The Enabling Power of Assessment 11

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The Contextualisation of 21st Century Skills

Assessment in East Africa

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The Enabling Power of Assessment

Volume 11

This series heralds the idea that new times call for new and different thinking about assessment and learning, the identities of teachers and students, and what is involved in using and creating new knowledge. Its scope is consistent with a view of assessment as inherently connected with cultural, social practices and contexts. Assessment is a shared enterprise where teachers and students come together to not only develop knowledge and skills, but also to use and create knowledge and identities. Working from this position, the series confronts some of the major educational assessment issues of our times.

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Foreword

Our efforts to achieve Sustainable Development Goal 4, "*Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all",* bring to mind Lewis Carroll's Alice in Wonderland "*If you don't know where you want to go, then it doesn't matter which path you take*".

The education systems in Africa have identified the need for twenty-first century skills, embarked into new curricula such as Kenya's Competency Based Curriculum, and are introducing new teaching and learning methods such as inquiry-based learning. However, like Alice in Wonderland, our sense of where we want to go with these changes is vague and undefined. On the one hand, there is a lack of unanimity on what success looks like, and on the other hand, we do not yet have effective instruments for measuring progress and outcomes.

This volume engages primarily with the second of these issues. It describes an endeavour to identify where we are, relative to where we want to go. Reflecting priorities in East Africa, insights are provided into how cultural perspectives about twenty-first century skills can act as aids to their measurement, in the face of continuing global differences in the understanding of the nature and identity of these competencies. The volume describes the Assessment of Life Skills and Values (ALiVE) initiative in East Africa which has engaged in a research-based endeavour to develop a contextualised set of tools to measure life skills and values through household-based assessment.

ALiVE seeks to generate evidence on life skills and values in the East African context, develop and provide an open-source contextualised measurement tool, use the evidence to inform policy and drive public conversations, and use the tool development process as a pathway towards building and nurturing a community of practice on learning assessments. This volume describes the achievement of these goals, drawing on the expertise and experience of the ALiVE team across Kenya, Tanzania, and Uganda.

The volume addresses the problem of how to measure valued skills that underpin both education and daily life in such a way that practical information about youth performance is provided. The goal is to elicit data that will guide the emerging 'life skills' curricula in countries in East Africa. In order to trace the method and process

for solving the problem, the volume follows two themes. One theme concerns the prominence of twenty-first century skills in education over recent years, how this has taken form in East Africa through a collaborative learning approach, and how this can inform policy through articulating the need for and uses of household-based assessment of life skills in advocating for change in socio-economic and education policy. The other theme explores the issue of 'global' versus local understandings and definitions of twenty-first century skills through the lens of specific competencies – such as collaboration, self-awareness and respect, and problem solving – and then builds on this through reporting on the development of practical tools which reflect the local perspectives. This theme engages with the technical challenges of assessment of the competencies, demonstrating how the local conceptualisations lead to use of grounded daily life scenarios upon which to develop assessment items.

This is a pathbreaking work in at least four ways.

First, it recognises that the transition to twenty-first century skills requires integration into existing curricula of more complex cognitive and affective competencies, such as critical thinking, innovation, collaboration, problem solving, self-awareness, and communication. While there is broad agreement and understanding of how to measure skills such as numeracy and literacy, there is lack of clarity on the assessment and pedagogical practices that enhance some twenty-first century skills, and in particular affective skills. As a result, professional development programs for teachers do not provide guidance on how to nurture and assess competence in these character-based skills. This assessment provides an important model for assessing these skills, which can contribute to pedagogical insights.

Second, the current tools used to measure twenty-first century skills are based on Western cultures and contexts and are sometimes not relevant to African cultural contexts. The ethnographic approach taken by ALiVE provides important insights into how collaboration, problem solving, and self-awareness skills are defined in sub-Saharan Africa, how they can be taught, and how they can be assessed in class and outside it. For example, the ALiVE contextualisation study showed that collaboration is driven more by the need to stick together than by the goal to be achieved, and it reveals a fundamental difference in the understanding of the concept of collaboration which is not reflected in international assessments.

Three, by using household-based learning assessments, ALiVE prioritises the important contribution that learning and skill development makes both in school and outside it. It recognises that assessments need to capture a wide range of learners and attend to the learning needs of diverse populations. The information presented in this volume should trigger further study to identify key differences in skills and competencies between in-school and out-of-school youth to enable suitable teaching and training approaches.

Four, ALiVE provides an important pathway towards nurturing a regional community of practice on learning assessments and to generating the much needed knowledge on how to inculcate and measure life skills in the region. The psychometric value and rigour of the assessment tool, and assessed proficiencies of over 45,000 adolescents and the learning achieved by those who participated,

demonstrates how collaborative local action can achieve unique and profound insights that cannot be generated by external researchers.

