customization, and flexibility (Pelletier et al., 2021). IHEs may be losing a vast portion of the adult learner market by neglecting alternative credentials from their educational mix.

Expectations of the “Now” Student

There is growing demand from adult learners to engage with accessible, stackable, flexible, and relevant education that can be completed anywhere, anytime (UPCEA and Thinking Cap Agency, 2021). From a learner-focused perspective, it is important to rethink how institutions deliver educational offerings to remain relevant to a continuum of lifelong learners. IHEs already possess a vast wealth of resources within the academic curriculum; as good stewards of resources, academic leaders should be exploring how to capitalize on existing specialized content—areas that make institution special and highlight expertise—and find ways to provide this content to learners in a more consumable, useful fashion. While formal degrees may remain valuable as a baseline level of education for some fields, there is a large market of lifelong learners seeking specialized credentials and targeted skills solely for personal and professional development. According to a 2021 survey of adult professionals, the top motivators for enrolling in a continuing education program are career advancement (43%), personal goals (41%) and a love of learning (39%) (University Professional and Continuing Education Association (UPCEA) & Salesforce.org, 2021). The learner of today may benefit more from targeted micro-learning options allowing them greater customization of content to fit their personal and professional interests.

In today's fast-paced world people are busier than ever, so learning must be flexible, convenient, and accessible from anywhere, anytime (UPCEA and Thinking Cap Agency, 2021). Some reasons for flexibility and online options are based on necessity, and some are based on the embedded expectations of immediacy of our culture. The transition to unbundling content into segments that are easily associated with skills that can be included on a resume and used immediately removes many of the unappealing barriers of a traditional degree-based education (i.e., high admissions requirements, expensive financing and student debt, months, or years to complete). Traditional credit-based degree programs are limited by the guidelines established by state and federal governments and institutional and program accreditors for number of courses and credits, whereas non-credit offerings have more room for specialization of topics. In the unbundling credit-to-non-credit model, both the institution and learners they serve benefit—institutions can feature repurposed content so learners can access learning more easily and can gain skills quickly.

Given the needs of today's learner, IHEs need to explore ways to deliver a faster ROI for them and for the organization's bottom line. It might take an adult learner several years to complete an academic program, which is a long time during which to invest both personal time and financial resources, yet adult learners often want to take what they are learning and apply it right away on the job or in their personal life (UPCEA & Salesforce.org, 2021).

One option to fulfill this niche is to segment elements from a traditional credit-bearing course into a standalone non-credit offering, to create content that is more focused and condensed into an easily consumable format. This "unbundling" approach also provides the opportunity for flexible start and end dates to fit busy schedules. Essentially, unbundling credit to non-credit offerings provides a unique opportunity for students to personalize and customize their learning experience in ways that are most beneficial to their needs.

Higher Education Opportunity: Delivering Diverse Educational Content

Accredited higher education institutions have an advantage to deliver high-quality credentials grounded in best practices in teaching, learning, and outcomes-driven course design considering the frequent inconsistency in alternative and non-credit credentials that often exists. Yet the glacial pace of many traditional-minded institutions to adapt and pivot amidst limited resources is usually the demise of meeting this demand in the educational market. Professional and Continuing Education (PCE) divisions are well-positioned to be entrepreneurial and quick moving outside the set confines of academic curriculum, thereby operating more efficiently and innovatively.

Yet for many small IHEs, there are challenges of scale for PCE divisions to maintain profitability as revenue-generating units. As a result, many PCE divisions outsource non-credit professional offerings to vendors. The advantage to this approach can be no/low upfront costs to develop content and less administrative bandwidth; yet the downsides are potentially lesser quality learning or generic learning that could deter from the strength of the organization's brand and limited academic oversight, in addition to sharing of revenue with the vendor which reduces profits. IHEs seeking to curate their own unique, high quality non-credit alternative credentials need a realistic framework for development and implementation. This chapter will provide such a blueprint with suggestions for adaptation to one's own institutional context through an "unbundling" credit-to-non-credit approach.

In summary, unbundling academic content to shorter, accessible, flexible non-credit learning opportunities can apply to formalized alternative credentials aligned with a career objective, microcredentials focused on gaining additional knowledge and/or skills, or personal development on a specific topic as a means of pursuing lifelong continuing education. There are benefits to this effort for both the IHE and the learner.

IHE Benefits to Pursue Unbundling Credit-to-Non-Credit Approach:

- Maximize limited institutional resources by leveraging existing educational content
- Capitalize on specialized content and areas of expertise that the institution can highlight to reinforce the institutions' brand
- Provide increased opportunities for learners to access education in an affordable and convenient format
- Deliver education in a more consumable manner to meet the needs of busy learners

Unbundling Credit to Non-Credit

- Provide students with a path to realize a faster return on their investment – learn today, apply tomorrow approach
- Strategically expand educational offerings to serve new audiences in a shorter amount of time
- Pilot new academic programs with less upfront risk
- Create a unique opportunity for students to personalize and customize their learning experiences in ways that benefit them most

UNBUNDLING CREDIT TO NON-CREDIT

There are many models for how professional and continuing education divisions are structured, yet these differences are not as important as one may believe when it comes to the actual process for unbundling credit to produce a portfolio of microcredentials or personal development learning opportunities for the adult lifelong learner. In the following section, the approach to quickly launch new non-credit offerings and credentials will be illuminated through a case study depiction at Maryland University of Integrative Health (MUIH); a small, private university amidst the typical resource constraints many higher ed institutions face when launching new programs. This case study will begin with a brief background for how the framework was initiated, developed, and implemented within the MUIH division of Professional and Continuing Education (PCE). This real-world example will provide readers with context and an outline for which to adapt and apply within one's own institution. While specific scenarios will apply to match organizational policies and dynamics, the unbundling method is agnostic to the type of programming the IHE provides.

Launching Professional and Continuing Education (PCE) – Case Study

The Office of Professional and Continuing (PCE) Education at Maryland University of Integrative Health (MUIH) was launched with the hire of the new Director of Professional and Continuing Education (the chapter author), charged with re-envisioning professional and continuing education for complementary and integrative health and healthcare professionals. MUIH is a private, non-profit, graduate-only university and is one of the leading academic institutions for integrative health in the nation, offering doctoral and master's degrees and graduate certificates in whole-person centered complementary and integrative health fields.

As a start-up division, it was essential that a foundation for the MUIH PCE department's mission and framework first be established before new PCE offerings could be developed to align with those of the overarching institutional mission and programmatic specialties. Over the course of a few months, external and internal benchmarking by the PCE Director resulted in the initiation of foundational constructs and departmental processes, including course design templates, subject matter expert (SME)/faculty compensation rates and learner policies. Additionally, a comprehensive analysis of the marketplace and competition resulted in a series of PCE models. These processes are continually being assessed and refined and strategic planning is conducted annually. To curate the initial PCE content that would launch PCE enrollments and diversification of university revenue, outsourcing content and administration to industry partners was investigated, however it was quickly identified that most continuing education vendors did not offer the unique content in complementary and integrative health that MUIH is known to provide.

Therefore, the in-house development of unique PCE learning opportunities was pursued with the support of external contract instructional designers (IDs), limited part-time internal IDs and PCE subject matter experts (both MUIH ranked and adjunct faculty and PCE SMEs) with the PCE Director leading the charge under the Provost and VP of Academic and Student Affairs guidance. As a new division at a small institution. MUIH PCE could be more innovative and entrepreneurial at a fast-moving pace, yet the downside of a small organization is the limited resources. In resource-sparse circumstances it is even more important to be a good steward of institutional resources and with prioritization. To respond to the University's goals to launch new PCE offerings swiftly to the market, the unbundling of credit content to non-credit offerings model was one of the first models implemented. This approach allowed MUIH PCE to leverage existing curriculum to produce content quickly, while the development of entirely new PCE courses and programs were simultaneously underway.

Process of Unbundling Credit to Non-Credit

Partnering with external vendors for supplementary non-credit content is an approach suited for some institutions, but there can be immense value for IHEs to develop a unique portfolio of alternative credentials administered and owned by the organization. These benefits include deepening the institutional brand and maintaining greater oversight over content and quality of the learning experience. The next section will describe a step-by-step process for implementing a portfolio of non-credit offerings from existing credit course content through an unbundling approach.

The overarching process shown incorporates the International Association of Continuing Education and Training (IACET) guidelines for Regulating and Maintaining the Integrity of Continuing Education Programs (McClary, 2016) as follows:

- 1.) Content standards ensure the course content aligns with the relevance to industry. Quality content standards also align the rigor of the course with the appropriate audience
- 2.) Instructional design standards ensure courses are designed to meet the objectives.
- 3.) Delivery standards encompass how the course is delivered to the learner.

Appropriate assessment and evaluation are also a critical aspect of the framework to ensure individuals are getting the most out of their learning experience.

Step 1: Source Content

The first step is to determine potential credit content to repurpose into non-credit offerings. There are several ways to source appropriate content when launching a new non-credit program, some of which are highlighted in Table 1; however, as much as the emphasis is on the specific content itself, equal attention should be paid to the target audience and demand for the offering. The PCE Director at MUIH initially interviewed Department Chairs for every MUIH academic program and surveyed the landscape of integrative health education competitors to identify continuing education needs and program gaps. The PCE Director's background in integrative and holistic health as a certified Health Coach combined with her higher education administration and enrollment experience presented an advantage in identifying content that would resonate in the complementary and integrative health market. Partnering with institutional allies to create shared opportunities to highlight in-demand content within academic programs

Unbundling Credit to Non-Credit

was an effective and straightforward way to generate a brief list of possibilities for which to pilot the new unbundling credit-to-non-credit approach at MUIH. Similarly, the PCE Director’s discussions with supporting divisions such as Career Services, Alumni Engagement, Admissions, and Marketing paired with input from professional organizations that require CEUs particularly where alumni are licensed and/or credentialed were valuable in narrowing this list further. The initial goal at MUIH was to deliver a series of pilot PCE offerings with a quick turnaround; whereas, given more time and funding, one could engage with market research companies, hold focus groups with alumni, and survey employer advisory boards to gain more comprehensive data through third party research.

Figure 1. Proposed steps to unbundle credit content to non-credit offerings

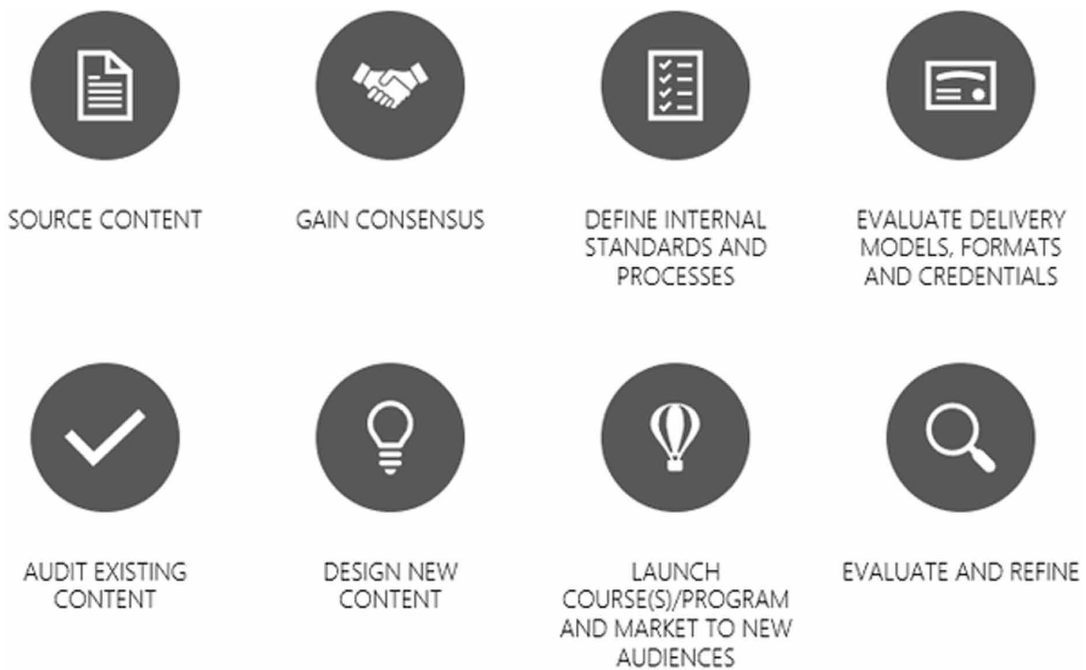


Table 1. Possible sources to guide non-credit offerings

Opportunities to Source Content	
Market Research – outsourced or in-house	Workforce Statistics (BLS)
Competitive Analyses	Employer Partners
Alumni Surveys & Focus Groups	Employment Reports
Alumni & Career Services Staff	Admissions and Enrollment Staff
Department Chairs & Faculty/Subject Matter Experts	Professional Industry-Specific Associations, Organizations, Boards

Note: Possible sources to guide prioritization of content to unbundle from existing credit courses to non-credit offerings. IHEs may expand and customize to individual needs.

Step 2: Gain Consensus

The first step the new PCE Director took connecting academic colleagues and current external industry partners to learn more about the needs of the professionals within university-focused fields was particularly useful as a new department leader to learn the landscape and to distill opportunities and quick wins, the value of this effort is not to be overlooked by seasoned leaders. From the large list of feasible options curated, a refined list of hot topics and best opportunities for conversion was presented to the Provost & Vice President of Academic & Student Affairs for final approval to move forward with development. There was universal consensus that unbundling credit content in an intentional way could be viable strategy to curate content quickly to launch PCE's alternative educational offerings without a maximum expenditure of institutional resources.

Quick Wins – Example Questions to Ask to Determine Where to Begin

- What makes you different? Where can you stand apart to highlight the best aspects and strengths of your institution?
- What areas of expertise do you have among faculty and SMEs?
- What content exists within your academic credit courses that is easily convertible to unbundled content useful for a professional learner to upskill?
- What skills, courses, programs are in-demand from feedback from your employer contacts and industry partners (i.e., professional organizations) where you can fill a need?
- What are the workforce trends in the fields your organization specializes in?
- What input can Academic Department Chairs/Faculty provide in their area of expertise?
- What do Alumni need for career advancement and/or professional licensure requirements (i.e., survey data, focus groups)? (*Tip*: Alumni are a built-in audience for which to promote alternative credentials; offer Alumni discounts to support lifelong learning and connection with the institution)
- What workforce needs and trends are reported by the institution's Career Services division?
- Can you collect Advisory Board Feedback from leaders in specific industries?
- Are there academic program gaps? Could you innovate by piloting a non-credit program that could evolve into a credit program once demand has been evaluated with lower risk and up-front investment?
- Are there opportunities to align content to create stackable credentials to academic programs for non-credit to credit matriculations (i.e., offer a foundational course as stand-alone micro-credentials to garner interest into a credit certificate or degree)?
- Can you align programming with CE requirements for specific professions – market/promote through the credentialing organization (i.e., Continuing Medical Education (CMEs) for physicians)?

Step 3: Define Internal Standards and Processes

Before proceeding immediately to the design phase, a series of basic course design standards and administrative procedures needed to be established before proceeding immediately to the design phase. As a start-up division, MUIH PCE was a clean slate for which to define new processes, which was both a challenge and opportunity. The need to pause and define a new process slowed down the implementa-

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tion timeline, yet it was opportunity to develop a product that met the needs of today's learner without pre-built restrictions or assumptions.

For ease of implementation, the MUIH Provost, PCE Director, and Academic Dean defined a simplified process that respected the SME and academic department "territory" – not requiring *approval*, but an *endorsement* to use the content in a re-envisioned way for PCE as a collegial tactic. Building strong inter-departmental relationships is a key aspect for the success of this approach, and the support of the MUIH Provost & Vice President of Academic and Student Affairs was also critical to move the pilot forward. The other factors considered when implementing this approach were: 1) working through the appropriateness of presenting segments of academic courses as standalone content, without the supporting context of the whole course; 2) institutional concerns about competition between credit and non-credit; 3) ensuring that the non-credit route wasn't a later alternative means to exempt out of the credit course without an intentional stackable pathway; 4) clarifying for some SMEs that the credit course they had developed was jointly owned by the university. PCE leaders must develop the skills to develop a strategic plan with input from others to convey a new vision in a way that will be accepted by potentially skeptical audiences. Not all proposals will be accepted, but by communicating the win-win of the situation and the potential positive outcomes for the institution there is greater chance for shared consensus.

Upon the establishment of a shared vision, a concise rubric comparing the broad differences between Academic (credit) and PCE (non-credit) courses was developed to provide clarity for how the educational experience and structure contrasts for the two segments of learners. Table 2 shows the comparison between credit and non-credit courses at MUIH which can be adapted to one's own institutional context.

In the early stages of MUIH PCE, several key foundational elements were developed to create a structure for PCE course selection and development processes, including assessing the learner experience and outcomes. As a start-up division, the MUIH PCE Director had to build the entire structure for the department from the ground up, including pricing, SME/faculty compensation, PCE course models, course design processes, enrollment processes and learner resources, marketing materials and communications, learner support resources, and more. These elements are continually being refined and have streamlined the process for replication of this approach going forward. The takeaway for readers from the MUIH case study is to realize it is not always necessary to have all the details clarified to embark on a pilot initiative.

The following list shows a just a few of the foundational resources MUIH PCE developed to guide PCE course developments:

- Proposal Form for soliciting PCE content
- Criteria for evaluating PCE content to offer
- Pricing & Development Framework (benchmarking and competitive analysis)
- Academic vs. PCE Rubric to compare credit versus non-credit
- Quality Matters (QM) HE-CE Crosswalk to structure course design elements
- Design & ID Guide to define processes and standards for PCE courses
- Course Templates to standardize PCE course design
- Surveys and Course Evaluation to assess PCE offerings

Table 2. Sample academic vs. non-credit rubric comparison

Category	Academic (credit)	PCE (non-credit)
Topic	Broad, with several focused topics.	Focused topic.
Learning Objectives	Emphasis on knowledge, analysis, critical thinking.	Emphasis on knowledge, skills, and immediate application in professional practice
Content	Some embedded, faculty lectures, links to external content, articles, & external media.	All embedded. Summary content. Easily consumable media and text. Branded work-related handouts and resources. Professional focus.
Activities	Discussions, textbook readings, critical analysis, group work, research papers, projects.	Embedded reading, videos, graphics, assessment. Self-check automated assessments tied to outcomes. Minimal discussions, short reflection essays/prompts, peer review. Activities designed to demonstrate skill mastery for real-world settings.
Grading	Traditional grading scale.	Complete/Incomplete; Pass/Fail.
Course Materials	Textbooks, original content, external videos & resources, research literature articles.	OER; original content; excerpts.
Credential	Academic credit; Certificate; Degree.	Certificate of Completion (course); Professional Certificate (program); Certificate of Participation (event); CEUs; Digital Badge, and/or Certification.
Course Length	14 weeks (trimester).	Varies: e.g., 1-2-hour Master Class (webinar), 1, 2, 4, 6, 8-week course, intensive 3–12-month professional certificate/certification program; 1-2-day workshop or conference.
Format/ Delivery Model	F2F; hybrid; fully online.	F2F; hybrid; fully online. Competency-based education foundation.
Audience	Graduate students, meeting minimum admissions requirements (e.g., prior degrees, GPA, professional licensure).	Professional/practitioner/clinicians (external audiences, MUIH alumni, current MUIH students). Education & experience level varies, with many courses open enrollment.
Facilitation	Instructor-led; asynchronous and synchronous options.	Both self-paced and instructor-led/mentor-facilitated models; both asynchronous and synchronous options.
Approvals	Maryland Higher Education Commission (MHEC); Middle States Commission on Higher Education (MSCHE); program accreditors.	No formal approval process unless seeking official CEU designation through industry-specific professional organizations for continuing education and/or licensure requirements.
Timing	Trimester schedule.	Variable; flexible; cohorts and availability open to our discretion.
Funding	Eligible for federal financial aid, loans, and scholarships.	Not eligible for federal financial aid (self-pay). <i>(Note: Applies to offerings less than 300 clock hours.)</i>

Note: The pilot “Academic Versus PCE Rubric” developed at MUIH to serve as a general framework to guide how academic courses and PCE courses differ. This rubric may be customized to individual IHE contexts.

Step 4: Evaluate Delivery Models, Formats and Credentials

There is no “one-size-fits all” when it comes to delivery models and format for non-credit education, which is an advantage for learners seeking flexible learning opportunities. According to the 2021 Strada-Gallup Education Survey of adults ages 18 to 65, in the realm of non-degree education, certifications and licenses remain more common than certificates, and 1 in 4 nondegree credential holders have both kinds of credentials (Strada Education Network Center for Consumer Insights, 2021). IHEs can determine the appropriate model based on a variety of factors—the credential needs of an industry; subject matter/topic; satisfactory level of content to achieve stated skills, knowledge, and abilities; market research/

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competitive analysis; direct participant and/or employer feedback; whether academic courses are owned by the institution or the faculty member, and institutional resources available to revise the original credit course format. The variety of options is one of the most interesting and innovative aspects of developing alternative credentials.

Unbundling Options. There are several ways to unbundle content; Table 3 outlines a scaffolding approach of various levels of content revisions to match the desired turnaround time and available resources to deliver an unbundled version and/or segment of a credit course as a sample framework to consider. Again, there is no one “right” format choice; rather, each has merit in specific contexts, so it is recommended institutions determine which approaches are best suited for the situation.

Table 3. Unbundling credit to non-credit content—Sample scaffolding approach

Level	Description	Considerations
Level 1	Combine credit courses for a non-credit “certificate;” offer same/ similar version of credit course in a non-credit format for CEUs.	Easy to implement to meet specific employer needs; potential for creating a custom company training certificate and/or digital badge.
Level 2	Cross-listing course(s) for both non-credit/credit with different course requirements and/or assessments for non-credit learners (optional CEUs).	Can be particularly useful for low-enrolled credit courses so the course can run vs. being cancelled; faculty can be paid an additional per student stipend for non-credit enrollments. Carefully consider pricing to avoid competing with credit tuition rates.
Level 3	Minimally scale back a credit course module into one microcredential offering or repurpose content from the full credit program course but offer it as an onsite training or a hybrid condensed “bootcamp” training.	Same content shortened; easy to implement with less revision and redesign of curriculum and content needed.
Level 4	Redesign from credit framework to fully unbundled non-credit offerings for an online self-paced, on-demand delivery. Includes some new content mixed with repurposed content.	Most flexible option for learners to self-select based on interests. Allows for building many other microcredentials by mixing and matching various non-credit offerings and repackaging into new non-credit course bundles and related programs.

Note: Possible approaches to leveraging credit content to non-credit formats. Additional options may be developed at individual IHEs based on context and goals.

Delivery Models. As with the possible levels, there are a variety of ways to deliver effective non-credit education depending on the level of content and desired outcomes. As mentioned, adult learners desire flexibility and convenience with an appreciation for self-directed learning that is relevant to their current and/or future, knowledge, skills, and abilities (Fong et al., 2021a). Compared to instructor-led credit courses, many non-credit offerings are delivered in a self-paced, online format with less emphasis on time to complete, but rather demonstration that the learning objectives have been achieved and competencies mastered. In the beginning stages of PCE at MUIH, several models of online and hybrid PCE offerings were outlined to guide the design process, some of which are detailed in Table 4 to demonstrate how this approach might apply in the design phase.

The following list provides a few additional possibilities for types of non-credit alternative credentials and models to explore implementing at one’s own institution:

- **Self-Paced, On-Demand, Online Courses/Masterclasses**
 - No live instructor—presenters and course developers deliver lesson presentations asynchronously to view on-demand
 - Video lectures, interactive exercises, embedded text
 - Open access/rolling enrollment
 - Pre-requisites suggested, open admission for self-enrollment
 - Auto-graded assessment(s) required for certificate/CEUs
- **Short-Courses and Course Series comprised of inter-related content**
 - Instructor-led or self-paced, on-demand delivery options
 - Hybrid or fully online format
 - Open enrollment or time-specific cohorts
 - Courses may be enrolled in individually, or as a program or series “package” at a discounted bundle rate
- **Professional Certificates**
 - Series of inter-related short courses if taken individually comprise a program
 - Both instructor-led and self-paced, on-demand delivery options
 - Fully online, hybrid or in-person format options
- **Certification Programs**
 - Selective admission criteria and alignment with professional certification, typically for professional licensure or industry designation
 - Continuing Education (CEUs) typically required for recertification after set time
- **Mentor-Led Courses**
 - High-touch opportunities to connect with a professional faculty mentor at specified places throughout a self-paced course
 - Either required for assessment completion or optional for a pricing upsell
 - Fully online, hybrid, or face-to-face delivery options
- **Boot-Camps and Exam Prep Courses**
 - Condensed curriculum for an immersive learning experience with small groups
 - Fully online, hybrid or in-person (F2F) delivery options
 - Asynchronous or synchronous online learning format
- **Mentorship Programs**
 - Group or 1:1 guidance—learner directed for a specified professional topic to gain expertise and support
 - Online, hybrid synchronous/asynchronous or F2F formats
- **2-8-Week Cohort-Based Courses (fully online, hybrid, F2F)**
 - Instructor-led
 - Higher level learning objectives (Blooms Taxonomy)
 - Learner-instructor/peer interaction and engagement
 - Graded assessments with instructor feedback
- **Membership/Subscription-based Programs**
 - Recurring content released on an ongoing basis, monthly or annual fee

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- **Digital Badges**
 - Entirely digital credential typically signaling mastery of a focused or singular skill. Usually delivered securely via digital badging platform. Varying types of formats and achievement standards, often combining didactic and experiential components.

Table 4. Excerpt of initial MUIH PCE course models

Model	Course Type	Description
MODEL A	Master Class (single lesson & multiple lesson)	Recorded video/slides (15-60 min. per lesson); on-demand delivery; annotated slides & practitioner handouts & resource guide; automated post-assessment on learning; certificate, CEUs; post-course satisfaction survey
MODEL B	1-8-week asynchronous online training course; instructor-led or self-paced	Delivery during specified time; modular content, embedded text, some automated self-check assessment, minimal interactive graphics, short videos by SME, asynchronous discussion with facilitator (if applicable); certificate, CEUs; post-course satisfaction survey
MODEL C	Certificate program(s) of varying length, instructor-led	Packages of Model A and B courses; certificate upon completion of each course & program; digital badge; CEUs; post-course satisfaction survey (instructor-led version)
MODEL D	Certificate program(s) of varying length, self-paced/competency-based	Packages of Model A and B courses; certificate upon completion of each course & program; digital badge; CEUs; post-course satisfaction survey (self-paced/competency-based version)

Note. Excerpt of MUIH PCE course models that can be expanded and customized to one's own institutional contexts.

Credentials. As a result of the format and associated outcomes of the learning experience, the appropriate credential can be assigned upon demonstration of mastery of the stated competencies. As previously noted, there are many types of alternative credentials being awarded without a universally accepted consistency in place, but the Connecting Credentials Common Language Work Group has developed a glossary as a first step toward an increased agreement on the meaning and use of key terminology associated with credentialing that is a useful reference when defining, assigning, and awarding credentials (Connecting Credentials, 2015). According to this report, a “Credential” is defined a “documented award by a responsible and authorized body that has determined that an individual has achieved specific learning outcomes relative to a given standard. Credential in this context is an umbrella term that includes degrees, diplomas, licenses, certificates, badges, and professional/industry certifications” (Lumina Foundation, 2015). MUIH PCE has awarded Certificates of Participation (based on attendance and evaluation survey), Certificates of Completion (based on successful completion of learning activities, assessments, and optional course evaluation), CEUs (varies per industry) and is currently in the process of exploring digital badges at the time of this chapter publication.

According to the Competency-based Education Network (2018):

Competency-based education combines an intentional and transparent approach to curricular design with an academic model in which the time it takes to demonstrate competencies varies and the expectations about learning are held constant. Students acquire and demonstrate their knowledge and skills by engaging in learning exercises, activities and experiences that align with clearly defined programmatic outcomes.

In a Competency-Based-Education (CBE) delivery model, time is not the driver of the curriculum, but rather proficiency in programmatic outcomes and this approach is highly relevant to alternative credential design.

An institution can establish its own standards for assigning credentials and Continuing Education Units (CEUs) or can look to credentialing organizations like the International Association for Continuing Education and Training (IACET) for guidance or the related professional organization when applicable. In lieu of an internal resource, the IACET provides a Provider Checklist to design quality professional and continuing education offerings IACET's Competency-Based Learning (CBL) framework provides definitions a guide to delivering quality CBE learning experiences (IACET, 2018). MUIH PCE developed a CEU Philosophy to guide the process of issuing PCE certificates and CEU standards based on the complexity of learning content and average time to complete. In addition to CEUs awarded by MUIH, CEUs for external boards, organizations and certifying bodies may be applicable to some PCE courses, as CEU requirements vary per industry (International Association for Continuing Education and Training, 2016). Digital badges may be aligned to demonstrate proficiency in academic and experiential skills, knowledge, and competencies.

Step 5: Audit Existing Content

PCE courses at MUIH and those being offered by non-academic providers differ from academic courses in several ways. PCE courses are often shorter than credit-bearing courses, varying in length depending on the model of the offering. The expectations for PCE offerings are also less rigorous than an academic credit course, particularly in terms of the types of learning objectives and related assessments. The courses should emphasize the information and skills that a practitioner or professional would want/need to know to apply in their field.

When “auditing” a course for an unbundled version, the first items to review are the learning objectives, referencing Bloom's Taxonomy domains of learning (Image 2) and to decide how to modify them within the non-credit model through the lens of a competency-based format to be relevant and appropriate for the intended professional audience. Often, this will involve adapting to lower-level domains for the non-credit version. The next step is to look at what within the credit course needs to be adapted and what can be retained in the non-credit version. Creating a rubric with criteria for how PCE and academic programs compare and align is useful to guiding the process of course audits (Table 2). For example, instead of textbook readings, consider delivering content through more interactive and engaging mediums, like mini video lectures or interactive graphics. For assessments, a ten-page research paper might be modified to a relevant case study, or a final exam with graded essays might be changed to a series of auto-graded quizzes. Instead of discussion boards in facilitated courses, reflective prompts related to professional practice can be included in a self-paced online course. Rather than sourcing out to external content that is subject to copyright and licensing fees, include curated branded handouts to use easily in professional practice. When applicable, be proactive to align the curriculum in a way that matches CEU requirements for professional organizations and boards if a specific industry/profession is the target market for the course.

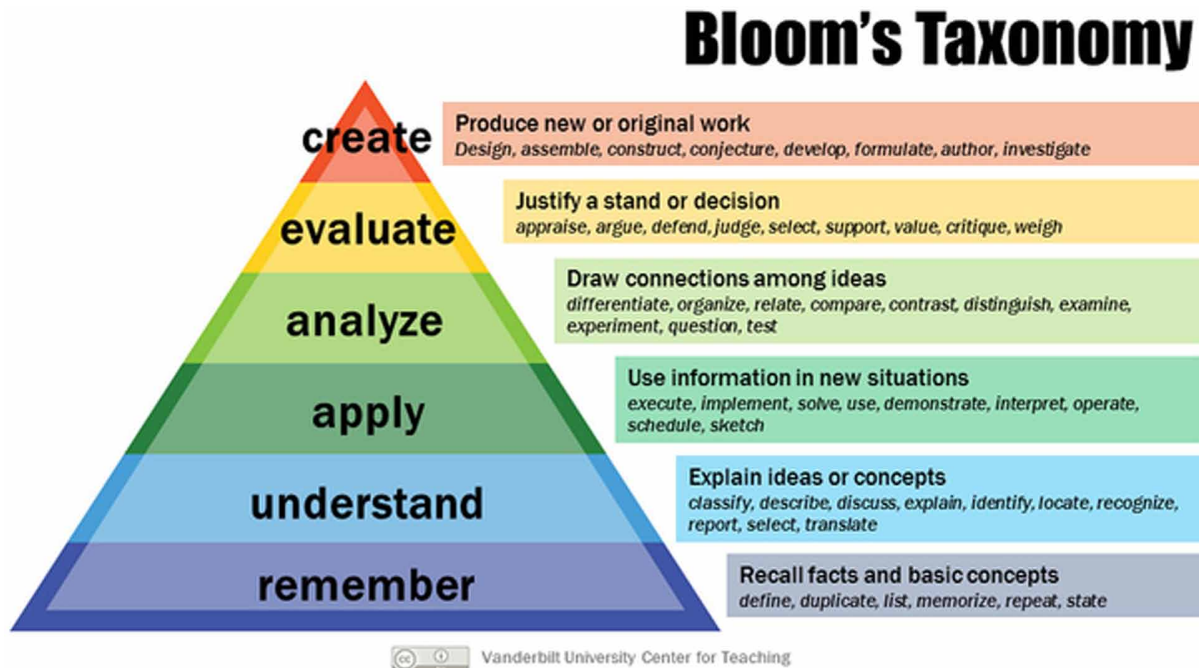
Ultimately, the goal in the auditing process is to evaluate the course's key highlights and core integrity, but to re-envision the course from an adult professional learner's perspective. *Ask yourself: Is this content engaging? Is it useful?* There is no one “right” way to go about it, but it does help to have a consistent format within your non-credit offerings to make it easier to scale within institutional capabili-

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ties and resources. Essentially, it comes down to thinking about education holistically and creatively, always with the learner in mind.

Figure 2. Blooms taxonomy framework for categorizing educational goals

Note: Blooms Taxonomy of learning domains commonly used in academic course design. Image used under Creative Commons Attribution License created by the Vanderbilt University Center for Teaching.



Step 6: Design New Content

At MUIH, the PCE Director collaborated with Instructional Designers (IDs) to develop a PCE ID Guide and pilot PCE Course Templates in the institution's learning management system (Canvas). One of the initial steps taken was to compare the Quality Matters (QM) Rubrics for both Higher Education (HE) and Continuing Professional Education (CPE) for best practices in online course design. This resulted in a crosswalk comparing the two formats to guide instructional design decisions which is excerpted in Figure 3.

When re-envisioning credit to non-credit, a credit course can be unbundled and offer as non-credit in several ways. For example, a 3-credit graduate-level course that consists of 14 modules delivered over the course of 14 weeks could be broken down into 12 mini non-credit microcredential offerings by segmenting each module individually for the PCE version. Each mini non-credit course can be "sold" individually or as a program at a discounted bundle rate. This is comparable "cafeteria-style" learning, allowing learners to personalize and build their education a la carte, choosing menu items and toppings based on personal preferences. This level of customization is what people expect in the educational "shopping" experience. Adult learners like to be able to choose what will benefit them, and the learning process should be easy and customizable (UPCEA and Thinking Cap Agency, 2021).

Figure 3. Excerpt of MUIH PCE Quality Matters (QM) standards crosswalk comparing academic credit course design with PCE course design

Note: Excerpt from MUIH PCE Quality Matters (QM) Higher Education (HE) and Continuing Professional Education (CPE) Crosswalk developed in the pilot phase of MUIH PCE course design. Refer to Quality Matters (QM) for complete and most recent rubrics.

Standards from the Quality Matters™ Higher Education Rubric, Fifth Edition, 2014	Standards from the Quality Matters™ Continuing and Professional Education Rubric, Second Edition, 2015	Notable differences between rubrics
<p>General Standard 1 – Course Overview and Introduction: The overall design of the course is made clear to the learner at the beginning of the course.</p> <p>The course overview and introduction set the tone for the course, let learners know what to expect, and provide guidance to ensure learners get off to a good start.</p>	<p>General Standard 1: The overall design of the course is made clear to the learner at the beginning of the course.</p> <p>The course overview and introduction set the tone for the course, let learners know what to expect, and provide guidance to ensure learners get off to a good start.</p>	<p>No significant differences</p>
<p>1.1 Instructions make clear how to get started and where to find various course components.</p> <p>Instructions provide a general course overview, present the schedule of activities, guide the learner to explore the course site, and indicate what to do first, in addition to listing detailed navigational instructions for the whole course.</p> <p>Instructors may choose to incorporate</p>	<p>1.1 Instructions make clear how to get started and where to find various course components.</p> <p>Instructions provide a general course overview, present the schedule of activities, guide the learner to explore the course site, and indicate what to do first, in addition to listing detailed navigational instructions for the whole course.</p> <p>Instructors/Facilitators may choose to</p>	<p>Role of “instructor” in HE standard vs. “instructor/facilitator” in CPE standard</p> <p>Use of “syllabus” in HE standard vs. “course syllabus or outline” in CPE standard</p>

Faculty and SME involvement varies depending on the amount of content requiring revision for the PCE version, and ownership of the original academic course content. It is ideal if the original course developer or instructor can be involved with the non-credit revision, but any qualified SME can be hired to fulfill this role. If needed, the academic Department Chair will weigh in on SME credentials to ensure continuity and integrity of content. MUIH PCE follows a compensation model that is aligned with academic course development stipends for new and revised courses. There is also the option of faculty service hours or a credit course load exchange. The number of hours PCE SMEs compensated is estimated on a project basis with 45 hours equivalent to 1 credit. IHEs utilizing this approach may determine the appropriate compensation arrangements for their organization.

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Once the individual courses are identified, the next step is to establish the structure of each non-credit course. Most MUIH PCE courses that are self-paced, on-demand format follow a similar sequence.

Sample Self-Paced Online PCE Course:

- Introduction to Online Learning Platform
- PCE Policies & Learner Resources
- Welcome Video by Presenter
- Course Overview/Outline
- Lesson Modules
- Lesson Overview Video Presentation (narrated PowerPoint) (5-15 min.)
- Lesson Instructional Video(s) (5-20 min. each)
- Embedded Text
- Interactive Activity/Formative Self-Check of Learning (optional)
- Reflection Activity (optional)
- Handout(s) – Practical Application Resource(s)
- Summative Assessment – Auto-graded Quiz with Feedback (no time limit, multiple attempts permitted)
- Course-Wrap Up
- Post-Course Evaluation
- Certificate & CEUs
- Additional Learning Opportunities

Note: Sample components of MUIH PCE self-paced course that may be customized to match institutional design standards.

Case Study Example: Unbundling Academic Credit Course to Multiple PCE Offerings

Table 5 and Table 6 depict a specific example for a MUIH PCE collaboration with the MUIH Research Department to unbundle a one-credit graduate level instructor-led course into five individual non-credit PCE courses, that when taken together, comprise the PCE Professional Certificate of Evidence-Based Research and Informed Practice. The PCE program is a self-paced, on-demand online format that is open enrollment for learners to complete as convenient for them. The modules within each course release upon completion of the one prior upon completion of each learning activity and successfully achieving the assessment(s). Upon successful completion of each individual PCE course (i.e., required activities and assessments) a Certificate of Completion is automatically generated to the Learner. Upon successful completion of the five courses, the individual automatically receives the Program Certificate of Completion.

From start to finish, this entire process can take a few weeks to a few months, depending on the level of content being redesigned. Following a pilot, development timelines can be projected based on course development and marketing benchmarks within available resources.

Table 5. Excerpt of course alignment map for MUIH PCE unbundled research course content

Learning Objectives	Course Location	Assessment
Course 1 Foundations of Research Design		
Identify how multiple perspectives affect research interpretation	Lesson Activity (Perspectives Section)	Question 1, 11
Review why clinical experience alone is insufficient for making clinical decisions	Lesson Activity (Sources of Evidence)	Question 2, 4, 6
Select specific challenges of conducting and interpreting research in integrative health	Lesson Activity (Researcher Cons)	Question 3, 10
Compare the relationship between evidence hierarchy and internal/external validity	Lesson Activity (Research Overview)	Question 4, 7
Recognize the relationship between validity and personal perspective/bias	Lesson Activity (Researcher Pros)	Question 5, 20; Reflection

Note: Excerpt of course alignment map of learning objectives, lesson activities and assessments for the MUIH PCE Professional Certificate in Evidence-Based Research & Informed Practice – an unbundled, re-envisioned PCE course from a 1-credit academic course (RSH600) comprised of five individual PCE courses and one program.

Table 6. Sample unbundled content course development production timeline

Process Phase	Issue Source	PCE Dept	IDS/Tech	SME/Task Owner	Proposed Start Time
Phase 1: Structural Changes	Basic information page changes and updates	Direct production	Make video larger to fill dimensions of the screen	ID to reformat based on SME/ PCE Director guidance	FA19
		Direct production according to preferences.	Add bookends (intro/ outro PCE slides w/ music)	PCE Director fo advise ID	FA19
			Add Canvas Catalog Tutorial video as another resource link	ID	FA19
			Add PCE library link to the resources section in the course & remove all references to Sherman Cohn Library	ID	FA19
			Update PCE Learner Handbook Link	PCE Director provide new PDF – ID to update	
	Additional Content Pages	Direct production according to preferences.	Add in information at the end about PCE/ MUIH “upsells” to dig deeper, like the Research Mentorship program and MUIH academic courses or the Research Digital Badge (new module)	PCE Director to advise ID	FA19
		Remove learning object explanation page - no longer using that item	ID	FA19	

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Unbundling Credit to Non-Credit

Table 6. Continued

Process Phase	Issue Source	PCE Dept	IDS/Tech	SME/Task Owner	Proposed Start Time
			Remove references to Sherman Cohn Library and replace w/ PCE Library resources link	ID	FA19
Phase 2: Content Revisions (FA19-SP20)	Course pages / structure	Direct non-content specific design according to preferences.	Reorganize Lesson page into a more visually appealing format. Break up content into different pages. Note: Content should be broken up by topic, these are already labeled within each resource page (see major headers).	Will identify during the scoping call. - SME/PCE Director to advise	FA19
	New Page Add-Ins	Direct non-content specific design according to preferences.	Add in – (1) introduction of concepts (overview) and (2) optional “try on own” exercises. Interactive and Reflection/ Application. Course Arc elements.	Will identify during the project scoping call.	FA19
	Updated Learning Activity Lesson to be easier for learners to navigate and consume			Revise old content textually and structurally as needed.	FA19
	Course Resources	Decide quantity of pages/chapters allowable.	Add in textbook Chapter PDFs – download chapters from library textbook. Note: Relevant chapters are already identified in the resources.	If necessary, organize placement	FA19
	Upgrade Featured Learning Activity Lesson to be easier for learners to navigate and consume	Direct production quality according to preferences.	Change Adobe Learning Objects to interactive Camtasia presentation videos.	Camtasia. Some revised content will be recorded by SME and raw files will be passed off as they are completed. ID to edit – PCE Director to review finals.	FL19-SP20
	Revised Lesson Pages		Insert videos and new content into pages.	ID	FL19-SP20

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Table 6. Continued

Process Phase	Issue Source	PCE Dept	IDS/Tech	SME/Task Owner	Proposed Start Time
	Upgrade Featured Learning Activity Lesson to be easier for learners to navigate and consume	Direct production quality according to preferences.	Change Adobe Learning Objects to interactive Camtasia presentation videos	Camtasia. Some revised content will be recorded by SME and raw files will be passed off as they are completed. ID to edit – PCE Director to review finals.	FL19-SP20
	New Page Content		Intro of concepts: Overviews will be covered in the old content revisions and added with the rest of the content. Formative assessments and interactive learning elements using Course Arc.	SME/ID	FL19-SP20
	Learning Objectives		Review learning objectives to align with lower level of Blooms Taxonomy.	SME/ ID/ PCE Director	FL19
	Standard PCE Post course evaluation	Provide survey link.	Add “Mark as Done” prompt and set as Requirement Add PCE Survey (iframe)	ID	
	Module Settings		Set Modules to Release/ Unlock sequentially	ID	
Phase 3: Finalize (SP20)			Create a new handout (TRANSCRIPT) for lesson to replace the learning object handout – TBD based on project scoping call	SME Handout Transcripts ID	FL19-SP20
	Final Review/ Revise	Review course.	Review course to make sure all links work	Make requested changes as needed. PCE Director will give final approval. IDS final QUX	SP20
			Copy over changes to the shell courses.	ID/IDS	SP20
Phase 4: Launch Course	Catalog Registration	Set up course registration.	Registration Platform and Marketing	PCE Director	SP20

Note: Sample course revision plan to implement credit to non-credit adaptation for Professional Certificate in Evidence-Based Research and Informed Practice PCE.

Unbundling Credit to Non-Credit

Sample Development Checklist – online PCE model:

- Identify credit content to unbundle to non-credit offering(s)
- Involve SME to provide content-specific input
- Complete PCE Course Proposal Form
- Determine format for PCE version
- Separate course modules into individual non-credit courses and/or bundle into a non-credit program
- Re-align learning objectives and assessments
- Identify content to repurpose and new content to create
- Determine course requirements and final assessment for certificate/credential attainment
- Develop new content
- Engage IDs to build online course in learning management system combining current and new content
- Finalize course design and conduct Quality Assurance Review
- Apply for external CEUs (if applicable)
- Assign credentials (i.e., certificate, digital badge)
- Set up enrollment/registration platform
- Market and promote course(s)/program
- Evaluate course evaluations
- Assess and refine processes

Step 7: Launch Course(s)/Program and Market to New Audiences

Once the new courses are unpackaged and launched as alternative credentials, these individual units can be repacked and bundled into a wide variety of distinct program offerings to further maximize resources. At MUIH, PCE created a new “Resilience & Wellbeing Course Bundle” in response to the mental health challenges encountered because of the COVID-19 pandemic in 2021, which was comprised of five individual Masterclasses that were previously sold individually. The program was marketed to mental health providers and integrative health practitioners at a discounted package rate as a new offering without any additional course design resources necessary.

As depicted in the example, MUIH PCE opted to make most of their initial courses online, self-paced and on-demand given the limited staffing and marketing resources required to recruit cohorts with live instructors. The disadvantage of this approach is that there is less sense of urgency to drive enrollments, but a similar incentive easily be created by offering special promotions and limited time discounts or by applying self-imposed start dates to drive enrollments, particularly in lower-priced courses where volume is needed to meet revenue targets. Institutions that have limited internal SME expertise or instructional design capacity can also consider partnering with a vendor who specializes in online program development, though this can increase costs immensely. In those cases, it might be best to choose a model that is close to the original credit course format as the optimal unbundling level.

In the case study example, the enabling of self-enrollment and immediate learning access via a streamlined registration system and Learning Management System (LMS) is needed to scale self-paced online microcredentials. MUIH PCE adopted a self-service online registration platform, Canvas Catalog, which integrates directly with the Canvas LMS to facilitate this type of automation. There are numerous CE registration platforms each with pros and cons, so the specific technology is agnostic in this effort and can

be an individual institutional decision. The same applies to digital badging platforms if a digital badge is incorporated into the curriculum. Digital badging is a separate related topic for further exploration.

Considerations for Scaling Alternative Credentials:

- Self-paced, on-demand, online courses scale most easily without requiring a high level of enrollment and student support resources.
- Use automated technology to facilitate a self-enroll model for online offerings to make the enrollment experience self-service and easy for the customer/student.
- Consider “upselling” mentor/faculty engagement for self-paced courses/programs for a higher level of personalized learning, community, and high-touch opportunities (e.g., group/cohorts and/or 1:1 mentor/faculty sessions).
- Start with a small number of courses and expand once the model is refined. Be realistic prioritize institutional resources and capacities.
- Consider partnering with external vendors to develop online content if internal instructional design resources are limited.
- Create demand and sense of urgency for self-paced, on-demand offerings through special promotions/limited time pricing discounts through marketing campaigns.
- Generate demand for self-paced, on-demand offerings by applying “self-imposed” cohorts or start dates to create the impression of a sense of urgency to enroll.
- Offer special discounts to current students, alumni, partners and “repeat customers.”
- Seek out academic and non-academic partners to co-promote offerings for revenue-share.
- Consider membership/subscription models for recurring revenue streams.
- Offer referral rewards to existing “customers” to incentivize sharing to personal networks.

Step 8: Evaluate and Refine

During the MUIH PCE start-up, benchmarks were being formulated through the pilot phase and a comprehensive evaluation is still underway. Established PCE units utilizing the approach outlined in this chapter may wish to establish metrics and key performance indicators up front; in these cases, a Balanced Scorecard Approach adapted for continuing education may be appropriate (Kettunen, 2005). The balanced scorecard developed by Kaplan and Norton translates a strategy into tangible objectives and measures and balances them into four different perspectives: customers, financial outcomes, internal processes, and learning (Kettunen, 2005). These areas may be evaluated for this initiative in Figure 4.

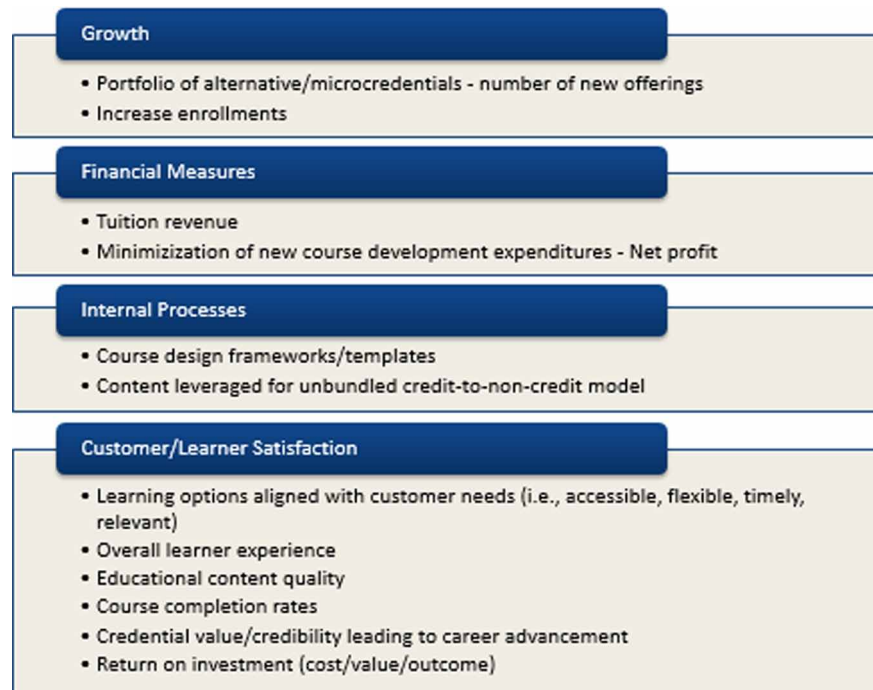
Contextual Considerations and Common Barriers

The model proposed in this chapter is broad enough that a Professional and Continuing Education unit at another institution can replicate the concept to quickly launch non-degree alternative credentials. However, there will be distinct opportunities and limitations given the specific context for which this approach is implemented. Some of these areas include the differentiation between credit and non-credit to avoid “cannibalizing” programs, intellectual property (IP) guidelines for use of university content (in this case, ensure course developer contracts address the IP issues to mitigate restrictions), the level of faculty/SME involvement & compensation, internal politics amongst internal divisions for “ownership,” and financial models for both course/program pricing.

Unbundling Credit to Non-Credit

Figure 4. Sample balanced scorecard approach to evaluation

Note: Sample Balanced Scorecard evaluation factors for unbundled content approach. May be adapted and modified for specific institutional contexts.



Pricing

Price sensitivity is high among professional learners and the overall cost of a credential is often a barrier (University Professional and Continuing Education Association (UPCEA) & Salesforce.org, 2021). Therefore, it is important for institutions to factor in pricing affordably, as financial aid and scholarships are usually limited for the professional learner enrolling in non-credit programs. Pricing for alternative credentials programs varies greatly, ranging from less than \$100 up to several thousand dollars for more comprehensive programs from elite providers.

Non-credit continuing education programs are typically offered at a lower price point than credit tuition rates which increases access and improves affordability. Yet even with employer education reimbursement benefits for some individuals, there are many participants still paying out of pocket to fund their professional development education, whereas credit-bearing programs are characteristically eligible for federal financial aid. For this reason, optimal pricing for non-credit offerings can be considered from a business perspective considering the total program expenses (i.e., development, marketing, instruction) within the context of current supply and demand and a thorough scan of the competition. It is wise to take the time to evaluate who the audience is, what is being delivered, and price the non-credit offering based on the perceived value and outcomes to the individual earning the credential.

Less obvious factors that may warrant a higher price point are the SME credentials and the notoriety of the institution. It may seem counterintuitive to generate revenue through more affordable non-credit

options, but given the demand and opportunities to scale, alternative credentials open the door to new markets that may not otherwise be exposed to the institution given the expense barriers for a college degree.

Faculty/SME Collaboration

If there is content that needs to be revised or created to develop the non-credit version of the course, it is ideal if the original faculty member/SME can be involved in that re-design process. If this is not possible, SMEs with appropriate credentials and expertise can be hired to fill this role. Additionally, in the course audit phase, opportunities to enhance the content can be identified and SMEs with specialized expertise can be hired on a project basis to add value to the learning experience for a professional learner audience. At MUIH, PCE SMEs are compensated based on the estimated number of project hours at a pay rate equivalent to academic course development compensation rates. Alternatively, MUIH has established the option for full-time faculty to contribute to PCE as faculty service or through a credit course load exchange. As with credit-bearing courses, faculty/SMEs can be hired as instructors to teach courses with live instructor involvement and paid according to the institutions adjunct/non-credit contractor rates.

Internal “Competition”

Unbundling requires strategic institutional consideration to protect and balance the full portfolio and distribution of learners and tuition revenue. A typical internal barrier encountered with the unbundling credit to non-credit approach is the possible confusion between the credit course and the non-credit for students and the concern of the two versions “diluting” or “cannibalizing” each other. In these situations, there are several strategies to evaluate and to differentiate the two options.

First, it is recommended that the unbundled non-credit course be renamed to differentiate the two versions from a learner’s perspective. Another way to assuage these concerns internally is to split revenue with the related academic department for non-credit enrollments and/or to use the non-credit course to promote the related academic programs within the content itself as a form of internal marketing. There are still many barriers between stacking non-credit to credit programs within IHEs (McGreal & Olcott, 2022). If transfer credit through a pre-defined pathway is not a viable option due to various academic factors, a financial incentive for learners in the non-credit program to receive a percentage discount on tuition to matricula to a degree could be considered instead. This discount could equal the cost of the non-credit investment (e.g., one course free). In this case, the PCE division can partner with the Enrollment Management/Marketing teams to communicate this offer to students to promote the benefit. This could be through an email communications plan, admissions, and advisor messaging as well as “advertising” the program within the non-credit courses themselves (i.e., personal message from department chair and information about the academic program within the PCE course modules). In this way, the non-credit course/program becomes an internal marketing avenue for the related credit program – a clear win-win for the institution.

Unbundling Credit to Non-Credit Action Plan:

Planning:

- What institutional strategic priorities does unbundling support? Where does unbundling rank among all institutional strategic priorities?
- What alliances, policies and/or structures need to be in place to innovate?

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- Who are colleague allies willing to collaborate?
- What are the top areas of opportunity within your institution to unbundle credit? Courses, departments, divisions?
- What programs/content/topics are in most demand by the workforce and employers?
- Who is the target audience?

Implementation:

- What content is available to repurpose and what content needs to be recreated?
- What resources are required to accomplish a quality conversion?
- What level of involvement is needed by a SME and ID?
- What will the course be named?
- What pricing is appropriate?
- What are opportunities to market the program and/or align CEUs?

Stackable Credentials

While the primary focus of this chapter is to outline a model for unbundling credit to a variety of flexible, non-credit offerings, it is worth noting the Credit for Prior Learning (CPL)/Prior Learning Assessment (PLA) and non-credit-to-credit pathways is growing in importance as millions of adult learners look to postsecondary education as a gateway to new employment opportunities (Council of Adult and Experiential Learning, n.d.). The Council for Adult and Experiential Learning (CAEL) states that being awarded credit for prior learning resulted in a time savings of seven to fourteen months for degree earners with 12 or more PLA credits, saving students anywhere from \$1,500 to \$10,200 and helping to close the equity gap (Council of Adult and Experiential Learning, 2020).

For innovation pursuits, stackable credentials from non-credit to credit might be considered to support further degree attainment (Fong et al., 2021b). Yet it is worth recognizing they may not be as beneficial for adult learners who only need continuing education for a professional association or licensure, or those that simply need to master a new skillset or area of specialization at work or for general career advancement. For those segments of the learner population where the knowledge and skills are of highest priority, it might be a challenge to convince them to invest in additional education (McGreal & Olcott, 2022).

Furthermore, in general, universities have historically not focused extensively on establishing policies and processes for converting non-credit or non-formal educational activities to academic credit (McGreal & Olcott, 2022). The primary barriers were the issue of time requirements (classroom and outside work) in non-credit activities not meeting the academic credit time minimums; and the level and rigor of academic work (a valid quality issue) as not being commensurate with university credit requirements (McGreal et al., 2021).

For this reason, defining non-credit to credit pathways is an *optional* extra step and should only be considered if there is a clear connection between the learner's need to pursue additional higher education in a formal degree context. For example, if the unbundled non-credit program is more relevant as the desired skill or credential itself (i.e., alumni seeking CEUs for professional recertification or specialization in a targeted area within a field) then the additional work to create the non-credit to credit pathway may not be worth the effort.

Should a stackable credential be deemed an appropriate step to pursue, the process to “reverse engineer” the unbundled non-credit course/program back to credit becomes easier after having gone through the unbundling method. For example, if the goal is to create a stackable pathway from non-credit to credit,

logically the process could be inverted with the assumption that the learning objectives/outcomes are aligned as a starting point for assessing prior knowledge, skills, and competencies. If competencies can solely drive the pathway attainment, typically given the differences in instructional/clock hours and/or rigor within the non-credit course. There may be additional coursework, portfolio submissions and/or examinations that would deem the non-credit be equivalent level of competency mastery and educational hours to meet the credit hour standards of the institution and/or institutional accrediting body. As referenced Table 3, if the non-credit course is similar in format and content to the original credit course the pathway would obviously be more direct. Additionally, the institution may determine that there is an additional fee/cost to apply for a course equivalency, or the pathway may be promoted as a way for the learner to save both time and money in the pursuit of a degree.

Furthermore, some CEUs can often be converted into academic credit hours. This is done by both higher education institutions and special examining and assessment services. Academic credit should only be granted for CEUs if the subject matter and nature of the CEU experience is approved as applicable to consideration for academic credit, the continuing education experience has been analyzed for content and level and, if necessary, the person holding the CEUs has been examined, and a formal recommendation is made by competent academic authorities (faculty, review board, etc.) based on an agreed conversion formula (US Department of Education, 2008). CEUs are typically converted via a formula that considers at least ten (10) CEUs to equal a single academic credit hour (US Department of Education, 2008).

This process is aided immensely if an institution already has a clear PLA process in place. There are numerous credible sources of information for institutions to reference and utilize to establish and implement effective PLA structures, policies, and processes for learners to support flexible pathways and connect learners, employers, and higher education institutions. These resources include the American Council on Education (ACE) Learning Evaluation tools, Prior Learning Assessment Implementation Matrix (American Council on Education, n.d.) and the Lumina Foundation's Connecting Credentials initiative (Lumina Foundation, 2015).

MUIH PCE Case Study Example: Stackable Credential Considerations

In the creation of the MUIH PCE Professional Certificate in Evidence-Based Research and Informed Practice, it would *not* be useful to align because this program is most useful for current integrative health practitioners to hone skills and advance their careers and research is embedded in all MUIH academic programs rather than an independent academic degree program of study. Whereas, in the case of a Professional Certificate of Integrative Health and Wellness Coaching (HWC) it *would* be beneficial to develop a pathway to the credit Health and Wellness Coaching academic degree programs because the PCE version introduces the learner to the foundational components of health and wellness coaching. The PCE HWC content is not nearly as advanced as an instructor-led graduate level HWC program and the PCE version would not prepare the individual to meet the requirements to attain the National Board of Health and Wellness Coaching (NBHWC) and International Coaching Federation (ICF) credentials and advanced education to be qualified to practice HWC as a career. The PCE HWC version unbundles content from several different credit courses within the academic HWC program and enhances each course with additional content to customize to specific fields (i.e., fitness trainers, leadership coaches, other complementary health, and healthcare professionals). The PCE HWC version is streamlined into a fully online, self-paced program comprised of seven individual courses with an optional upsell of one-on-one professional mentoring sessions to practice practical coaching skills within a workplace context.

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In this format, the PCE HWC version is an ideal introduction to health and wellness coaching and would lead an individual to want to learn more in a graduate level HWC program.

OPPORTUNITIES FOR INNOVATION

This chapter provides the framework for unbundling credit to non-credit offerings, yet there are many additional innovation ideas to be creative and responsive beyond the constraints of a traditional degree model. A few of these include:

- Building custom certificates for employers by re-bundling individual courses into entirely new programs. Repurposing unbundled credit courses maximizes the new non-credit offerings even further, creating another level of incentive when internal financial resources for new developments are limited.
- Partnering with organizations and institutions to mix and matching non-credit courses to leverage each other's strengths. Partners can share expenses and resources and split revenue on the program enrollments.
- Exploring PLA and stackable pathways from non-credit to credit programs. In lieu of these options, the use of financial discounts & upsells as incentives may generate an incentive for learners to matriculate into an academic credit-bearing degree program.
- Creating a self-service model that many of today's learners seek, balancing the human element of personalized learner communication and support, with the responsiveness of automation.

Ultimately, there are numerous opportunities for IHEs to be more receptive to both learners and employers needs outside of the rigid confines of bundled curriculum.

Unbundling Credit to Non-Credit – Summary of Best Practices:

- Identify content that does not require significant modification for professional audience. Start small with “low-hanging fruit” embedded in credit programs and build up to a robust portfolio of non-credit content. Unbundled content can then be mixed and matched.
- Focus on in-demand topics that lead to a career path or degree program or those that meet CEU requirements for specific professions to maintain licensure or certification (e.g., nurses, acupuncturists, nutritionists, social workers) to increase motivation to enroll.
- Be collegial, adaptable, and flexible when working with department chair colleagues, faculty, and SMEs throughout the credit-to-non-credit conversion process.
- Lead with the “win-win” for each department and the institution to obtain buy-in (e.g., increased enrollment and exposure, additional compensation for SMEs, and shared revenue).
- Keep the learner in mind when re-envisioning content and delivery models. Consider what would be most valuable and relevant to the learner in work/life scenarios and emphasize those skills-based aspects in the non-credit version.
- Refine your process for unbundling content through continual assessment and quality improvement. Various key performance indicators can be established to evaluate success (e.g., financial, customer/student satisfaction).

CONCLUSION

In this chapter, a framework for leveraging existing academic content to develop in-demand microcredentials more efficiently to meet the needs of today's adult learner is outlined. Following this model, institutions can remain relevant and sustainable through a diversified portfolio of flexible, targeted educational offerings to support a lifetime of learning potential.

Key Takeaways:

- Higher education leaders must explore ways to reshape educational program offerings into shorter, flexible, stackable increments that give students a faster return on their investment.
- Collaboration with faculty and instructional designers is key to establishing consistent principles across the institution and maintaining an eye on quality course design for a high standard in the learning experience when unbundling content from credit to non-credit.
- There are numerous pricing and program design models that facilitate the transition of credit to non-credit offerings, each with its unique advantages and challenges.

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KEY TERMS AND DEFINITIONS

Alternative Credentials: When students demonstrate mastery of certain knowledge or skills by completing some type of non-degree coursework, they earn alternative credentials.

Continuing Education (CE): Education provided for adults after they have left the formal education system, consisting typically of short or part-time courses.

Continuing Education Unit (CEU): CEUs, are awarded by many education and training providers to signify successful completion of non-credit programs and courses intended to improve the knowledge and skills of working adults.

Unbundling Credit to Non-Credit

Credential: A documented award by a responsible and authorized body that attests that an individual has achieved specific learning outcomes or attained a defined level of knowledge or skill relative to a given standard. Credential includes degrees, diplomas, licenses, certificates, badges, and professional/industry certifications.

Digital Badge: Entirely digital credential typically signaling mastery of a focused or singular skill delivered securely via digital badging platform.

Institutions of Higher Education (IHEs): Postsecondary educational institution that is accredited by a nationally recognized accrediting agency or association: college, university, or postsecondary vocational school.

Learner: Individual enrolled in non-degree/non-credit courses.

Micro-Credentials: Microcredentials provide adult learners with the option to demonstrate necessary skills on their own timeline rather than through fixed periods, proving competency or mastery of learning by providing evidence through practical assessments.

Non-Credit to Credit Pathways: Non-credit to credit pathways are prescribed avenues that translate non-credit achievements into credit toward a degree.

Prior Learning Assessment (PLA): Credit for prior learning (CPL) or Prior Learning Assessment (PLA) is a term for various methods that colleges, universities, and other education/training providers use to evaluate and formally recognize learning that has occurred outside of the traditional academic environment.

Professional and Continuing Education (PCE): Units within an accredited academic institution serving the adult learner. In the context of this book chapter, PCE is the division of non-credit educational programming at Maryland University of Integrative Health (MUIH).

Stackable Credential: A credential that is part of a sequence of credentials that can be accumulated over time to build up an individual's qualifications and help that individual move along a career pathway to further education.

Unbundled/Unbundling: Educational content that is not limited within the constraints of the standard academic credit curriculum.

Chapter 18

Practical Considerations on How to Document and Transcribe Multi-Modality Learning: The Emergent Role of the Comprehensive Learner Record

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ABSTRACT

For the first time in its history, higher education is having to prove its value. Being able to communicate a learner's holistic set of experiences and competencies when they leave an institution is critical both now and in the future. Comprehensive learner records (CLRs) have been created to fill this important role. These are the practical considerations for the creation of CLRs, the steps that should be considered, and how this new credential can be used to assess and document learning that happens inside and outside of the classroom.

In 1997 registrars were asking, “What would happen if transcripts were electronic?” Now, in 2022, registrars are asking, “How can student outcomes be improved by using the rich student data that is collected by campus computer systems?” and “How can we align what we report about learners in a way that presents selected information about each learner in a personalized way for each stakeholder/receiver [employers, other institutions of higher learning, licensing bodies]?” In higher education, an immense amount of data about learning experiences and instructional outcomes is collected about each learner. So, what is left to do is to format that information so that each type of receiver will receive a learner report that aligns with their unique mission and/or program design.

Enter the Comprehensive Learner Record (CLR). CLRs are a new category of information collecting and reporting that is more detailed than the traditional record. CLRs include a broad and deep curation of academic records from a student's learning activities and experiences on campus. Then, this information

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is presented in new ways, including visual presentations and machine-readable data. In use at institutions of higher education since 2015, CLR's use a common language for structuring the data collected about learners so that customized reporting of a portion of that information is possible.

Revolutionizing the way a learner record is presented to a receiver also underscores the value of the institution, especially liberal arts colleges. Hagel's (2021) article in the *Harvard Business Review* made the following recommendation for higher education: "Rather than focusing on the two- or four-year degree or credential as the output, help students identify and more easily demonstrate to employers what job-ready skills they've developed as part of their education and training" (para. 13). I call these skills "evergreen skills" (e.g., teamwork, leadership, communication, and problem-solving). However, most institutions do not define, articulate, assess, or report these competencies. Thus, they fail learners at the most critical moment, the moment when learners need to represent the competencies they have developed to others.

"A highly skilled workforce, with lifelong access to a solid post-secondary education, is a prerequisite for innovation and growth: well-educated people are more employable and productive, earn higher wages, and cope with economic shocks better" (The World Bank, 2021, para. 1). But employers are not recognizing the evergreen/employability skills that come with a postsecondary education. A more impactful representation of learner outcomes could build awareness of the competencies that develop through curricular and cocurricular experiences. Thus, CLR's can be viewed as a way institutions can differentiate themselves and provide value to their learners and stakeholders. This chapter provides a definition of CLR's, why they are needed, and the benefits and unintended consequences of implementing them.

WHAT IS A COMPREHENSIVE LEARNER RECORD?

In the United States, colleges and universities use the transcript as the gold standard for documenting that students have taken a course and have performed at an acceptable level. Globally, that information is reduced to a degree conferral; either you have earned a diploma or you have not. But most learners do a lot more than take courses and earn credits during the course of earning a degree. They participate in many cocurricular activities, including internships, athletics, academic teams and clubs, volunteer and service projects, multicultural activities, and political activism, and they may also be working full or part time. Transcripts document courses completed and transferred credits, but they do not fully present the personal, academic, and professional growth that happens as learners are acquiring a degree.

Colleges and universities today collect and can utilize much more data about each learner than ever before. Data is collected in the registration system, learning management system (LMS), and student information systems. Institutions use student data to understand who their students are in an effort to improve instruction and retention. They also report data to federal, state, and accreditation stakeholders. However, when it comes time for a student to share the rich experiences from their college years, they have historically only been able to prove what courses they took and the grades they earned. A CLR is different:

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[A] Comprehensive Learner Record (CLR) [is] a digital asset that helps students both better understand their learning and share a verifiable record of their knowledge and accomplishments. With a learner's consent, the CLR gathers data about performance beyond just course grades, with an ultimate goal of capturing, recording, and communicating learning when and where it happens across a student's higher education experience. Thus, a CLR can include a learner's skills, competencies, learning outcomes, and accomplishments as demonstrated via assessments, courses, programs, and degrees, as well as co-curricular experiences such as internships. The CLR is not a replacement for the academic transcript but is a more useful student record for students, employers, and others who need to understand and validate postsecondary learning. (EDUCAUSE, 2019, p. 1)

Specifically, within the discussion of CLRs, *comprehensive* means broadening the aperture of learning experiences and outcomes relative to the traditional transcript. It does not necessarily mean the kitchen sink. In fact, an active notion about the comprehensiveness of a CLR is that the learner should be able to curate or limit the information reported based on the audience. For example, learners may not want to promote their political orientation or other information meant for specialized or limited audiences. However, they may want the CLR recipient to know about their leadership work in a service learning project. This is why this credential innovation is called a learner record. The information collected about the learner is curated and presented in a customized format for the recipient; the customized report contains only the information that the recipient needs to know in order to make a decision about the learner.

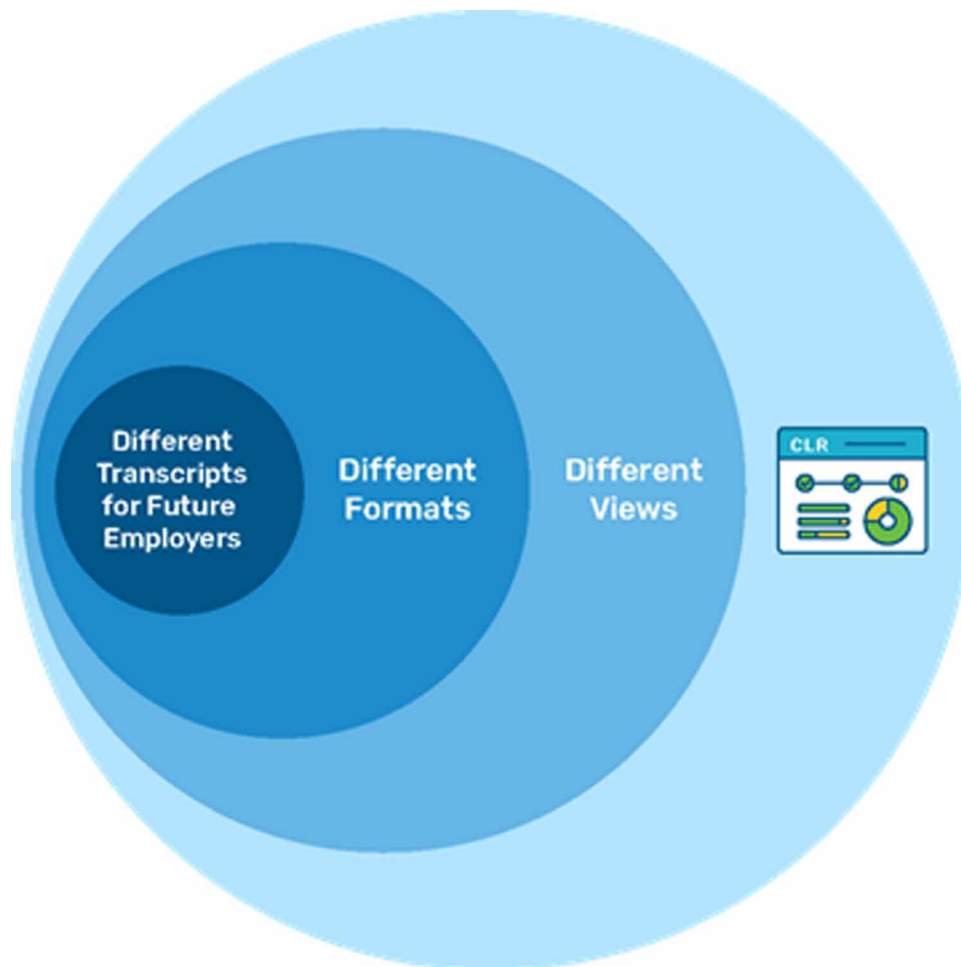
Why DO We Need a Comprehensive Learner Record?

CLRs are needed to provide better information about what is taught, and what is learned, in higher education that is relevant to the stakeholder/recipient of the CLR. Within courses, professors conduct at least one formative assessment during the semester; many more formative assessments are administered in most undergraduate classes. The formative assessments provide the learner the opportunity to improve their performance before the final summative assessment. This does not happen with evergreen skills. Learners practice their communication skills every time they make a presentation in class, but without feedback and documentation, the learner cannot be expected to improve their communication competencies.

Thus, we need CLRs in order to document evergreen learning outcomes from the LMS and other systems across campuses. Once this small change has been made, it is like a pebble in a pond; this data can be formatted differently depending on the stakeholder's needs (which vary among, e.g., learners, educators, and employers). Data can also be presented in different views so that only the information important to an audience is reported. And finally, a mature CLR can provide employers with a machine-readable record that will help them find a more diverse, qualified job candidate pool.

The World Economic Forum (2022) described four reforms to postsecondary education that address the drop in enrollments and require a different way of reporting what students have learned: ubiquitous learning, authentic learning experiences, focus on formative assessments, and tighter alignment with industry needs (El Azar, 2022). With these changes in mind, verifying and presenting learning achievements will need to adapt (Levine & Van Pelt, 2021).

Figure 1. Layered uses of a CLR



Ubiquitous Learning

LMSs and online collaborative tools have made teaching online efficient, but it may not be effective. In 2018, 34.7% of postsecondary students took at least one course online. That increased to 51.8% in 2021 (Smalley, 2021). However, Brookings has summarized research evaluating the effectiveness of online learning in higher education. The evidence from randomized control trials suggests that students who are not academically well-prepared, as well as males, do not perform as well as their better prepared peers. In nonrandomized studies with large samples, online students got lower grades, performed less well in follow-on courses, and were less likely to graduate (Cellini, 2021).

However, Brookings also reported that when students take courses required for their major online, they are more likely to graduate in four years (Fischer et al., 2021). Brookings recommends focusing on the online courses where students are most successful and providing review and tutoring help for students who have not fared well in the online setting. Finally, to meet the learner demand for ubiquitous instruction, educators must be trained to teach online and their courses adapted to this delivery method

(DeFuria, 2021; Fischer et al., 2021). Online learning success involves technical competency, communication skills, time management ability, and student-related factors such as “self-regulated learning, self-directed learning, locus of control, and academic self-efficacy” (Martin et al., 2020, p. 42). Job candidates may not know to mention the secondary competencies that they developed while successfully completing their online courses and an employer would not see them on a transcript. A CLR would document and present the growth of these important competencies.

Authentic Learning Experiences

Higher education learning experiences have branched from lectures to a flipped classroom. Flipped classrooms are those where students hear the lecture before coming to class and class time is spent doing activities that require “higher order thinking” (Derek Bok Center for Teaching and Learning, para. 1). However, when learners demand ubiquitous learning, everything has to happen online and on whatever device learners have access to at that moment. That may lead to learning experiences that revert back to the format of lecture, read, and regurgitate the information back on a quiz. Recommendations from the body of literature on authentic experiences include,

1. real-world relevance,
2. ill-defined problem domains,
3. complex tasks completed over longer periods of time (weeks and months),
4. opportunities for students to examine the task from different perspectives,
5. collaboration,
6. time for reflection,
7. applying competencies over multiple subject areas,
8. assessment that reflects real-world outcomes for the domain,
9. polished products valuable in their own right, and
10. competing solutions and diversity of outcomes. (Reeves et al., 2002)

Authentic assessments are the key to making sure the learner has acquired adequate competency to complete the authentic task. However, transcripts do not capture the breadth of learning that occurs during these experiences. CLRs enable the learning experience to be separated into outcomes that employers value and learners can reflect on to improve these real-world competencies.

Formative Assessment

Math teachers would not be surprised to know that research shows that students who do their homework will score better on final exams. In a study involving calculus and optional quizzes, the students who completed the optional quiz performed better on a final exam (Figueroa-Cañas & Sancho-Vinuesa, 2021). That is because homework provides learners with the opportunity to practice their new competencies. However, practice, and experience for that matter, does not make perfect. Deliberate practice and formative assessment (or feedback) are required. Performance is improved when the learner “attend[s] to the task and exert[s] effort to improve their performance The subjects should receive immediate informative feedback and knowledge of results of their performance” (Ericsson et al., 1993, p. 367).

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Educators perform formative assessments in both informal and formal ways. Informally they model correct behaviors, restate correct information, and conduct checks for understanding during every class. This gives the students immediate feedback on their performance. Formally, there are quizzes and assignments that teachers grade that enable the student to reflect and improve on their performance. CLRs can also serve as a formative assessment. Learners can deliberately practice the evergreen competencies that are themes in outcome communication, writing, and self-efficacy during their education. The CLR will enable the learners to monitor the growth of these outcomes and develop them with the help of their instructors.

Figure 2. Elements of a CLR



Tighter Alignment with Industry

As institutions of higher education address the needs of employers, they will have to shift their mission from degree acquisition to lifelong learning (El-Azar, 2022). In a time where learners want faster and cheaper, higher education needs to provide learning experiences that develop a passion for learning and an associated passion for a learner's career path (Hagel, 2021). In addition to supporting diverse instructional methods for learning any time and any place, higher education will also need to provide personalized learning experiences. This may mean providing nontraditional credentials and noncredit options that start where their existing competencies end. Another way institutions of higher education are addressing industry needs is by creating bundles of courses rather than new bachelor's degree programs in emerging fields (Levine & Van Pelt, 2021).

Another way of addressing employer needs is for higher education institutions to stop trying to keep up with emerging and evolving fields and focus on the evergreen skills all individuals need to thrive in their jobs. The Society for Human Resource Management (SHRM) reports that almost 75% of employers say that graduates do not have the evergreen skills that they need, including "problem solving, critical thinking, innovation and creativity; the ability to deal with complexity and ambiguity; and communication" (Wilkie, 2019, para. 8). These competencies are the foundation of many college degree programs and yet they do not appear on college transcripts, and I would argue that students do not know how to communicate that they have practiced these competencies through their courses and cocurricular activities. CLRs include these evergreen skills, which builds awareness among students and employers of students' accomplishments.