This volume has taken the first step in that classical journey of a thousand miles that starts with the first step. It has provided an important framework for educators to contextualise the meaning and implications of skills such as collaboration and self-awareness. It should stimulate a continuing journey towards developing tools that are psychometrically rigorous, pedagogically useful, and context and culturally relevant.

June 8, 2023 Ruth Kagia

Ruth Kagia served as a Senior Adviser to the President of Kenya, as well as Head of the Presidential Policy and Strategy Unit between 2014 and 2022. Prior to this and from 1990 onward, Ruth served at the World Bank, including as World Bank Global Director for Education. In this capacity she led the establishment of the Global Partnership for Education (at that time known as the Fast-Track Initiative), currently the largest global fund dedicated to transforming education in lower-income countries. In 2008–2012, she served as World Bank Country Director for Southern Africa. Before joining the World Bank, Mrs. Kagia worked with the Kenya Government in teaching, education management, and research. She holds degrees from the University of Nairobi in Kenya, Harvard Graduate School of Education in the USA, and the Commonwealth University, UK.

Preface

This is no ordinary book. It is a mosaic of the lives of 20 East African authors, education and life skills enthusiasts and a few friends converging along the path of self-empowerment. It is the quest of East Africans to tell their own story, a story of learning through doing to not only develop and use contextualised assessments of life skills and values, but also figure out what it all means and why it matters.

We are led by the vision of a generation of learners who have acquired the needed competencies to navigate the complexities of twenty-first century learning, living, and working. The Assessment of Life Skills and Values in East Africa (ALiVE) is a journey of hope. When we started in 2020, there were only a handful of assessments of these competencies in Africa. Even then, most of the assessment tools used were standardized questionnaires, developed with a Western lens and difficult to apply to our context. Most were self- and peer-rating scales and were inaccessible at local level as none were open-sourced. We hardly found anyone in East Africa with a reasonable level of expertise to develop these assessments. In the face of these obstacles, we decided to act. We started ALiVE as a collective impact and learning initiative targeting three outcomes – learn and develop a contextualised assessment tool to conduct a large-scale assessment, use evidence for public awareness and policy awareness, and establish a community of learning that raises the voices of East Africans about these competences.

This dream started coming to fruition with the founding of the Regional Education Learning Initiative (RELI) in 2017, a platform designed and dedicated to ensuring equitable access to quality education for East African children. A group of 20 civil society organizations from Kenya, Tanzania, and Uganda signed into a thematic group bearing the name Values and Life Skills (VaLi). Our initial meetings focused on tracing and learning from existing assessments and interventions globally. A meeting held in June 2018 in Dar es Salaam gave strong impetus to our burgeoning movement. Facilitated by experts who included Esther Care and Helyn Kim from the Brookings Institution, Ann Herschkowitz from the Education Development Centre, and Carina Omoeva from FHI 360, this meeting yielded our clarity on the three learning questions that have driven VaLi's learning agenda ever since. We could finally see the light at the end of the tunnel. First is the clarification of what

these competencies mean in the East African context, and which of these should be prioritized and why. Second is the question of what works in nurturing these competencies in context. Third is which measurement approaches are needed and effective to assess these competencies in East Africa.

By August 2020, we had convened more than 10 learning and co-creation meetings, and three funders provided their support to kick-off this ambition. The self-empowerment journey was now in full swing, learning how to collaborate and how to develop a contextualised assessment tool. Consensus was reached among the VaLi members across the three countries, to start with three skills and one value: collaboration, problem solving, self-awareness, and respect. These were among the competencies prioritised by the curricula in the three countries, and what members felt would best represent the key domains of twenty-first century competencies – mostly the *cognitive*, the *self*, and the *social* domains.

Unique to ALiVE tool development was the choice to balance between *process* and *product*. First, a contextualisation study was conducted in 15 districts across the three countries, covering a wide range of cultural and economic contexts. This qualitative study targeted the clarification of the constructs informed by adolescents, their parents and teachers, and other persons working with this age group. It also generated raw material for the assessment questions, items, and tasks. Second, a mapping process was applied to identify 47 East Africans who had the disposition or interest to learn how to develop the assessments. They were drawn from government institutions, university departments, civil society organizations doing this sort of work in the region, and a few teachers as well as parents. Professor Esther Care (then of University of Melbourne) was invited as the process facilitator, teacher, and mentor. It took 45 weeks through COVID, multiple workshops (sometimes virtual and other times blended, with Tanzanians mostly able to hold in-person meetings), to apply the contextualisation results and outcomes of global literature reviews to develop skill structures, skill definitions, and the assessment framework and generate and pre-test the assessment items and tasks that formed the ALiVE tool.

Over this same period, two other processes were underway. The ALiVE Learning Community was convening virtual learning sessions (LearnShops) to build clarity on various assessment aspects and building momentum for learning, while public awareness and advocacy activities spoke on the importance of holistic education that included life skills and values.

A highlight in the journey was the household assessment conducted between April and August 2020 in 20 counties in Kenya, 45 districts in Tanzania, and 20 districts in Uganda, reaching over 45,000 adolescents aged 13–17 years. We celebrate this not just as the first assessment of this scale on the continent, but also the value drawn from direct interaction with parents and community members in the tens of thousands of households that we visited across East Africa. Moreover, close to 1000 teacher trainees (and some teachers) were involved as assessors, offering them hands-on opportunity in conducting this kind of assessment, a valuable skill for their future teaching endeavors. This assessment was not just about delivering data; learning, awareness, and advocacy were its core ingredients.

This book compiles the perspectives emerging from the assessment process and results, as well as the localised experiences generated from this initiative. Given that more than half of the authors here are practitioners and not scholars, the authoring process was itself a learning agenda. Prof Esther Care, Dr Mauro Giacomazzi, and I offered time to train on academic writing, support to conceptualise the chapters, and exposure to relevant literature to draw from. Hidden in this book is the precious treasure of self-trust and determination, mutual purpose, and collaborative work. The book is a gift to ourselves, a shared mission with our education systems, and a special dedication to the children of East Africa. We hope it will be useful to you as reader, and a welcome to join our efforts in achieving our vision of learners who have embodied these competencies and are thriving in school, in work, and in life.

Nairobi, Kenya John Kabutha Mugo

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Chapter 1
Global to Regional: From Twenty-First Century Skills to Life Skills in East Africa

Esther Care

Abstract Education systems worldwide are adapting to demands from civil society and the workforce to better equip young people to function effectively in the twenty-first century world. The lag from awareness to aspiration to policy and to practice requires communities to contribute to building knowledge, developing tools, and representing society's needs to government. Three countries in sub-Saharan Africa, Kenya, Tanzania, and Uganda, are benefiting from the efforts of a network of civil organisations working together with academia and government, which seek to enhance education provision. This introductory chapter establishes the context in which the Assessment of Life Skills and Values in East Africa initiative has developed tools to measure adolescents' proficiencies, and in so doing developed expertise in the assessment of life skills and values through a regional initiative.

1.1 Introduction

The Assessment of Life Skills and Values in East Africa (ALiVE) is an initiative of the Values and Life Skills (VaLi) thematic group of RELI, the Regional Education Learning Initiative, which latter comprises over 70 East African organisations, with the goal of ensuring learning for all. ALiVE's goals as of date of writing were to advocate for education through the following objectives:

- *Develop context-relevant, open-source tools for assessing life skills in East Africa;*
- *Undertake a household assessment targeting adolescent aged 13 to 17 years, both in and out of school (generate the evidence);*
- *Use the evidence to draw attention to and increase awareness on the worth of these competencies among stakeholders (public policy advocacy);*

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- *Elevate RELI-VaLi to a regional community of practice on methods and measurement of life skills, replicable at the national and regional levels for sustainability (transnational alliance building);*
- *Enhance peer learning and feedback among the RELI member organizations working on improving learning outcomes in East Africa (learning, sharing & capacity strengthening.)* https://reliafrica.org/alive/

From 2020 onward, ALiVE, through its 47 team members, has undertaken studies to contextualise understandings of life skills and values, developed tools to measure these, and assessed over 45,000 adolescents through household-based assessment. ALiVE's approach has been borne from serious scholarship and research, the experience of its members in household-based assessment through Uwezo (a survey of children's literacy and numeracy competencies), and its learning journey in assessment. Between April and August 2022, adolescents were assessed across a variety of competencies, including life skills, a value, digital literacy, and literacy, in Kenya (17,276), Tanzania mainland (14,645), Tanzania Zanzibar (2447), and Uganda (11,074). Note that Zanzibar's education system is distinct from that of Tanzania mainland, and so participated in ALiVE as a fourth educational system.

The output of these processes are the data that will inform ALiVE, its partners, and the ministries of education in the three countries about the proficiencies of 13–17 year olds. Kenya, Tanzania, and Uganda have all re-visited their curricula in recent years in order to meet the learning goals that their governments espouse. These data provide another tool, usable by ministries of education, to fine tune curricula, teaching strategies, and the enabling educational environments.

An outcome of these processes is an increasingly skilled professional workforce, which has the capacity to translate learning goals into assessment tools, instructional strategies, and policy guidance.

The 'great divide', as signified by terms such as the 'global south' is bearing unexpected fruit. As developing economies take charge of their educational directions, they increasingly self-reference. One symptom of this shift lies in research and practice that adopts a 'contextualisation' approach. The approach, epitomised by the ALiVE initiative, does not seek the substantive guidance of aid and development providers from high income economies, notwithstanding a U.S. centric perspective that the latter are responsible for empowering and enabling 'locally led development' (Ingram, 2022).