CLRS AND INNOVATION FOR HIGHER EDUCATION

The rapidly changing digital economy requires the United States to view education and training as encompassing more than a single period of time in a traditional classroom. We need to prepare Americans for the 21st century economy and the emerging industries of the future. We must foster an environment of lifelong learning and skills-based training, and cultivate a demand-driven approach to workforce development. (Office of the Federal Register National Archives and Records Administration, 2019, p. 1)

Who are the 21st century learners? They are individuals who want to learn anywhere and at any time. They are mixing and matching their learning experiences to achieve their career goals, and they don't want to waste time with learning experiences that do not apply to the "real world" and their career goals. If higher education does not provide this to them, they will find it elsewhere in the expanding marketplace of new organizations offering "low-cost degrees, adopting competency- or outcome-based education, emphasizing digital technologies, focusing on the growing populations underrepresented in traditional higher education, and offering pioneering subject matters and certifications" (Levine & Van Pelt, 2021, para. 5).

There are incremental changes that institutions of higher education can make to adapt to the demands of today's learners.

1. **Reverse engineering:** Work with employers to identify the essential evergreen skills they need from every employee. According to SHRM, evergreen skills take a long time to develop. These skills must be taught, reinforced, and practiced frequently. Thus, the workplace is not the best place for a new employee to discover that there are gaps in their evergreen skills. If a new employee has a manager who is a poor communicator or is too busy to engage with them, the new employee will have even fewer opportunities to improve their evergreen skills. When these evergreen skills are documented and reported on CLRs, learners have the opportunity to improve these competencies in an environment designed specifically for learning and growth. However, all employers are not looking for the same competencies, so it is important for higher education institutions to obtain and reflect upon the input of the employers who hire their graduates.
2. **Modularized content and non-degree credentials:** Break degrees into modules to customize professional development targeted to individual and employer needs. The current employment market is being characterized as the "Great Resignation;" workers are leaving their current jobs for improved working conditions and more flexibility. In order to stem the tide of employee departures, employers are offering higher salaries, better working conditions, and more professional development.

At the same time, job changers are looking for skills upgrades in order to get better positions when they secure new employment. Some have called this trend the "Great Upgrade" (Romans, 2022). In fact, a 2021 Gallup study found that 66% of young workers (ages 18-24) identify training as an important benefit when looking for a job (Gallup, 2021). The currently employed also need professional development to keep up with evolving technologies or if they have a desire for promotion. Higher education can address the need for skills upgrades by modularizing the content they already deliver in the form of courses and degree programs (Agarwal, 2019). With accredited institutions offering these credentials, the quality standards imposed by the accreditation body are a form of quality guarantee. This could translate into

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reforms in tuition reimbursement, grants, and scholarships to include this type of training or professional development. This gives institutions of higher education the advantage over other organizations offering professional development or alternative credentials.

One reason for the under-exploration of career value experienced by learners who complete these shorter-term programs is that such programs often fall outside the jurisdiction of gainful employment regulations, and there is no other widely recognized system of accountability to which they can turn for a more nuanced definition of career value. In turn, learners can typically not apply grant funding, such as Pell, to those programs, as the projected return on that investment is less clearly defined. Debates around whether shorter-term programs should be made eligible for Pell Grant funding have centered on the lack of data about career payout. As a memo published by Third Way summarizes, the concern is that ‘sending more federal aid dollars to new programs without strict guardrails for quality could risk students using up their grant eligibility with little to show for it.’ (Whistle & Erickson, 2019, para. 10)

The CLR is the start to documenting and presenting the credentials and outcomes achieved in these modules because of the level of detail it provides. A CLR lists specific competencies that have been independently evaluated, and the reputation of the institution of higher education provides the employer surety that the learner has achieved an acceptable level of proficiency.

3. **Interactive delivery:** Provide training and funding for educators to create and deliver online learning so that their learners are successful. In the workplace, training can feel like something that is happening *to* the employee rather than something that is happening *for* them. Adult learners want learning that is relevant to their interests and needs. They want their trainer to acknowledge their existing competencies and experience. And they want concrete, practical training that is relevant to their needs (National Career Development Association, n.d.).

In March of 2020, all education was forced to move online due to the COVID-19 pandemic. “Faculty members and support staff displayed heroic levels of creativity, commitment and courage to make it all happen” (National Council for Online Education, 2022, para. 2). Yet, according to a survey conducted in 2020, only a little more than half of educators in higher education had actually used the technologies necessary to teach online (Brooks & Grajek, 2020). Teaching online not only requires an educator to have the technical knowledge to realize their online teaching, it also requires them to shift their role and their teaching methods (National Council for Online Education, 2022).

Institutions of higher education have an obligation to provide effective, rigorous, and high-quality instruction no matter how that instruction is delivered (National Council for Online Education, 2022). Additionally, research suggests that intentionally designed online instruction supports student success and retention (Muljana & Luo, 2019). CLRs facilitate the development of effective online instruction because the outcomes of the course are unbundled and nuanced. So, educators in their instructional design must strive for the achievement of higher learning goals that need to be assessed using tools beyond factual quizzes and tests (e.g., self-determination and time management).

4. **Bundle courses:** Provide up-to-date domain and technical skills. In order to improve the supply of workers in high-demand fields many organizations are offering training to individuals outside of the organizations. Large organizations such as Google, IBM, and Microsoft are offering their

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employees alternative credentials that are competency-based and do not require a long time to acquire (Fain, 2020).

Grow With Google is its series of low-cost professional certificates that require six months to complete and target high-growth industries. More than 80 percent of individuals who complete a certificate report a positive career change: a new job, a promotion in an existing job, or a pay raise. And Grow With Google reports that almost half of the people who earn the certificates were from the lowest income bracket in the United States. (Schwarb, 2020, para. 6)

Institutions of higher education can replicate this success by bundling courses with domain and technical competencies and offering them in the form of certificates. Certificates earned in higher education do not appear on a transcript. On a standard transcript, these bundles of courses appear as part of a degree that was never earned. When presented in the form of a CLR, however, these certificates show the learner's investment in keeping these competencies current (Everhart et al., 2016). The learner and the employer also benefit from the trust the institution has established for quality teaching and reliably performing graduates.

5. **Credit agreement:** Establish policies to ease the acceptance of work experience and non-degree credentials as prior learning credit. Some non-degree credentials are easier to map onto higher education course offerings and programs than others. Professional certifications and licenses usually include some exams with standard outcomes. Other experiences are harder to map. These include work experience and professional training offered by employers. In either case, how does an institution provide credit for prior learning when a prospective student has mastery of half of a course's content? A CLR, would enable an institution of higher learning to provide credit that is distributed across the themes of outcomes that are collected and reported. This would result in greater realization of the promises of prior learning credit such as time and money savings, increases in the recruitment of adults, and motivation for completion of academic programs (Council for Adult and Experiential Learning, n.d.).

CLRs have the potential to make a meaningful contribution to the needs of learners, educators, and employers. For learners, I imagine a shift from a focus on grades and meeting program requirements to a focus on competency development and exploring personal interests (Blum, 2020). Furthermore, a CLR provides learners looking for entry-level positions evidence of their evergreen competencies before they have work experience to put on their resumes.

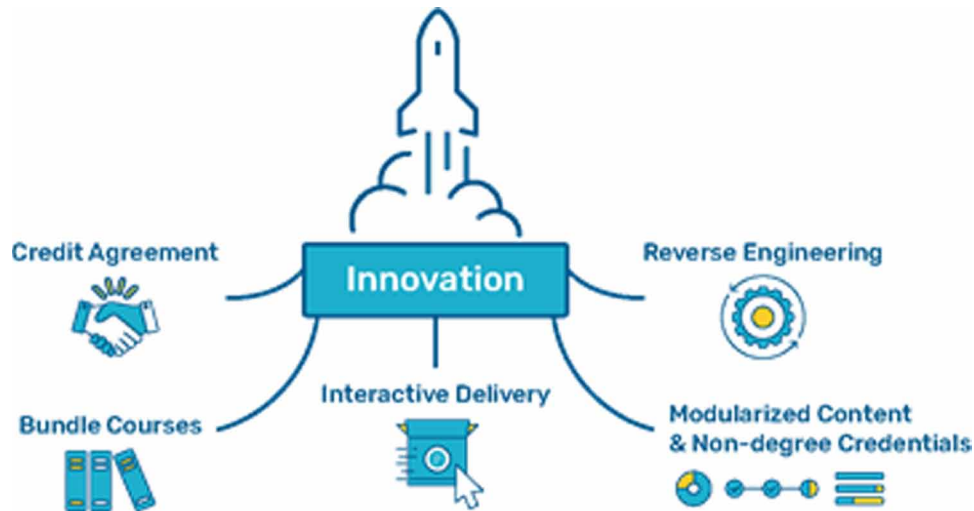
For educators, I envision better advising and teaching. The CLR will help educators quickly identify gaps in students' domain, technical, and evergreen competencies. Educators can use this information to recommend learning and cocurricular activities that will help each individual meet their own specific career goals. Educators can also use aggregated data for the learners in each of their classes to focus on the collective gaps in their CLRs that are aligned with the course outcomes.

For employers, human resources tools that are used for resume screening, talent sourcing, and talent management could use a machine-readable CLR to identify important evergreen skills rather than using proxies for this information. This would open up a new talent pool of eligible candidates for job openings (Cederquist et al., 2022; Tyszko & Sheets, 2019). This is also aligned with work led by the U.S.

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Chamber of Commerce Foundation to create an “employer-led job registry to send clearer signals of credential and competency needs to potential employees and institutions of higher education” (Braxton et al., 2022, p. 215).

Figure 3. What to consider when creating a CLR



A CLR provides verified information that charts and visually displays the nuances of a learner’s experiences as they participate in activities inside and outside of the classroom. CLRs are opportunities for institutions of higher education to communicate to their learners, and the employers who hire them, about the learner’s employability skills that they have acquired through the diverse set of experiences offered through the institution’s programs.

SHRM emphasizes that “the classic four-year college education, with its emphasis on critical thinking, debating, viewing issues from several angles and communicating clearly, was designed to teach these skills” (Wilkie, 2019, para. 1). But it also reports that 51% of employers say that institutions of higher education are not including these competencies in their curricula. If the employers’ perceptions are true, higher education has to train faculty and staff to integrate these critical skills into every learning opportunity on campus. If the perceptions are false, then higher education has to do a better job of documenting and communicating to learners and employers how and where those competencies are developed. The solution to both of these challenges is the CLR. (For more information about the CLR, refer to Chapter 1 of this volume.) This chapter draws from the growing body of literature and institutional case studies to explain a step-by-step process of how to make CLRs a reality on your campus. Readers will learn who should be involved, how and where to start, what data is important, the interoperability of the process, and how it all comes together.

GETTING STARTED

Integrating a CLR into the reporting system at an institution of higher education must start at the top, whether with the head of the university, a dean, a department chair, or some other administrator with the power of the purse. CLRs are good for an institution; AEFIS Academy (2022) reported that a CLR supports a culture of continuous improvement and can translate to student success and retention. Furthermore, providing learners with course outcomes, disaggregated by themes of competencies, will build awareness and facilitate reflection that will lead to students practicing these skills while still in a learning setting. Ordinarily, administrators are enthusiastic about implementing CLRs at their schools. But then reality sets in; curating, mapping, and standardizing the data required for a CLR can be resource intensive.

This is why CLR initiatives require a champion. One of the original partners of a 2015 Lumina-funded effort to implement CLRs at multiple institutions of higher education was the American Association of Collegiate Registrars and Admissions Officers (AACRAO). In research conducted for the Lumina CLR project, AACRAO reported an important commonality among successful CLR implementations. AACRAO (2018) said that it was,

easy to identify at least one enthusiastic, passionate and persistent champion with enough cultural savvy to overcome resistance or to enlist support for what was required to accomplish project goals. What remains to be seen is how widespread the appetite and discipline are to expand participation in CLR (p.13).

So, it will take some work to establish the momentum needed to organize the CLR effort. At this point, best practice recommends hiring a project manager or finding a third-party solution that includes consulting to ensure tasks are completed and milestones are met (AACRAO, 2018).

Who, What, Where, When

The first task for the champion, project manager, and/or project team is an informal information-gathering process. The champion should assemble a small team of several colleagues who understand the purpose and function of a CLR as well as the policies and processes for data handling at the university. This small initial team can use the Comprehensive Learner Record (CLR) Readiness Assessment (CLR-RA) developed by AACRAO and the National Association of Student Personnel Administrators (NASPA; n.d.) as a guide for collecting information, or they can use the following list.

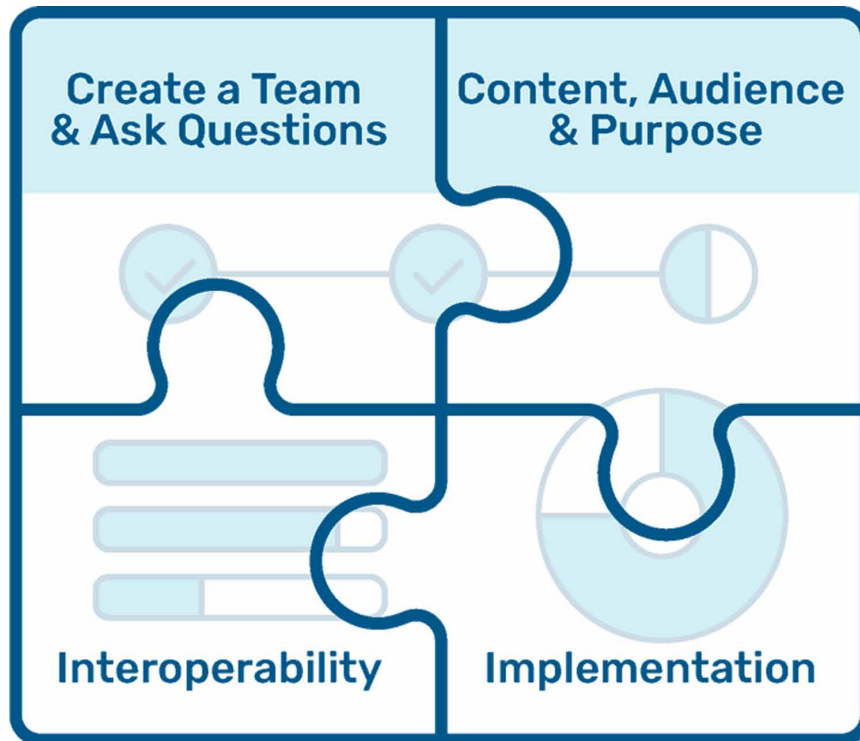
- Secure a letter of support from a senior academic or executive officer stating the mission and purpose for a working group that will coordinate the curation and presentation of the CLR data from across the institution (optional). Team members can use this letter to recruit additional team members and to limit the scope of the project.
- Determine if there are other projects that will be competing for the same resources necessary for the CLR project. This will have to be resolved first.
- Establish a virtual environment for collaborating, sharing, and storing documents.
- Secure a copy of the institution's learning framework to guide the project. This is the conceptual map for learning activities at the institution and will serve as the conceptual map for the learning outcomes that will be represented in the CLR. A search of the institution's website should yield the specific learning framework that is being used. An externally developed learning framework

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may also be used to measure learning. The CLR-RA lists several national frameworks that are in use at many institutions:

- Degree Qualifications Profile (<http://degreeprofile.org/>),
 - AAC&U LEAP Essential Learning Outcomes (<https://www.aacu.org/leap/essential-learning-outcomes>),
 - NIRSA Core Competencies (https://nirsa.net/nirsa/wp-content/uploads/Core_CompetenciesLevels_Framework.pdf),
 - NACE Career-Readiness Competencies (<https://www.naceweb.org/career-readiness/competencies/>),
 - NILOA Transparency Framework (<https://www.learningoutcomesassessment.org/TFComponentUSLE.htm> NACA), and
 - Next (<https://www.naca.org/NEXT/Pages/default.aspx>).
- Spend some time reflecting on the institution’s learning framework to evaluate its relevance to the institution’s mission and vision for the future. For example, how has it been maintained? When was the last time the framework was reviewed? Has it been updated? How many departments were included in the development and implementation of the learning framework? Possible departments include:
 - registration and records,
 - provost,
 - financial aid,
 - curriculum,
 - faculty governing body,
 - advising,
 - chief executive,
 - student success unit,
 - student affairs,
 - institutional research/assessment,
 - diversity programming and initiatives, and
 - information technology.
 - Where is the learning framework applied? Only in academic courses or in cocurricular activities too?
 - How are your learners assessed? Does your institution have a competency-based curriculum? Are grades reported by course or by discrete learning outcomes? How are the consistency and accuracy of learning outcomes measured?
 - Create a spreadsheet of student data and information that is created and stored on campus. Some of the systems that collect and store data include “student information systems (SIS), learning management systems (LMS), cocurricular systems (Campus Labs, Sutable, Symplicity, Handshake, etc.), electronic catalogs, other institutionally-developed databases, customer relations management tool(s) (CRM), co-curricular software used to capture student activities and/or learning outside the classroom, degree audit software, and/or data warehouse” (AACRAO & NASPA, n.d., p. 5).
 - Describe how current transcripts are generated, requested, and shared.

Figure 4. Getting started



Create a Team and Ask Questions

“It might be stating the obvious, but structure matters. Knowing what learning is being offered and for what purpose or value, and how it is being assessed and demonstrated is critical to establishing the credibility of any credential that represents that learning” (AACRAO, 2018, p. 5). Once all of the information described above is collected, it is time to build a team that has the responsibility and authority to contribute to developing the CLR. AACRAO (2018) recommends recruiting members for a larger action team from the leadership of the following areas: Academic affairs, student affairs (if this is present at your institution), the registrar, and information technology. The challenge for this first meeting is to identify policies and processes that will support the CLR and that will need creative problem-solving. This is an important step because the questions and concerns need to be addressed before a project plan can be created. Guiding questions can be used to support the discussion.

- When introducing the concept of the CLR: What are one or two important gains that have already resulted from the data already collected at the institution?
- When the list of data and sources is provided: What are one or two important results that you most want to gain from the data that will be curated from the diverse systems?
- When collecting the list of questions and concerns: What are your priorities when considering implementing the CLR? Name two or three obstacles and write down your plan to address them.

Content, Audience, and Purpose

I recommend that planning for a compelling and feasible CLR continues even while the major hurdles are being investigated and addressed. This means holding a workshop or a series of meetings to identify the audience, purpose, and content of the CLR in parallel with the ongoing problem-solving work. Once decisions are made about each element, audience, purpose, and content, the scope of the project will be defined and the project plan can be developed.

While considering the content, audience, and purpose, conduct an analysis of which departments or programs are best equipped to incorporate a CLR into the learning and reporting process. For example, the University of Maryland Global Campus started CLR implementation with its masters of business administration degree. This is because many of the evergreen course outcomes were mapped to badges that are earned while taking the courses for the degree. These badges became the competencies that are reported on the CLR. These competencies include business communication, “Excellence in Communication: communicate clearly in writing and speaking, meeting expectations for content, purpose, organization, audience, and format (Ludwig, 2021, link para. 6).”

Regardless of the content that is ultimately chosen, the information for a CLR starts with a student’s academic record; this is the information that is presented on a transcript: dates, courses, grades, and so on. Since a CLR does not replace the transcript, a process for collecting more nuanced information must be developed. The nuanced information comes from the learning outcomes for each course. These learning outcomes, which are also known as skills, competencies, or course objectives, are required on the syllabus for each course. Educators are already proficient in assessing these outcomes.

Courses taken for majors and minors have competencies that repeat over multiple courses. These competencies can be clustered into competency themes that are important to a field. Every course also includes evergreen skills such as communication, interpersonal, and leadership skills. These competencies are important to employers who also claim that institutions of higher education are graduating students without these skills. Reporting the evergreen competencies of each course on a CLR would improve employer awareness of the development of these important skills. Employers and other stakeholders might also be interested in other information collected by computer systems on campus, such as

- learner artifacts: dissertation, thesis, certificates, work product (AACRAO, 2018);
- academic programs: requirements, outcomes, faculty vitas, honors activities;
- student employment history and associated evidence of work performance;
- student activities: role, responsibility, accomplishments;
- internships: role, responsibility, accomplishments;
- research activities: role, responsibility, accomplishments;
- service learning projects;
- civic engagements;
- licensures and certifications;
- volunteer activities: role, responsibility, contributions;
- portfolios; and
- study abroad experiences and evidence of cultural competency.

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How much information is collected and reported on a CLR is dependent on who is requesting the CLR and for what purpose. For example, the CLR can be used by each student to monitor their learning. Other examples of audiences and purposes for a CLR include

- advisors use information to monitor a student’s progress through the degree program and the development of evergreen skills,
- professional development for faculty and staff that focuses on the ways they can teach and assess evergreen skills that are their learners’ greatest competency gaps,
- employers can learn about the evergreen skills their job candidates have developed from a trusted source of assessment information,
- institutional research/assessment can identify trends in student learning to recommend interventions that will improve student success,
- student affairs can conduct analyses that will discover campus activities that are correlated with student success; and
- curriculum committees can identify gaps in learning outcomes.

Identifying the content, audience, and purpose of a CLR starts with ideas generated by the team. However, final decisions should not be made without feedback from the other stakeholders. Understanding their needs and wants could alter the amount of data curated. Furthermore, some new sources of data may be needed to address the needs of some stakeholders.

Some institutions may want to collect and report information about the institution itself that will enable better decision-making by students and employers about the quality of the institution: “completion rate (e.g. how successful are students who pursue this credential), usage rates (e.g. how often do students share or use this credential), pathway development (e.g. what types of opportunities are available to students with this credential), and other relevant descriptors (AACRAO, 2018 p.31).”

The *CLR Implementation Report* reminds the reader that any data collected must be stored in a secure and flexible way so that information can be reported in various formats: aggregated, disaggregated, or not at all (AACRAO, 2018). Successful CLR projects clearly define what data should be collected because these definitions support the decision-making process on what technologies will be needed to produce the CLR (AACRAO, 2018).

Furthermore, some institutions that offer CLRs recommend providing prototypes to share with the various stakeholders. “It isn’t always clear how to represent learning that takes place in different settings and contexts. How a learning artifact will be used is an open question for many. Informed decisions are only going to be possible as you try various approaches and receive feedback regarding their value, utility and meaningfulness” (AACRAO, 2018, p. 29).

Interoperability

Once the stakeholder needs for the CLR have been identified and the content of the CLR has been decided, the curation of data can occur. The data will come from diverse campus systems. Examples include

- vended student information system platforms, like Oracle/Peoplesoft, Ellucian Banner, Workday, Jenzabar;
- learning management systems, like Canvas, Blackboard, Unizen, Desire 2 Learn;

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- repositories for electronic dissertations, theses, or research, like Scholarworks, DSpace, Fedora, Vivo;
- repositories for earned credentials, like Badgr, Credley, NSC, Paradigm, Parchment, Credential Solutions, Digitary;
- curriculum management systems, like Courseleaf, DIGARC, SmartCatalog;
- constituent relationship management systems, like Hobsons, Salesforce, Slate, DestinyOne, Odoo;
- career services, like Handshake, Suitable, Simplicity, People Grove;
- imaging systems, like OnBase, BIS, Perceptive Software;
- student organizations and activities, like AccuCampus, CampusLabs;
- identity management system(s);
- standards bodies, like LEAP, PESC, ANSI, IMS Global;
- data warehouses; and
- e-portfolios, like Digication, Watermark, PebblePad, Portfolium.

Depending on the amount of data that is being joined, a data team may need to be engaged (AACRAO, 2018). This is because institutions may use one or more of the listed systems, which means that each learner's data is scattered among systems that were not designed to interact with each other. So, matching the data for each learner requires that each field in these data sets share the same definitions and descriptions based on a reliable student identifier. The most reliable unique student identifier is the Social Security number. However, they are no longer allowed to be used as student identifiers, so most institutions have migrated to using a unique ID for each student. The unique identifier joins various data sources to the information in the student information system, LMS, or other sources where the student ID is used (AACRAO, 2018).

IMS Global has developed a standard that represents the varied types of institutions, learners, and experiences that can be used to standardize the data, which enables separate data sets to be joined; an extra benefit of using the IMS standard is interoperability with other institutions who also apply this standard (AACRAO, 2018). Larger institutions probably have the capacity to combine data sources from their current staff. However, smaller institutions may not have the technical resources to complete the interoperability step. However, there are services and outside vendors who can provide the technical capacity for smaller institutions to compile all of the student data across all systems into a single machine-readable format.

Implementation

A CLR must retain the rigor of assessment so that CLR users will trust the reported competencies with the same confidence they have for transcripts. Therefore, while the technical infrastructure is in the process of being built, tested, and deployed, engagement with the human infrastructure needs to be initiated. Working groups need to be formed that will summarize common learning experiences across courses and programs that cluster into the competencies of the learning framework.

The *Implementation Report* recommends starting the learning outcome tracking with the general education courses because they have a broad reach across the student population and they closely align with learning frameworks (AACRAO, 2018). Another good starting point is the co-curricular activities, as they are rarely documented on transcripts (AACRAO, 2018). Where to start always depends on

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which courses/programs/majors/departments have the fewest obstacles and the most information that would be valuable for stakeholders.

The roadmap to a rich CLR begins with training faculty and staff to identify and assess the competencies from the framework in their courses. This requires communication and training. The success of this process depends on who participates, how the group is organized, and the quality of the leadership. Especially in this early stage of faculty and staff communication, it is useful to avoid turn battles with the existing power structure or previously established campus groups, especially over staff and budget allocations. An example process would include the following steps.

- Identify compensatory workload adjustments for participation.
- Review courses for competencies aligned with the learning framework. Each faculty member can review their course content and learning activities for the competencies that align with the learning framework, or teams of faculty can identify the competencies that occur in all of their courses. Document the course name, the competency from the learning framework that is included, and how it is assessed in a spreadsheet so that the data can be analyzed and manipulated.
- Analyze the list of courses and competencies to identify patterns and pathways to competency growth. For example, communication in the introductory course might involve making a presentation with a supporting slide deck. In the advanced courses, learners might be expected to speak for three minutes on a topic cogently without notes.
- Create pathways of interdependent skills from the competencies identified in the analysis.
- Create an assessment plan for the competencies so that the optimum level of performance is consistent between faculty.
- Pilot these assessments in classes and make adjustments as necessary.

Many campus efforts begin with little or no authority. They gain influence as a consequence of their composition, their ability to provide advice based on achieving consensus among a highly diverse group, their growing role in institutional communication, and their visible accomplishments over time. Therefore, institutions should focus on starting small: building, testing, and implementing in one major, department, or cluster of courses before expanding. Once the policies and processes are well developed, expansion can occur.

When it is time to expand, create a list of titles and names of the individuals on campus who help support faculty efforts to change teaching and learning. Include individuals who are needed to mitigate the obstacles by addressing the relevant policies related to faculty roles and rewards. Expansion teams should also include individuals who understand how different pieces of the institution fit together into a system. Additionally, individuals who have relevant skills, knowledge, or control of key technology resources and services should be included.

CHALLENGES

Implementing anything new brings challenges, concerns, and questions; these include institutional capacity, value to stakeholders, data integrity/validation, and scaling.

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However, many parts of implementing a CLR are part of the normal functions occurring on campus. Furthermore, there are a few benefits that make implementing a CLR an asset to an institution of higher education. The following section describes some of the challenges along with ways to address each one.

Do we have the institutional capacity (funds, personnel, institutional knowledge)? In my experience, college presidents, and other administrators, are instantly attracted to the ease of reading and wealth of information that is concisely presented on a CLR. Then, their next thought jumps to concerns about the institutional capacity to make CLRs a reality on their campuses. In terms of funding, my experience suggests that the fees for transcripts pay for CLR implementation. But it is natural for administrators to be concerned about whether their college/university has the infrastructure and knowledge to realize CLR.

This is why I recommend iterative implementation. There are programs that more naturally align with the collection and reporting of CLR data. Insiya Bream is the Registrar and Associate Vice President from the University of Maryland Global Campus, which implemented a CLR in its masters of business administration degree. She said, “Find a place to start. See what you can launch and go from there. Learn from going through the initial process and improve on that” (Addison, 2021, section 6). That is how you ultimately build the expertise and institutional demand while incorporating each institution’s unique learning framework. The long-term vision for a mature CLR at each institution is a helpful motivating force for starting this work, but progress should be made gradually—celebrating successes and resolving challenges at a slow, deliberate pace. The goal is to focus on how to evolve to an end state in small chunks—program by program over time.

‘CLR Cannot be Done Without Mature Standards’

CASE can give institutions a framework by which to align data between institutional systems and among them.

The IMS Competencies and Academic Standards Exchange® (CASE®) standard facilitates the exchange of information about learning outcomes, competencies, and skills. CASE can also transmit information about rubrics and criteria for performance of tasks. CASE supports association across frameworks so frameworks and items can be related and aligned. By implementing CASE, it is possible to electronically exchange outcomes, skills, and competency definitions so applications, tools, and algorithms can readily access and act upon this data. Having universal identifiers for learning outcomes, skills and competencies makes it possible for any tool or application to share precise information between systems easily, internally or across the web. This includes learning management systems, assessment tools, curriculum management, credentialing, and hiring platforms. Standards that support normalizing the data. (IMG Global Learning Consortium, n.d.).

In reality, standards don’t solve the problems by themselves; they only matter when the issuer and verifier both interpret the data in the same way. The standards will be a unifying factor once there is an ecosystem of CLR information at one campus or across many campuses. However, CLR is still at such an early phase that it is more important to think small and iteratively. Getting it right for one degree program provides progress towards a methodology that can be deployed, tested, and revised in another degree program. As that is occurring, other data, on or across campuses, can be normalized for the next implementation until all record keeping systems attain a state of interoperability. This not only will result

in a school-wide CLR, the interoperability of all learner data means that data mining techniques can be used to better support learner success, retention, graduation, and also accreditation reviews.

‘We Have Too Much Data to Report Concisely’

This is why the approach I recommend starting with a narrow and focused credential. Each academic program is actively engaged with the audience that hires its graduates. Administrators of programs in higher education know, based on the feedback they receive from graduates and employers, what competencies are valued but not emphasized on a transcript. This is the information that should be included on a CLR. Early on some people approached a CLR as a container that should have the thousands of pieces of verified information that are collected about an individual during their time at an institution of higher education. But then those of us involved with CLRs from the start learned that all that information is noise, not a signal that drives action. I think all of the early CLR efforts have demonstrated it’s possible to find a balance that provides insight for the consumer without the noise.

‘What will the employers think?’

No employer wants to make hiring less efficient and more time-consuming (Cederquist et al., 2022). So, why would employers want additional information that they would have to consider in their recruiting and interview processes? Initially, employers may be reluctant to adapt to a new format of documentation that includes what a job candidate knows and how they learned it. It may take some time to adjust HR tools and educate human resource managers. However, recruiting and attracting talent is the critical first step to produce job candidates who are qualified, diverse, and interested in working for the company. A machine-readable CLR will facilitate a more equitable screening of candidates who have better documented qualifications for job openings.

As expected, there are logistical challenges to initiating CLRs on campuses. However, when these challenges are addressed, the unintended consequences might improve higher education outcomes. For example, in order to incorporate CLR competencies, educators will have to be taught how to recognize, teach, and assess these skills (Braxton et al., 2022). The result may be educators who are aware of how these CLR competencies benefit their students and their field as a whole. This could lead to faculty who are motivated to be intentional about how, and which, CLR competencies are integrated in their instruction. Then, with formal instruction and assessment, students will become more conscious of the evergreen skills they are learning. And in the end, when the evergreen skills are transcribed, it could be expected that learners may also seek ways to improve these competencies.

CONCLUSION

Aspirationally, I am already envisioning a future where vendors automatically provide data that is normalized so that it can be easily integrated with data from other systems. Additionally, I look to LMSs to facilitate documenting evergreen accomplishments across multiple courses or disciplines. With the promise of CLRs being able to provide verified machine-readable data about a learner, I am looking forward to all learning, in all environments, being documented so that it can be presented in a customized way for any audience.

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Chapter 19

Meeting in the Middle: Envisioning Postpandemic–Responsive Student Support Services

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ABSTRACT

As institutions of higher education began their full returns to campus in Fall 2021, questions arose about continuing the flexible student support services that emerged during the pandemic, the expectations students might have of the post-shutdown world, and whether there would be equity between the support of on-campus students and those who remained at a distance. This chapter details the literature amassed during the height of the pandemic and the findings of a study focused on the online organizational structures that emerged as campuses were shut down when COVID-19 was sweeping the United States in early 2020. Interview participants detailed the rapid rollout of robust student support services that were offered in a virtual mode during the height of the pandemic. Participants hoped for the long-term continuance of services that offered better support to online and remote students, as well as those that could more robustly support on-campus students who choose to consume services in a more multimodal way.

As institutions of higher education (IHE) began their full returns to campus in fall 2021, questions arose about continuing the flexible student support services that emerged during the pandemic, the expectations students might have of the post shutdown world, and whether there would be equity between the support of on-campus students and those who remained at a distance. The long-standing affinity for

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on-campus services had already started to reappear at campuses worldwide, as some virtual services offered in 2020 and early 2021 began to recede. Key lessons may be quickly forgotten as postpandemic life returns to in-person interactions, even with surges in viral outbreaks causing temporary shutdowns in 2022. This chapter details a call-to-action for a recommitment to online and virtual student support by institutions of higher education by highlighting the literature amassed during the height of the pandemic and the findings of a study focused on the online organizational structures that emerged as campuses were shut down when COVID-19 was sweeping the United States in early 2020. Interview participants detailed the rapid rollout of robust student support services that were offered in a virtual mode during the height of the pandemic, such as learning support, tutoring, and mental health services. Participants hoped for the long-term continuance of services that offered better support to online (students who access their courses primarily through the internet) and remote students (students being taught through methods only particular to the pandemic shutdowns), as well as those that could more robustly support on-campus students who choose to consume services in a more multimodal way (e.g., an on-campus student choosing to access mental health services virtually for convenience).

Multimodality refers to using different modes to do something such as accessing a service in-person or through the internet (Dictionary.com, n.d.). In an educational setting, the term is more often situated within a learning context: “learning environments [that] allow instructional elements to be presented in more than one sensory mode (visual, aural, written)” (Sankey et al., 2010, p. 853). Ample literature suggests that any time an institution can leverage student choice through multimodality, learning is activated at deeper levels. This results in increased student motivation and success (Adie et al., 2018; Bahou, 2012; Gordon, 2018; Koops, 2017; Luo et al., 2019). While multimodality has been heavily studied in learning environments, it can also apply to the services students can benefit from (whether in-person or virtually) during their academic journey, including but not limited to the areas of student onboarding (e.g., application for admittance, acceptances, and other orientation and welcoming events), financial aid (e.g., availability of financial aid counselors to assist in electronically completing and filing for educational funding), registration (e.g., class registration and degree planning), learning support (e.g., extended staff hours, tutoring, coaching, and disability accommodations), student activities (e.g., clubs, student events, honor societies), and career development (e.g., career counselor availability on the evenings and weekends, career development activities, and job fairs).

Applying multimodality across the span of services at institutions of higher education lines up with recent societal shifts related to the on-demand economy as well. Technology companies have transformed the mindset of consumers: they want to access goods and services immediately and through the mode of their choice (Jaconi, 2014; Thayer, 2021). This consumer shift has reached different sectors, such as retail and news, and the on-demand economy and what some call “experience liquidity” is also more recently found in higher education. Students now compare services accessed through different modes and express the need for more on-demand support and services (Thayer, 2021). Thayer (2021) argued that institutions that fail to heed the call for more multimodality in learning and student support may fall behind peers that are doing so or already had strength in these areas prior to the pandemic.

This chapter provides a set of clear and actionable recommendations that highlight the need for a balance between student support services that can be accessed in-person and those that can be accessed virtually. This chapter’s advice brings attention to the need for multimodal (on-campus and virtual) models of student support at institutions of higher education. These would address equity between online, remote, and on-campus students, as well as the needs of contemporary students. It makes the case for how institutions can: (a) learn from the shutdowns and pivots related to the pandemic and the

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offering of virtualized services, (b) leverage the impact of an on-demand culture prompted by companies like Amazon and Netflix, and (c) adapt to the changing needs of employees after the pandemic by deploying multimodal student support models that serve student demand and also offer more flexibility in employee schedules.

VIRTUAL STUDENT SUPPORT SERVICES BACKGROUND

Student support services are critical components of supporting student success in higher education. Student support services in the college or university setting permeate throughout the entire student life cycle, beginning with recruitment; continuing to wraparound services such as advising, tutoring, financial aid, mental health counseling, residential life, student activities, and other non-instructional services; and ending with program completion support. Research has shown that “student services play a direct, vital role in success, including academic performance, psychological growth and program or certificate completion” (Pullan, 2011, p. 72). Thus, some suggest elevating student support services from a complement to learning to a more intentional partnership with academic divisions in service of college students’ holistic journeys (Berry, 2019; Higbee & Goff, 2008; Tait, 2014). Although most institutions of higher education have established broadly available student support services to meet the needs of traditional on-campus students, support services for online and remote students are still emerging and have mostly not met the same standards as on-campus offerings (Barr, 2014; B. L. Brown, 2017; V. S. Brown et al., 2020; Hicks, 2016; Luedtke, 1999; Ozoglu, 2009; Tait, 2014; Thompson & Stella, 2014).

Further, the presence of online and virtualized programming in the higher education setting poses unique challenges to institutions because of the students’ geography, time zone, and varied access to technology making the conceptualization, implementation, and sustainability of multimodal student support services that more complex. Too, the online student population is often composed of a mix of traditional on-campus students who occasionally take online courses, students from different regions of the same state, students from different states, and international students; thus, offering a unimodal (i.e., only on-campus) support service model is neither sufficient nor equitable. Online and virtual programming and this new student population challenge the “this is the way we have always done it” mindset, further highlighting the need and opportunity for institutions of higher education to be more flexible and innovative in how they support students, overall.

Studies have shown that, similar to how online education divisions vary in their organization from one institution to another, student support service models that serve both on-campus and at-a-distance populations vary across institutions (Bouchev et al., 2021; Garrett et al., 2020). Virtual student support service models tend to be centralized with some services (such as recruitment, orientation, and advising) provided by units specifically intended for online and remote students (Bouchev et al., 2021; Garrett et al., 2020) and others (such as tutoring and mental health counseling) offered to all students through the same delivery models (unimodally through services offered only on-campus). While it may be more efficient to offer student support services unimodally, this model may be inherently inequitable because it becomes difficult for an online and/or a remote student to access some support services since they are not able to come to campus.

Beyond equity and accessibility, providing equitable student support services to students is a component of online and virtualized programming that is often required by accrediting bodies as well (Barr, 2014; Pullan, 2011). The Council of Regional Accrediting Commissions (2011) stated, “The institution

[is required to provide] effective student and academic services to support students enrolled in online learning offerings” (p. 3). Unfortunately, at this time, even though institutions of higher education have increased their virtual offerings, the development of student support services for students who remain at-a-distance lags. These gaps are increasingly observed by those students, contributing to lack of satisfaction too (V. S. Brown et al., 2020; Pullan, 2011).