Another symptom of this shift is the adoption of educational directions consistent with local analysis of needs, rather than accepting the educational imperatives of aid providers. For example, ALiVE's exploration of life skills and values represents a perspective on education that is distinctly different from that of some global agencies that literacy and numeracy are what constitutes 'learning' and accounts for 'learning poverty' meaning those unable to read and understand a simple story (World Bank et al., 2022) in low- and middle-income economies. The information about importance of a broader set of skills dates back to at least 2001 (e.g., Heckman & Rubinstein, 2001), to the effect that 'non-cognitive' skills contribute to determination not only of educational achievement, but also income. That OECD's

'Programme of International School Assessment' (PISA) has included competencies beyond language, mathematics and science in all rounds since 2003, is further testimony to the acknowledgement by OECD members that education indeed requires more than these foundational competencies. Although student attitudes, beliefs, and behaviours such as self-regulation and learning strategies were originally captured within PISA from student questionnaires, the OECD has moved increasingly into measurement of 'transferable' or broader skills such as problem solving, collaborative and creative problem solving, and global competence. Reflecting on these trends, there is strong evidence of countries 'mainstreaming' many of these competencies within their curricula through areas such as global citizenship education (Benavot & Williams, 2023; UNESCO, 2021) notwithstanding little evidence of actual teaching and learning of related knowledge and skills.

The achievement of the ALiVE initiative does not lie simply in the fact that over 45,000 adolescents across Kenya, Tanzania, and Uganda have been assessed, but in the manner of its undertaking. Key features of this undertaking are:

- That a loose consortium of education stakeholders, primarily from non-government not for profit organisations, but including government and the higher education sector, developed the assessment program in its entirety;
- That the assessments were undertaken at household level in rural and urban areas, across isolated and in inner city areas;
- That tools to assess three life skills and one value were developed from ground up by a collaborative group; and
- That the tools were found to have sound psychometric qualities.

Each of these features signifies a major shift in the coordination and directing of aid and development activities. The enterprise was designed and led by in-country professionals, whose intent was to gather large scale data on life skills in order to influence policy, and to learn by doing.

1.1.1 What Are These Competencies?

The '21st century skills' shift has gained pace in many national education systems over the past decade. Notwithstanding its ubiquity, there remains confusion about what exactly this term means, and what competencies and characteristics gather under its umbrella. A review of terminology that was in use around 2016 to describe twenty-first century skills included more than 50 terms. The review was part of an initiative which was then referred to as *Skills for a Changing World* (Care et al., 2017). The fact that such a review was even necessary reflects the confusion generated by the plethora of human characteristics and competencies that educators, employers, governments, and global institutions regard as essential for today's young people. Table 1.1 presents a re-interpretation of some of the review's more common terms.

Table 1.1 Some common terms associated with 'breadth of skills'

Category	Terms	Category	Terms
Temporal	Twenty-first century skills Future world skills Future ready skills Permanent skills	Process	Learning skills Life education skills
Outcome	Work skills Skills to succeed in life Skills for social progress Life skills	Relationship	Dynamic skills Connector skills Transferable skills Transversal competencies
Priority/importance	Accelerator skills Essential life skills Core skills Critical skills Foundational skills	Counterweight	Soft skills Noncognitive skills Integral skills Generic capabilities

The categorising descriptors provide a perspective somewhat different than the substantive classifications (such as social-emotional, cognitive, affective, etc.) that are frequently used. The identification of 'temporal' in particular is interesting because it self-consciously acknowledges the criticism often levelled at the '21st century skills' movement—that this term implies relevance only to this current century, whereas the competencies have clearly been relevant across centuries. 'Outcome' is a clear reference to the functionality of skills in daily societal life. The 'priority/importance' category is also self-evident, in that these terms claim for preeminence of the skills. 'Process' skills link nicely to the education space as well a functioning in daily life. The 'relationship' category is one which has high visibility in academic research (particularly in discussion of problem solving) and in some regions (e.g. South East Asia). The category includes several terms which emphasise the generalisable and adaptive nature of the skills. A final category that illuminates discussion about terminology is 'counterweight'. The category explicitly identifies what these skills are considered 'not' to be, and it is notable that some of its terms can carry negative connotations.

Table 1.1 draws predominantly on use of the term 'skills', but it is clear from incorporation of many of these proficiencies now included in curriculum frameworks world-wide that this is not the only, nor necessarily the preferred, term. For example, the Australian curriculum refers to such proficiencies as 'general capabilities', Kenya as 'core competencies', Uganda as 'generic skills', Singapore as '21st century competencies', and Zambia as 'competences' (and values). There are naturally many other terms in languages other than English. This chapter adopts the term 'generic competencies' when appropriate to do so.

The ALiVE initiative adopted the terminology of 'life skills' and 'values'. This terminology presents some difficulties for communication, both within East Africa (Joynes et al., 2019) and more widely (Global Partnership for Education, 2020). The term 'life skills' has frequently been used in Africa over the past decade to describe

technical-vocational skills, and also by the aid and development sector and by ministries of education. In the latter case, its use has frequently been in the context of acquisition of knowledge and skills to deal with problems, most visibly associated with education about HIV AIDS, and drug and substance abuse, as well as with strategies to protect oneself from abuse by others (Akyeampong, 2014). This association may pose a communications and dissemination risk to perceptions of the competencies as holistic and adaptive, rather than as protective factors alone.

Classifications of the human characteristics and competencies that populate a 'breadth of skills' are multitudinous and varied; and there is no one classification that has been accepted universally by national education systems, uni- and multilateral organisations dedicated to improvement of education provision, or workforce analysts and employers. Over the past three decades, classifications have varied from the simple to the complex. For example, we see the cognitive versus non-cognitive dichotomy promoted by Heckman and colleagues (e.g., Kautz et al., 2014); to the Knowledge, Skills, Attitudes, Values and Ethics (KSAVE: Binkley et al., 2012) framework; through to the nature of global competence including knowledge, skills, attitudes and values (OECD, 2018), and on to global citizenship across cognitive, social, and behavioural functions (UNESCO, 2019).

Seminal writings that have influenced the field have drawn on concepts of citizenship and society (Delors, 1996); on key competencies (OECD, 2001; Rychen & Salganik, 2003) including tools for interacting effectively, engaging with others, taking responsibility for managing self within the broader social context; and on 'deeper learning' (Pellegrino & Hilton, 2012). More recently, the Sustainable Development Goals (SDGs; UNESCO, 2018) have made explicit not only the valuing of literacy and numeracy but also the need to equip citizens with technical and vocational skills, social and cognitive competencies, and the characteristics associated with global citizenship. The SDGs signal an emphasis on the breadth of skills necessary to prepare children, youth and adults comprehensively for twenty-first century citizenship and life.

There have been few efforts to identify classifications that are idiosyncratic to regions. Among these few are contributions from East Asia (Cheng, 2017) and South East Asia (UNESCO, 2015). In Africa, there have been few attempts to summarise frameworks of these competencies. One output of the Learning Metrics Task Force (LMTF, 2013) was identification of seven domains of learning, including the learning approaches and cognition domain, and the social and emotional domain. This was a global rather than regional enterprise but included a significant number of African countries. Another initiative that sought to map competencies being targeted by nine sub-Saharan countries that were members of TALENT, based in UNESCO, Dakar (Kim & Care, 2020), found core skills rather than common frameworks across their curricular goals – such as creativity, initiative, problem solving, critical thinking, collaboration, and communication. This cluster of skills is similar to that found from a larger scale mapping of over 160 countries (Care & Kim, 2018).

1.1.2 Why These Competencies in the Curriculum?

As national education systems seek to broaden their curricula and teaching, these are responses to both global and local imperatives. The global we see reflected in much of the literature cited in the introductory sections of this chapter. The local imperatives can be seen reflected in individual country vision statements, which vary from responses to economic imperatives, citizenship, values, and religious concerns, and aspirations for development of the individual. Accordingly, the rationale for 'skills' prioritises responses to a changing world socio-economically, concerns about the attitudes and values of youth, discontent with current education provision and student learning, and awareness of environmental and sustainability issues.

Year by year increasing numbers of children attend formal education. As the sector becomes more inclusive, so it must be more adaptive in order to meet the learning needs of more diverse populations, and more diversified itself in order to meet the socio-economic needs of the state. However, the universalisation of education provision has not been accompanied by universalisation of expected outcomes. The existing concerns about slowness of progress toward the 2030 targets (UNESCO, 2018) have been exacerbated by the repercussions of the COVID-19 pandemic, during which more than 190 countries implemented nationwide closures, hypothesised to exacerbate existing inequities and obstruct educational progress toward the SDG targets (UNESCO et al., 2021).

As the education sector has struggled to continue provision of teaching or teaching materials to youth over the past 3 years, planners trimmed down curriculum and developed materials specific to self-directed learning (e.g., Department of Education, 2020; UNESCO et al., 2021). At the same time, for those students who were able to access learning materials at all, their motivation and capacity to direct and manage their own learning bring the matter of self-direction, independence, and problem solving to the fore. We wait for more insights about the relevance of generic competencies for self-management of learning, particularly in low-income countries (Betthäuser et al., 2023).