Virtual Student Support Services Before COVID-19

Providing high-quality, equitable student support services is not only important for meeting student expectations (Dolan et al., 2009) and promoting student success, it also required by other authorizing and accrediting bodies, which further elevates the importance of providing equitable services across student populations (Barr, 2014; Council of Regional Accrediting Commissions, 2011; Currie, 2010). A more comprehensive set of student support services must be intentionally designed to “enable and empower students to focus more intensely on their studies and personal growth, both cognitively and emotionally. They also should result in enhanced student learning outcomes and, consequently, higher retention and throughput (graduation) rates” (Ludeman & Schreiber, 2020, p. 10), no matter the mode of their program. As such, Smith (2005) identified three key objectives institutions of higher education should meet in providing virtual student support services: (a) identify the needs of its online and on-campus learners; b) ensure that services are available when the learner wants them, rather when the institution is ready to provide them; and c) ensure that the virtual services are as good as or better than the on-campus equivalents.

Beyond required supports, it is also important to remember that one of the key roles of student support services is to provide a sense of belonging to students through various activities that serve to build community and connection for students (Pelletier, 2020), but prior to COVID-19, many institutions of higher education’s student support services were exclusively offered on-campus. Because student support personnel tended to have less physical contact with students who did not come to campus, they also may not have fully appreciated the online student population’s expectations and perceptions of the availability of services (Forrester & Parkinson, 2006).

Research verifies that institutions of higher education are simply not providing equitable student support services to online and remote students, with the most significant gaps identified in student advising and counseling services (Barr, 2014; B. L. Brown, 2017; Cooper et al., 2019; Currie, 2010; Forrester & Parkinson, 2006; Hicks, 2016; Luedtke, 1999). Arguing for more textured context on this issue, Calhoun et al. (2017) showed that the gap in service between on-campus and online students may be related to inadequate coverage of online student needs in student affairs preparation programs, which suggests a more systemic issue within the discipline to resolve. Traditionally, student support services leaders have seen their roles as complements to the academic divisions, with a clear focus on providing support services that lay the foundation for student success and beyond as students graduate and contribute to society at large (Ludeman & Schreider, 2020). However, more cohesive and intentional coordination between the academic and student support services divisions might increase retention and support student success from a more holistic perspective. Not surprisingly, the sudden pivot to a fully virtual environment because of COVID-19 brought gaps in student support services to light and emphasized the importance of high-quality teaching and learning experiences *in addition to* robust virtualized student support services.

The Impact of COVID-19 on Virtual Student Support

The onset of COVID-19 and the ensuing pivot to emergency remote teaching, learning, and work tested the preparedness, nimbleness, and flexibility of student support service models as well as the overall infrastructure and readiness of institutions to work with students in a completely virtual environment (Doyle, 2020; Garrett et al., 2020; Ludeman & Schreiber, 2020). The rapid pivot to remote operations by colleges and universities around the world further substantiated studies that had highlighted gaps in the support services offered to online students (Barr, 2014; Beaudoin, 2013; B. L. Brown, 2017; Forrester & Parkinson, 2006; Hicks, 2016; Jones & O’Shea, 2004; Luedtke, 1999; Mitchell, 2009; Ozoglu, 2009).

The *CHLOE 5: The Pivot to Remote Teaching in Spring 2020 and Its Impact* report highlighted that the pivot to emergency remote teaching and learning at colleges and universities consisted mostly of moving existing in-person courses into a virtual environment, onto learning management system (LMS) platforms, to real-time or recorded web-conference meetings, or to other internet-based tools. This occurred for an average of 500 in-person courses per institution—a most impressive endeavor (Garrett et al., 2020). The report also indicated that most students, faculty, and staff were not familiar with teaching and learning in the virtual space, nor were they familiar with the technology, software, or services and support that could be offered to online and remote students (Garrett et al., 2020). To compound the issue, the researchers illuminated additional challenges related to students’ lack of technology or inadequate bandwidth at home, suggesting that the availability of virtual student support services was not the only gap that needed to be immediately filled to ensure uninterrupted learning (Garrett et al., 2020).

In addition to under preparedness and technology challenges, students had to deal with the extra life disruptions brought upon by COVID-19, such as getting sick, losing a job, homeschooling their children, and taking care of sick loved ones (Blankstein et al., 2020; Educationdata.org, n.d.; Fishman & Hiler, 2020; Garrett et al., 2020). Students found it even more difficult to stay motivated in their learning as they balanced employment obligations and heightened family needs during the peak of the pandemic (Blankstein et al., 2020; Fishman & Hiler, 2020; Hinton, 2020). As institutions and students faced longer term needs for at-a-distance teaching and learning, experts cautioned that students needed support related to social, emotional, and financial health matters more than ever (Blankstein et al., 2020; Burke, 2020; Hinton, 2020). As students, faculty, and staff return to campus, many of these issues and fatigue have persisted and warrant the need for additional support on an ongoing basis. Indeed, these timely studies suggested a critical need for more robust student support models that could be readily offered in multimodal formats: in-person, virtually, and perhaps those that could be offered through artificial intelligence, and other means. By offering student support services in a multimodal way and extending their availability, institutions of higher education could ensure more equitable and inclusive services to all students, whether the institution was back to on-campus learning or not.

BACKGROUND OF THE STUDY

During the same time period when other researchers were responding to the need for more data on the impact of the pandemic on at-a-distance teaching and learning, 31 chief online officers (COOs) from institutions of higher education across the United States were interviewed as part of a larger study on the organizational structure of online units. Purposeful sampling was used to ensure diversity of institutional type and geographic location within the sample. The sole criterion for participation was that the partici-

pant must have served as their institution's COO, defined by Garrett and Legon (2017) as the position that has the most decision-making authority over online programming. Serendipitously, the round of interviews that focused on virtual student support services was conducted at the height of the pivot to remote teaching and learning because of COVID-19, during spring 2020. The results encapsulated the thoughts of COOs during the pandemic, compared the experiences of COOs before the pandemic, and described their hopes for the future.

In order to explore the constructs that led to the structure and landscape of virtual student support services at their institution, a semi-structured interview protocol was developed and utilized. Bouchey et al. (2021) defined *student support services* as:

The functions at the institution that take place outside of the classroom experience in which the students are active participants. This includes retention services (e.g., orientation, advising, coaching, course registration), student engagement (e.g., student activities, athletics, student government), student well-being (e.g., student counseling, health services, Title IX administration), and learning support (e.g., library, writing center, tutoring, career services, technology support). (pp. 30–31)

The interview questions focused on the current organizational structure of the unit offering virtual student support services, the benefits and consequences of the model, institutional historical context, and any planned changes to this structure or model of student support.

STUDY FINDINGS

Through data analysis, key findings arose from COOs' perspectives on the criticality of virtual student support services. These were: (a) COOs have been steadfastly advocating for multimodal student support services since the inception of online programming under their leadership, (b) virtual student support services provide access for *all* students, (c) COVID-19 forced the expansion of virtual student support services, and (d) COOs had hopes for the future of multimodal student support services.

COOs as Advocates for Multimodal Student Support

One of the most universal pain points expressed across the participant interviews was that they had been advocating for more comprehensive virtual and multimodal student support at their institutions for some time. The stark discrepancy between services for online and on-campus students had been apparent to COOs and those who work with online students. Eighty-four percent of participants ($n = 26$) said online students had less access to student support services than those who were attending classes on-campus prior to COVID-19, regardless of tuition and fee differentials.

The chief online officers identified an ongoing challenge around the ability to distinguish virtual student support models from those for on-campus students well enough for institutional leadership to take action. Essentially, COOs were struggling to prove to institutional leaders that multimodal student support was necessary to serve what may have been a small subset of the overall student population at the institution. These leaders had tirelessly advocated to increase student support services for online students without gaining much traction—until the onset of COVID-19, when that would all start to change.

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The COOs indicated that an unintended benefit of the pandemic was that institutional leaders, faculty, and staff had become aware of the benefits of providing virtual support services to all students, regardless of whether they were enrolled in online, remote, or on-campus programming. They expressed hope that this awareness would continue, not only because of the lessons learned during COVID-19 but also because of changing student demographics and students who had adapted to services being offered multimodally during the pandemic.

Virtual Services Provide Access for All Students

One of the most prominent results of this study was that there had been a shift to broader access and better equity in student support service models across all the participants' institutions as a result of the COVID-19 pivot to remote teaching and learning. This shift seemed to serve as an impetus for institutional leaders to gain a greater appreciation and understanding that providing virtual student support serves *all* students, not only those who do not come to campus. This change in perspective was highlighted by nearly half (48%) of participants. One participant elaborated on the change in mindset about the availability of virtual student support services:

One of the silver linings in having gone through what we've gone through is that the units that were maybe hesitant to really try to think outside the box to build capacity for meeting students in a more virtual way have had to and have successfully done so. We've certainly had bumps in the road. But by and large, all of our units across our campus have stepped up in amazing ways to serve the needs of our students.

The emphasis on serving all students was highlighted by this interviewee's statement:

When all of a sudden you have to serve your students remotely, you move more quickly to develop those resources because you understand that all students need them, whereas before you might say, 'Well, you can access these on campus, you really need to be here to do that.' COVID has given us an incredible boost in terms of online student support services.

The lessons COVID-19 brought to institutional leaders and student support services overall was discussed by most participants, perhaps most succinctly in this comment: "[Student support services were] important pre-COVID, and we've seen it's taken on a whole new dimension and importance. When you're not in person, you've got to be more intentional about these...supports. Ultimately...it's going to benefit all our students," suggesting that this unexpected disruption enabled staff and leaders to experience being in a virtual setting, leading to more empathy and understanding of why additional supports for online and virtual students are critical.

Plainly stated, participants discussed how the pivot to virtual student support services provided all students with broad access, regardless of their registration status in an online, remote, or on-campus program. Their comments called out the importance of multimodal student support services, as well as the validity of providing both synchronous and asynchronous support to students, and finally, the need to intentionally design services to be accessed at-a-distance, much like the principles of universal design for learning (UDL). One participant related designing virtual student support services to UDL, specifically: "We really didn't have a whole lot for the online students.... It's kind of like universal design with accessibility.... If we're designing for the online student, it's going to make it a better experience for all of our

students.” Some participants speculated that the provision of student support services will go through a transformation in order to serve all students, regardless of their modality. As one said, “If you haven’t brought the support services online, how are you really taking care of our students? So, I suspect this whole thing is going to make us all rethink how we do support.” This broader realization, based on the experience of being at-a-distance, themselves, seemingly has lead staff and leaders to a more nuanced and clear understanding of the possibility of a multimodal student support model.

Even without an emphasis specifically on UDL, the value of multimodal student support models was universally expressed and is evident in this participant statement:

A lot of what we do online is asynchronous, and definitely has its place, its value. There’s value in synchronicity as well. And so, find the right balance.... That can be really important for us. That applies not only to teaching, learning, but also to services. And what this is going to do...is that every student can benefit from these online services, not just students that are going to be 100% remote.

Further addressing not just the need to offer a virtualized offering of student supports, but critically evaluating *how* to offer each service is essential in moving towards multimodal support services. Providing true multimodal support is not as simple as offering a web-conferencing option to all students, but recognizing that some services might be more suitable and accessible to students through an online portal, drop-off (submit) service, and/or virtual chat-enabled option.

COVID-19 Forced Expansion of Virtual Student Support Services

All 31 institutions represented in this study shifted to virtual student support services models during COVID-19. Most student support service departments (advising, success coaching, learning support, library, mental health counseling, financial aid, health, and clubs and activities) were effectively moved to virtual delivery so they could provide services to all students, regardless of their formal registration (e.g., online, remote, or on-campus modalities). To the delight of COOs, student support services had suddenly and rapidly expanded to include virtual delivery. Without prompting, almost half (42%) of participants discussed this process and its overall necessity for all students. Indeed, COVID-19 forced departments and staff into creating spaces where they were designing virtualized offerings as quickly as possible. The previous luxury of remaining in their comfort zone—only providing services the way departments had always done (i.e., on-campus)—was no longer feasible or appropriate. One participant said:

We were all kind of thrown off the deep end of the pool, into...working remote and teaching and learning remote this spring. There was a lessening of the expectations. That was ‘Do the best you can.’ People had to try. They’ve now gotten over the hurdle and the initial step of ‘We’ve never tried that—we don’t know that it can work.’ They’ve...seen what’s possible.

After the shift to virtual student support services, students adapted to new and improved availability and access to the support they needed, when they needed it, and in the mode they needed or preferred. One interviewee stated, “Student services is one of those areas where the writing center went fully virtual and it’s working. Students are making appointments and getting support.... They’re not meeting in person...but people are learning to use the tools that are available.”

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Furthermore, pre-existing virtual student support services and departments were more easily able to expand their services to the entire student body. One participant said, “We can scale up our online program really quickly.... With this recent change to remote learning, all of our students switched online within 5 days, but were still able to access all the student support services that they needed.” The forced pivot serendipitously created an environment in which institutional leaders, faculty, staff, and students could now see the possibilities and value of virtual services as well as on-campus ones.

Hope for the Future of Multimodal Student Support Services

While COOs expressed satisfaction with the increased robustness of a more multimodal student support model, questions remained for them on what the future of virtual student support services would look like postpandemic. While COVID-19 provided urgency for a pivot to virtual services, COOs wondered whether institutional leaders would keep at-a-distance students as a priority as colleges and universities moved back to on-campus learning. They expressed interest in whether virtual student support services that were established during the pandemic would be sustained and grow into robust multimodal offerings meant to benefit all students in the long term. Many of the participants expressed specific, sincere hope about the future of multimodal student support services on maintaining the level of student support provided to students during COVID-19, as well as on reduced resistance to multimodal offerings at their institutions, and in the wider higher education landscape. Approximately 20% of participants also expressed, on their own accord, interest in leveraging lessons that might have been learned during the pivot on whether student support service units would continue to make these offerings more efficient and accessible over time. Participants made statements such as:

How do we make sure we take the lessons learned, and...aspects of how we have shifted our processes, procedures, operations in light of COVID-19? How do we institutionalize those gains—the things that we’ve iterated on and taken steps for— and that we don’t go backwards?

Another participant observed, “I am really hoping this will really be the forward momentum that will stay, and things will change that will cater more [to all students].” Relatedly, a few participants (16%) expressed hope that there would be less resistance to, and perhaps even increased affinity toward, online and virtual programming and support of these students now that institutional leaders and support departments had successfully offered virtual services during the pandemic. One participant affirmed, “There’s a new connection with not only our different departments now going online, but there’s a connection to them so that we’re not working in silos. We can understand their world better. They can understand ours.” Another participant noted the potential change in providing training and services:

There’s going to be less of a barrier to continue to offer [online trainings]. We will still offer the face-to-face...but we can also continue to offer these remote sessions so we can reach people who can’t come to campus.

Participants were able to make the connection to this unexpected disruption and its associated response and the empathy developed by faculty and staff to more robustly address the needs of online and virtual students, longer term.

In addition to characterizing COOs' perspectives on virtual student support during the pivot to remote teaching and learning because of the pandemic, this study also revealed and confirmed the gaps between the services available to on-campus students and their online counterparts. Moreover, the findings illuminated shifts in the mindset of institutional leaders and support departments about the availability of virtual student support services. When COVID-19 forced shutdowns and the shift to remote teaching and learning, institutions of higher education closed student support services gaps with relative speed and agility. Accordingly, institutions established virtual student support services models that increased the availability and accessibility of these services to all students, thereby setting the foundation for potential, permanent multimodal offerings of services that benefit the entire campus community. Study participants described the timely and critical way that institutional leaders and student support service units can also leverage the lessons learned during the pandemic to further enhance their practices, their processes, and the availability of multimodal student support models.

RECOMMENDATIONS

The results of this study, as well as the ample literature amassed during the pandemic and over the last decade, indicate that as online and remote teaching and learning continue to expand throughout higher education, institutions must commit to a student support model in which services are designed around the needs of the student, not just those of the institution (Bouchev et al., 2021; Garrett et al., 2020; Lowery, 2004; Newberry, 2013; Pullan, 2011; Shea, 2005; Southern Regional Educational Board, 2007). By leveraging the lessons learned from shutdowns related to the pandemic, institutions can address the changing needs of students and their employees. Redesigning student support services by extending their availability into multimodal formats has many benefits, such as reduced time spent on administrative processes, improved student engagement in courses and learning outcomes, enhanced sense of belonging on the part of students, and expanded access to working students. It also creates desired and needed flexibility for students, faculty, staff, and administrators so they can better balance professional and personal responsibilities (Thayer, 2021).

In the end, forward-thinking leaders should make efforts to learn from shutdowns caused by the pandemic of 2020 and how their institutions offered virtualized services as a result. In doing so, they can also capitalize on the needs of students accustomed to an on-demand culture like other private sector companies such as Amazon and Netflix. And relatedly, by offering virtualized student services that may include more flexibility in staff schedules, this shift can also help leaders respond to the changing needs of their employees.

Using the Past to Inform the Future

As institutions of higher education recommit to on-campus operation, it is critical that senior leaders, administrators, staff, and faculty reflect upon shutdowns of 2020 due to COVID-19. Most institutions were able to rapidly introduce multimodal offerings for student support and for student learning. With the wisdom of the past and a commitment to the future, it is important that each institution analyze the consumption of student support services in the multimodal forms offered during the pandemic in order to gauge overall need and interest on the part of students and employees. Surveying students asking for their satisfaction with the current set of multimodal student support offerings, as well as their needs, would

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send a message of commitment to students, and also provide a critical roadmap to the future of these offerings as well. Once the institution has identified the most needed support services, it is prudent to design a system for tracking their utilization and ongoing satisfaction for continuous improvement as well.

Learning from Private Industry

A chief variable to consider in evaluating the need and form of multimodal student support is the concept of experience liquidity: students have now experienced services in multiple modes (e.g., on-campus and virtual) and have likely developed either emerging or fully formed attitudes about or affinities for them. This idea of comparing service levels across modes is not unlike what other sectors in the United States have experienced during the advent of Netflix (rather than renting movies from a physical store) and Amazon (rather than purchasing books in-person). Institutions of higher education would be well-served to emulate innovative companies that disrupted the status quo with on-demand services during the last decade. One could posit that simply reverting to only on-campus student support services may present cognitive dissonance not only to on-campus students who consumed student support services virtually during the pandemic but also to online and remote students who have now benefited from more equitable offerings of support.

Towards a Multimodal Student Support Model

Institutions interested in exploring the continuance of multimodal student support or the expansion of such services could begin by considering the use of universal design (UD) principles to evaluate their offerings. Higbee and Goff (2008) used UD principles to:

Create a framework for inclusion for student development programs and services and can serve as a 'safety net' to ensure that no student is lost in the shuffle.... These guiding principles considered side-by-side with those created for instruction and learning support provide a multifaceted institution-wide approach to inclusion. (p. 200)

Higbee and Goff (2008) outlined nine guiding principles that can be used by an institution interested in exploring its student support offerings. They argued that student support services could be evaluated to indicate whether the service:

- creates welcoming and accessible spaces, on-campus, and virtually;
- develops, implements, and evaluates pathways for communication among students, staff, and faculty;
- promotes interaction among students and between staff and students outside of the classroom that “lead to students feeling a sense of connection to the institution and foster the belief that someone cares about them, which leads to increased student satisfaction and retention” (p. 197);
- ensures that each student and staff member has an equal opportunity to learn and grow;
- communicates clear expectations to students, supervisees, and other professional colleagues using multiple formats and taking into consideration diverse learning and communication styles;

- uses methods and strategies that consider diverse learning preferences, abilities, ways of knowing, and previous experience and background knowledge, while recognizing each student's and staff member's unique identity and contribution;
- provides natural supports for learning and working to enhance opportunities for all students and staff;
- ensures confidentiality; and
- defines service quality, establishes benchmarks for best practices, and collaborates to evaluate services regularly.

The helpful lens of UD could be used in concert with other empirically driven frameworks developed by trusted leaders in online education, such as the Online Learning Consortium (OLC) Online Student Support Scorecard (OLC, n.d.) and the Quality Matters (QM) Online Learner Support Program Certification (QM, n.d.). Both frameworks offer concrete, measurable benchmarks an institution can use to self-evaluate and to identify gaps between on-campus and virtual student support services that could be closed through strategic action. Even without a formal evaluation of current offerings, institutions can borrow lessons already learned from other institutions with high percentages of online students, or those that are 100% online focused by offering these types of services.

Student Onboarding. The ease by which an online student can submit their application for admittance electronically and move through the process of matriculation virtually should be evaluated. This includes all of the subsequent acceptances and welcoming activities. These should not require students to visit campus, yet at the same time foster their connectedness to their new student community. This may include an application and acceptance online portal, a robust and engaging online student orientation, a virtual campus tour, and/or virtual means of forming connection with other peers entering the institution at the same time through social media or other technology solutions that may integrate with the institution's learning management system.

Financial Aid. In addition to ensuring that financial aid counselors extend their hours to accommodate time zone differentials and the working hours of online students, assistance through completing and filing critical educational funding documents should be made available via phone and web-conferencing and be designed in a way that students do not have to visit campus to meet these requirements. If possible, an on-demand "push-to-connect" service through a webpage and/or a virtual chat assistant are helpful compliments to this technical, and sometimes anxiety-producing function in a student's journey.

Advising and Learning Support. While many institutions now have electronic methods of class registration, it is critical that online students benefit from the same support as their on-campus peers when selecting courses and making progress towards their degree completion. Advising staff hours should extend into evenings and weekends as well as be offered via phone and web-conferencing. While seemingly a cost increase, these changes to schedules should only add incremental cost, if at all, due to the shift in students on-campus during the same time where schedules can be balanced according to demand without adding more staff or paying overtime. Degree plans should be made available in an online student portal and reflect the real-time status of the student's progression. As much technological advancements have been amassed in online tutoring platforms in recent years, "live" learning support hours should be extended in a similar fashion and through phone, text, and web-conferencing, when possible. The inclusion of "drop-off" services where student work can be evaluated asynchronously is a helpful time management tool for students and learning support staff, alike. In institutions that are able, embedding learning support into online courses with high failure and withdrawal rates is also a

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way of providing more proactive support and one that simulates the experience an on-campus student might receive when learning support staff visit a class or offer co-curricular support hours. Online study groups, as well as lab hours, can also be effectively hosted via web-conferencing, even from the same room that the in-person one is being offered.

Student Well-being. For the past couple of decades, there has been an increasing concern regarding mental health of college students (Blanco et al, 2008; Flatt, 2013; Gallagher, 2009) and COVID-19 has exacerbated the issue (Gravelly, 2021; Son et al, 2020). It is imperative that institutions equitably offer student well-being (mental health) services to their online students, now more than ever. In a similar fashion, with the increase in virtual health services, institutions could bolster their medical services provided to online students as well. Accordingly, it may be necessary for institutions to reevaluate their tuition and fee models to cover the expense of these types of coverages for online students, along with calculating the opportunity cost of losing students to competing institutions who have found ways to fund these types of services either through a cost passed through to students, grant funding, or simply incorporating the fees into the existing operating costs of the institution. With the uprising of third-party companies offering these services such as BetterMynd, uWill, and SilverCloud, it is increasingly easier for institutions to procure these types of services for their students as well.

Student Activities. This area is of particular interest given the profile of a more typical online student—adult learner, employed, and returning students (Friedman, 2017)—often prohibits them from participating in on-campus based activities. Yet, the same students often yearn for more connection and want to establish a sense of belonging to their college or university (Peacock, 2020). Ensuring that student clubs are inclusive of online students through offering web-conferencing options is a simple way of incorporating multimodality, and most meetings and ceremonies can be easily augmented through this method. Depending on the technology in meeting rooms, most on-campus events can also have a web-conferencing option, though it is also prudent to coach speakers and meeting organizers on how to equitably engage web-conferencing participants as much as those on-campus (e.g., repeating questions asked in the room into the microphone before answering, monitoring the chat of the web-conference, designing break-out rooms to similar small group discussions).

Career Development. As a key area of student support, the hours and modes should be extended for career counseling and development similar to other departments for online students. Additionally, career services can be extended to accommodate virtual job fairs, online employer interviews, and virtual career counseling. Advances in artificial intelligence have also been incorporated into new service and product offerings that can provide career advice on-demand (e.g., WithLloyd).

Multimodal student support practices are not just limited to adapting and augmenting critical student support functions to online access. With the learnings gleaned from experience liquidity and the on-demand culture of modern times, services for on-campus students should also be evaluated for multimodality as well. Services to on-campus students and their online counterparts could be extended to incorporate artificial intelligence-enabled student assistants, physical hubs for in-person meetups of online students, and “digital Residential Assistants” that would offer more robust experiences to both on-campus and online students (Thayer, 2021).

Through intentional redesign of support services, using frameworks such as UD principles or frameworks from leaders in online education such as OLC and QM, institutions can set the stage for engaging and impactful multimodal student support. This would not only provide equitable and inclusive services but also enable the institution to meet contemporary students’ expectation of “high-tech, self-service, mobile-friendly processes across academic affairs and student services” (Thayer, 2021, p. 8).

Equity for All Institutional Stakeholders

Offering multimodal student support services positively impacts the institution's ability to meet the needs of its students. It also has an indirect benefit for employees who have enjoyed the flexibility of working from home during the pandemic. As a possible mechanism to combat the so-called great resignation (Chugh, 2021), offering student support services in multiple modes and at different times of the day, evening, and weekend may provide opportunities for employees to work different shifts from their home. With over 60% of American workers (with jobs that can be done from home) indicating they do not wish to return to full-time in-person working (Parker et al., 2022), it is critical for institutions of higher education to look for ways to incorporate a flexible schedule for staff. Moreover, web-conferencing, virtual chat management, and asynchronous work from home can be used to support students and to empower and retain employees who would prefer more variability in their schedules. The opportunity to offer employees flex-time based on evening and weekend hours can lead to better work-life balance. Additionally, it could lead to higher rates of overall job and life satisfaction as people work to balance their busy schedules and varied roles (e.g. parenting, the sandwich generation caring for their parents, community commitments).

Other benefits of multimodal student support include (a) mitigating virus spread by rotating employees through on-campus and at home hours, thereby creating more physical distancing on-campus while providing more equitable support services to all students, and (b) opening up remote worker recruitment avenues to attract the best talent into student support roles. Especially for those institutions that are located within cities where affordable housing is sparse and the cost-of-living is high, remote worker recruitment can provide a mechanism for attracting talent at current salary rates as well.

While institutions and their leaders may find the call for multimodality in student support as an overwhelming and a potentially expensive proposition, this critical work should be evaluated through the lens of commitment to diversity, equity, and inclusion as well as the opportunity cost of students choosing other institutions more mature in their support of contemporary students' needs. Moreover, real cost-benefit analyses should illuminate modest increases in costs associated with multimodal student support, unless institutional leaders decide to invest in newer technologies incorporating artificial intelligence or machine learning to augment services. Arguably, these investments should provide the same service and would be offset with a reduction in human resource time allowing staff to spend the same time dedicated to other duties or, more dramatically, reductions in headcount within departments over time.

To be sure, the inclusion of multimodal student support is characterized here as a set of recommendations, though over time they will simply become part of the overall day-to-day operations of a contemporary institution of higher education. This shift in support modality is indicative of our shift in mindset around human connection and our previous notions of how personal and educational connections were made through and tied to physical proximity. The impact of the pervasive integration of technology into daily living is uncertain, but there is little doubt that it must be incorporated in our colleges and universities.

CONCLUSION

Research over the last decade and during the pandemic of 2020, including this study, indicates that institutions of higher education need to critically and aggressively engage in offering multimodal student support services. There is a clear case for the continuation and perhaps expansion of services offered

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to both on-campus, remote, and online students through virtual and other modes. This would not only provide a robust set of services to students, but it would also create more equity of service between student populations. Moreover, as American society continues to evolve digitally, institutions of higher education should respond to the growing needs of students as they approach their educational journey, knowing that they have grown accustomed to accessing all parts of society in multimodal ways. Students are already placing more emphasis on the importance of their experience than on their investment in their education (Thayer, 2021). The concept of a full-service, one-stop shop is something that most of today's college students have already experienced in other sectors, and there is reason to think they would have those same expectations for their educational journey. Students are accustomed to obtaining real-time, personalized support in all other areas of their lives. Their education should be no exception.

Institutions of higher education that self-reflect and align to the needs of their students, rather than to their own preferences and affinities, will develop competitive advantages over institutions that revert to prepandemic service levels and those that risk losing employees who have either committed to the equity argument related to multimodal services or who have enjoyed flexible working environments. Moreover, institutions that fail to continue to evolve, learn, and respond to changing conditions in their environment will find themselves relegated to the obsolete, akin to Blockbuster Video and physical bookstores. It is time for higher education to embrace the future.

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Section 5

Where Do We Go From Here? Enacting the Vision by Managing Change

Chapter 20

Ever Upward: Building an Ecosystem to Support and Validate Lifelong Learning

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ABSTRACT

In a world where skilling, upskilling, reskilling, and career shifting are becoming the norm, and where lifelong learning is a requirement, models of higher education designed to best support the needs of learners and the workforce remain relatively limited. In the chapter, the authors discuss strategies used by Excelsior University's School of Graduate Studies to respond with agility to the needs of students and employers, including structures and processes used to better connect with employers and their needs. They highlight the development of high-quality learning outcomes, the creation of industry-aligned curricular and co-curricular learning experiences, and the development of stackable credentials to demonstrate how they provide students with flexible on-and-off ramps to learning and skill development.

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Traditional, residential models of higher education have never worked for our diverse student body of working adults, active-duty military service members, industry leaders and those working on the front lines of health care, yet this is our primary audience. Excelsior University (Excelsior) students need policies, processes, and systems that remove barriers and prioritize access, affordability, and flexibility. They desire academic programs that help them meet their career and personal goals. Our students want courses and instruction that recognize and appreciate the learning and experience they bring to the classroom. They must have tools to help them validate and communicate what they have learned, regardless of where they have learned it. In many ways, the more recent macroeconomic changes have only intensified the need for more accessible and flexible approaches to postsecondary education.

As the second largest institution in New York State and backed by an inclusive mission of serving the historically underrepresented, Excelsior has been at the forefront of serving adult learners in flexible and innovative ways for over 50 years. As “post-traditional” students, our learners “...often make decisions to participate in or forego higher education based on and evaluated against a set of priorities that involve work and family, and shaped by unique adult-life experiences and responsibilities” (Soares, Gagliardi, & Nellum, 2017, p. 7). Like authors in other chapters in this book, we are thinking more purposefully about the vision for the future of higher education, and we are developing and testing models that can better serve learners who are looking to keep up with the pace of change around them.

Despite the unique position of higher education to meet the urgent needs borne of these workforce and societal changes and the capacity to meet students’ lifelong learning needs, the sector is known for being notoriously slow to change, largely resisting the call to evolve in a coordinated way. As Schejbal notes, academia has developed a unique and strong culture over many centuries (Maxey, 2021). We argue that this strong culture manifests itself in numerous ways: the sector’s hesitancy—and sometimes unwillingness—to engage with employers in efficient and scalable ways, the continued reification of disciplinary boundaries, a one-size-fits all approach to degrees and credentials, the pervasiveness of pedagogical approaches that often lack career relevance, and the persistence of legacy bureaucratic organizational structures marred by inertia. As Bialik and Fadel (2017) write, “all systems persist in part because their elements continue to perpetuate them. Education systems are no different, making large-scale reform extremely difficult, despite the acknowledged urgency of such change” (p. 1). In a world where skilling, upskilling, reskilling, and career shifting are becoming more normal and where we argue that lifelong learning is becoming more of a requirement, models designed to best support the needs of learners and the workforce remain relatively limited, idiosyncratic, and piecemeal.

In response to the dramatic changes occurring all around us, Excelsior has developed a multi-faceted strategic plan designed to respond with agility to the needs of students and employers. Our approach places great emphasis on building an academic and learning ecosystem that provides students with opportunities to develop their skills and acquire knowledge, while allowing them to move more seamlessly between the world of skill development and the more long-term benefits of degree attainment. At the core of our approach is the idea of making learning industry-aligned, stackable, career-relevant, and portable. While much of what we discuss below may not be completely new, our approach has led us to reimagine how we customize, package, and bundle the various components in ways that work for our students and their needs. As part of their lifelong journey with us, students can access prior learning assessments, certificates, full degrees, and continuing education. Learners can bring in a portfolio of their prior learning and add to it as they move through the various stages of their learning journey, from micro-credentials to degree completion.

In the present chapter, we discuss the intricate interrelationships between the needs of learners and employers and the strategies we have implemented to benefit both stakeholder groups. We start with an expanded discussion of the macroeconomic trends spurring the evolution of higher education business models. We move to the challenges facing colleges and universities today, and we finish with the various approaches we are using to better meet the lifelong learning needs of our student population.

THE CHANGING NATURE OF WORK

Although many cite COVID-19 as being a pivotal turning point for industries, the economy and nature of work were undergoing significant shifts even prior to the pandemic. Technological developments like cloud computing, big data, and e-commerce along with the growth of automation and robotization and the proliferation of artificial intelligence and machine learning were changing and will continue to change the way we live, work, and relate to one another. For Schwab (2017), it is “fusion of...technologies--and their interaction across the physical, digital and biological domains—that make this revolution fundamentally different from its predecessors” (p. 19). A recent study by the McKinsey Global Institute argues that nearly 15% of the global workforce will be impacted by automation of routine tasks (Bughin et al., 2018). According to one popular estimate, this equates to nearly 85 million jobs that may be displaced (World Economic Forum, 2020). While the impact of such significant displacement has the potential to be staggering, it also presents an opportunity to train and educate workers and leaders in new ways, with an eye towards current and future jobs and needs of the current and emerging economy.

But it is not just the types of jobs that are changing; there are also significant changes in the way we work. Much has been said about the increase in work that is more project- and team-based. A report by the Project Management Institute suggests that the demand for project-based roles will increase from 66 million in 2017 to nearly 88 million by 2027 (Project Management Institute, 2018). And because the world is undergoing change, employers are often looking for individuals who can demonstrate flexibility, adaptability, strong interpersonal skills, and the capacity to solve complex problems in contexts that have become more uncertain, ambiguous, and wrought with new types of risk (Carnevale, Smith, & Strohl, 2013). For Schwab, the growth of computing power and robotization is creating the need for more ‘collaborative intelligence,’ where people will need to learn how to better work alongside computers and develop the skills that harness and optimize the power of artificial intelligence. Furthermore, COVID-19 has opened up opportunities for more distributed types of work and collaboration, where mobile internet technologies have enabled us to work more efficiently on global teams, creating new types of interactions that will require individuals to have high levels of social and emotional intelligence (Weise, 2020). In many ways, these changes in the economy, the shifts in jobs, and the changing nature of work are creating the need for new skills and competencies.

The Necessity of Lifelong Learning

In addition to the large-scale macroeconomic changes identified above, there are corresponding sociodemographic shifts. One of those shifts is the expansion of life expectancy. Michele Weise, Senior Fellow of Higher Education at the Christensen Institute, wrote a timely book on lifelong learning and the impact of increased lifespans on the future of work, and more specifically how the higher education system will need to adapt to better serve learners and the market. According to Weise (2020), “the

simple extension of our life span suddenly forces us to consider the dramatic lengthening of our work lives” (Location No. 415).

In the past, life plans used to be generic and straightforward. People would go to school, get a job, raise a family, and often retire in the same career or industry within which they started. These days, because of the rapid changes in the economy around us and our extended life spans, people have career paths with much greater elasticity in terms of their beginning, middle, and end. Today, people are switching jobs like never before. To keep pace, Weise (2020) suggests “ongoing skill development will become a way of life” (p.5) and argues that people will need to become “working learners,” continually looping in and out of working and learning arrangements.

As employers look to turn ‘The Great Resignation’ into ‘The Great Reengagement,’ America’s workforce is also using this as an opportunity to build a more intentional, purpose-driven, and engaging career and life. Predictably, the latter half of 2021 saw a spike in hiring (Reuters, 2021), with many Americans pursuing new career paths. In fact, according to a recent pulse survey by Prudential Financial, nearly one in four American workers are looking for new job opportunities with a different employer post-pandemic (Prudential Financial, 2021). These transitions are creating an increasing need for a well-designed ecosystem that assists the workforce in upskilling to support innovation, and to support individuals who are looking to make career shifts.

Higher Ed Landscape

The system of higher education is facing intense pressures to evolve because of the changes in the external environment. While colleges demonstrated an ability to shift their residential, face-to-face instructional models to remote instruction during the pandemic, they were not as successful at retaining their existing students or driving new enrollments. According to data from the National Student Clearinghouse Research Center, of the 2.6 million students who started college in Fall 2019, 26.1 percent didn’t come back the following year, which represented a two percent increase from the previous year. And the most recent data on college enrollments shows a nearly eight percent drop in undergraduate student enrollments since Fall 2019, with community colleges losing approximately 15 percent of students over the last two years (National Student Clearinghouse Research Center, 2021). Working adult students were not immune to the effects of the pandemic, as they often faced difficult choices about their education because of growing financial insecurity and the burdens of caregiving brought on by school closures (Karpman, et al., 2020).

At the same time, the sector continues to deal with concerns about the rapidly escalating costs of a college degree. According to the National Center for Education Statistics, average tuition and fees were higher in 2019-20 than they were in 2010-2011 across all institution types, with a nearly 18% increase at 4-year, private nonprofit institutions and a nearly 13% increase at 4-year public institutions (National Center for Education Statistics, 2021). The increase in costs is having dramatic impact on the U.S. learner. In fact, student debt remains one of the largest contributors to household debt in the United States, with estimates of nearly \$1.7 trillion in student loan debt across 45 million borrowers in 2021. According to the Congressional Budget Office, the balance of outstanding federal student loan debt increased more than sevenfold between 1995 and 2017 (Congressional Budget Office, 2020).

In addition to these pressures, at the highest levels there remain continued questions about whether the higher education system, as it currently operates, has the ability to meet the demands of the changing job market and changing learner needs and demands. Recent trends in hiring have seen a shift towards

more skills-based hiring and away from degree requirements as the most important signal of qualification. One of the most prominent examples is IBM's New Collar initiative, which aims to increase access to opportunities in technology jobs by focusing on skills and capabilities more than a college diploma. As part of the initiative, IBM has created multiple pathways for people to land these new jobs, including apprenticeships, training programs, and investments in high-school and technical education programs (Malik, 2020). In fact, a team of Harvard Business professors and analysts from Burning Glass recently bears this shift toward skills-based hiring out. An analysis of some 51 million job postings found that employer demand for bachelor's and post-graduate degrees is starting to "decrease perceptibly" (Fuller et al., 2022, p. 5).

THE APPROACH OF EXCELSIOR'S SCHOOL OF GRADUATE STUDIES

Excelsior University is a nonprofit distance education provider based in Albany, NY and serving students across the United States and beyond. Founded in 1971, Excelsior is one of the country's oldest distance education providers. The University has a long history of developing innovative solutions that increase access to high quality and affordable higher educational opportunities, especially among historically underrepresented groups.

Remaining true to a mission of meeting students where they are—academically and geographically—over the last 50 years, the University has adopted several credit-earning methodologies, including: transfer credit from other institutions, credit for workforce training, credit by examination, credit by portfolio assessment, and credit through online coursework. Each of these methodologies has helped Excelsior provide its primarily working adult learner population with flexible and individualized pathways to degree completion by building upon the University's foundation as a leader in the assessment of prior learning and credit aggregation.

However, the macroeconomic changes we detailed above have made us within the School of Graduate Studies begin to reimagine how we might better leverage our approaches to better meet student needs for lifelong learning and employer demand for more specific skills.