In the face of continuing concerns about the directions and implementation of education provision world-wide, the visibility of curriculum reform stands as an acknowledgement of the need to broaden the nature of that provision. Such acknowledgements are an essential step which can stimulate wider discussion of new directions, and lead to further reforms in pedagogy and in assessment. As documented in the case of several countries in South East Asia (UNESCO, 2016; Care & Luo, 2016) curricular reform that incorporates generic competencies has typically not been accompanied by timely reform initiatives in teacher training, or in provision of aligned learning resources. This trend points to continued lack of acknowledgement of the need for systemic integration of the skills, requiring a major rethink of how teachers, particularly in the secondary sector, can incorporate the skills in their teaching—through modelling and through focus on process. As increasing numbers

of countries and regions begin the journey towards more holistic concepts of education, these learnings have the power to inform more successful shifts in these countries.

1.2 ALiVE

Given the wealth of information now available from other countries which have embarked on the '21st century skills' or generic competencies path, Kenya, Tanzania, and Uganda are well-placed to take an informed approach to policy and practice. Alert to these issues, the ALiVE initiative has taken a grounded approach to the informing of policy which will prioritise alignment across the major actors of an education provision system—curriculum, assessment, pedagogy, and learning resources.

The education systems across the three countries have each reviewed their curricula in the past 5 years, and have included what they variously refer to as 'core competencies' (Kenya: Kenya Institute of Curriculum Development, 2019), 'generic skills' (Uganda: National Curriculum Development Centre, 2020), and 'learning, life, and soft skills' (Tanzania: Tanzania Institute of Education, 2019). The national perspectives and consultations within each country are reflected by the differences in how each conceptualises these competencies. For ALiVE, a key factor was to identify a common set of valued competencies across the three countries, in order to ensure that the information captured by the assessment tools would be relevant and useful. A high-level overview is provided in Table 1.2.

Table 1.2 lists the values and life skills that are identified in the education systems' curricular frameworks or visions. Each system typically also highlights key generic competencies which draw on the focus values and skills as well as others. There are some terminology differences across the countries, which are highlighted as relevant. There is no doubt that the countries are espousing similar sentiments in terms of their hopes for their youth. These similarities made possible the ALiVE aspirations for development of one common set of tools to use to capture a picture of young people's competencies. This 'picture' would then provide evidence on current functioning levels to support system, school, and teacher identification of 'zones of proximal development' (Vygotsky, 1978) for instruction.

Notwithstanding the clarity of the countries' aspirations, each remains in early days of implementing what amounts to a shift in educational policy from focus on academic knowledge and skills alone. There are several factors that typically impact on implementation (UNESCO, 2016; Care & Luo, 2016). These include:

- Confusion about what the competencies actually are, which are valuable, how to conceptualise, how to integrate into practice, and how to evaluate outcomes (due to lack of knowledge of how to deconstruct to identify contributing subskills, integrate into classroom teaching);

Table 1.2 Commonality of values and skills across the four educational jurisdictions

Values			
Kenya Care and compassion, ethical, excellence, honesty and trustworthiness, respect, responsibility, trust, understanding and tolerance			
Tanzania Equity, inclusion, multilingualism, patriotism, quality, self-reliance, sustainability, transparency and accountability			
Uganda lower secondary Integrity and honesty, patriotism, peace and harmony, positive attitude toward work, respect for human rights, self-control			
Uganda upper secondary Creativity and innovativeness, hard work for self-reliance, honesty, integrity, justice and fairness in dealing with others, national unity, national consciousness and patriotism, respect for humanity and environment, social responsibility, social harmony			
Skills	Kenya	Tanzania	Uganda
Critical thinking	x	x	x
Creativity (and Imagination[K]) (and Innovation[U])	x	x	x
Problem solving	x	x	x
Communication	x	x	x
Collaboration, Cooperation[U]	x	x	x
Learning to Learn[K], Initiative[T], Learning/Self-directed Learning[u]	x	x	x
Digital literacy[K], Information Media and Technology, ICT proficiency[U]	x	x	x
Leadership, Negotiation, Flexibility, Decision-making, Productivity		x	

Key. [T] Tanzania; [U] Uganda
Note. Sources for the tabled information: Kenya Institute of Curriculum Development (2019), Tanzania Institute of Education, MoEST (2019), National Curriculum Development Centre, Uganda (2020, 2023)

- A policy and then inputs focus on implementation (of which curricular integration is a visible sign) without review of the necessary infrastructure (teacher training, revised texts or teaching materials) (Benavot & Williams, 2023; UNESCO, 2021);
- Lack of community understanding of the relevance and functionality of these competencies, and therefore lack of community voice to stimulate action.

1.2.1 Contextualisation

A major dissonance exists in the formal education environment and individuals' daily lives. Arguably, this dissonance is to blame for communities' lack of understanding of this particular education shift. In many countries, the primary identity of education lies in its provision of foundational skills in literacy and numeracy; and

secondarily in its role in equipping those who are fortunate by birth or their intrinsic qualities, to prosper beyond the reach of the majority.

Demonstrating the relevance of knowledge, skills, attitudes, and values in daily life has been the path taken by ALiVE. To use the experiences of young people from one day to the next as the vehicle for demonstration of life skills and values, has been the strategy to link the two worlds, and to elicit information from one world to inform the other. This strategy has been made possible through the initiative's focus on contextualisation—what makes sense to the individual and community through common perspectives on social, religious and cultural life and manners. In effect, contextualisation is about ensuring authenticity of concept and of practice.

ALiVE has based the assembling of evidence to inform policy on 'contextualisation' (e.g., Giacomazzi, 2022) through exploring local understandings of socially defined characteristics and competencies (see Giacomazzi, 2024; Chap. 3, this volume). In turn, contextual understandings have informed the development of assessment tools, drawing on 'authenticity' perspectives (e.g., Care & Kim, 2018) from the field of assessment. The two concepts—contextualisation and authenticity—are complementary elements in ALiVE. Contextualisation provides the means to ensure that target conceptualisations of human characteristics and capabilities are meaningful to the participating populations, while striving for authenticity in development of situation-based and performance-based tasks provides a realistic environment in which to demonstrate proficiencies. So, the target life skills and values are contextualised, and the measures of these are developed from 'authentic' daily life (see this volume: Scoular & Otieno, 2024; Ngina et al., 2024; Care & Giacomazzi, 2024).

1.2.2 Assessment

Assessment is a much-maligned notion, often deservedly so. It can be used to limit opportunities rather than open doors. However, it has two benefits that cannot be under-estimated. Both of these benefit stem from the same characteristic—assessment provides information. That information can be used at medium to large scale level to guide education providers concerning what has been achieved or what is wanting. The information can also be used at individual and group level to guide learning, primarily through the methods popularised by Black and Wiliam (1998) as formative assessment. The benefits can only be realised where those responsible for the assessment are clear on the purpose of the assessment, the target characteristic or competency of that assessment, and the target individual, group, or population for that assessment. This simple concept is challenged in implementation. A particular challenge, encountered and welcomed by ALiVE, is that of being clear on the target characteristic or competency to be assessed, and how those characteristics or competencies will be expressed and recognised in the target populations.

1.2.3 Assessment and Its Authenticity

A primary convention adopted by psychometricians and by users of assessments, is that the assessment must clearly target the construct of interest (whether capabilities, knowledge, characteristics), and will target this in a way that will be familiar to the individual being assessed. These are two forms of alignment. For example, if one wants to find out if a child can add two numbers less than 10, then a task can be set that will require exactly that type of calculation—this is the first alignment, that what is assessed is an indicator of the targeted construct. If a child has been familiarised with the concept of addition of two numbers less than 10 through the use of manipulable objects, then the task can be provided in that mode—whether physically or in an online environment. If the child has been familiarised with the concept via the use of symbols, and/or use of pen and paper, this mode can be used—this is the second alignment, that how one is assessed is consistent with the manner in which one has learnt. Of course, the alignment is not always as clear as in this example, particularly as the target construct becomes more complex, and draws on several subskills or other contributing factors.

Given this history, the assessment of '21st century skills' is an interesting phenomenon. Often referred to as 'difficult to measure' capabilities, there is little doubt that these skills fall into the category of being complex, and drawing on multiple competencies. This may account to some degree for the 'difficult to measure' perception. Besides this of course, is that these competencies have not been included extensively in curriculum, in teaching, and therefore in assessment. Since there may be few examples of how such skills are integrated into daily classroom practice, their lack of visibility does not provide a recognisable way of assessing them.

Much of the focus on generic competencies has been around their use in daily life and in work, and their hoped-for role in helping societies to identify a better world future. These—daily life, work life, and problem solving—are the 'authentic' playing fields for the skills, and many of the ways in which it is presumed they will be demonstrated, is through performance *in situ*—as distinct from stating what one has learnt as often the case in the education environment. In this distinction lies the assessment approach adopted by ALiVE, to elicit likely reactions to scenarios rather than for adolescents to self-rate or evaluate themselves (see Nansubuga et al., 2024; Chap. 7, this volume).

The five dimensions for authentic assessment proposed by Gulikers et al. (2004) provide a useful framework through which to combine authenticity demands of contextualisation and those of assessment.

The first concerns the assessment task. An authentic assessment is one that requires application of what an individual has learned to a new instance of a familiar situation or issue; it should be realistic, and requires some performance on the part of the respondent (Wiggins, 1998). The medium therefore provides for the demonstration of proficiencies directly rather than providing self-referenced estimates of one's abilities, or merely providing knowledge-based perspectives on an issue. The assessment requires transfer of learning, a characteristic synonymous with the ambitions associated with the learning and development of generic competencies.