Connection with Industry/Employers

Because of the many trends discussed above, we argue that traditional college approaches have generally been unable to fully meet the needs of a dynamic, evolving workplace. With rapid technological change and increasing global competition for talent, there is a requirement for the curriculum to be more responsive to the needs of today's workforce. A recent report by the Business-Higher Education Forum writes, "Our nation faces significant challenges in aligning what students are learning in college with the skills and talents they need to be successful at work." (BHEF, 2017, p.2). However, responsiveness to the needs of today's workforce starts with developing an awareness of what employers want and need, leveraging market demand to inform changes we make to the way we teach, educate, and train the future workforce. This is especially important for our working adult students, who are often motivated to pursue education for career-related reasons—typically career advancement or career change.

At Excelsior University, we have created two strategies to improve our awareness of market needs, to stay current on what skills and competencies employers are looking for from college graduates, and to better align our programs and learning experiences with the needs of the learners and the market. First,

we have developed industrial advisory committees, and second, we have built our Office of Strategic Partnerships and Alliances (SPA) as a formal mechanism to facilitate partnerships with corporations, organizations, and other institutions of higher education.

Industry Advisory Committees

Our industrial advisory committees exist across multiple programs within the graduate school in the areas of business, cybersecurity, and cannabis control. The committees are charged with the responsibility of reviewing and advising the College on the currency and industry relevancy of our programs. The input of the committees is a vital means of focusing academic efforts in a manner that aligns with industry needs. Committees typically consist of between 8-15 individuals, with a focus on creating a diversity of perspectives that are representative of the larger sector. Our board members often serve in senior leadership roles or have responsibilities for making hiring decisions within their organizations. Each committee has a formal charter that outlines the responsibilities of the committee and meets regularly with administrators and faculty within the school either in person or via videoconference. These committees have proven an invaluable resource for connecting us with the needs of the market and staying abreast of the changes occurring around us.

One of the best examples of the value of forming industrial advisory committees to connect with the market can be seen with the development of the School of Graduate Studies graduate certificate in Cannabis Control, which opened for applications in June of 2020 as a three-course, 9-credit graduate certificate. The University was examining economic forecasts predicting that the legal cannabis industry would be a \$51 billion dollar industry by 2025 and was following conversations about the potential for adult use legalization in New York (BDSA, 2021). Given the sheer size of the market, the College set out to formalize input from industry leaders and experts to better understand this new and rapidly expanding field, and to develop a program that helped meet the needs of the industry.

Industry advisors suggested developing a suite of curriculum focused on the complexities and nuances of the regulatory environment. Advisors noted that anyone in the industry would require specialized knowledge and skills. This led to the creation of a certificate program that could be taken on its own or integrated into master's degree programs in business, health sciences, public administration, and criminal justice. The program's interdisciplinary focus brings students from these various disciplines together to look at regulation, cannabis as commerce, and the risks associated with the industry.

Since before the launch of the program, the Cannabis Control industrial advisory committee has continued to meet quarterly and provide guidance on program development strategy and implementation. Committee members have provided input and direction on emerging markets and potential areas of recruitment, including providing insight into legalization efforts in states beyond New York and at the federal level. Given the rapid change of this industry and its illegality at the federal level advisory members strongly encourage that we stress the importance of compliance with laws and regulations at every level. The long turbulent history of cannabis was also highlighted by all of our advisory members. For example, we asked our experts what they wish they knew before entering the market. Ashley Picillo of Point Seven Group advised, "I wish I had a deep understanding about cannabis or cannabis history before stating in my first full-time role as I believe I would have had more compassion for cannabis patients and the many people harmed by the cannabis laws."

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They have advised us on creating experiential opportunities for our students and exploring the potential for internship and apprenticeship programs. Members have also served as subject matter experts on a series of panel events and webinars about emerging trends within the sector.

Another successful endeavor is the Business Industrial Advisory Committee (IAC). Committee members meet 3 times a year and work on task forces in between to share and investigate industry trends that are then implemented by our Business Faculty Advisory Committee. Committee member, Gregg Tate of Collective Brains, Inc., shared that, "...to ensure we're going to have what we need in the future, we must get involved in the preparation, today."

The IAC provides a space for its members to contribute to the education of future leaders through committee participation, course design, and webinars, like our other industrial advisory committees. On this point, Mr. Tate commented that, "as members of Advisory Councils and Boards, we have the opportunity to contribute to future success by offering insight on the needs of business and industry from the insider perspective."

Strategic Partnerships and Alliances

Another mechanism by which the college stays current with market needs and connects with employers is through its formal Office of Strategic Partnerships and Alliances (SPA). Recent research shows that promoting engaged partnerships with industry requires dedicated staff and resources (Education Strategy Group, 2022). Often corporate and industry relationships can fail because they are too dependent on the individuals that initiate contact, and when there is turnover within organizations, the partnerships move with them. To overcome this barrier, Excelsior University has created a fully-staffed office that is focused on high-impact partnerships in strategic and high-demand sectors—collaborating with corporations, educational institutions, associations, government, veterans' groups, and others in ways that align with the mission of the College and our academic programs. The SPA team works with our academic and corporate partners to develop customized services to meet contemporary and future workforce needs. Most importantly, these corporate partnerships form a key component of an academic ecosystem that enables students to move seamlessly between the world of work, training, professional development, and educational opportunities.

The work of SPA combines a business development function designed to research and cultivate new partnership opportunities, with a specific focus on developing and shaping clusters of partners within specific verticals (e.g., business, cybersecurity, allied health, public safety, etc.). The partnership development function works on the launch, coordination, and engagement of existing partners. Potential partners are identified utilizing specific criteria, including value congruence, overall market size, potential level of engagement, alignment with academic program offerings, competitive set, cost, tuition reimbursement options, and opportunities for prior learning assessment. The SPA team currently manages over 300 partnerships. Nearly two-thirds of the partnerships are with corporate entities.

One of our success stories as an institution is our partnership with the Federal Government through our involvement with the Federal Government Alliance, which is managed at the federal level by the U.S. Office of Personnel Management. The Office of Personnel Management, or OPM, is responsible for ensuring federal employers have access to high-quality talent development opportunities. The Federal Government Alliance is a partnership between OPM and colleges and universities, with the goal of attracting new talent while also providing federal employers with higher educational opportunities at discounted tuition prices. For the federal government and OPM, the partnerships with academic insti-

tutions are designed to help address government-wide and agency-specific skills gaps; support career development for federal employees; and increase opportunities for federal employees to obtain college degrees, certificates, and college credit (OPM, n.d.). For Excelsior, we gain a greater understanding of the needs of the nation's largest employer, the federal government, and we have an opportunity to align our programs with their needs. In addition to what Excelsior gains from the partnership, we also help the Federal Government Alliance by conducting webinars to educate and inform their employees on trends and opportunities in different areas. For example, Excelsior and another partner Focal Point presented a panel discussion entitled "Cybersecurity and Homeland Security Emergency Management: Preparing the Workforce for Domestic and Global Needs" for their recent education fair.

Excelsior University signed the partnership with the U.S. Office of Personnel Management in 2016. The partnership focuses on addressing skills gaps and developing pipelines of students in mission critical occupations, including but not limited to economists, human resources, cybersecurity, auditors, acquisition, STEM, and health care. Since 2016, the College has enrolled over 1,500 students through this partnership across high-demand fields in business, cybersecurity, technology, health care, and the liberal arts.

THE PORTABILITY OF LEARNING

The design and delivery of the student learning experience is paramount to Excelsior's mission. The College is committed to providing high-quality learning experiences to students across all courses, degree programs, levels, and modalities. One of the College's strategic goals focuses on developing an "academic ecosystem," that works together iteratively and seamlessly to offer students a variety of ways to earn and aggregate credit, including online courses, exams, generous transfer credit policies, credit for military and workplace training, professional certifications, study-abroad credit, and portfolio assessment. This ecosystem not only responds to workforce needs but provides adult learners with much-needed skills to survive and ideally thrive in professions experiencing often-volatile significant changes. It also speaks to students being able to DIY their education. We highlight two approaches we have used to assist students with portability of learning through two main approaches below: stackable credentials and prior learning assessment.

Stackable Credentials

At Excelsior, we are using stackable credentials to connect skills-based learning and education in careful alignment with what is needed along a learner's lifelong career path. In many ways our focus has been on linking academic and professional development training by combining a sequence of credentials that can be accumulated over time. These credentials can then be produced in a way that can be stacked on a transcript, degree, resume, or career portfolio.

In traditional higher education, academic programs and curriculum (for-credit courses leading to certificates or degrees) and professional or workforce development (not-for-credit, career-focused courses) have been separated culturally and operationally. Academic programs usually consist of a mix of certificates and degrees, packaged together on a linear path, and often only allow single entry and exit points. Traditionally, these programs have lacked alignment to industry certifications, and have only loosely connected to specific career paths, while professional and workforce development programs have often consisted of short, generally one-off, skills-based training courses or clusters of courses. Neither approach

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in isolation is optimal to meet today’s workforce needs, let alone those of tomorrow’s workforce. Because of the adult learner audience, professional and workplace development programs are typically offered in more flexible ways, often self-paced, when compared to the more academic structure. In some instances, these learning experiences are focused on preparing students to sit for higher-stakes proficiency exams or qualifications in a specific area of study. Despite the potential value of what is being learned to specific jobs and careers, these skills-based certificates have historically been ineligible for academic credit. Up until recently, traditional educational approaches have made it difficult to interweave the two together. In so doing, the reliance of colleges and universities on the full degree has often delayed opportunities for students’ career advancement. This fragmented approach has had negative effects on students, as employers have continued to rely heavily on the degree as a signal of skill attainment.

To combat this challenge, the School of Graduate Studies has focused on breaking down some of the barriers between academic and professional education, shifting the focus away from the degree program as a whole toward smaller “chunks” of learning that break the curriculum down into more discrete skills and competencies. The flexible and modularized approach of stackable certificates allows students to move in and out of learning. So rather than allowing for one entry and exit point (matriculation and enrollments) students can maximize their returns in a more flexible way. This approach aligns directly with the changes we are seeing in the wider macroeconomic environment. We believe that designing a stackable curriculum enables students to realize the value of their learning in faster, tangible, and more practical ways. Taking mini- and micro-credentials—including modules or courses—can enable students to advance their career immediately. Using the articulation of learning—through mechanisms like prior learning assessment mentioned above—enables students to stack their learning over time into a resume or as part of a larger academic degree.

At Excelsior, we also strive to make graduate learning more accessible and allow students to maximize benefits prior to—or without—earning a full master’s degree. For example, some of our certificates can be earned as standalone credentials and will later count towards a degree, should a student choose to return. Another option is for students to opt into a specific track while earning their degree, so that they can obtain a certificate prior to graduation. One example is our Graduate Certificate in Data Analytics. The certificate prepares leaders with the technical acumen to conduct data analysis and visualization and the management skills needed to implement the insights gleaned from data analysis. The courses in this certificate are also embedded in the Master of Science in Organizational Leadership with an Emphasis in Technology and Data Analytics program, and students who complete the certificate can apply 9 credits toward the 30-credit program. Another example is our Graduate Leadership Certificate, a 12-credit certificate that stacks into all seven of our master’s degree programs. This four-course, twelve credit certificate focuses on four key aspects of leadership: (1) ethical decision-making, (2) talent management, (3) leading diverse high-performing teams, and (4) inter/intra-disciplinary applied leadership.

Prior Learning Assessment

For more than fifty years the guiding philosophy of Excelsior has been that “what you know is more important than where or how you learned it.” ® In alignment with this principle, the University recognizes that meaningful learning often takes place outside of traditional college classrooms. Acknowledging this by awarding credit for learning that occurs during such non-academic experiences—known as Prior Learning Assessment, or PLA-- is a practice that Excelsior University implements with the ultimate goal

of increasing student access to higher education and decreasing time to degree completion for working adults.

PLA at Excelsior is a set of well-established, researched, and validated methods for assessing non-collegiate learning for college credit, based on the belief that the outcome of learning is more important than the pathway to it and that people can acquire knowledge in a variety of ways. PLA is a process that recognizes and validates learning that has taken place outside of the traditional college classroom, and as a strategy has been shown to promote college completion.

In fact, according to the “PLA Boost Report” published in 2020 by the Council of Adult Experiential Learning (CAEL) and by Western Interstate Commission on Higher Education (WICHE), PLA is linked to better student outcomes including higher credential completion, cost savings, and time savings. In addition, adult students who used PLA in this study were more likely to complete college credentials than non-PLA students. The study cites that 24,512 adult students who earned PLA credits evidenced a credential completion rate of 49% over a seven-and-a-half-year period, compared to 27% among adult students who did not earn any PLA credits. Moreover, the same study found that PLA promotes equity, as both Black and low-income adult students evidenced significantly higher rates of credential completion when they earned PLA credit. PLA is also an important factor for adult learners looking to obtain a credential in a shortened period to re-enter the workforce. It can be very useful for the high number of displaced workers due to COVID looking to enter or re-enter higher education, according to a 2020 report, “Recognition of Prior Learning in the 21st Century” by WICHE, Strada, and the Lumina Foundation.

At Excelsior, two distinct pathways to attaining credit for alternative learning experiences are offered to students as follows: 1) Excelsior’s portfolio assessment (PA) submitted individually by students seeking to gain credits from learning that has taken place through individual work or life experience, and 2) PLA, referred to at Excelsior as the process of awarding credit for industry certifications, workplace training programs, and other learning experiences. PLA is a modality that removes barriers between work and school for working adult learners by enabling more successful and faster degree completion for this population. Applying prior learning to their study programs incentivizes adult learners to persist along their degree pathways and to complete their course of study efficiently, and in less time.

Students may earn academic credits for a variety of corporate, military, or state/federal training, professional/industry certification exams and credentials, non-credit educational and vocational programs, volunteer assignments, and other forms of non-traditional learning. Excelsior University faculty and subject matter experts (SMEs) determine if the learning acquired from these experiences is equivalent and/or comparable to college-level courses. For example, in addition to our own certificates, Excelsior has created pathways from noncredit learning at other institutions into our programs, with an eye towards stackability. As an outgrowth of work through its SPA Office, Excelsior partnered with the University of Washington Continuum College to offer students credit for their completion of a certificate in digital marketing, allowing students to articulate non-credit courses at University of Washington Continuum College into graduate programs in business at Excelsior. In another example, Excelsior University faculty reviewed certificates at the University of California—Irvine, Division of Continuing Education in contract management, data science, digital marketing and communications, human resource management, Lean Six Sigma, paralegal, and project management for credit into the Excelsior University graduate programs in business and cybersecurity.

Excelsior's PLA Evaluation Process

At Excelsior, the granting of credit for workplace and professional training is based on a standard process for evaluating non-collegiate learning for college-level credit equivalence. The process is guided by research-based practices for assessing learning developed by CAEL and is aligned with standards of our institutional accreditor, the Middle States Commission on Higher Education, as well as the New York State Education Department requirements. All PLA practices are developed with these regulatory standards in mind and reviewed to ensure our PLA practices meet the standards of academic rigor expected by our peers.

Requests for prior learning assessment can come from the PLA provider or a stakeholder within the college. All requests go through an application and approval process. The application includes key information about the organization providing the training or professional development. The PLA opportunities are evaluated for alignment with the strategic direction and operational value of the opportunity. Organizations are reviewed with the following criteria: size of organization, volume of learners completing training, benefit and value of training and professional development to learner, and tuition reimbursement opportunities for learners beyond the certification. At the application stage, applicants provide information about the prior learning opportunity: name/title, contact hours, description, and whether the training has any or all of the following: learning outcomes, documented assessments, accreditation, and applicability to current Excelsior degree programs.

All PLA applications at Excelsior are reviewed and approved by the Dean of the school where the prior learning assessment is most closely aligned with the program. Once approved, applications undergo a legal review to determine whether a formal agreement is required. Meanwhile, the academic units at the University work with the College's Center for Measurement and Prior Learning Assessment's (CEMPLA) managing project coordinator of prior learning assessment to identify a faculty member to conduct the review of the prior learning assessment.

The faculty review process is scoped based on the volume and complexity of the work. As part of the review, the College asks training providers to provide the following materials: syllabi or curriculum with learning outcomes, assessment materials used to evaluate student learning; lesson plans; grading criteria and/or rubrics; total contact hours; access to learning management system or other learning materials; date when training/professional development was last updated and sample transcripts or verification letters that learners receive upon completion.

Faculty are selected to review PLA opportunities based on their academic qualifications, subject matter expertise, and program responsibilities. They utilize a rubric to evaluate workplace training and professional development to determine college-level equivalence. The review is focused on learning outcomes and the knowledge, skills, or abilities that students have or are expected to acquire as a result of the learning experience. In line with our philosophy, these focus areas are treated as more important than the inputs of learning, such as methods, instructors, textbooks, or study hours. The faculty review rubric includes the following elements:

- **Learning Outcomes:** are they clear, relevant and measurable in ways that are comparable to those in a college-level learning experience and to our internal course-leveling guidelines?
- **Assessment:** are assessment methods appropriately aligned to learning outcomes and are master criteria adequately defined, rigorous and appropriate to level?

- **Supporting Materials:** do all materials meet our standards for scope, degree-level rigor, and relevance; integrate, research, theory, and practice, and align with learning outcomes, and incorporation of research, theory, and practice appropriate to the subject matter?

Based on this review, faculty make a recommendation for credit across specific content areas and provide a written justification for the number of credit hours and the level at which they should be applied. These are then reviewed in collaboration with our Transcript Analysis Center for comparison to previous credit recommendation decisions that exist in our credit equivalencies database. From there, the decision is input into our equivalencies database so that future students can benefit. The requesting student and other training organization are notified. These PLA decisions are carefully considered, and once completed, offer students an important steppingstone toward their ultimate educational goals. Examples of industry certifications that received evaluation through Excelsior's PLA program include many well-known organizations, such as Cisco Systems, CompTIA, Coursera, EC-Council, FEMA, GE Renewables, HR Certification Institute, McDonald's, Pizza Hut, Society for Human Resource Managers, Texas Department of Public Safety, and more.

In each of these examples we have shared, our approach was to create a learning ecosystem that provides students with seamless pathways between learning experiences across institutions. At the same time, Excelsior students and alumni were provided an opportunity to enroll in the certificates at a discount. This approach is highly collaborative, with the goal of allowing students to customize their learning experience to best meet their own needs, personally and professionally. In this way, students have the tools and resources to make choices that fit within their life and work transitions.

LEARNING OUTCOMES AND CURRICULAR APPROACHES

In response to evolving employer needs and student preferences for immediately impactful stackable credit, Excelsior College developed an interdisciplinary core curriculum. We see this novel interdisciplinary core as preparing 21st century leaders through an innovative and immersive learning environment for our students. Aligned with the approach of this chapter, the core is also a key component of our stackable curriculum, where completion of the interdisciplinary core plus a course in the student's disciplinary degree program leads to a graduate certificate in leadership. Students can use this certificate to advance their careers while completing their graduate degree.

The conceptualization and development of the interdisciplinary core was a highly collaborative endeavor from inception to roll-out. Extensive research was conducted through an environmental scan, market research, research into the best practices for developing interdisciplinary courses, and in-depth fact-finding conversations with our industry and academic partners. The Lumina Foundation's Degree Qualifications Profile served as a foundation to identify important graduate level competencies. A key takeaway from this research was an urgent need to prepare tomorrow's industry leaders to be highly ethical and collaborative and to break down silos that often pose barriers to solving organizational, sectorial, and community level problems. In many ways, it was a call to think about the curriculum in a more problem-based way, and to develop our learners to think beyond the deep specialization of their discipline.

The School of Graduate Studies team collaboratively developed a set of courses that equip students to graduate from each of our degree programs with strong leadership skills, an unwavering ethical foundation, and an ability to guide the future workforce in a rapidly changing economy. Applying recommendations

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from our industrial advisors and faculty curriculum committee, we created progressive courses with an array of professionally modeled learning activities that are reflective of employer needs today and moving into the future. The team consisted of five of our faculty program directors overseeing seven-degree programs across five overarching disciplines, one subject matter expert from each of the five overarching graduate disciplines, two learning experience designers to creatively convert the curriculum into the online format, our assessment directors, librarians, and our associate dean. Seven of the fifteen collaborators worked intensively on course development, with the others providing regular feedback.

The courses leverage experiential learning practices and put students in scenarios where they are faced with leadership decisions, while developing an understanding for how decisions impact other disciplines and sectors of society. Students are placed in virtual workgroups where they solve problems of today like preparing a workforce for a natural disaster, shifting a workplace to remote work, and hiring global talent. For example, in the signature leadership and ethics course, the students are placed in a virtual conference where their module opens with a keynote address on the topic of the module. They then move to a panel session where they hear from experts in two different disciplines talking about how their discipline approaches the topic and highlighting similarities and differences. From there they go to a breakout session where they hear from an expert in their own field discussing the topic from their discipline's perspective.

Students then move into innovative discussion forums where they role play, create strategic social media communications, make public comments, and learn from each other. There are both individual assignments, including an editorial to the fictitious professional interdisciplinary journal, *Complex World*, and group assignments where they form a task force to deal with an issue. Each assignment serves to reinforce key concepts and create a broader understanding. Each module culminates in a reflection where students pause to evaluate what they learned both in terms of the content, as well as their own interaction with the material, the other students in the class, and the rich experiences they bring to the topic. These reflections have proven important, as they help students to make meaning of the cross-cutting skills they are learning.

We purposefully chose to require the interdisciplinary core early in the curriculum for several reasons. It facilitates students gaining a stackable credential—the graduate leadership certificate, and it also allows us to carefully embed new student success strategies to facilitate a strong start for all our students. Open enrollment is a key part of our mission of promoting access to earning a degree for everyone. Because of this, we carefully scaffolded learning experiences and resources to help students grow, not only in topic expertise but in other core areas like researching topics, graduate academic writing, use of the learning management system, and tips for engaging in online discussions. Short tutorial videos have been created, and just-in-time “lifeline” videos have been embedded. Intensive outreach occurs from faculty, advisors, and where appropriate, the school, for students who are falling behind.

From the interdisciplinary core, students enter their disciplinary courses. Here, they are immersed in the norms and expected knowledge and skills of their respective disciplines. We have carefully scaffolded each of our degree programs to build off of what they have learned in their interdisciplinary courses so that they can tackle the problems of their professions through highly ethical and collaborative perspectives. The faculty maps learning outcomes carefully to align with what is needed of 21st century leaders in order to help preparing students for the workforce and to be leaders in their disciplines.

Our courses are designed to support frequent start times. We require very few prerequisites. Rather than students having to wait until a needed course is offered to move ahead in their degrees, we embed foundational or “refresher” content into each course. These refreshers are designed strategically, using

just-in-time sequencing. The goal is to ensure that each student has the resources to succeed in every course, no matter where they are in the curriculum.

Co-Curricular Learning Opportunities

The term co-curricular refers to “activities, programs, and learning experiences that complement, in some way, what students are learning in school i.e., experiences that are connected to or mirror the academic curriculum” (Great Schools Partnership, 2013, p.1). When students participate in co-curricular activities, they increase their self-efficacy, develop friendships and collaborative relationships, become more resilient, and develop marketing skills, e.g., problem-solving, decision making, writing and editing reports). Co-curricular activities help with students’ career development by exposing them to real-world experiences and networking with experts in the field (Arvanites & Borden, 2019; Bolick et al, 2020). Thus, co-curricular activities enrich student learning, and they complement curricular education as well as provide students opportunities to apply classroom learning in a real-world context.

In the School of Graduate Studies at Excelsior College we define co-curricular activities as activities and programs that promote students’ participation outside of the scope of for-credit coursework. These activities and programs actively contribute to the achievement of graduate competencies and learning outcomes for students who participate.

Graduate students at Excelsior College offer several co-curricular activities that focus on developing soft skills as well as experiential learning. Our co-curricular activities have been developed in partnership with industry consultants through Excelsior’s Industry Advisory Committees to support workforce preparation and give students opportunities to practice skills expected in their disciplines. They provide opportunities for students to participate in leadership roles, network with peers from different disciplines, and practice conference presentation skills. Students work with college and industry mentors, who support students not only in the co-curricular activities themselves, but in connecting these authentic, work-relevant experiences back to the concepts and theories they are learning in their courses, creating a synergistic and mutually reinforcing learning experience.

One example of co-curricular work comes through our membership in the Society of Human Resource Management (SHRM), a professional association with a mission: “to elevate the HR profession, to empower people and workplaces by advancing HR practices and by maximizing human potential, and to build a world of work that works for all” (About SHRM, 2022). With more than 300,000 members in 165 countries, SHRM has student chapters that focus on HR issues for undergraduate and graduate students wishing to learn about workplace concerns. These chapters are student-run and include a chapter advisor.

Excelsior’s SHRM Student Chapter has been active for six years and has been the recipient of several awards from SHRM, including being named an Outstanding Chapter and most recently a Superior Chapter. Excelsior’s Student Chapter facilitates webinars on employment issues, including careers in HR, HR law, diversity, equity and inclusion, and distributed workplaces. We also offer students mentoring opportunities with human resource professionals and information about careers in all aspects of human resource management, including recruitment and selection, training and development, performance management, health and safety in workplaces, talent management, and employment law. Students take the skills learned from their co-curricular SHRM experiences to inform what they are doing in their workplaces, as well as what they are learning in their coursework. A SHRM webinar attendee and chapter member exemplified this by stating,

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It was an honor and privilege to be able to register and attend such an event. I look forward to future similar events as well! The material covered was so pertinent to today's new world reality and I retained some very important knowledge and insights from the presentation. It was truly a well-done webinar ... Would it be possible for me to request a copy of those slides as an invaluable resource that would aid with my studies and education towards my MBA degree program?

In another example of co-curricular activities leading to workforce-ready skills building, the School of Graduate Studies has facilitated the formation of student teams in global case study competitions. For example, via our work with the International Accreditation Council for Business Education, students have opportunities to work with a team of peers and a faculty mentor to resolve business problems experienced by major corporations throughout the world like Munevo, Ronald McDonald House, and Genuino. Student teams are presented with a challenge – the case study. They research issues related to the case and consult closely with a team mentor, a college faculty member with deep expertise. The team collaborates to develop a plan of action and writes an Executive Memo in support of their solution. Lastly, they prepare and present a presentation detailing their proposed solution to the sponsoring organization. They have opportunities to meet fellow students and organization leaders from around the world through participation in these case.

In one final example of transformative co-curricular learning, the School of Graduate Studies has been participating in the National Cybersecurity League (NCL) since 2017. The NCL is a virtual training program that prepares students for cybersecurity-related situations that can arise in any industry. The annual competition is open to students from high school through graduate studies and features offensive, defensive, and “capture-the-flag” type scenarios. Students work with industry mentors to develop the skills as they engage in the cyber games. Students gain tremendous skills from tangible cybersecurity skills to softer skills such as leadership and communication. One graduate participant recently shared her experiences in the NCL competition: “I think the exposure and skills [gained] are the biggest takeaways. You learn things you would never learn in the classroom. This provides you a way to practice everything you learned, too.” Another student, who served as a team captain on one of the competitions, shared how he was able to combine his work experience with his competition experience:

My military training and opportunities have had a strong influence on these skills, but through Excelsior and NCI support, I have been able to hone and practice those skills and teamwork in the virtual/cyber realm. I would not trade these lessons and experiences for anything.

In addition to plentiful external co-curricular opportunities, our academic programs have been steadily engaged in the work of embedding experiential learning opportunities within our courses. Experiential learning is a process through which students develop knowledge, values and skills from direct experiences, commonly outside of an academic setting. Experiential learning techniques include case analyses, simulations, internships, research papers, field projects, role playing, reflection exercises, and class debates (Dunlap & Grabinger, 2003; Selwyn, 2015). Research has suggested that experiential learning effectively creates optimal learning opportunities for adult learners because adults have life and work experiences as well as the cognitive ability to reflect, inquire, and develop and implement new ideas (Ash & Clayton, 2004; Kolb, 1984). In recent years, several scholars on education and andragogy have advocated incorporating experiential learning in courses (Ash & Clayton, 2004).

For example, in our Master of Organizational Leadership program and Data Analytics Certificate, students have a chance to work on projects co-developed and maintained with real-world companies. Each partnership was forged through our industry connections and grounded in our rigorous course development process. Our subject matter experts worked closely with our partners to develop company introductions and course projects. Students are asked to sign a waiver that allows us to share their findings with the company, which helps to form a reciprocal relationship. In these same programs, we offer the option for students to complete final projects through Forage, a virtual work experience platform that partners with Fortune 500 companies to offer bite-sized, virtual work experience programs that give students a genuine career advantage. These experiences replicate work at top companies and connect students to the companies themselves, which we believe is an invaluable way for students to culminate their learning in a course.

E-Portfolios and Learning Achievement

Graduate students often request guidance in carrying their learning outside of the classroom when applying for employment or career advancement. One way to provide students with strategies for showcasing their achievements to potential employers is through the use of portfolios, including e-portfolios. E-portfolios are digital repositories of student work. As students traverse their educational journey, these repositories allow them to compile artifacts from their courses, explain the outcomes they have achieved through their work, and save their collection in an organized and transparent, easy to access space. A 2018 study found that employers felt e-portfolios provided an opportunity to “(a) differentiate a candidate, (b) assess potential fit and future within a company, and (c) encapsulate a candidate’s traditional application materials and online media within one website” (Weber, 2018, p.62).

The value of graduate education is the ability to demonstrate that what you learned in your program is applicable to what is needed in the workforce. We use e-portfolios as the tool to help our students take their work product to the next level, to demonstrate their learning to potential employers. As we mentioned earlier, we intentionally call upon industry experts to help guide the projects we are having students complete to ensure that they are what the workforce needs. This process builds pathways that allow for students to stack more easily, engaging in conversations where we seamlessly integrate for a student consumer, expanding our ecosystem of academic and corporate partners, and using portfolios to tie more directly to program and institutional competencies in ways that are credit-bearing. For example, In the Master Public Administration (MPA), Master Healthcare Administration and Master Health Sciences degree programs, students continue to build their e-portfolios throughout their graduate journey. Specific artifacts from each course are identified as evidence of attainment of career skills and essential competencies. Students are required to upload these artifacts, culminating in the Capstone where students submit a finalized e-portfolio to their instructor.

Further, reflection helps students to form important connections between what they are learning and their career goals. Periodically throughout the degree program, students are given an opportunity to reflect upon their e-portfolios to date. In several of these reflections, students have indicated a sense of accomplishment when reviewing their entire portfolio both during and at program completion. In the MPA Capstone, faculty guide students in tailoring their e-portfolios to a specific job posting of interest to them. This activity provides practice in leveraging their e-portfolios for career advancement. Students are also encouraged to continuously update their e-portfolios as they continue their lifelong learning journeys.

CONCLUSION

The increasing demand for a highly skilled workforce is driving an urgent need for new approaches and solutions to upskilling and reskilling that can better support learners in the achievement of high-quality credentials. Despite this demand, higher education has remained relatively slow to respond with flexible and personalized options for students.

In this chapter, we have highlighted some of the innovative approaches and strategies that Excelsior College's School of Graduate Studies has used to create flexible, learner-driven DIY models that not only align with industry needs and demands but are also agile in supporting support students in attaining high-quality learning outcomes as they navigate life, career, skills building, and their higher education journey. This approach provides students with tools and resources to expand their learning opportunities through industry-aligned curricular and co-curricular programs. Importantly, we create multiple on-and-off ramps for our students through stackable credentials. This flexibility has proven to be highly valuable for our adult learners in these volatile times. Students often struggle to complete their educational journeys without at least a brief stop-out. We offer these stop-outs and returns in a seamless, supported way.

Some of the strategies have been done for some time at Excelsior and other higher education institutions, but not in a concerted approach that truly gives students options to make their education work for them as they navigate life and work obligations. Our work illustrates that we can rethink our higher education model. We can adapt what we have long done and add new approaches and strategies to meet students where they are in their lifelong journey. Doing so offers students a faster time to completion, as well as a more effective way to keep their learning current in the ever-changing landscape of the global workforce.

A major focus must always be on continuous improvement. We recognize that we must keep steadily adapting and moving towards active learning and teaching skills that will endure through societal change. We will continue to engage in deep conversations with our students, faculty, and industry partners to pivot. We also will continue to focus on formative assessments to equip students with skills they need to succeed and thrive. As El-Azar (2022) noted: "We need to look at *what* is being taught (curriculum), *how* (pedagogy), *when* and *where* (technology and the real world) and *whom* we are teaching (access and inclusion) (p. 4). This represents an important and useful formula for higher education to use in the pivots that must occur, and one that we are using in our graduate curricula and co-curricular programs in our quest to transform higher education at Excelsior College.

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Chapter 21

Working Inside the Box: How Small Steps Cumulatively Expand Access to Large Public Universities

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ABSTRACT

Societal and financial changes impacting higher education present great opportunities alongside great risks to traditional, large public institutions. While many such colleges and universities have defined goals to enroll more nontraditional students, it can be challenging to undertake large-scale initiatives that require updates to policy, accreditation, and structures. Alternatively, continuous, steady, and incremental improvements undertaken in partnership with willing faculty can accomplish the same goals. Though initially enacted on a smaller scale, demonstrated success can spread across flagship campuses. The authors present seven strategies demonstrating how incremental change at a unit level can create stronger connections and pathways between traditional research institutions and nontraditional students without disrupting the overall university culture. At the aggregate level, the impact of these individual initiatives has spurred thousands of new graduates and numerous opportunities for learners to achieve their goals through higher education.

Societal and financial changes impacting higher education present great opportunities alongside great risks to traditional, large public institutions. To reap these opportunities, institutions must embrace changes that can be challenging and even formidable – no easy task for large public institutions, particularly when they are highly successful. The University of Wisconsin-Madison, home to the authors, has a global reputation of excellence in research, educational outcomes and athletics, but for most of its history has maintained a culture of serving traditional, residential students. UW-Madison is not unlike its peers; however, many state flagship universities find it daunting to pursue policy changes or programs to

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target admissions of adult, online, and returning students. Concerns can range from tuition affordability to adequate student preparation and ability to provide support programming, to the potential impact on national rankings with a changing student body. Faculty, already split between service, research and teaching, must also be willing to connect with students using approaches appropriate to their experience outside of the classroom.

Fortunately, emerging with the lessons learned from remote instruction in 2020-21, coupled with a desire to increase and diversify both the student body and incoming revenue streams, many institutions have made strides to enroll more nontraditional students on these typically traditional campuses. Recognizing that change to long-standing campus culture is necessary to enroll new student populations doesn't make that change easy, however. Although certainly there are large, public institutions—such as Purdue University, Georgia Institute of Technology, and Arizona State University—boldly innovating through the purchase of for-profit institutions, innovative corporate partnership agreements, and/or low-cost online degrees at scale, many systems and universities remain more risk averse or more resource constrained. It is within these institutions—the ones that have yet to fully embrace hybrid and online learning or that lack the resources to pursue at-scale programming—where small changes can open ever-widening windows of opportunity for new learners. This responsibility was captured by the former Chancellor of the University of Wisconsin-Madison Rebecca Blank in her 2018 Paul Offner Lecture at The Urban Institute (Blank, 2018):

We [flagships] have three missions: education, research, and outreach to the state. What we do with those three missions is not just important to our students. It's not just important to the state of Wisconsin. But, I deeply believe that we and other flagships—the work that we do—is important to our country, its long-term success, and its possibilities for economic growth and for addressing inequalities.

The University of Wisconsin-Madison is known globally for its excellence in research, enviable undergraduate time-to-degree, six-year graduation rates, high production of doctoral students, and nationally recognized athletic programs. It is precisely because of this long-respected reputation that institutions like UW-Madison have had a culture focused on traditional students for over 170 years. Investments remain focused on growing the undergraduate residential population since it appears immune to pandemic decline or the future demographic cliff that will impact smaller regional public universities and community colleges. The state legislature continues to provide financial support, but not yet at a rate that supports investments in large-scale online learning or other accessible pathways. And although departments experimenting with online and hybrid programs now enroll thousands of learners, nontraditional students represent just a fraction of the overall student population. Without a potential significant impact on the finances of the institution at-large, there is little incentive to update the structure.

What follows are seven independent ideas and action plans enacted over time at UW-Madison to demonstrate how incremental change starting at a unit level can create stronger connections and pathways between educational programming and nontraditional students without disrupting the overall university culture. Each action was deliberately enacted to impact only those departments and academic units that “bought-in” to the change, thus preserving faculty and departmental priorities and decreasing risk to the overall institution by measuring impact on a linear, versus exponential scale. Despite the slower pace of implementation however, these changes were undertaken in the hope that success would breed success and further adoption across the university. By working within the faculty governance model to build

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coalitions and support, continued growth from department to department has resulted in thousands of new graduates and opportunities for learners to achieve their goals through higher education.

The strategies presented include:

1. Embed continuing education departments more deeply within the credit departmental structure—integrating academic offerings by discipline, rather than credential type.
2. Curate small non-degree learning experiences reusing credit courses for nontraditional students.
3. Co-teach credit courses for both enrolled degree-seeking students and non-credit learners to expand the reach of faculty-led instruction.
4. Build stackable credit-based offerings into academic degrees to reduce barriers to enrollment for working adult students.
5. Expand credit-by-examination beyond the high-school-to-undergraduate pipeline to build a pathway to credit from non-credit programming.
6. Partner with credit programs to provide mutual marketing to shared audiences, demonstrating connections between complementary programming.
7. Concentrate on cost and access to non-degree opportunities for nontraditional students.

The initiatives are detailed in order of cooperative complexity, starting within an individual school, college or division (Strategies 1-2), to a partnership between two units (Strategies 3-4), to policy changes at the institutional level (Strategies 5-7) that can be adopted at the departmental level if desired. Impact on the student experience and faculty is also provided as a guidepost for adoption by other institutions.

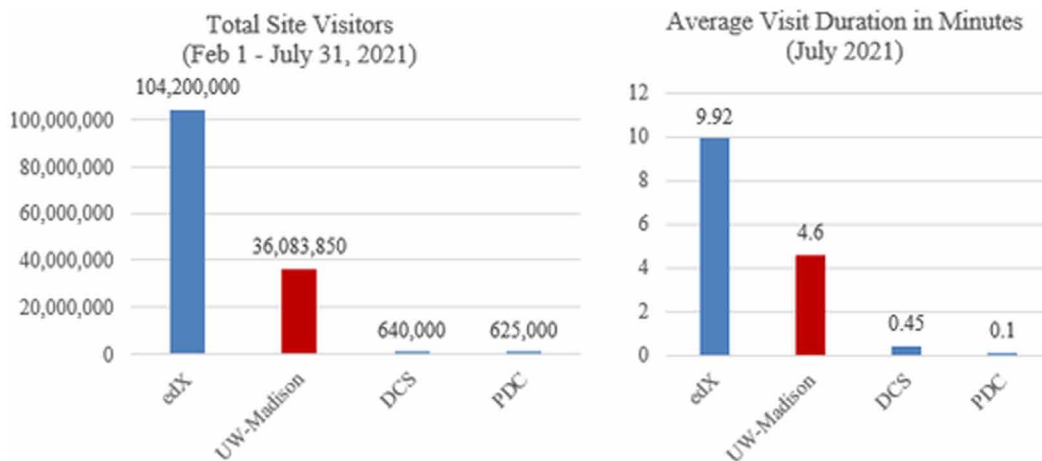
Strategy 1: Embed Continuing Education Departments More Deeply within the Credit Departmental Structure—Integrating Academic Offerings by Discipline, rather than Credential Type

At many large public universities, Continuing and Professional Education is a stand-alone school or college, separated from the faculty in academic departments. Non-credit, continuing education, and workforce development are often used interchangeably to define short-term educational programs delivered outside the traditional credit-based infrastructure. Although most continuing education units offer a wide variety of non-credit professional offerings, some also have degree-granting authority, creating an infrastructure separate from the residential enterprise to serve returning adult and lifelong learners. This is true, in part, at UW-Madison, where the Division of Continuing Studies (DCS) acts as a central hub for servicing non-degree students and online degree seekers, although degrees remain in the academic schools and colleges. DCS is also one of several campus units providing non-credit and continuing professional education, with others situated within schools and colleges including law, pharmacy, medicine and public health, engineering, and education.

This distributed structure often means there is no integration of professional programming within the traditional academic catalog. “Traditional” campus offerings and those designed for “nontraditional” learners reside in different systems, often resulting in a user experience where learners get lost as they attempt to navigate the intricacies of academic structures and departments looking for learning opportunities that meet their needs.

An alternative approach is the integration of platforms such as Coursera and edX, both of which provide “free to degree” options in a single location. These platforms have become the resource people around the world use to search for skills-based, higher-education learning opportunities. They attract high volumes of learners because they offer convenient and efficient alternatives to traditional search engines and social media sites. Although UW-Madison is a globally recognized university, it would require hundreds of millions of dollars in online marketing to move up in its standings in digital marketplaces and in search rankings. The effect of multiple, decentralized websites on search traffic is demonstrated by the number of visitors scattered between destinations as compared to the power of a single, global platform (Figure 1). The length-of-site-visit data further demonstrates the contrast in customer engagement. Each site visitor to the wisc.edu website spends less than half the time per visit as those visiting edX (4:36 minutes vs 9:55 minutes), with even shorter visits to the Division of Continuing Studies (DCS) and its Professional Degrees and Certificates (PDC) site.

Figure 1. 2021 Comparison of website traffic to UW-Madison distributed education websites versus the global destination of edX
 Source: Google Analytics, 2021.



The key takeaway from the above data is this: single destination learning platforms such as edX that offer the full range of learning options for learners have become dominant. Nearly 60% of edX visits are direct—i.e., people type their address directly, and bypass search. So just as most Americans now go to Amazon.com to search for an item to buy and not to Google.com to search the item description, a majority of learners are searching edX.org and coursera.com for reputable and affordable learning opportunities instead of visiting or searching university websites (Table 1). By mirroring this single, combined organizational strategy in university structures, content is better aligned and accessible for lifelong learners.

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Table 1. Search tactics for UW-Madison continuing education websites and edX

Web Traffic Source	edX	DCS	PDC
Direct	58.7%	26.8%	27.4%
Referrals	6.1%	0.9%	30.3%
Search	22.6%	60.0%	41.2%
Social	6.0%	8.5%	0.4%
Mail	4.4%	3.9%	0.7%
Display	2.4%	0.0%	0.0%

Source: SimilarWeb, 2021.

Strategy 1 in Action

In 2020, the UW-Madison Provost John Karl Scholz articulated a vision for continuing education, stating that the role of non-credit education should first and foremost focus on pathways to and from credit-based academic offerings to fully connect the entire UW-Madison experience with lifelong learners (J. K. Scholz, personal communication, 2020). To accomplish this goal, professional and continuing education needed to become more formally connected with the credit-based enterprise.

Research conducted on the structures of continuing education units and their parent institution found that continuing education units that operate as stand-alone profit centers are more loosely coupled to their parent institutions, whereas continuing education units integrated into academic departments within the parent institution are more tightly coupled. Therefore, changes within the parent institution are less likely to result in changes within the continuing education unit if it is a stand-alone department rather than integrated within an academic department (Wenzel, 2011). Rigid silos between continuing education and academic units also inhibit collaboration and cooperation by reinforcing insular agendas, duplication of services, and an inability to adapt (DeSalvio, 2012). In a realignment of continuing education at the University of Massachusetts Boston, early indications after structural change suggested encouraging attitudinal changes toward collaboration and interest from faculty in new program partnerships (DiSalvio, 2012).

Hoping for similar benefits across the UW-Madison campus, many non-credit units, working together with their schools or colleges, began a process of restructuring. Two units in particular, the Division of Continuing Studies and the Department of Engineering Professional Development, convened working groups to develop a new structure centered around increasing high market-demand programs within the credit structure.

Within DCS, the decision was made to merge the existing non-credit unit with the Professional Degrees and Certificates unit into a new, integrated Professional Programs organization. These two units had effectively been siloed since the division began development of online degrees in 2014. PDC was focused on creating new degree programs for adult learners with academic units on campus, and non-credit served a regional audience, often made up of well-educated alumni, with lifelong learning opportunities in areas tied to niche subject matter experts. There was little to no overlap in programming areas, and over time, the units separated to the point of having separate catalogs, marketing campaigns, and websites. If prerequisites for a degree program were needed, the degree team looked outside the university for training solutions, and if market demand in a particular subject grew rapidly, the non-degree unit

continued to expand their offerings but stopped short of connecting them to credit. The structure alone prevented any cross use of materials or development of stackable credentials.

Clearly, this structure is not student centric. An adult professional looking to upskill in human resources and organizational behavior may be interested in a course that can meet their immediate needs—perhaps a certificate for their entry-level employees to grow the organization’s talent or even an online master’s degree to support their own long-term career goals. Regardless of the credential, today’s learners desire to see all educational options in a single location, and there is no differentiation in their minds between credit, non-credit, or other microcredentials. Therefore, combining these separate units into a single Professional Programs team could set in motion the development of a “one-stop shop” for all nontraditional learning options.

Reorganization also occurred within the UW-Madison College of Engineering’s professional development department, once separated by both location and structure from the rest of the engineering campus. In 2021, the department merged into the Dean’s office to better connect into the traditional academic structure. The official change in name from Engineering Professional Development (EPD) to InterPro (Interdisciplinary Professional Programs) further established the unit as a partner to the academic departments in the College of Engineering. New revenue-sharing agreements with departments and faculty were established to incentivize the reuse of credit materials for non-credit training. Finally, the academic ownership of most online degrees was moved out of the professional education department and back into academic units to create a closer link to the disciplinary field. The removal of the department’s academic home was met with faculty reluctance initially, as many faculty had received tenure within the existing structure and the loss of their academic home could impact their research and teaching duties. To accommodate their needs, all faculty were shifted to discipline-based academic departments. This new academic home also meant that priorities for service, teaching and research could be impacted by changing departmental priorities. It is important that these impacts be considered prior to reorganization, as it may disincentivize faculty participation if revenue and faculty incentive models cannot compensate for the shift.

Strategy 2: Curate Small Non-Degree Learning Experiences Reusing Credit Courses for Nontraditional Students

After continuing education units are organized in a structure that creates a shared strategy for credit and non-credit students alike, a logical next step for large, public universities is to select small combinations of credit courses to repackage into programs of interest for nontraditional learners. For example, most traditional, residential undergraduate students would not view six college credits as a major, life-changing investment. Alone, those two classes are less than a semester of full-time coursework, which would not even meet requirements for transferring into a large, public university. A curated program of six credits in the humanities from the Division of Continuing Studies at UW-Madison, however, has indeed proven to be a catalyst for lifelong change.

Strategy 2 in Action

In 2003, the UW Odyssey Project was founded to break down the economic barriers to higher education for adult students who never believed that college could be within their reach. Through a program that offers six college credits for courses in literature, philosophy, and history, students gain skills in criti-

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cal thinking, public speaking, and writing—along with a sense of empowerment and a stronger voice. In addition to engaging classroom instruction, students receive free tuition, textbooks, childcare, and a weekly dinner. Funded through sponsor and donor support, the program also offers financial resources, advising, and a lifelong community network to support students through their academic goals.

The majority of students that participate in the Odyssey project “are from racial and ethnic minority groups (~90%) and [may be] overcoming the obstacles of single parenthood, homelessness, drug and alcohol addiction, incarceration, depression, or domestic abuse” (UW Odyssey Project About n.d.). Therefore, the program delivers on holistic support and best practices for student engagement and retention summarized by Chickering and Gamson (1987), including direct student-to-faculty contact, cooperation between students, active learning, prompt feedback, high expectations, and respect for diverse talents and ways of learning.

Odyssey students report transformative outcomes, and some have even moved from homelessness to bachelor’s and master’s degrees. Students also say that they read more to their children, feel that they are better parents and advocates for their children in school, have more hope about their own futures, and are more likely to vote and become involved in their communities. (UW Odyssey Project About, n.d.)

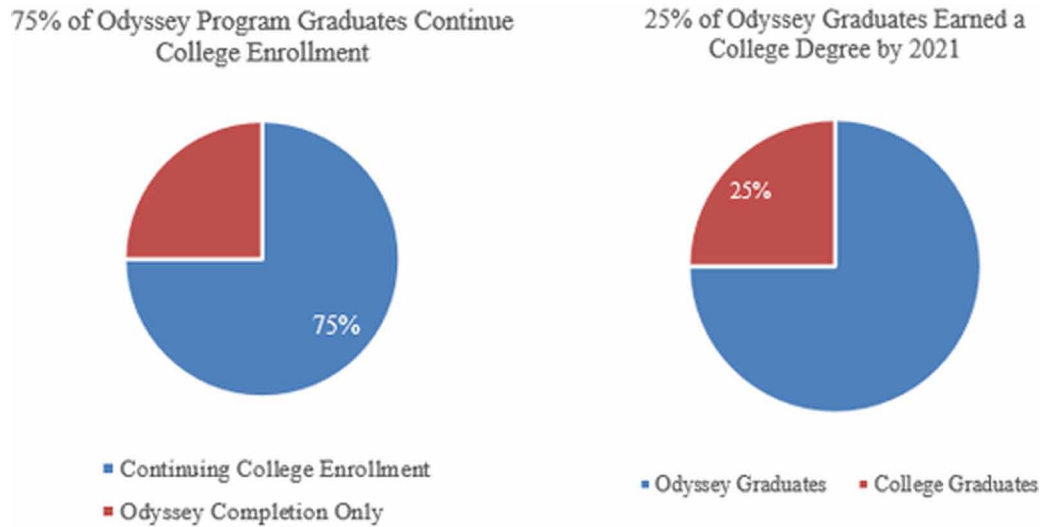
Before Odyssey, many students were made to feel that they were not college material. Odyssey’s team of faculty, staff, and alumni help each new class of 30 students feel that they do belong in college. Program evaluations found that students “formed lasting bonds with classmates and program staff, which created a sense of belonging in the community (UW Odyssey Project Impact, n.d.). Students report feeling more ready for college and career success because of strengthening both their skills and self-confidence. Odyssey also strengthens students’ confidence in education, ensuring a better future for themselves and their family, and providing a greater chance for a rewarding career and good-paying job.

Many Odyssey students also continue their education outside of degree programs, which includes professional certifications, workplace professional development, and programs focused on public speaking, teaching, counseling, nursing, logistics, and web design. Figure 2 shows the astonishing impact of this program on its students. Three-quarters of Odyssey students continue enrolling in college coursework, and to date one-quarter of Odyssey students have earned a college degree or professional/technical certificate. Finally, Odyssey students are achieving greater financial stability since completing the program. As mentioned, some graduates have moved from homelessness to college degrees, and others have gone from incarceration to meaningful work in the community. After Odyssey, the number of students living in poverty was nearly cut in half (87% before to 45% after). Odyssey students’ household incomes have risen \$18,000 on average (adjusted for inflation) (UW Odyssey Project Impact, n.d.).

With the successful outcomes of the original Odyssey project, the model has expanded to include Odyssey Junior for children and grandchildren of Odyssey alumni, and Odyssey Beyond Bars, a college jumpstart program for students incarcerated in Wisconsin state prisons. The jumpstart program combines both non-credit and for-credit courses with wraparound supports that help students succeed long term, including tutoring, academic and financial aid advising, and an alumni support network. Many program alumni use their Odyssey Beyond Bars experience as a first step toward a college degree and as a foundation for success when they leave prison and return to their communities (Odyssey Beyond Bars, n.d.).

Figure 2. Continuing Education Rates of Odyssey Program Graduates

Source: UW-Madison Data



Twenty years after their initial founding, the Odyssey programs maintain strong support from faculty, staff and the community. The program has been a recipient of the Baldwin Wisconsin Idea Endowment, National Endowment for the Humanities, and the Wisconsin State Public Defender’s Eisenberg Award. In 2019 Odyssey set a fundraising record at the Madison Club’s annual Charity Gala, raising more than \$200,000 to provide educational access to adults living at the poverty level and wraparound services to empower them and their families to transform their lives.

Strategy 3: Co-Teach Credit Courses for Both Enrolled Degree-seeking Students and Non-Credit Learners to Expand the Reach of Faculty-Led Instruction

While teaching credit courses for stand-alone, nontraditional populations like UW-Madison’s Odyssey students has measurable positive impact, these programs serve small populations and are difficult to scale. A common method to expand the use of the credit catalog is to offer dual-enrollment options for non-degree seeking students to take credit courses concurrently with degree-seeking students. Most often used for high-school-to-college pathways, these dual enrollment programs offer school district or state subsidized tuition rates for younger students, but when expanded to returning adult students, two disadvantages surface. First, many returning students need specific new knowledge for continuing skills development, but they do not necessarily need college credit. This leads to the second disadvantage: cost. Since access to the courses is dependent on registering as a credit student, tuition is tied to the undergraduate or graduate tuition rate, often much higher than the cost of professional and continuing education.

While it may seem intuitive to simply embed a non-credit offering inside of a credit course, interpretation of FERPA rules and UW-Madison policy restrict combining credit and non-credit students in the same instance of a learning management system as it violates student privacy rights by sharing their protected data (i.e., name, major) with students outside of the traditional credit-student information

Working Inside the Box

structure. Most faculty are also resistant to running parallel sections for two different student populations since it doubles their teaching load. To avoid FERPA violations, the two student types can only be connected if permission from the credit-bearing students to allow sharing of their protected information with nontraditional students is granted prior to course start. One often-used method is to grant permission through a registration requirement, identifying particular sections as open to lifelong learners. By electing to enroll in the identified section, the credit student effectively grants permission to share certain FERPA-protected information. This solution requires a course-by-course implementation, which can be time-consuming depending on the scale of use at an institution.

A different, larger-scale tactic was therefore required for professional master's programs at the UW-Madison. The problem surfaced during the 2019-20 academic year when the Wisconsin School of Business redesigned their Professional Master of Business Administration program with several unique features, most notably the desire for students to learn alongside alumni in selected courses. Integrating alumni into undergraduate and graduate student courses has multiple benefits beyond the opportunity for returning students to continue their professional education. The UW-Madison faculty desired the diversity and depth of ideas the mixed alumni and student courses would bring to their program. For example, in a study following the interactions of alumni with students in an undergraduate chemistry program, students reported increased awareness of career options, with significant increases in awareness of the careers that correspond to those of the alumni. Current students also reported gaining confidence in making their personal and professional goals mesh, and optimism about finding a career that supports these goals. Finally, the networking aspect of the program increased the confidence of historically underrepresented populations with respect to work/life balance (Bowers, 2020).

Strategy 3 in Action

To facilitate joint course sections, program faculty worked together with the University Registrar to ensure each new MBA student receives a legal consent form that will allow non-credit learners to join in their credit courses in conjunction with their program acceptance letter. Upon signature and return to the university, consent documentation is filed with acceptance and documented by the University's Registrar. The benefit to the student is made clear in the consent:

As a student in the Professional MBA program within the Wisconsin School of Business (WSB), I acknowledge that a core component of the program coursework involves the opportunity to interact with WSB alumni enrolled as non-credit learners. I understand that under the Family Educational Rights and Privacy Act (FERPA), my personally identifiable information (ex. name) and course enrollment are considered protected information not generally subject to release without my prior written consent unless otherwise authorized under FERPA. My enrollment in the coursework will result in the release of certain FERPA protected information about me to the WSB non-credit learners through interactions such as discussions, conversations, and being listed on the course roster (Wisconsin School of Business, 2021).

Presenting the information this way helps students understand the value the faculty desire for networking opportunities and potential for future employment with alumni participating in the program.

Strategy 4: Build Stackable Credit-Based Offerings into Academic Degrees to Reduce Barriers to Enrollment for Working Adult Students

Within the state of Wisconsin, over 20% of Wisconsin residents—800,000+ people—have completed some college without earning a degree (US Census Bureau, 2018). Returning to college, particularly if it's been a few years or more, can take a leap of faith. Adult students with family and work responsibilities are justifiably nervous about fitting coursework into already busy lives. The time to complete a degree as a part-time student, often three to four years at the master's level and five to six at the bachelor's level, is also difficult to visualize given the uncertainties adults manage.

Breaking down degree programs into smaller, stackable units can remove one barrier to entry for nontraditional students seeking higher education by providing flexibility to build a degree program around cost-effective, smaller offerings. Unfortunately, research from Teachers College, Columbia University (Bailey and Belfield, 2017), estimates that only three to five percent of college students have true stackable credentials, and that “general vocational awards—earned at any institution and typically not credit-bearing—are often conflated with stackable certificates.”

With so few true options for stacking prior work into degrees, stackable credentials can be confused with the use of prior learning assessment to gain credit for knowledge already possessed, either from an educational program or on-the-job experience. True prior learning assessment requires validation of learning from a variety of assessment approaches, including standardized exams, credit recommendation programs (primarily from military transcripts), and individual portfolio assessment (Baker, Montenegro and Jankowski, 2021). Unfortunately, many large public universities have not yet implemented prior learning assessment beyond standardized testing for undergraduates, given the significant implementation investment if the institution serves tens of thousands of students with thousands of potential courses.

Strategy 4 in Action

The shortest hurdle to creating stackable credentials within a typical flagship university is to build smaller credentials, such as certificates or digital badges, into the credit-based academic structure. If designed in conjunction with maximum transfer credit limitations or credit-for-prior-learning policies for degree programs, even options with as few as one to two credits can be accepted on a path to a degree. They become even more attractive to learners when universities consider making these offerings available outside of the traditional academic calendar, such as a one-credit offering that runs within a four-, six-, or eight-week term, versus a typically longer semester timeframe.

This modularity brings a new type of flexibility to learners and traditional large, public universities through small credit-program on-ramps. These “first step” credit offerings help students find their stride when it comes to balancing online learning with professional and personal commitments. These programs can also be designed to complement a full-time work schedule, by focusing assessments on the application of knowledge to make a digital badge or certificate offering as relevant to the learner and their employer as possible. Shorter, stackable programs also help students maximize their employee tuition benefits. Instead of committing to a large tuition outlay for a semester of coursework, piecing together individual credentials that keep expenses within the yearly tuition reimbursement allocations reduces debt. (This is possible when the credentials are all in pursuit of a degree, as many tuition reimbursement rules do not include non-credit options.)

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In the wake of the COVID-19 pandemic, digital badges and other short-form credentials offerings expanded rapidly because such courses can be completed relatively quickly, and they provide students tangible records of assessed skills that can assist in job transitions. Although many university leaders remain skeptical that microcredentials can take the place of degrees in the labor market, a 2021 report from the Wellspring Initiative on Digital Credentials and Competency Frameworks (1EdTech Foundation, 2021) found that “34% of HR leaders indicated that their organization is operating with a skills-based hiring strategy that focuses more on competency in hiring rather than over-relying on college degrees: this is an increase from 23% in a similar survey question three years ago.”

To respond to this interest in new credentials from prospective students and employers, the Wisconsin School of Business Professional MBA program included badge opportunities for both degree-seeking credit students and non-credit lifelong learners. In this new model, the degree-seeking students would complete required core MBA courses in the first program year and personalize their degree in year two by selecting courses associated with up to four digital badges, each consisting of three two-credit-course elective groups. These digital badges would also be available as stand-alone non-credit credentials for alumni. The program launched in Fall 2021 with eight digital badge options (business analytics, strategic innovation, marketing, financial management, entrepreneurship, business social responsibility, international business, and supply chain strategy), but the modular platform can provide future customizations for different target audiences or corporate partners. By structuring the program around modules that can be easily removed, re-sequenced, and added, the program allows for reasonable customization while maintaining overall scale. The objective is to provide sufficient, manageable flexibility. A conjoint analysis found that this curricular design, along with hybrid delivery, would maximize utility in the eyes of potential applicants when compared to other models.

Interest from faculty in microcredentials was instrumental in the design process. When determining the initial digital badge offerings, the faculty desired to a) appeal to the diverse audience in the professional program, b) offer a set of badges that provides options in traditional functional areas along with cross-functional skills needed in modern business environments, c) allow for badges that developed a specific skill set, competency, or business identity that would have signaling value in the market, and d) build on the strengths and established curriculum where possible. For example, a proposed badge in “Data Storytelling” would be designed for someone who can effectively use data to drive business decisions. The focus is on “descriptive analytics” (as opposed to prediction, algorithm building, and optimization) and the fundamentals of communicating with data. Students learn skills for making data-driven decisions, including database management, data visualization and communication, and distinguishing correlation from causation (Wisconsin School of Business, 2020).

As a final step to move this new curricular design forward and incentivize more degree programs to create connections with non-credit learners using their credit courses, the University drafted a formal digital badge policy, proposal guidelines, and process for issuing badges, to be approved by the university’s academic planning committee. With the desire to maintain flexibility for badges, the campus definition of a badge is a validated digital record of demonstrated competency over and above participation. The record contains detailed metadata about achievements such as who earned it, who issued it, the criteria required to earn it, and as possible the evidence and assessment of the relevant skills. Once issued, badges are learner-controlled, verifiable, shareable, discoverable, and interoperable. While for-credit courses may be used to fulfill digital badge requirements, a badge completion is not recorded on the university transcript. Digital badges are a non-credit credential that fills the gap between traditional

academic transcripts and résumés for learning in a defined area or discipline, recognition for things learned on-the-job, or mastery of industry-specific training or products (Young, 2021).

The authors of this definition and policy draft understood that although the technology and tools to create and issue digital badges can also maintain digital archives for participation in camps, workshops, or conferences, such digital records are considered digital participation awards and should be outside the scope of policy governing the official UW-Madison badge and its associated imagery. The policy would also apply to any unit issuing a digital badge for a learning experience from UW-Madison, independent of whether the learning was conducted in a non-credit or credit-based offering or experience. Regardless of where the learning takes place, the draft policy also limits the ability to earn a digital badge through assessment only; they must be offered in conjunction with a formal or informal learning experience from a campus unit. Credit-based offerings can be courses or groups of courses, while non-credit options may include a continuing education offering, employee professional development program, seminar, workshop, or other event that involves a learning experience and assessment activity. Any campus unit would therefore be open to create badges since there is no limitation to academic units.

Faculty outside of the Wisconsin School of Business that reviewed the draft digital badge policy expressed mixed levels of support. In certain disciplines where digital credentialing has widespread familiarity with employers in the hiring process, faculty were open to the concept and more likely to engage positively. In other disciplinary areas, digital credentials were perceived as having a negative impact on the value of the college degree. Support from academic leadership, including the Provost, was essential to approving a final policy that defined a narrow scope for digital badge implementation, opt-in participation, and no plan for inclusion of badge awards on the college transcript.

An alternative approach to the more controversial digital badge option is the use of credit-based certificates approved within the academic structure as a stackable start to a degree program. At UW-Madison, graduate-level certificates are available to both degree-seeking and non-degree seeking students as a credential for at least nine credits of graduate work. Instead of leaving the university with nine credits on a transcript and no credential, the student earns a verifiable academic credential with courses and learning objectives relevant to their career aspirations. For example, nine credits of graduate coursework toward a Master of Science in Computer Science degree would be an achievement to be sure, but those same nine credits awarded as a graduate certificate in specific programming languages, analysis tools, or specialization areas such as artificial intelligence, cybersecurity techniques, or machine learning tools would have far greater currency in the marketplace for the same coursework. For continuing education students, this approach can have a more immediate impact on supervisors and colleagues when smaller credentials match career and personal goals.

Student demand for this approach has led to the development of at least one stackable graduate certificate for most online graduate degrees at the UW-Madison. The use of graduate for-credit certificates, which appear as a UW-Madison credential on a transcript, has high levels of faculty buy-in (as opposed to varying levels of digital badge reluctance detailed earlier). Feedback from students is also strong. Testimonials from certificate programs share that students are most often looking to advance their careers through education, but need programs that are flexible, practical, and fit into a full-time employment schedule (Schaefer, 2021). A program such as the UW-Madison User Experience Design Capstone Certificate, which can be used later as credits toward a UW-Madison's Master of Science in Information, meets those criteria. UW-Madison defines a capstone certificate in its academic structure as a post-baccalaureate credential designed for non-degree-seeking students with at least nine graduate-level courses, meant to "cap off" undergraduate degrees with focused, professionally oriented education

(University of Wisconsin-Madison Policy Library, 2021). Graduates report that the ability to accept credits from this type of certificate program to a master's program reduces barriers to advanced education.

Strategy 5: Expand Credit-by-Examination Beyond the High-School-to-Undergraduate Pipeline to Build a Pathway to Credit From Non-Credit Programming

As discussed above, stackable credentials based on a university's credit offerings are low-barrier pathways to starting a degree, but many nontraditional students come to higher education with a desire to first learn knowledge, skills, and competencies through experiences in high-quality non-credit continuing education. Although many large, public universities do not yet grant credit for non-credit programming through prior learning assessment, most have policies outlining the use of credit by examination to award credit for high school learning in disciplines including mathematics and language. Credit by examination is therefore a well-understood method for faculty to determine a student's mastery of material equivalent to what would be learned in a specific credit course, and it could be used as an alternative pathway to undergraduate or graduate credit with intentionally designed non-credit offerings in continuing and professional education.

Offering more students the opportunity to earn credit by examination at any education level has several benefits for both students and the university. Non-credit learning is a lower-cost, lower-risk option for learning the skills and knowledge needed for course or degree prerequisites. Non-credit learning experiences can also serve as recruiting tools for successfully bringing more adult learners into degree programs. This was the outcome from a large-scale US Department of Labor funded initiative started in 2013 by the Northeast Resiliency Consortium (NRC). The NRC network of seven community colleges developed deliberate, guided pathways to incorporate continuing education and workforce development programs into degrees, including an option for matriculated degree-seeking students to earn credit from previous non-credit pathway offerings through a challenge examination. The NRC initiative (Price and Seldak, 2018) found that 71% of their continuing education participants in matriculation pathways like this earned credits toward a degree, an amount almost three times higher than other approaches attempted, including internal and external prior learning assessment methods. This is considerably higher than prior research by D'Amico, et al. (2017) that found only 7.2% of non-credit learners transitioned into credit courses within six years of pursuing continuing education.

For universities that want to implement and sustain continuing-education-to-credit pathways, the NRC evidence also suggests continuing education programming should reflect existing learning outcomes and competencies taught in credit-based programs. By ensuring that continuing education programs teach the same competencies as credit-programs—albeit in different formats and on different timelines—faculty are more likely to accept and approve continuing-education-to-credit pathways. If possible, engaging with those credit faculty to create the curriculum and competencies for continuing education programs can also reduce resistance to policy and practice changes that award credit for students who compete continuing education courses and programs, and who later enroll in credit-based programs (Price and Seldak, 2018).

Strategy 5 in Action

At UW-Madison, each department determines which courses, if any, they make eligible for credit by examination. This departmental level of control is essential given the number of students and course offerings, and their ownership of the process influenced their willingness to approve policy changes during this development. However, if the organizational structure of a department does not include both credit and non-credit offerings, a partnership between the academic unit and the continuing education unit is essential, with learning objective alignment between offerings as described previously. Options for non-credit to credit assessment at UW-Madison may include:

- Written or oral examination
- Performance evaluation (practical exam)
- Examination of completed work and/or records presented and defended by the student
- Other methods consistent with evaluation of student learning in the corresponding regular course (University of Wisconsin-Madison Academic Planning and Institutional Research, 2021)

In addition to community college consortia like the NRC, another adopter of credit-by-examination pathways is within highly technical, accredited or licensure-related non-credit bootcamps and certificate offerings. These offerings typically require time commitments and assessments that are equivalent to credit courses governed by the federal credit-hour standards. For example, students that study specific coding languages in a non-credit bootcamp may decide later in their career to apply for a degree. By designing the coding courses with similar learning objectives to campus courses, students may have a clearer opportunity to obtain credit for their prior non-credit and subsequent work experience in the subject matter.

An example of the licensure-related pathway to credit from the education discipline is the consideration by the UW-Madison's Department of Educational Leadership and Policy Analysis to accept prior credit from students that have completed the UW-Madison's Division of Continuing Studies Accredited Coach Training Program (ACTP) available through the International Coach Federation (ICF). The ten-month non-credit coaching program provides "all inclusive" coaching training for individuals seeking ICF credentials, including rigorous required classroom and coursework hours, mentor coaching, and a performance evaluation process provided by ICF-certified coaches. The program's broad, competency-based curriculum draws from the research in and about reflective inquiry, diversity and inclusion, emotional intelligence, cultural competence, evidence-based coaching, positive psychology, mindfulness, and neuroscience (UW-Madison Division of Continuing Studies, n.d.).

Graduates of the program are highly successful and go on to use their coaching skills and knowledge to create and advance coaching cultures within organizations, establish private coaching practices, spearhead coaching-based service projects, and add professional coaching to therapeutic or clinical counseling settings. Several students, however, choose to continue their education in the Master of Science in Educational Leadership and Policy Analysis program for Professional Educators (MSPE). The MSPE curriculum not only provides the knowledge to earn a master's degree and valuable skills to advance in educational careers but also includes an Instructional Coaching Certificate upon graduation. Within a successful school or district, the use of a coaching model can create a powerful professional learning community committed to student success and puts educators in the best position to improve student learning (UW-Madison Department of Educational Psychology, n.d.).

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Given the interest of alumni in the non-credit Professional Coaching program to continue in credit studies, departmental partners reviewed curriculum, learning objectives, and assessments of learning in each credit course of the MSPE program. It soon became clear that the department's practicum course fit in seamlessly with the ICF course requirements and could provide a path for the certified ICF coaches to be assessed of this knowledge through credit by examination. Successful matriculated students can therefore reduce the number of total credits required for the master's, making it a more affordable option for future learners.

Strategy 6: Partner with Credit Programs to Provide Mutual Marketing to Shared Audiences, Demonstrating Connections Between Complementary Programming

Traditional and continuing education programs can also connect to departments in far less-structured ways than credit by examination or stackable credentialing. One of the easiest partnership opportunities for degree programs and continuing education units to consider is mutual marketing and promotion of complementary programming. The acquisition costs for new students in any university program include marketing, recruiting, and nurturing through each stage of the conversion funnel. At most large, public universities, departments with professional master's and doctoral programs and continuing education units have budgets for these functions, but at nowhere near the rates spent by the leading online and for-profit institutions such as Southern New Hampshire University's 2018 marketing budget of \$139 million dollars (McKenzie, 2019). With small budgets that must maximize every dollar, collaborating on shared marketing campaigns rather than keeping promotions siloed by credential, presents an opportunity to reach a greater number of learners and offer them multiple options to gain the training they desire.

As detailed earlier, consolidation of 'free-to-degree' offerings in a single, searchable site benefits potential learners by displaying all the pathways and options available across a university's portfolio. State workforce development websites are also consolidating program offerings from multiple institutions to create portals for information and funding for adult students. The state of Texas, for example, designed a single site that shares offerings from higher education, workforce development organizations, and adult learning organizations to direct students between resources (Texas Higher Education Coordinating Board, 2016). When this structure does not exist, however, continuing education units can seek out partnerships to bridge the credit to non-credit divide in specific subject areas, offering academic departments the chance to multiply their outreach by pooling funding to audiences of similar interests.

Strategy 6 in Action

An example of mutual marketing across departments was structured in 2021 between the Distance Teaching and Learning (DT&L) unit within the UW-Madison's Division of Continuing Studies and the Department of Educational Psychology in the School of Education. The DT&L programs included a major annual Distance Teaching and Learning Conference, with attendance from over 800 faculty and instructional design professionals. The unit also offered several professional certificates in Online Education (PCOE), Online Program Administration, and the Fundamentals of Online Teaching—each held several times per year to enhance knowledge, skills, and credibility in online instruction. The PCOE program in particular consists of 70 hours of learning across ten modules, covering the contextual factors of online education, essential teaching and learning principles for online environments, effects of technology

on education at a distance, writing learning objectives, creating online activities, and designing online assessments. The certificate culminates in a Learning Module template in which students demonstrate skills in planning online learning and making sound instructional design decisions (UW-Madison Division of Continuing Studies, n.d.).

While this certificate provides a solid foundation of online preparedness, teaching and learning in a digital world has expanded the use of learning analytics as a tool to improve learning. As this new discipline has emerged, the Department of Educational Psychology developed and launched a 24-month online Educational Psychology Master of Science program focused on Learning Analytics (LAMP). The LAMP program empowers graduates to impact teaching, learning, and policy by breaking down ‘big data’ into dynamic analyses that will help guide decisions and improvements in education. A focus on both quantitative and qualitative courses provides balance and trains students to think critically about educational data science, make calculated analyses, and have meaningful conversations. Students examine the theoretical perspectives on learning, cognition, and ethical decision-making, as well as practice applying and adapting analytic methodologies and tools, and communicating analysis results with stakeholders (UW-Madison Department of Educational Psychology, n.d.).

Given the potential overlap in the market for prospective students for these offerings, the two programs understood that partnered marketing opportunities could support enrollment growth as a whole. For example, during the non-credit DT&L training course, the instructors included promotional materials for LAMP as appropriate, including slides and images containing information on the LAMP degree, links to the master’s program information, instructions for joining a Community of Practice on Learning Analytics, and a demonstration of a sample online master’s course module. DT&L also provided an additional live session for interested students regarding learning analytics as they relate to instructional design during the non-credit course.

In return, the LAMP program faculty analyzed the non-credit certificate curriculum against its course-level learning outcomes to understand options for using a departmental examination to provide credit for prior learning to graduates of the DT&L certificate. The mapping resulted in multiple shared learning outcomes in a particular variable-credit course, from writing learning objectives, creating rubrics, and designing a course module. The department may offer graduates of the certificate that pass the departmental examination one credit for the course, providing significant savings toward the overall cost of the degree.

Strategy 7: Concentrate on Cost and Access to Non-Degree Opportunities for Nontraditional Students

While many of the strategies presented above create new programs to pull new and nontraditional audiences closer to the credit enterprise at large, public universities, a final strategy to consider is to simply concentrate on small measures that ease the cost and access barriers for many returning, adult students who have well-documented difficulty with the traditional campus model.

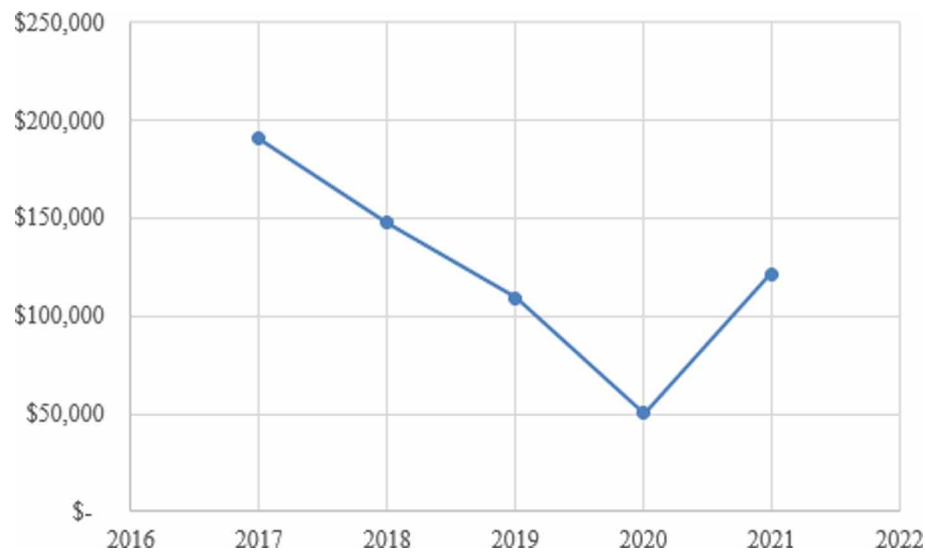
For example, the literature on online learning identifies that students with work and family commitments are driven to online learning for the greater flexibility and convenience it offers (Xu and Xu, 2018). One of COVID-19’s lasting impacts on traditional higher education is the online teaching experience gained by faculty that had previously resisted distance programming. During academic year 2021, when a high percentage of the UW-Madison course catalog was available online, there was an unexpected increase in enrollment from non-degree seeking students that suddenly had access to a wider range of

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credit courses than ever previously available remotely. In the past, most course offerings were predictably on-campus only, limiting a large population of nonresidential students from enrolling. In the five years prior to the pandemic, nonresidential tuition revenue and enrollment declined steadily as nontraditional students increasingly found more cost-effective online courses, or took fewer credits (Figure 3).

Figure 3. Nonresident, Non-degree student annual tuition revenue generated from course enrollments (non-degree program revenue excluded)

Source: UW-Madison Data



Continuing education students now have access to courses and alternative credentials online at every price point. However, feedback received by enrollment coaches at UW-Madison report that while many nonresidential students are interested in individual credit courses, high nonresident tuition costs remain a barrier, especially as financial aid, scholarships, and other forms of employer support are rarely available to non-degree seekers.

There are many examples of students that would take advantage of greater university access at a more competitive price point. One such student group is visiting university students that participate in unique credit programs, such as summer language institutes and disciplinary research experiences. These students often desire to continue instruction throughout the academic year after the summer program is complete and they have returned to their home institution. However, most pricing and aid available for the specialized program is lost when the traditional term begins.

High school students are also often interested in taking an online college courses to supplement their K-12 instruction, and many large, public universities support robust, early college credit programs for the resident students of their state. Nonresident students, however, often must pay rates that are three to four times higher, severely limiting their willingness to enroll. This means universities miss an important opportunity to create a relationship with highly motivated potential new undergraduate applicants.

Most important, the availability of online competitively priced courses can also be a marketing and recruitment tool for online degree programs for working, adult students. One way to improve yield is

to allow students to enroll in an online course while they remain unready to apply for a program. The ability to take a single course at a competitive rate to determine if they can manage the time commitment for a degree program may convince them to eventually apply. If the cost of that trial course is too high, students like this are likely permanently lost from the recruiting pipeline, unlikely to return. The investment by the university to allow these students into courses at a competitive rate can be viewed as a high value recruiting strategy, in line with other continued engagement strategies that often run in the thousands of dollars per student acquisition in high-demand online undergraduate and graduate programs.

Finally, students looking at online degree programs may be missing a course required as an admissions prerequisite. Instead of losing them to a competing university that charges far less tuition for an online nonresident student, a more competitive rate keeps the student within the university system from application through degree.

Unfortunately, large, public universities are often constrained by tuition policies that determine tuition rates and provide little flexibility to respond quickly to market pressures. Alternatively, however, UW-Madison can address tuition for non-degree seekers through UW System policies that grant the institution authority to set competitive market-based tuition rates for programs or courses that target nontraditional students.

Strategy 7 in Action

In 2021 the university pursued a new tuition classification for nontraditional students studying in online-only individual courses. The new tuition tier would set a market competitive per credit rate, regardless of residency, with no fees for campus-based services the remote student would never access. This new tuition rate is projected to attract new learners, primarily from out-of-state, that previously have not had access to university courses due to the lack of an online modality and/or the high cost per credit for nonresidential tuition. The selected rate also minimizes impact on residential students and competes with peer pricing.

Faculty and departmental finance administrators were initially hesitant to support this change. Therefore, to determine if such a policy would have a negative impact on departmental enrollments, prior to proposing this rate the university audited all enrollments from non-degree seeking students over a five-year period. The data showed just how few nonresidential, non-degree seeking students actually enrolled at the university to begin with. Of the total non-degree seeking population, just 3.6% were from out of state. Of this slim percent, just 5% studied fully online (0.2% of the total current special student population). The data suggest that with a more competitive rate, the university can be optimistic that enrollment growth will rise within this targeted population.

The university next looked at the impact earlier tuition rate changes had when a small number of online graduate certificate programs moved from the standard public in-state/out-of-state tuition rate to a competitive online per-credit rate with residential tuition parity. In the five years since the new rates were established, nonresident enrollment doubled (25% growth per year pre-pandemic). Nonresidential students now represent over 50% of the total enrollments in this select number of online graduate certificates (Table 2), a remarkable growth potential if projected onto the 3.6% of the population of non-degree seekers overall.

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Table 2. Online nonresidential enrollment in select graduate certificates that implemented per-credit tuition rates

Fiscal Year	Nonresident Enrollment	Total Student Enrollment	% Nonresident Students
2016	44	128	34.4%
2017	60	133	45.1%
2018	70	152	46.1%
2019	86	162	53.1%
2020	92	180	51.1%

Source: UW-Madison Data

With the fear of negative impacts diminished for faculty, moving forward with a new online-only tuition rate for this targeted student population was proposed. It is predicted to not only increase enrollments for non-degree seekers by reducing access and cost but also create positive enrollments as a recruiting tool for online degree programs in the future.

CONCLUSION

The University of Wisconsin-Madison's Strategic Framework 2020-2025 commits the institution to inclusivity in the broadest sense. As a leading flagship university guided by the Wisconsin Idea (the principle that a university's work should improve people's lives beyond the boundaries of campus), the University is challenged to partner with the community and state to extend and apply research, education, and knowledge that fosters learning, innovation, and prosperity to the borders of the state and beyond (UW-Madison Strategic Framework, 2020). It is no longer enough to be satisfied solely serving traditional students and those from new audiences that conform to traditional models. Large public universities focused on research and undergraduate residential experience must continuously evolve to provide access in all its forms to students across the spectrum of lifelong learning. By continuing to update policies, pilot new programs, and develop new partnerships, these traditional leaders can grow into a new model flagship for a global, connected world.

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KEY TERMS AND DEFINITIONS

DCS: Division of Continuing Studies.

Digital Badge: A validated digital record of demonstrated competency over and above participation. The record contains detailed metadata about achievements such as who earned it, who issued it, the criteria required to earn it, and as possible the evidence and assessment of the relevant skills.

Microcredentials: A verifiable credential earned after successful completion of requirements that are less than those of a degree or academic certificate, generally focused on a mastery of an individual skill or set of skills.

PDC: Professional degrees and certificates.

Prior Learning Assessment (PLA): Validation of learning from a variety of assessment approaches, including standardized exams, credit recommendation programs (primarily from military transcripts), and individual portfolio assessment.

Chapter 22

A Model for Lifelong Learning: Reframing Institutional Policy, Process, and Partnerships

Amrit Raj Ahluwalia

The EvoLLLution: A Modern Campus Illumination, Canada

ABSTRACT

The higher education industry is in a state of significant transformation. The learners institutions serve are evolving, demanding new kinds of offerings and credentials that drive direct and clear outcomes. Unfortunately, the policies, processes, and partnerships that structure modern higher education institutions are still designed for a traditional model that no longer serves most prospective learners. This chapter—authored by The EvoLLLution’s Editor-in-Chief—will highlight insights from higher education leaders across North America to frame a new model for higher education, designed to serve a next normal defined by lifelong learning. It will highlight opportunities for growth, identify challenges with the status quo, and provide suggestions for higher education leaders looking to form partnerships to explore these new options.

OUR ENROLLMENT GROWTH PLAYBOOK ISN’T WORKING

As an industry, higher education has historically been able to weather—and even benefit from—significant societal changes.

Since launching *The EvoLLLution* in 2012, it’s been my privilege to collaborate with thousands of higher education leaders from across North America and around the world, sharing their insights on where the industry is and where it’s going. This topic in particular—how to adapt to the shifting business realities of the higher education market—has captured the imagination of our contributors, subscribers, and readers for a decade. I’ll be leaning on these insights through this chapter.

Recessions have traditionally driven growth for colleges and universities, and the logic is sound. When people lose their jobs, they need access to relevant learning to help them upskill or reskill to re-enter the labor market into a less vulnerable role. Historically, for every percentage point increase in

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unemployment, universities have enjoyed a 1.9% increase in enrollment (Barbu, 2015) and community college have seen full-time enrollment increase 2.5% (Johnson, 2015).

This logic held during the Great Recession (2007-2009). Enrollment in degree programming jumped by nearly 2.5 million learners—16 percent!—between 2007 to 2010 (Barshay, 2021). It was such a successful period for colleges and universities that the enrollment increases offset almost entirely the massive funding cuts imposed on public postsecondary institutions. In fact, tuition and fees grew significantly between 2007-2012—27% at universities and 24% at community colleges. In the states that suffered the most significant cuts to their funding, prices increased by as much as 30-40% (Long, 2014)!

The focus of postsecondary institutions also changed during the last recession. Recognizing the opportunity to attract and engage out-of-state and international students—who pay higher fees than their local counterparts—colleges and universities cast a wider net... to great effect. International enrollments grew 112% between 2007-2012 at public research universities specifically, and 30% across the board. (Fischer, 2019) This accounted for a 17% increase in tuition revenue generated industry-wide, and at some institutions international tuition accounted for as much as 40% of their revenue mix (Fischer, 2019).

All this is to say that higher education institutions have generally thrived in challenging times. But in the most recent recession—created by the global COVID-19 pandemic and the resulting stay-at-home orders—the fates weren't aligned with the historical performance of the postsecondary industry. Unemployment rates during the early stages of the pandemic (between March and May 2020) were staggering. Over 30 million Americans—more than 15% of the entire US population!—filed for unemployment in the six weeks following the federal state of emergency declaration (Cox, 2020). For context, through the entirety of the Great Recession, 8.7 million Americans filed for unemployment.

Theoretically, this should have been a massive boon for the higher education industry—but that's not how the recession played out. Between Fall 2019 and Fall 2021, enrollment has declined 5.1% (National Student Clearinghouse, 2021). The trend has continued through Spring 2022. There are 1.4 million fewer undergraduate students enrolled than there were at the start of the pandemic—an overall decline of 9.4% (National Student Clearinghouse, 2022).

The fact is that higher education's enrollment growth playbook isn't working, and that's partially because the nature of the marketplace—and the demographics of the learners themselves—are evolving.

First, the results higher education institutions are delivering to degree holders have been lackluster at best. Even though most students enrolling in postsecondary programming do so to improve their career prospects, 43% of college graduates are underemployed in their first jobs (Burning Glass Technologies, 2018).

Second, many of the students who enroll never actually earn a credential. According to the Lumina Foundation's Stronger Nation report, 13.3% of Americans aged 25-34 have some college education but no credential—neither a degree nor a high-quality non-degree certificate or certification (Lumina Foundation, 2021). In total, 39 million people have some college education under their belt but no credential (Seltzer, 2022).

Third, the average student loan debt is sitting at over \$30,000 per learner (Kerr & Wood, 2021). Meanwhile, more than half the graduates from over 2,000 American colleges and universities earn less than \$28,000 a year six years after graduation (Itzkowitz, 2019)!

And finally, learners don't necessarily recognize the connectivity between their postsecondary programming and their career paths. Specifically, only 25% of university students and 47% of community college students felt their institution does a good job at forging those connections (Strada Center for Education Consumer Insights, 2021).

This is all combining to shake public confidence in higher education. Combined with a demographic cliff the prospects aren't promising. And it's critical not to overlook demographic information when trying to decipher recent enrollment trends in the higher education space. We've been approaching an enrollment cliff for decades, and the rubber is finally hitting the road. In most states, the birth rate is declining and immigration rates are not growing fast enough to offset the population decline. By 2025, there will be 15% fewer high school graduates than there were in 2007 (Kline, 2019). What's more, the COVID recession inspired a second decline in the birth rate, which means traditional-age college student numbers will continue to fall through the coming decades (Schroeder, 2021).

As a result, it's critical for modern colleges and universities to be more responsive to the needs and expectations of adult learners. And it starts with understanding their perceptions.

To start, adult confidence in the value of higher education fell between 2019 and 2020. Only 59% of adults felt postsecondary education was worth the cost, and only 64% of adults felt enrolling would lead to a good job (Strada Center for Education Consumer Insights, 2020). What's more, there's a disconnect between the programming higher education institutions tend to focus time and energy on, and the programming adults are looking for. Two in three adults indicated that they prefer non-degree pathways to more traditional degree programs when considering enrolling in education (Strada Center for Education Consumer Insights, 2020).

What's more, much like their traditional counterparts, adults don't necessarily see clear connectivity between postsecondary programming and career outcomes. Fewer than one in every three adults without a degree said they have a confident understanding of available career pathways, valuable skills or details about potential education programs (Strada Center for Education Consumer Insights, 2020).

For accredited higher education institutions whose value proposition has historically been tied to societal demand for—and confidence in—the degree, this all combines to pose a significant threat. And frankly, it helps to explain why enrollment has fallen so significantly through the recession. But it doesn't tell the whole story.

The fact is that in periods of massive unemployment, people will always look for new learning opportunities. A Canadian government study found that recently-laid-off workers are 2-4% more likely to enroll in postsecondary programming (Morissette et al., 2016). What's more, workers themselves recognize the value of continuing their education. Before the recession, in 2019, 77% of workers said they would be willing to upskill to maintain their employability (HR Connection Blog, 2021).

The second difference between the Great Recession and today is that the competitive landscape for postsecondary programming has become fierce. Learners found alternatives to traditional postsecondary institutions in bootcamps, MOOCs and other forms of learning that promise clear outcomes and lower costs. Coursera's profits grew a massive 70% between the first quarter of 2020 and the first quarter of 2021 (BusinessWire, 2021). Coding bootcamp enrollments between 2019 and 2020 grew 30 percent, and their revenues also climbed industry-wide by 12.6% (Gallagher, 2021).

It's clear that the traditional postsecondary model is not serving learners, communities, employers—even institutions themselves. A foundationally new postsecondary ecosystem demands a foundationally new approach to organizing programming and structuring the institution.

THE 60 YEAR CURRICULUM: FULFILLING THE PROMISE OF HIGHER EDUCATION IN THE 21ST CENTURY

The 60 Year Curriculum (60YC) model has gained in popularity since 2018 to conceptualize a conscious institutional approach to serving learners for a lifetime. Right now, for an individual to be a lifelong learner, they and their parents are responsible for navigating the complexity of the institutional environment alone. And their information or records of their past engagement with the institution are unlikely to follow them.

As it stands, serving learners over their lifetime is far from a priority for the average postsecondary institution, and no aspect of the institutional model—in terms of policy, process or system—is designed to serve this audience. However, in order to reverse the trends shaping a murky future for the postsecondary space, finding ways to serve new audiences in engaging ways might be the best pathway to sustainable success and lasting relevance.

As Jeffrey Russell (2019), dean of continuing studies and vice provost for lifelong learning at the University of Wisconsin-Madison, puts it:

To accommodate longer lives, we'll need to develop academic programs that stretch from childhood into old age. This will require creativity in how we deliver courses, with an emphasis on flexibility and personalization. It will also require creativity in how we provide credentials, from degrees to certificates to digital badges.

In other words, we must thoroughly understand this new generation of lifelong learners. We'll have to reinvent ourselves to offer them meaning and relevance in their educational journeys, and connect with their passions over the course of their lives.

Meeting these challenges will undoubtedly test leaders in higher education. They'll need a clear vision of the future—no easy task in this time of rapid change. And just as important, they'll need strategies for putting a vision into practice, and inspire conventional organizations to think in unconventional ways (Russell, 2019).

Shifting to a 60YC Repositions the Institution as a Lifelong Learning Partner

The shift to a 60YC model requires a foundational rethink of the limited role postsecondary institutions currently play. Historically, higher education specifically and the education industry more broadly has focused on the start of an individual's life—how to provide the foundational knowledge and skills someone might need to start a successful career. Any additional upskilling or reskilling has been positioned as an afterthought—a nice-to-have.

Adjusting to this new model is explained thusly by Chris Dede (2021), professor of learning technologies at Harvard University's Graduate School of Education and co-editor of "The 60-Year Curriculum: New Models for Lifelong Learning in the Digital Economy":

Education's role must be long-term capacity building—enhancing students' interpersonal and intrapersonal skills for a lifetime of flexible adaptation and creative innovation—as well as short-term preparation so that they are college- or career-ready. Education must also advance two other goals beyond

preparation for work: to prepare students to think deeply in an informed way, and to prepare them to be thoughtful citizens and decent human beings. Big Data, social media, and technological developments are revolutionizing how we think, how we learn, and how we communicate—reshaping all three of these educational goals. [...]

The 60YC initiative centers on the least understood aspect of this challenge: What are the organizational and societal mechanisms by which people can reskill later in their lives, when they do not have the time or resources for a full-time academic experience that results in a degree or certificate.

As Hunt Lambert (2019), dean emeritus of continuing education and Extension at Harvard University, puts it:

Higher education was built around the concept of disciplinary education to undergraduates, master's and PhD students who are headed into a three-phase life: Childhood and education the first 18 to 25 years; then work for ages 18 to 65; then retirement for about 10 years. The model is a near-perfect fit for a growing industrial economy that needs about 20% college graduates.

Since the emergence of the global economy, rapidly evolving knowledge work and much longer lives in the West, it is clear people will live 4-, 5-, 6-, and even 7-stage lives. Higher education needs to evolve to serve the learner from before they arrive in college through after they retire to help citizens be great professional, civic and social contributors. We tell our children they need to be lifelong learners, but so far higher education has not changed to purposefully serve their lifelong needs.

A shift to a 60YC environment requires some clear foundational changes on the part of the institution. To begin, its role in curriculum and program design must shift from prescriptive to contextualizing. This is core to any competency-based education model, and the 60YC proposes its adoption at scale. Additionally, it means the role of the postsecondary institution itself shifts from being a “sage on the stage” to a “guide on the side”. This is a transition we generally see associated with pedagogical and andragogical best practice, but is rarely considered in terms of the role of the institution itself. However, the shift away from focusing on developing and delivering programming—and instead on helping to contextualize learning over a lifetime—requires a completely different conceptualization of the institutional focus.

Coming back to Hunt Lambert (2019):

With powerful local brands, many universities can be educational product aggregators of their own and others' great learning experiences. We can package them for learners on campus, online and in hybrid modes according to the learners' needs and goals.

The hard part for higher education is the services like life coaching, lifelong career coaching and community building. All are needed to keep a learner attached to your brand. If many universities do not do this well, a few global brands will earn all this relationship equity and everyone else will only serve local workforce needs. That would be a huge loss for diversity and knowledge creation, so I encourage all colleges and universities to figure out their role in the 60YC. [...]

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The winners will have an information-based learner relationship management system business, not a teaching- and learning-based business.

This is an idea worthy of further thought, and there are already examples of this in practice (some referenced elsewhere in this book!). Higher education institutions globally have formed increasing numbers of partnerships with online program providers—including bootcamps and international education partners—over the past decade. Since 2010, institutional partnerships with language program providers have increased 56 percent. In the Bootcamp space, partnerships have increased by over 600% since 2016. And in the broader Online Program Manager (OPM) space, since 2017 the number of partnerships has grown 178% (HolonIQ, 2022).

To OPM, or Not to OPM? The Potential for OPM Partnerships to Drive 60YC Initiatives

To some extent, these OPM partnerships stem from institutions struggling to access emerging market spaces without significant help—and the impact of this could be lasting. After all, 80-90% of these partnerships are revenue-sharing partnerships (HolonIQ, 2022) and the amount of revenue going to the OPM can reach 75% in some cases (Newton, 2021). And given that focus, many of these programs are criticized for focusing too squarely on enrollment growth over outcomes or quality, leading to increased scrutiny of these partnerships from the American federal government.

At many institutions, OPM partnerships are being used as a model to build up brand recognition for the college or university and buy-in from students around the quality of institutional programming through the term of the contract, at which point the institution will aim to matriculate those students into their owned offerings.

As Joe Sallustio, senior vice president of the newly-formed Lindenwood Global at Lindenwood University, explained:

Lindenwood will keep the OPM for the programs that are under the OPM agreement until the contract runs its course. Simultaneously, I'll be building Lindenwood Global to increase online market share quickly, while setting up an infrastructure to absorb all of the students in the OPM programs when the contract lapses. Reliance on an OPM significantly diminishes revenue. (Newton, 2021)

Other institutions are approaching this model in a different way. Rather than partnering with program providers and sacrificing revenues to stay in the game, they're working with employers and leveraging freely available offerings—and adding context around them to build intentionality and alignment with the institution. For example, in 2018 Google launched an IT Support Professional certificate designed as a MOOC—designed specifically to prepare individuals to access the 150,000 available IT support jobs that were open at the time (Van Cleef Conley, 2018). In the year that followed, one university and 22 community colleges built programming at their own institutions that leveraged the material Google published to Coursera—but then added services like career coaching, additional credentialing opportunities and more to help contextualize and advance upon the core programming.

The concept here is that higher education institutions should spend less time, energy and effort on recreating the curricular wheel. Instead, educators should guide learners toward existing high-quality materials, and then help them contextualize and leverage that knowledge. What's more, IHEs should

find ways to offer both academic and career support and coaching to help learners leverage their skills and translate them into labor market success. These factors also help to establish clearer differentiating markers between otherwise fungible postsecondary institutions. This creativity, and recognition of the value of learning materials produced outside the academy, is central to executing upon the 60YC concept.

RECOGNIZING THE GAPS: WHERE TRADITIONAL PROCESSES ARE MISALIGNED WITH THE 60YC

Of course, having a vision of what the future might look like is a start. Identifying and overcoming the gaps facing that transformation is a critical next step. And it starts with recognizing that the structure of the traditional college or university is, in many ways, antithetical to the delivery of a lifelong learning ecosystem.

To start, continuing, professional and workforce education (CE) divisions are central to realizing the vision of a 60YC at their respective institutions. After all, these are the units most tightly aligned with the needs of the labor market, and are also the units with the most experience and expertise serving non-traditional, lifelong learners pursuing shorter-term upskilling and reskilling programming. But the institution itself is not designed to support the agile, fast-moving, market-responsive businesses that these units are trying to run. As such, it can be argued that colleges and universities are not set up to deliver a lifelong education model at scale.

After all, the design of the main campus management ecosystem is not built for success in a world that moves as quickly as it does in the 21st century. For the most part, institutional business practices have iterated slowly, but have never been truly innovated. The cohort model was a sensible approach to managing learner progress when learner records were kept on parchment. And while there are additional benefits to learner success that stem from the cohort community, they reduce learner flexibility and minimize their capacity to create customized education pathways.

These obstacles wind up driving three common outcomes: administrative headaches, stifled innovation and a poor learner experience.

1. Administrative Headaches

Many CE leaders are forced to use main campus systems and processes to manage their distinctly unique businesses. In theory, working off the same administrative system and adopting the same practices improves cohesion between the main campus and CE unit that simplifies management and streamlines collaboration. In practice, it creates a burdensome administrative environment that leads to shared frustration among both CE and main campus leaders.

CE divisions often wind up overly reliant on their colleagues on main campus for support in completing the simplest of tasks, from registration and enrollment to gathering metrics. Hilary Darling, director of the Summer Institute in Extended Studies at the California Institute of the Arts stated:

One thing that I found frustrating with our old system was having to have go through all these gatekeepers to do what we needed to do. . . Our main campus colleagues tried really hard to help our office, but the fact of the matter is they had other work that they had to get done before us oftentimes, so we would end up waiting. (Barr et al, 2018)

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This can leave staff on both sides—from CE and main campus—scrambling, stressed and overworked, and ultimately can negatively impact the student experience. Darling continued,

One of the crunch times for us is in spring when graduation for the matriculated students occurs. People are scrambling to make sure their transcripts were in order, to make sure they have the credits they needed. . . The registrar's office is busy processing grades for people who are graduating and making sure everyone's academic progress is in order. That was happening right when I needed my summer students to complete their registration and payment. It became a really problematic registration bottleneck. (Barr et al, 2018)

For divisions that are expected to be responsive, customer-centric and innovative, building a CE unit on the back of a system designed for traditional higher education can slow everything down and create significant headaches for CE and main campus staff alike.

2. Stifled Innovation

Any leader of a non-traditional division whose unit runs on a system—or array of systems—designed for a main campus knows how difficult it is to do something that's creative, but seemingly simple. Staff wind up having to repeat work, re-enter information from one system to another, and switch between multiple tools to complete a single task. All this repetition and manual work slows the division down and wastes money. Divisions can't deploy their human resources in an effective manner when they're dealing with inefficiencies of this magnitude. To illustrate this, Sandi Pershing (2018), the former assistant vice president of engagement at the University of Utah, writes,

Barriers to innovation can be technological. . . You might try to run a class within continuing education that's outside normal semester timelines so it doesn't work with the traditional campus database. In situations like this, you must build outside systems to work around the traditional system, which can be cumbersome.

Ultimately, when CE leaders are operating with the wrong tools, the decision to run a potentially lucrative offering can hinge on whether staff have the bandwidth to manage it, and whether the costs of that extra work would minimize the positive impact of the innovative offering.

By running an inefficient back end, CE leaders place significant burdens on their staff—who try to paper over the gaps between their various systems to deliver an experience that looks automated. It becomes an unnecessary barrier to innovation and growth. And frankly, as outlined by Elisabeth Rees-Johnstone (2017), this can negatively impact the learner experience too. She writes,

When technology makes everyday tasks easier for staff, it helps to create a great staff experience, which in turn makes it easier to deliver a great learner experience. . . Nobody shows up in the morning wanting to do a terrible job, but when you're working across myriad systems, lacking easy access to critical information, or held-up shuffling paper files, it creates a negative staff experience. The right infrastructure allows folks to really shine and do what they do best, which is ultimately to serve and deliver a great experience to learners.

As a result, the capacity for the institution to offer high-value programming with market-responsive credentials suffers.

3. Poor Student Experience

And finally, across numerous verticals, the nature of the inefficient and faculty-centric traditional models for institutional management lead to learner experiences that cause them to look for educational engagement outside the academic.

Amazon has set a high bar. Today's students expect a seamless, self-directed registration and enrollment experience. They want to manage much of their engagement with the institution and perform basic tasks—like registration, payment and course drops—online and on their own time. However, most traditional enrollment management systems were not designed with the non-traditional student in mind. Rather, they aimed to replicate the on-campus environment in the digital world, and created a product that mirrored inefficient on-campus processes. Mark Mrozinski (2018), notes that,

Unfortunately, most online enrollment registration systems in higher ed grew up around the physical structure of the college or university, and were built with an administrative focus in mind rather than the needs of the student. The student navigated the online system just as they would if they walked on campus and you sent them from one office to another to another. There was no continuity of service.

According to Mrozinski, the digital experience is a major differentiator for today's students. For non-traditional divisions, relying on an outdated patchwork of systems that delivers a complicated and confusing experience is enough to send prospective students looking for a different education provider. Mrozinski (2018) continues:

Prospective students coming to our website aren't comparing our registration system to other colleges and universities—they're comparing it to the online shopping experience offered by Amazon and other online vendors. The last thing that we wanted to happen was for a student to navigate to our site, run into a barrier as they try to register, and move to the next company in the Google search.

Even within the main campus, the systems being used to support learners' visibility of program offerings don't align with their needs. At many institutions, academic catalogs are still PDFs. And even when they're digitized, they aren't necessarily up-to-date, and they rarely provide information that helps learners get a clear picture of the potential ROI of the offering. Melony Martinez (2021), director of marketing and public relations at National Park College, wrote that,

It's important for a student to understand where a degree program can take them, but at times it's hard for our students to make the connections between the degree programs and the career that it leads to. They need the visibility of a career pathway stemming out of a particular course or program. In the past, we haven't done a great job at making that path clear. We've tried on our own to cobble together data to make degree searching easier, by adding labor statistics to program pages to give students an idea of what kind of salary they might earn or what kind of job outlooks there are for particular career areas.

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In many instances, the institutional website is a complex labyrinth of inconsistent, outdated and confusing information that only serves to intensify and widen the gap between learners and the institution. As Carrie Phillips (2021), director of university marketing and communication at Arkansas Tech University, puts it:

If the experience they get on the website doesn't match the campus experience and functions, it's just going to frustrate and upset that student, and it's not going to be reflective of the experience the university has to offer. [...]

At Arkansas Tech, we have a high number of first-gen, Pell-eligible students who are of a lower socioeconomic status. We're number one for upward social mobility in Arkansas—and that's something we're really proud of—but the challenge that comes with that is students who may not understand what a FAFSA is or what the registrar's office is or the bursar or all of these things. Those inaccuracies are sometimes a barrier and struggle because those students just don't have that contextual awareness. For them especially, updated content really matters. It's something we're always working on. I feel like a website should be similar to infrastructure in a major city. It should be like that highway that you're always improving, always innovating, always working on.

In an environment that, as Lambert put it, is characterized by the development of contextual and personalized relationships between learners and the institution, a bad experience is a death knell. This impact is magnified by the nature of the postsecondary competitive landscape, where learners can enroll with minimal barriers in programming offered by a wide range of colleges, universities and unaccredited education providers.

To be clear, a lifelong learning ecosystem is reliant on institutions prioritizing and developing robust relationships with every learner who comes through their door. That means prioritizing and developing high-quality experiences.

IMPROVING THE EXPERIENCE FOR MODERN LEARNERS

Prioritizing and delivering high-quality learner experiences takes on a different tone when serving lifelong learners. Every institution will approach this differently. After all, the nature of their services and value-adding, experience-oriented investments will differ depending on the learner demographics they serve and their needs.

For example, in the non-traditional higher education space we've long-derided investments in climbing walls and lazy rivers. But for institutions that mainly serve a traditional-age, high-income residential learner population, these investments can pay off in spades when it comes to building memorable experiences that might convince the learner to consider enrolling with their school of business for an Executive MBA.

Across the board, though, there are some foundational elements that could and should be adopted into institutional policy and technological frameworks to create learning environments better suited to delivering a 60YC.

1. Prior Learning Assessment and Recognition

Prior learning assessment (PLA) must become more widespread. It is inconceivable and unacceptable that so many learners are forced to spend time and money covering content they already know because of institutional policy to not accept credit gained elsewhere or to recognize learning that happens outside the classroom. Only 11% of adults covered in CAEL and WICHE's 2020 report on PLA were awarded credit for college-level learning acquired outside the classroom. And for adults with PLA credit from any source other than ACHE credit recommendations for military training and occupations, the take-up rate fell to 4% (Klein-Collins et al, 2020). What's worse, this represents a drop from the 2010 sample, where 25% of adults were granted PLA for such activities (Zanville, 2010).

Put bluntly, that's not nearly good enough for a postsecondary ecosystem charged with supporting upskilling and reskilling for adults in an environment where our national attainment rate sits well below its 60% target. And make no mistake, earning credit for prior learning makes a significant impact on attainment. CAEL's 2010 student "found that more than half (56%) of students with CPL credit earned a postsecondary degree within seven years, while only 21% of non-CPL students did so" (Danielson, 2019).

Holly Zanville (2021), co-director of the program on Skills, Credentials and Workforce Policy at George Washington University Institute of Public Policy, provides a wake-up call on this:

We cannot afford to watch another decade pass while this warning message flashes before us: PLA works, but there aren't that many people who benefit from it. Let's take the lessons learned from this new research and commit to helping students move expeditiously toward credential completion with their prior learning assessed and verified using the growing number of assessment tools available. Let's expand PLA services at every college and university in the nation, and raise our take-up rate for students substantially. Why not a 60-70% take-up rate? If 100% of every student entering postsecondary education received advising at in-take, which includes PLA advising, this would be a major next step.

Tracy Costello and Joseph Levy (2019), who oversee prior learning processes at National Louis University, wrote an article for *The EvoLLLution* outlining how they've created PLA processes designed especially for adults that are accessible, equitable and understandable. It's worth reading the full article, but here's a snapshot of how they've designed their efforts to create maximum impact:

At NLU, our institutional legacy is defined by its mindfulness in ensuring access to a diverse student body. With this in mind, we have made it our mission to provide equitable PLA opportunities for all students, supporting their unique and individual backgrounds. Below are some of the ways this is demonstrated in our PLA programs:

- *Our undergraduate portfolio program provides over 50 essay topics, working to take into consideration personal, social and work circumstances for a diverse student population.*
- *Our portfolio program for major credit gives students the opportunity to demonstrate their course competencies through a student-driven portfolio, minimizing the courses needed to complete their major requirements.*
- *Our credit by licensure and certification program makes students eligible to receive credit for both undergraduate elective credit and some major elective courses within identified programs for credentials already earned.*

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- *Testing options include CLEP and DSST, as well as New York University Language Proficiency exams.*

Providing multiple opportunities to a diverse population empowers and enables students by offering choices to apply unique learning outcomes towards their degree completion requirements.

Expanding PLA requires an institutional culture shift. The challenges many institutions have in creating non-credit to credit bridges goes to show that this is not purely an external obstacle. In the 2022 State of Continuing Education report, published jointly between *The EvoLLLution*, Modern Campus and UPCEA, institutional barriers or systems was highlighted as the greatest obstacle to non-credit to credit pathways, followed closely by the need to develop a non-credit transfer evaluation policy (Ahluwalia et al., 2022). There needs to be greater recognition among academic faculty and leadership that learning is learning, regardless of where it happens.

A shift in this direction takes more than good intentions, though. It's essential for postsecondary institutions to have systems that streamline and clarify learning objectives and intended outcomes to create clearer mechanisms to align prior learning and previously-earned academic credit to the existing catalog of offerings.

Over the past decade, *The EvoLLLution* has published works by leaders across Canada and the United States reflecting on the different models used by different institutions to tackle this very problem. To start, here are three pieces of advice shared by Joseph Levy of NLU and Christine Carpenter of the Council for Adult and Experiential Learning:

1. ***Prioritize equity in CPL design.*** *Examine existing CPL offerings and look to increase offerings applicable to learning in a wide range of occupations. Make sure CPL options (e.g., tests, papers, portfolios) are also varied to capture the multiple ways adults have learned and can demonstrate their learning.*
2. ***Increase communication and transparency.*** *Be more targeted and proactive in marketing efforts across multiple forms of media to reach student populations. Leverage CPL marketing information to share crosswalks between industry-developed skills and academic programs. Help students see the applicability of their knowledge and skills for CPL credit for their desired credential and field.*
3. ***Build CPL into existing systems and processes.*** *Don't leave CPL on its own as a separate entity; embed CPL as a consideration in academic advising and curriculum considerations for students. Make sure to leverage data infrastructure and analysis efforts to surface equity gaps and applicability of CPL to support students with unsatisfactory progression. (Levy & Carpenter, 2022)*

CAEL and WICHE released research in 2021 exploring equity paradoxes in PLA that are also worthy of further exploration, as they point to gaps related to the acceptance of prior learning for racialized populations that must be addressed. Searching “Equity Paradoxes in the PLA Boost” in your search engine of choice should guide you to the report!

The fact is that there are very few examples of PLA models that can truly scale. As Jacqueline Hill (2018)—now the provost at Florida Memorial University—points out, subjectivity is a massive barrier to scalable PLA:

The major challenge that I've faced in implementing PLA is the sheer subjectivity of prior learning and how it is assessed across institutions. From a community college standpoint, state legislated mandates impact how we can implement PLAs, and these mandates can overlook certain kinds of prior learning while over-emphasizing others. Added to that, of course, is the fact that there are differences across institutions in terms of how they apply credit for prior learning, the methodologies that they accept or deny, as well as the number of credits that can be applied to a particular degree program. These factors are predetermined by the institution, which can make industry standardization a challenge.

PLA processes are generally highly manual, and when a student is looking to receive credit for prior learning that happened on the job—or even transfer credit from a program the receiving institution hasn't previously addressed—the burden on staff to make it happen can be significant.

Of course, there's a potential policy implication here, where state bodies can legislate the acceptance of previously-earned academic credit. In some cases, mandating things like common course numbering has created impact in the acceptance of prior learning. However, top-down mandates can often create previously unforeseen challenges. The simpler solution is for higher education institutions to leverage existing digital credentialing technologies to ensure learning outcomes and artifacts of learning are embedded into the metadata of granted digital credentials to make it easier for receiving institutions to recognize and award learning that has already happened.

Beyond that, there needs to be a cultural recognition within the institution itself that learning—and offering of credit—isn't restricted to the classroom boundaries of any given faculty member. Laura McCullough (2021), vice president of the Workforce and Economic Development Division at BridgeValley Community and Technical College, shared her insights on how her team is executing on this... and highlighted a surprising challenge:

Non-credit courses should have syllabi where learning objectives, assessment of learning and clock-hours are explained. The syllabi will orientate students to the course and will be required if the student articulates the program into academic credit.

Non-credit courses are worthy of academic credit and are reviewed and approved by the college's Academic Standards Committee and subsequently added to the institution's inventory of courses. Having that work completed before students request articulation for academic credit simplifies the second process step, which details how to enroll non-credit learners into the SIS, FAMS and LMS at our institution.

Ironically, the largest barrier to admitting and enrolling non-credit students into the college's SIS is the student's hesitancy to share private information (i.e., social security number, physical address, email address, phone number, etc.) with the college. Staff need that information to generate a unique identification number (ID) and a college email address, but some non-credit students refuse to disclose it. Educational records cannot be maintained without this information, but some students do not care about records retention, so college staff will assign them a special student ID with the limited information they are given. The SIS officer and our reporting agency do not like when we do that, but there is no other alternative. To create a non-credit registration number (CRN), a special code is used for the term assignment.

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Looking to the future, there's opportunities for technology providers operating in the education space to build mechanisms that streamline the recognition and awarding of prior credit. However, a technology solution is always going to be secondary to a strategic solution. IHEs must first recognize the value of PLA and adopt acceptance into institutional strategy. From there, it's feasible to explore the tactical solution of a technology solution to streamline the execution of this strategy.

2. Credential Stackability

Relatedly, higher education institutions must find clearer pathways to build stackable credential frameworks that allow learners more diversified access to learning that allow them to invest time and resources as appropriate to their needs. To an extent, this starts with creating more flexibility in where and how people access learning. Dave King, professor emeritus at Oregon State University, introduced the concept of the Spectrum of Learner Access a model to help describe this.

In effect, the idea is that postsecondary institutions generate and share significant quantities of critical knowledge, but that knowledge is restricted exclusively to those who can afford the time and investment required to earn a degree. With this model, learning is unbundled and made available in more flexible and accessible formats to those who need it, and then can potentially be bundled together into more holistic learning packages (King, 2015).

Of course, stackable credentialing models must be built consciously, as pointed out by Kemi Jona (2022), assistant vice chancellor of digital innovation and enterprise learning at Northeastern University:

Stackable credentials are going to be our new normal; it forms the baseline default expectation these days. But simply attaching a certificate or credential along the way doesn't automatically guarantee that it's going to work in a just-in-time format—for the same reasons that we talked about before. We need to start by understanding the needs of the working professionals we're serving. That information—the kind of work that they're doing, their skills gaps—should be used as a driving organizing principle to structure their learning. That is a very, very different undertaking than the way that curriculum and courses are traditionally designed and organized at a university, even when we look at many existing stackable offerings.

According to Jona (2022), there cannot be any discussion of effective stacking without recognition of learning that happens outside the classroom. This harkens back to Lambert's point about the evolving role of the institution in primarily contextualizing and validating learning. As Jone (2022) puts it:

In the old days, the firm owned all of the resources. So, if you are Marriott hotel, you own the building, the brand and you employ people. But when you now look at Airbnb, they have shifted to what can be thought of as an “orchestration of resources” model. Uber's the same way; they're orchestrating and organizing all the different pieces to connect consumers with services they need. Single companies don't own or control every element of the chain.

When you think about that shift and apply it to higher ed, what we're really talking about is asking universities to make a parallel shift to an orchestration of learning. After all, the university doesn't control 100% of the learning experience anymore. You might have some pieces that faculty provides, but other pieces are going to come from an employer or other third party.

From a competency perspective, this means we need to be able to quickly evaluate, assess and articulate these other sources of learning and map them so they fit into some larger credential structure. That is not something universities are particularly good at. They're really good at looking at their own courses, but they're not that great at looking at other people's content and making sense of it. And when they do, they tend to do it slowly and in a way that's not scalable. (Jona, 2022)

A shift toward this model requires an institutional infrastructure designed for maximum flexibility and also designed to support the management and issuance of non-degree programming at scale. For many institutions, managing non-degree programming is an afterthought. But in an environment structured for a true Spectrum of Learner Access—one designed to support learners across the course of a multi-stage and complex life—management and access to non-degree programming is arguably as important as that of degree programming.

Like the adoption of a scaled approach to PLA, this requires non-degree education to transition from afterthought to a strategic priority. The 2022 State of Continuing Education report found that over a third of respondents lacked access to even basic enrollment data for their non-degree students, and that a significant proportion of divisions are running non-degree programming using technology designed for the traditional academy (Ahluwalia et al., 2022). What's more, the report found that many units (46%) aren't offering digital credentials—even though 90% of those offering digital credentials said it helps them compete against emerging entities like bootcamps.

This is an incredibly troubling finding. Sandi Pershing's comments on the impact of technological barriers to success, highlighted earlier in the chapter, continue to ring true years after she shared them. IHEs need to make the basic technologies required to run an innovative non-degree division available to the units they rely on to manage this work. "MacGyvering" is not a strategy; it's a coping mechanism. But for many leaders of non-degree division, it's become a fact of life when it comes to trying to develop the programming and experiences their learners expect.

Adopting software designed specifically for the management of non-degree programming and learners is critical to shifting to an environment where credential stackability is the norm, because credential stackability requires flexibility in program design and learner pathways.

Secondly, it's essential for higher education institutions to adopt a clear and consistent internal taxonomy of credentialing to help organize and streamline the management of non-degree credentials. Since stackability relies on leveraging multiple non-degree credential models to create pathways for learners to progress toward a degree... it's essential that things like "certificate" and "badge" mean the same thing from division to division!

Kennesaw State University has taken steps toward establishing institution-wide consistency in microcredentialing initiatives by creating a shared proposal and approval process—running through the registrar's office and operating in partnership with the College of Professional Education. This approach—while it's not being used to drive stackability (yet), shows how leaders at other institutions can create institution-wide buy-in and consistency in non-degree credentialing. Anissa Vega, assistant vice president for Curriculum and Academic Innovation at KSU, writes:

It's unclear when the first group at KSU started offering microcredentials, but it's been decentralized and unmanaged for quite some time. . . We needed something that ensured rigor and trust, but also helped make our brand recognizable such that when employers see our microcredentials, they would know they can trust them because there would be something similar happening in their visual identity.

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By leveraging tools that academic leaders at KSU were already comfortable with—and by using their curriculum management software to drive the approval of their offerings—the registrar’s office and non-degree leaders at KSU have been able to establish standards for microcredentialing institution-wide. Vega (2022) continues, noting that:

We wanted to look at successful structures and processes on campus that were well established and trusted. . . We evaluated the tools that the campus had already adopted; tools they already knew how to use and were comfortable using, and committee structures they were already familiar and comfortable with. We identified that as some latent momentum that we could use and apply to the microcredentials initiative. By mirroring those processes, it helped our community understand the process and initiative that we were describing.

Stackable credential development moves in a similar fashion. First, the institution needs to prioritize and scale non-degree program development and scheduling—both in terms of strategy and technology. Second, the institution needs to establish a clear and consistent taxonomy to manage non-degree programming institution-wide. These steps should be the first steps an IHE takes to build a stackable credential model.

3. Student-Centricity

This term is increasingly finding legs as another of higher education’s interminable buzzwords, and unfortunately its use here falls into that category. However, being student-centric—which is to say, angling every aspect of the institution to deliver an experience that works for the learner—is critical to improving the experience of modern learners.

Before diving into a few of the transformations required for an institution to *be* student-centric, here’s an insight from Wayne Smutz (2016)—dean emeritus of Extension at UCLA—on how to define student-centricity:

The first question to ask when determining whether your institution is student-centric is this: “Is it welcoming?” The institution needs to project the fact that we want the students to be here, that we’re here to serve them.

You have to know if this is evident in every aspect of the institution. Does that come through in the architecture? Does that feeling come from the branding? Does it come from the staff? Is it present online? It needs to be present in every way you can imagine. Projecting the idea, “We want you to be here and we want to serve you,” is absolutely critical.

After that, you need to make sure you have processes in place that allow you to follow through on delivering that impression, processes that don’t make students stand in line for 15 minutes. Just this week, I personally stood in line for over an hour to deal with a parking issue. It’s nuts! What business can run like this?

Student-centricity is in the projection, it’s in the processes, and it’s in the commitment to constantly look at everything you do to make sure that it’s student-friendly.

As mentioned earlier, student-centricity in the lifelong learning environment is highly dependent on each institution and the learners it's designed to serve. However, there are common traits that every college and university should look to adopt to ensure they're positioned to serve modern learners of all descriptions.

First, allowing learners to manage their own administrative and bureaucratic experience—providing them the capacity to self-serve—is a valuable extension of student-centricity that benefits everyone. As Casey Bullock (2021), registrar and executive director of enrollment services at Weber State University, points out, administrative self-service is essential to creating an institutional environment aligned with learner expectations:

I've heard stories about the history of the Registrar's Office where students came down to the gym and fill out cards to register for classes. If you were at the front of the line, you had a better chance of getting into a class before it was full. Now, in an online format, students essentially have to figure out the classes they need to take. That becomes part of the challenge—the student is now self-advising.

As students interact with the Registrar's Office, it's not face-to-face anymore. Instead, they're interacting with us through our computer systems. If our computer systems aren't designed intuitively or aren't user-friendly, it reflects on the campus. [...]

I don't think traditional processes of the Registrar's Office connect to the expectations today's student have. If these processes are manual, students won't understand them. So, we've moved into this more modern online area. We're using database systems to accomplish the work we've done. But there's still some antiquated processes within the Registrar's Office that we need to modernize.

It's essential to adopt tools and processes that allow learners to register, pay, access transcripts, drop courses, and build schedules without needing manual staff intervention. This aligns with the expectations of consumers in any industry and make no mistake—higher education institutions serve consumers in a competitive environment.

Secondly, modern colleges and universities must explore ways to adopt and issue digital credentials. This doesn't just reference digital microcredentials (commonly and reductively called “badges”), but also to degrees, certificates and certifications. Digital credentialing allows institutions to embed valuable metadata into those credentials—including but not limited to ePortfolios and detailed descriptions of program learning outcomes—that help to contextualize the meaning and value of the credential. For learners who are enrolling primarily to achieve career outcomes, being able to more succinctly describe the value of a given credential is significant. Kim McNutt (2020), dean of the College of Extended and International Education at CSU Dominguez Hills, writes:

The early confusion around these credentials was people assuming they were completely new credentials that were digital. That's not the case... We're simply taking existing non-credit courses and programs, and conveying their learning outcomes digitally. This way the student can leverage it as currency. It's like the coin of the realm. When an employer looks at a resume, they can see each badge in depth to understand what skills the student brings to the table.

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What's more, as HR bots become more common, having that rich metadata included in a digital credential increases the likelihood that an individual become a candidate for a role when they otherwise may have been overlooked.

Finally, and relatedly, it's essential that higher education institutions do more to make the return on learning investment clearer to prospective learners. Right now, the value of educational investments are opaque and oft-criticized. The data needed to align labor market outcomes with programming exists, but the work required to tie the two pieces of information together is significant, according to Chris Young (2021), assistant director for web and digital marketing at the University of Central Missouri:

Say I wanted to track and implement several metrics across our programs. Just doing the research on one metric to apply across several hundred programs will take time. By the time we've collected all of that data, it's likely already outdated. Wrong or outdated information is worse than no information. To gather this kind of data manually just would not be practical.

Student-centricity must be the watchword for any postsecondary institution trying to enact change that would position them to serve lifelong learners more effectively.

Alongside the need for more effective PLA and the critical importance of adopting stackable credentialing models—and taken in sum with the importance of adopting processes and technologies designed for success in the non-traditional education space—colleges and universities must explore partnerships with more ferocity than they have in the past.

FINDING PARTNERS TO DELIVER ON THE VISION OF A LIFELONG LEARNING ECOSYSTEM

The intention of this section is not to suggest any specific tools, technologies or solutions an institution might need to deliver on its strategy of lifelong learning. And the purpose for that is simple: there is no technological infrastructure on earth that will work without a strategy that's aligned, and without a partner who can provide support. As such, this section will share insights into what it takes to find a partner who can help deliver on an institution's unique lifelong learning strategy.

But rest assured, finding a partner who can support the execution of these goals is essential for success. Higher education institutions have a long-standing and well-documented history of building systems rather than buying them. After all, in the short term it might appear cheaper and less complicated than forging a partnership with a technology company and ensuring the terms of the agreement are being met in a timely and effective manner.

However, all is not as it appears in this circumstance. Homegrown systems are often products of their time. They're rarely updated to keep pace with the changing capabilities and norms of the technology space, and are often less secure and more staff-dependent than vended alternatives.

In describing why the Open Learning and Educational Support division of the University of Guelph decided to purchase a new registration system, Executive Director Michelle Fach (2017) explained:

We have had a single developer supporting our system for the last 20 years. It was written in PowerBuilder and even though we had a SQL back end, the front end was still PowerBuilder. 20 years ago, there were lots of PowerBuilder programmers, but our expertise in that programming language was not

maintained. Ultimately, if something happened to that individual developer, we would not have support for our system. That was a significant vulnerability.

Additionally, we would have had to re-develop the entire system from scratch in order for it to provide the student-facing functionality today's students expect. Although we had built functionality that provided an online interface, the actual system wasn't web enabled, so to make it web-enabled—to create that student experience that we were looking for—it would have had to been built from scratch.

What's more, the cost of customizing and updating homegrown or open source software can be debilitating in the long run.

But choosing a partner is also no small matter. It requires a combination of the right product, the right focus and “gut feel” to find a partner that can truly support divisional success. Whereas this chapter has largely leveraged research and insights published by *The EvoLLLution*'s vast network of contributors to validate the ideas, this section will rely on aggregated conversations and insights gained over the last decade working with institutional leaders grappling with making technology purchases.

1. Experience in Your Segment

First, it's critical to find a partner with an established history in—and focus on—the higher education sector. What's more, each department of an institution has unique challenges and needs, so a partner that has a history of focusing specifically on those needs is ideal. For example, coming back to the example shared earlier of catalogs and registration systems. The catalog needs of the registrar's office, and those of a continuing education division, are completely different. And the processes required to register and enroll a learner are completely different. On its face, a solution could serve both audiences, but a partner with distinct knowledge of both spaces would be able to advise leaders more effectively on the best solution for their unique needs.

2. Find Partners, Not “Vendors”

Secondly, it's critical to find partners willing to listen and engage when it comes to understanding unique institutional challenges and needs. This may seem obvious, but it's more challenging than it seems. Because listening and engaging are not the same as acquiescence. In some cases, it's critical to adapt a tool to the unique circumstances of a given institution's processes. In many, many more cases, it's better to adapt institutional processes to the functionality of the system, since the system is built for industry-wide best practice. Understanding and advising on the difference between the two is the role of a great partner.

3. Success Should be Mutual

Third, and related to the above two points, a great partner must be able to advise on strategy and direction. After all, technological tools are rarely purchased in a vacuum. If the institution was comfortable with the status quo, no tools would be necessary. As any major purchase is part of a broader objective, the partner should be positioned to understand the goals of the institution and not only ensure that the tool is set up to support those goals, but to provide ideas on other ways to meet those objectives.

4. Consider Your Ecosystem

Fourth, your partner must recognize that their tool does not exist in a vacuum. Postsecondary technological ecosystems are complex and multifaceted, and it's essential to ensure systems connect with one-another as much as possible. Ensuring tools “play nicely” with one-another, and ensuring partners are clearly committed to establishing that connective tissue over the long term, should be a major factor in selecting a partner.

5. Review Other Customers

Finally, and perhaps obviously, the breadth and relevance of the existing customer list can serve as a strong signal of whether a given partner is right for your institution. This is related to every previous point, but a partner's capacity to advise an institution on its success relies on their experience working with similar institutions. Advising a small, rural community college to adopt a strategy and toolkit that mirrors a university in downtown Chicago might not be effective in supporting their success. When looking at a partner, it's critical to see logos of institutions that resemble your own.

A CLEAR VISION FOR THE FUTURE

The crystal ball is certainly not delivering a clear image of what's to come, but observing and recognizing trends currently shaping the postsecondary space should provide clarity on the direction the higher education industry must go. Colleges and universities are relying on outdated playbooks, and are not moving quickly enough to adopt new models.

Finding ways to serve lifelong learners must be a priority for leaders at every level of the modern institution, and adopting the appropriate policies, processes and tools to support them has to be on the near-term radar. This commitment is critical to the relevance and success of higher education institutions in an era where closures and mergers are becoming increasingly and worryingly common. However, change of this magnitude should not be driven by fear and threat alone. After all, this presents a truly exciting opportunity for postsecondary institutions to imagine a future shaped by relevant, consistent and engaging education.

The era of lifelong learning isn't on the horizon: it's here. It's incumbent upon us to get ready.

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Conclusion

American higher education is at an inflection point. The COVID pandemic experience may have accelerated it, but historical progressions, demographic shifts, new and ubiquitous technologies, and changes in interests and capabilities led us to where we are. The preceding chapters do a great job in documenting many aspects of what has been emerging regarding societal demands and changes in practice and I am grateful to the editors for allowing me to add my reflections. I want to suggest that basically, time is up for higher education to respond.

Higher education in this country started as a system for elite members of the American society. The model of a group of scholars who tutored students through the knowledge base of a field of study was based on the reality that less than 5% of the population would ever go to college. Now we have states across the country expecting higher education to successfully serve 60% or more of the population (Lumina Foundation, n.d.). Yet there has been little progress to improve many of the systems upon which higher education depends, such as quality assurance, financing, and personnel issues for academic staff. We still consider a faculty member to be the sole designer, deliverer, and evaluator of a higher education course of study. I will come back to that issue, but that model is perpetuated by our entire quality assurance system, which is the gateway to students' access to state and federal financial funds to pay for their education. Public institutions are still funded based on how many students they enroll within a fixed period of time, regardless of how successful those students are.

Recently my NCHEMS' colleagues and I managed a focus group of community members for an urban college district. These community members hired the graduates, served on advisory committees, and generally supported the college district. They had positive things to say but they were also perplexed by a few things. Their biggest source of confusion was why the college treated students the way they had since the 1960's. The community members pointed out that both 18-year-olds coming directly out of high school as well as working adults were technologically literate. These students expected services—both academic and support—to be at least as convenient and accessible as those from their bank or grocery store. The students expected their educational journey to be easy to navigate, have reasonable costs, and enable them to get immediate feedback if they did something wrong (like a math problem or an error on their financial aid form). Needless to say, that was not what the students experienced. The enrollments in the college district continue to decline.

As part of the same project, we surveyed the staff and faculty throughout the district focusing on issues related to declining enrollment. Reading through the hundreds of comments we received, I was disheartened by the number of faculty members who seemed not to appreciate the complexity of managing a multi-million dollar enterprise with all the regulatory agencies to which compliance is required. Too many of them suggested that going back to the model that worked for 5% of the population could work for 60% or more by simply empowering the faculty to do whatever they thought best for their students.

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“I’LL RETIRE”: LEADERSHIP DEMANDS FOR A NEW ERA

Regarding the complexity of managing multi-faceted higher education institutions, which evolved over hundreds of years, I had a conversation with a search consultant recently. He was seeking candidates to be the president of an enrollment-challenged research university who would not be afraid to carry out the directives of the Board. Someone who did not rely on incremental change. He was looking for someone who could somehow get along with the whole university community (staff, faculty, employers, legislators, etc.) while simultaneously changing many aspects of the ways individuals had been used to doing their jobs for decades. It was difficult to come up with people with that level of courage. The leaders with whom I have worked over the last few years that have embraced that type of quest always either receive no-confidence votes from faculty or recognize it is their last job and plan their retirement accordingly.

This is not the only moment in time for big challenges to American higher education in which this was the case. For example, let us go back to 1990’s when the NCHEMS and WICHE team was working with the Governors of the western states to develop what became the Western Governors University (WGU). During that same time several governors from around the country had the same issues with their colleges and universities that had prompted those in the west to take that radical step. The governors were very concerned with what they were hearing from the major employers in their states who repeatedly lamented about the poor job the colleges and universities were doing to prepare graduates for their roles in the real world. The governors were also concerned about the rising costs at their public higher education institutions with very little accountability to the needs of the states that created and supported them. Ironically, the levels of state support were continuing to decline, but the governors still viewed higher education as a state resource. They expected their public institutions to be responsive to the needs of the citizens.

In one of these non-western states, the Governor called a summit of all the presidents/chancellors of the public colleges and universities. The presidents/chancellors all attended and were seated at a very large open-square table that took up most of the room. I was there to tell the WGU design story, which had at its center students’ needs and the directives to keep it affordable, assure areas of study were responsive to state needs (teacher education, nursing, business, and information sciences), and to allow students to progress only when they had demonstrated mastery of the subject matter. (I will return to that last point in a bit.) After my presentation at the summit, the Governor went around the room and asked each institutional leader what they would do to guide their college or university to do the same type of things. Most focused on the new technologies they were using to reach students, but at about two-thirds of the way around the table a university president looked at the Governor and said, “I’ll retire.”

STUDENT CHOICES IN ACADEMIC PROGRAMMING

We are in a similar place today. Now it is not just state governors, but also the general public that seem dissatisfied with the way higher education is operating. They think it is too expensive, difficult to navigate, unresponsive to their real needs, and may not result in a degree that is going to help them with a career.

Some are trying to address these concerns. First, and until very recently, there was no place for a prospective student to find out how much they will actually have to pay to achieve their degree. Thanks to advances in technologies, the U.S. Department of Education (n.d.) has recently launched a database that makes it easier to see the real costs of attendance.

And to respond to the public's desire to understand the relationships between degrees and careers, Georgetown University's Center on Education and the Workforce contributed to an interactive tool to help potential students understand the expected income associated with specific degrees (Carnevale et al., 2015). This is information that is a little complex to gather and calculate, but it is infinitely more useful to an individual than simply lumping all degrees together and calculating how much more a college graduate could earn versus a person with a high school diploma. Individuals need details to make informed choices, with decisions more nuanced when offered a variety of variables to consider – not only fields of study, but areas where they may want to live, and whether they want a full degree vs. starting in a career field with sufficient documented knowledge and credentials.

As several previous chapters document, potential students, regardless of age, are looking more closely at their further education options and there are many more available than a couple of decades ago. Some are opting for studies that lead to certifications that are not associate, baccalaureate, or master's degrees. This trend seems to be growing rapidly as more and more employers are ditching job requirements that include a college degree. Employers say they are more interested in documentation of what a prospective employee can actually do than in using the college degree as a proxy. Many institutions are creating these certifications but there is little information about which ones are actually of value to the individual learner and his/her goals. There may also be issues for institutions' business models with these shorter-term credentials.

To consider these two issues of student choices and institutional business models for higher education institutions, let me start with consumer protection and quality assurance. As several chapters in this volume referenced, the repository of credentials in the U.S. compiled by Credential Engine (2021) are pushing a million 'confirmed credentials.' Their Credential Repository is making admirable progress, but there is nothing in their registry that would allow an individual to assess the efficacy of a particular credential. While that is not their goal and the same statement might well be made for most traditional degrees, the latter have at least a vetted record of general value. The newer credentials do not. Work is now starting to improve the information available to evaluate the efficacy of non-degree credentials. One promising project is a non-profit, Credential As You Go (n.d.). They are now working with three states (Colorado, New Jersey, and North Carolina) to track individuals' outcomes (jobs, salaries, etc.) who earn specific credentials in those states. This is an important step but probably not replicable at a large scale.

To codify the quality of non-degree credentials will require a national effort by a third party without any vested interest. That may be our existing accrediting community (especially professional accreditors, but also institutional). However, the usual practices within the accrediting community will need to expand beyond where they are now doing. For example, as we were developing the 21st Century Distance Education Guidelines (NC-SARA & NCHEMS, 2021), we carefully avoided talking about the monolithic term 'faculty,' but rather used 'academic teams' that consist of individuals with multiple types of expertise. To offer non-degree credentials that are well designed and have validity for graduates and employers, expert skills that are needed are typically not found in a single member of a faculty. This will require a shift in thinking about how a curriculum is developed, how instruction is offered, and how evaluation is accomplished. That exploration is in progress with at least one institutional accreditor, but it needs to move quickly to keep up with the demand by learners and the progress of proliferation in non-degree credentials.

Another important issue for institutions of higher education that jump into the non-degree credentials waters is their whole business model. For example, when you evaluate the costs of offering lower-level course versus upper-level courses within degree programs, institutional costs are typically higher for

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upper division courses (because they enroll fewer students per section in more intense laboratory or research activities). Yet the tuition in most cases is the same regardless of the mix of lower or upper-division courses. Most colleges and universities have business models that depend on admitting more students than will be expected to complete a degree program. While this is based on solid performance data, that does not make it right on other levels. This business model does not work when students have short-term goals with well-designed learning resources, and appropriate evaluations that lead directly into employment.

As we have thought about the non-degree credentials financial realities, there are several approaches institutions could use. One is full institutionalization of the approach long used in continuing education: charging students for the real costs of providing the learning and evaluation of programs that result in the credential. Another is to consider a subscription model. Students pay for time to achieve their desired credential that is embedded in a menu of options that can be ‘bought’ at full cost or discounts offered by entering a longer-term relationship with the providing institution. The menu can offer options for update/upgrades within the field of the initial certification while the subscriber is employed working in the field.

THE EVOLUTION OF AMERICAN HIGHER EDUCATION: HOW WE GOT HERE, AND WHERE WE NEED TO GO

All this brings us back to the emerging practices highlighted throughout this entire book that require changes in campus cultures to accommodate the realities of where we are today. Let me share my highly simplified version of the evolution of higher education that created the current culture base on my decades of work in examining policies and practices. American higher education institutions began at a time when sources of information were scarce and typically collected in libraries and on campuses around which scholars and students congregated. As more students came into this community, the original system of scholars working individually with each student to guide him (almost no women) through his acquisition of knowledge was no longer possible. Classes were formed and lecture halls built so dozens or hundreds of students could simultaneously listen to a scholar explain a specific topic. These scholars were experts in their fields of study but very rarely were experts in the systematic exploration of teaching and learning to enable them to be effective teachers. With so many students, individual assessments no longer worked, so tests were devised, which could be used by hundreds of students. These evolved into machine-readable multiple-choice options usually designed by individual faculty members without knowledge in how to actually assess learning (unless they were included with textbooks and produced by psychometricians working for publishers).

As these campuses proliferated and became more complex in needing to serve communities beyond religious orders, systems had to be developed to manage and finance them. In order to track scholars’ levels of work for pay and pension purposes, the credit hour was devised. That became a convenient way to count students’ learning progress as well, even though most of us understand that it had nothing to do with learning. A credit hour was also useful for defining such things as the amount of engagement expected from students for financial aid purposes. Public institutions could be supported by their governments based on how many full-time students (defined by the number of credit hours of enrollment) a college attracted to its campus.

Institutions are typically measured by degree-types, which are in part based on our old friend the credit hour. Institutions could then be categorized into classification systems (research, comprehensive, etc.). Regardless of the classification though the general structure remained the same. Scholars of various levels of preparation design curricula and courses (regardless of their knowledge of learning sciences), as well as evaluations (still lacking scientific knowledge of how to measure learning). Rarely were practitioners in the wider world consulted regarding the continuing value of the knowledge taught by these scholars over their lifetimes. Learned societies among the fields of study developed allowing scholars to talk with one another but rarely did these experts agree on what the critical aspects of their fields were to be passed along to students. This led to students at different institutions being held to different levels of mastery of their fields of study. Graduates had all been assessed in unique ways so little was known about what a graduate really knew or could do.

To accommodate variations among students even within the same institution, grades were devised. Courses were managed to fit into fixed periods of time so classrooms were available. If a student learned enough in that time, he/she earned an A, B, C, or D, and passed the course, allowing the student to move on to the next one. My point here is that we no longer need to do this. It is possible to hold mastery of content constant and allow time to vary to better accommodate individual differences among students. All students must achieve a level of mastery to pass a course/program whether it takes them two weeks or six months. That is one of the basic tenets of what is known as Competency-Based Education (see broader definitions and specific implementation strategies in Section III of this book). It is enabled by the effective use of technologies that can give students access to course materials with immediate feedback on their mastery. This can free up scholars' time and allow them to go back to guiding students on a more individual basis.

There is no doubt in my mind that the most important elements in this evolution of American higher education is the lack of expertise in learning science and psychometrics. It leads to the result that the students who come from the communities like those from which the scholars come tend to be more successful. Individuals from different ethnic, racial, and income backgrounds have not done as well in the higher education system as it has evolved. Yet, these are the growing citizenry in America. Members of the entire enterprise must apply all their intellectual and creative energy to solve this disconnect in our campus cultures.

As we now look to the next phase of higher education in this country, consider the models this book promotes as a way to design a system of learning that gives learner's agency to build educational pathways that meets *their* needs. Academic programs should be designed in a way that all learners must equally demonstrate and verify their knowledge, mix-and-match modalities and mediums of learning, rebundle different types of credentials rather than just academic degrees, and display their educational accomplishments in a single record that transcends providers. In these reflections, I do not mean to suggest everything in American higher education needs to change, but I do want to suggest that institutions and state higher education agencies need to conduct audits of the policies and practices that prevent them from successfully serving the students of today regardless of race, ethnicity, or background to help them become productive members of the American society and good lifelong citizens.

Sally M. Johnstone

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Conclusion

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About the Contributors

Aaron M. Brower is the founding Executive Director for the University of Wisconsin Extended Campus, the Senior Associate Vice President for Academic Affairs at the UW System, and tenured professor at UW-Madison. UWEX has built a national reputation for award-winning innovative online programs for adults and professionals. Among UWEX's innovations is the UW Flexible Option, the first-in-the-country (and still only) competency-based educational program run throughout an entire statewide system. From 2012-2018, Brower served as Provost of UW-Extension (and Interim Chancellor of UW Colleges and UW-Extension during 2014). From 2007-2021, he was UW-Madison's Vice Provost for Teaching & Learning. Brower remains a tenured professor at UW-Madison's School of Social Work. Brower earned a dual Ph.D. in Psychology and Social Work in 1985 from the University of Michigan. Brower has written 5 books, more than 50 peer-reviewed articles and book chapters, and received over \$18M in grants to support his work. His scholarship demonstrates the academic and social outcomes produced when colleges blend in- and out-of-class learning – engaging the whole university to support the entire student. His current work, and the subject of this book, develops a new educational approach that encourages people to customize the unbundling and rebundling of their education and training throughout their lives.

Ryan J. Specht-Boardman works for the University of Wisconsin (UW) Extended Campus. He is responsible for leading the UW Flexible Option, which is the UW System's innovative multi-campus portfolio of competency-based degrees and certificates that serves over 1,200 students annually. He also has experience standing up and managing the UW Boot Camps, a collaboration between the UW System and 2U, Inc. Ryan's career began in student services and has since moved into academic program management. His primary mission is to build, grow, and sustain non-traditional, alternative, and innovative programs for adult learners. He believes that improving educational outcomes for adult learners requires rethinking higher education's existing paradigms in program design. Ryan posits that improving educational outcomes for adult learners is an essential part of building a more equitable and resilient economy in his community. He holds degrees from the University of Wisconsin-Stevens Point and the University of Iowa.

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Amrit Ahluwalia is the Editor in Chief of The EvoLLLution, the online newspaper developed by Modern Campus to create a conversation hub focused on non-traditional higher education and the transforming postsecondary marketplace. Ahluwalia was part of the team that conceived of and launched The EvoLLLution. He also serves as Senior Director of Strategic Insights at Modern Campus. The EvoLLLution, which launched in January 2012, serves over 2000 contributors and attracts approximately 60,000 monthly visitors. The site publishes articles and interviews by some of the industry's leading thinkers at every level -- from presidents and provosts to deans and directors to educators and students to employers and government officials and everyone in-between -- from across the United States and around the world. Ahluwalia works personally with every contributor at The EvoLLLution to produce the content that has supported the site's rise to becoming the top resource for non-traditional higher education. He regularly speaks on topics related to the changing higher education environment at conferences across Canada and the United States, and advises college and university leaders to help frame the strategic visions for their institutions. Ahluwalia earned his BA (Honors) in Political Studies from Queen's University and his MA in International Politics from McMaster University. He lives in London, Ontario.

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Carole Barrowman is a Professor of English and Director of the Creative Studies in Writing program at Alverno College. As well as numerous academic publications, Barrowman has published nine novels, including the middle grade trilogy, *Hollow Earth* (Simon & Schuster) and a YA series, *The Orion Chronicles* (Head of Zeus). She's also written for DC Comics, Titan Comics, and Legendary Comics. Barrowman's areas of expertise are assessment as learning, student-centered pedagogy, and creative writing.

About the Contributors

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Bettyjo Bouchey is Associate Professor and Dean of Online Education at National Louis University where she is responsible for quality of online programming across the institution, as well as the online student experience. Dr. Bouchey has enjoyed a long history in higher education and online leadership serving in roles at smaller institutions ranging from Vice President of Operations, Provost, and Dean, to her most cherished role as faculty member. Dr. Bouchey has had the opportunity to lead all aspects of an online campus in her career and spends time each week in deep dialog with an engaged personal learning network discussing the evolving nature of online education. Dr. Bouchey holds a B.A. in Psychology from the University at Albany, an M.B.A. in Entrepreneurship from Rensselaer Polytechnic Institute, and a Doctorate in Education from Northeastern University. Dr. Bouchey is a co-founder of the CORAL Research collaborative focused on online leadership and scholarship. Her research interests include the nature and future of organizational structures of online units in institutions of higher education, as well as inventive and high-impact pedagogical practice in online teaching.

Rovy Branon is the Vice Provost for Continuum College at the University of Washington. Prior to serving at the University of Washington, Dr. Branon was the Associate Dean for Online Learning and Chief Technology Officer for the Continuing Education and Online Learning division at University of Wisconsin-Extension in Madison, WI. Branon holds a Ph.D. in Instructional Systems Technology from Indiana University, and he completed his bachelor and master's degrees at the University of North Carolina Charlotte.

Lisa R. Braverman is a national leader and innovator in the field of adult and online higher education with a longstanding career working for public, private, and online colleges and universities. She has served at senior leadership levels, providing pioneering leadership and successful growth strategies in distance, continuing and international education, as well as strategic community and corporate partnerships. Currently, she serves as Vice Provost at Excelsior College, where she advances key strategic initiatives in academic affairs, curriculum and faculty development, and program innovation. Previously, she served as Dean of the Petrocelli College of Continuing Studies at Fairleigh Dickinson University, where she led a team of one hundred faculty and staff and twenty-five degree and certificate programs on campus, online and at international campuses. Previously, she served as Chief Academic Officer at the online Jones International University, Associate Provost for Adult Programs at Long Island University, Dean of Continuing and Professional Studies at SUNY Fashion Institute of Technology and Dean of Extended Education at NY Institute of Technology. Dr. Braverman has served in leadership positions in the major adult education associations, including on the Board of Directors of both the University Continuing Professional Education Association and the Association for Continuing Higher Education. She is also certified by the Institute for Engaged Leadership in Online Learning of the Online Learn-

ing Consortium, where she serves as Lead Moderator. This year, she was honored to receive the 2021 Individual Leadership award from ACHE, reserved for outstanding leaders and pioneers in the field of continuing higher education. Dr. Braverman is a consultant and published author, with a chapter published on blended completion programs in the Handbook of Research on Growing, Building, Sustaining Quality E-Learning Programs, many online articles and interviews, two journal articles in the Journal of Continuing Higher Education as well as a chapter on the future of continuing higher education in New Horizons published by Jossey Bass. She holds a Ph.D. from New York University and is regularly invited to give presentations and moderate panels on transformative leadership, innovation, online learning and entrepreneurship in higher education.

Suresh Chalasani is a professor of Management Information Systems at UW-Parkside. He developed curriculum and teaches in a number of undergraduate programs including Management Information Systems, Data Analytics, Sustainable Management, Health Information Management and Technology, and Project Management. Furthermore, he also teaches in the Master of Business Administration (M.B.A.) and the Master of Science (M.S.) in Healthcare Administration graduate programs. For more than a decade, Dr. Chalasani has been teaching in the consortium M.B.A. program, which is ranked among the top ten online M.B.A. programs by the US News and World Report. Dr. Chalasani has been involved in all aspects of the teaching lifecycle, including curriculum design & development for new programs, program delivery, assessment of student learning, and continuous improvement. He served as an Associate Dean for Nontraditional programs in the College of Business, Economics, and Computing (CBEC) at UW-Parkside. As Associate Dean, his responsibilities included managing programs particularly designed for a nontraditional student body and/or using a nontraditional format. These programs included Flexible Option Bachelor of Science in Business Administration (Flex BSBA), Online Bachelor of Science in Business Management, MS in Information Technology Management (Online), and MS in Cybersecurity (Online). The Flex BSBA program is an innovative program that helps non-traditional students complete their degree requirements by demonstrating mastery of program competencies. Since 2016, he worked with a number of faculty members, administrators and student support services in the UW System to design and launch Flex BSBA. He worked on achieving accreditation from HLC and AACSB International for the Flex BSBA program. Flex BSBA is the first competency-based Business degree program to be accredited by the prestigious AACSB International. Dr. Chalasani's research interests include using information technology and analytics for business and healthcare. He published several articles in prestigious journals such as IEEE Transactions. He was a guest editor for the IEEE Systems Journal's special issue on RFID, and he is co-editing a book "Digital Disruption in Healthcare" to be published by Springer in 2022. Dr. Chalasani received a number of research and teaching grants from the UW system and the National Science Foundation. He is a recipient of multiple teaching excellence awards in recent years. His experience includes working as an Assistant Professor at UW-Madison and industry consulting.

Sarah DeMark currently serves as Vice Provost, Workforce Intelligence and Credential Integrity at Western Governors University, where she has worked since September 2014. She helps keep WGU at the forefront of competency-based education by leading the university's credential integrity strategy and ensuring program offerings align to in-demand and market-relevant skills. She leads the General Education faculty in supporting student success and in advancing the connection and value of 21st century skills that are core to Gen Ed. DeMark serves as the interim Executive Director of the Open

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Skills Network, dedicated to advancing an open skills-based education and hiring ecosystem and sits on UPCEA's Council for Credential Innovation. Prior to WGU, DeMark spent more than 15 years at leading IT companies, serving in various leadership roles where she oversaw the strategy and execution of the design, development, and deployment of innovative, large-scale curriculum and skills-based assessment portfolios. DeMark is published in numerous journals and books and is a sought-after speaker. DeMark has also served on ANSI's Personnel Certification Accreditation Committee, which serves to validate whether certification programs adhere to standards. DeMark earned a Ph.D. and a M.S. in Educational Psychology (Measurement, Statistics, & Methodological Studies) from Arizona State University. DeMark earned B.S. degrees in both Elementary Education and Psychology from Vanderbilt University.

Scott Dolan is a leader and innovator in the development of flexible and affordable online education. He was named dean of the School of Graduate Studies at Excelsior University in May 2019. As dean, he provides strategic academic and administrative leadership to the School of Graduate Studies, and is responsible for all academic matters, including strategic planning, budget oversight, and curriculum development, delivery, and assessment. Currently, he oversees programs in business, human resources, organizational leadership, data analytics, cybersecurity, public administration, health sciences, and criminal justice. Dr. Dolan joined Excelsior University in 2014, and has served in various roles including: Director of Assessment and Program Evaluation, Executive Director of Accreditation, Assessment and Strategy, Associate Dean of Business and Associate Dean of Graduate Studies. His areas of expertise include assessment, accreditation, strategic planning, and program evaluation, with research interests in complex organizations and political and economic sociology.

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Shawn D. Felton is the Interim Dean of the Marieb College of Health & Human Services at Florida Gulf Coast University. Prior to Dr. Felton returning to FGCU in August 2019, he served as Department Chair of Athletic Training and Director of the Doctor of Athletic Training Program at Florida International University where he launched the Doctor of Athletic Training (DAT) program. He has served two years as Vice Chairman of the Advisory Council of Faculty Senates and assumed the Chair position in August 2018, which ultimately appointed him as a Governor on the Florida Board of Governors for two years. Prior to his appointment at FIU, he served from September 2005 till August 2018, as an Assistant and Associate Professor at Florida Gulf Coast University. In addition to his faculty responsibilities, he served four years and 3 months as the Faculty Senate President and University Trustee and also served as the Vice Chairman for FGCU Board of Trustees, from January 2016 till March 2017.

Debbie Ford, Chancellor of the University of Wisconsin-Parkside, leads as a champion for Student Success. She is a strong believer in community engagement and building partnerships. In addition to her responsibilities leading one of the most vibrant and diverse learning communities in the UW System, Dr. Ford serves as a board member for community and economic-development organizations throughout

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Mary Dana Hinton, Ph.D., became the thirteenth president of Hollins University on August 1, 2020. An active and respected proponent of the liberal arts and inclusion, her leadership reflects a deep and abiding commitment to educational equity and the education of women. Under her stewardship, Hollins announced the Hollins Opportunity for Promise through Education (HOPE) scholar program, designed to support young women from the greater Roanoke Valley region who wish to pursue a college degree at Hollins with tuition-free. Also under her leadership, the university received the largest single gift in the school's history and the largest donation ever received by a women's college: \$75 million to fund scholarships and address financial need. Hinton is chair of the Association of American Colleges and Universities and Chair of the President's Trust. She also serves on the boards of the National Association of Independent Colleges and Universities, The Teagle Foundation and Saint Mary's School in Raleigh NC. Hinton served as a member of the Lumina Foundation's Quality Credentials Task Force. In 2021 she was elected to the American Academy of Arts & Sciences. She is president emerita of the College of Saint Benedict in Minnesota. Hinton earned a Ph.D. in religion and religious education with high honors from Fordham University, a Master of Arts degree in clinical child psychology from the University of Kansas, Lawrence, and a Bachelor of Arts degree in psychology from Williams College. She also holds honorary Doctor of Humane Letters degrees from Misericordia University and the Massachusetts College of Liberal Arts.

Jake Hirsch-Allen builds public private partnerships between North America's governments, workforce development organizations, colleges and universities, and LinkedIn Talent Solutions. Through this work, Jake supports and is learning to be an ally to groups such as newcomers and refugees, indigenous populations, the formerly incarcerated and people with disabilities. Jake advises several startups including FutureFit AI, HireGuide and Readocracy. He speaks regularly on the changing nature or future of work and learning and is passionate about skills-based hiring and learning. Jake is a Director on the

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Boards of the Canadian Council for Youth Prosperity, Information and Communications Technology Council, and the Canadian Club. He founded Lighthouse Labs, Canada's foremost software development bootcamp and Hacking Health. A former intellectual property and international criminal lawyer, Jake was also Chair of the Technology Committee of the Global Education Platform, taught Global Health at McMaster University and clerked at the Supreme Court of Israel.

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Debra Humphreys serves on the executive team of Lumina Foundation and oversees the foundation's strategic communications work as well as its efforts to increase the number of individuals attaining high-quality Bachelor's degrees. She also provides direction and coordination for Lumina's substantive work bringing together its commitments to equity and postsecondary educational quality. Debra Humphreys began her tenure at Lumina Foundation in October 2017. Humphreys received her BA from Williams College and her Ph.D in English from Rutgers University. Humphreys previously served as the senior vice president for academic planning and public engagement at the Association of American Colleges and Universities.

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Cathrael Kazin is Managing Partner of Volta Learning Group, which works with educational institutions and other learning organizations to bridge the gap between higher education and the workplace. She served as founding Chief Academic Officer of SNHU's College for America and designed its award-winning project-based CBE model. She has extensive experience in assessment and was Executive Director of the Higher Education Division at ETS. She worked at the US Department of Labor as a civil rights attorney and as a speechwriter to Secretary Robert Reich. She is also a former faculty member of the University of Iowa English Department and frequently gives workshops and webinars on CBE and other innovative approaches to learning and assessment. She earned her PhD from Cornell

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Maria Langworthy is the Worldwide Director of Education Research at Microsoft. Currently, she leads Open Education Analytics, an international community of education systems collaborating to develop open-source data solutions. Prior to OEA, she led early-stage product development for Microsoft products such as Education Insights, Reflect, and Career Coach. She speaks at international education events and publishes on topics such as remote and hybrid learning, using data analytics to inform continuous improvement, and developing skills-based education and employment. Prior to joining Microsoft in 2016, Maria was the Senior Officer of Strategic Data for Education at the Bill and Melinda Gates Foundation. In that role she developed progress measurement strategies for education investments. Previously, Maria served as the Global Director of New Measures for the New Pedagogies for Deep Learning project led by Michael Fullan. This project is an international collaboration of education systems working together to implement competency-based approaches to teaching and learning. Maria also initiated and ran the Innovative Teaching and Learning Research project. ITL Research was an 8-country study investigating innovative teaching and students' development of the 'new' competencies. The "21st Century Learning Design" program she initiated based on ITL Research methods is used by teachers and schools in over 30 countries to redesign learning experiences towards these competencies. Dr. Langworthy holds a M.A. degree in International Relations and a Ph.D. in Political Sociology, both from Boston University.

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Jodi Lewis is director of strategic projects and initiatives at the Success Center for California Community Colleges. She supports the system's Chancellor's Office in developing and implementing

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statewide policy and communicating strategically about initiatives to achieve statewide student success goals. As a researcher, she has expertise in K-12 and higher education policy focused on college and career readiness and postsecondary completion. She co-founded and co-directed a fellowship for mid-level education policy professionals in California, based on the national Education Policy Fellowship Program. Jodi holds a master's degree in public policy and administration from Sacramento State, and a bachelor's degree in Political Science and English from Mount St. Mary's University in Los Angeles.

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Matthew Pittinsky, Ph.D., is the CEO of Parchment and co-founder and former CEO of Blackboard Inc. Matthew is on the faculty of Arizona State University and also serves on the Board of Trustees of The Woodrow Wilson National Fellowship Foundation. In 2012 the Teachers College at Columbia University awarded Matthew with The President's Medal of Excellence to recognize his impact and innovation in the field of education technology and entrepreneurship. He is a frequent speaker, and has been invited to present at education events such as ASU+GSV, P3•EDU, NewSchools Summit, Association of American Universities meeting, National Association for College Admission Counseling National Conference, and SXSWedu. Matthew holds a B.S. in Political Science from American University, Ed.M. in Education Policy from Harvard University Graduate School of Education and a Ph.D. in Sociology of Education from Teachers College, Columbia University.

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