This notion of authentic assessment is removed from the narrower view of authentic assessment by teachers which is focussed on including multiple forms of assessment in the classroom. For example, the use of varied assessment forms described by Darling-Hammond and Snyder (2000)—portfolio, exhibitions, case reports, and problem-based inquiry—does not engage directly with authenticity of assessment and its alignment with contextualised understandings of the target behaviours or competencies. This approach acknowledges the different backgrounds of students, but 'solves' the issue by recommending delivery flexibility, as opposed to looking more deeply at the underpinnings of curriculum and contextualised meaning of concepts. The remaining dimensions are all key into the matter of contextualisation. These include the physical context, the social, the assessment result or form, and the criteria for evaluating assessment performance.

A precursor to the assessment event itself is the matter of ensuring that the target competency is understood within its 'activation space'. In other words, the assessment event cannot be authentic if the target competency itself is not contextual. Accordingly, the physical and social context of the assessment is not unique to the event, but is a necessary component of the original contextualisation process. With this matter checked, then the next significant question for ALiVE concerned the authenticity of the assessment event. Authenticity in assessment is not guaranteed by the contextualisation process; also, to be considered is the assessment act, or event, itself, and how this is experienced by the adolescent respondent. Strongly linked with the assessment and its form is how an individual's responses are evaluated.

1.2.4 The Vexed Matter of Validity

Does a measure provide information that is true to a competence of interest? The whole process of contextualisation, to ensure that the 'labels' for the life skills and values represent shared understandings of these; the technical process of developing assessment tools that are true to the competence, and true to the context; do these ensure that the data gathered are a true representation of the adolescents' skills and values?

ALiVE engaged in a large-scale household-based assessment program, querying adolescents about their reactions and responses to daily life issues. How frequently have teams of adults come to urban as well as far-flung communities to engage one to one with young people. What are their likely thoughts or interpretations of the event itself? How might these have influenced their responses?

For the majority of adolescents, their only experience of adults asking a series of questions and noting down their responses, has been in the formality of a classroom, or for employment purposes. And that formality has been associated with the knowledge of the adolescent that they would pass or fail, do well or do badly, be selected or not. That formality has also been associated with expectations about the dynamics of oral interactions with adults. The ALiVE assessment process was one in which adolescents were invited to answer in a conversation style, to engage in the

interaction in the informal environment of the home, to provide their opinions and likely reactions—a very different adolescent-adult interaction than likely experienced previously.

The impact of the possibility that the interaction might have been experienced with discomfort or awkwardness, is not known. What is known, is that all adolescents were approached in the same way, with the same instructions, and the same positive affect. To this degree, therefore, the results across the adolescents can be seen as comparable. Whether those results are under-estimates, however, is not something that can be known in these early days of the assessments of life skills and values. It is possible that specific community environments could differentially influence adolescent response modes and quality of those responses.

How these results might translate into performance that draws on the same competencies, but in a formal school environment, using curricular-based content, is another unknown. The promise of the outcomes of ALiVE is that the competencies can be measured, and that is an indicator of immense value for the education systems in which these adolescents engage.

1.3 The Narrative

The following chapters provide the narrative that threads the ALiVE learning, progress, activities, and outputs. The chapters are written by those who have been part of the years long processes from contextualisation studies through to reporting results in national and global forums. Shariff et al. (2024) provide a more detailed description of ALiVE, explaining its motivating force in terms of labour force and educational needs. The chapter details how the activities that comprise the initiative moved from engaging a large technical team through to the assessment of over 45,000 adolescents in the participating countries. Moving on from the over-arching view, Giacomazzi (2024) sets the contextualisation stage upon which ALiVE sits, describing the pivotal issue of ensuring that what is being aspired to is relevant and understood in the moment and in the place. He describes how ALiVE set about the process of understanding the life skills and values in the forms that they are appreciated by the main stakeholders in ALiVE – the parents, the children, the educators. With the first three chapters having established perspectives on the target competencies, the shape of the initiative, and the focus on contextualisation, the next three chapters take us to targets of the assessment, the skill of problem solving (Care & Giacomazzi, 2024), the skill of self-awareness and value of respect (Ngina et al., 2024), and the skill of collaboration (Scoular & Otieno, 2024). Each of these skills and value chapters provide details of the conceptual structures and assessment frameworks of the constructs, drawing attention to different characteristics of these across global literature and measurement within ALiVE. Some of these characteristics are then illustrated by drawing on the ALiVE tool, and describing the approaches taken to task development for the final survey. Distinctive features of ALiVE's approach to assessment are discussed in the next three chapters. First, Nansubuga et al. (2024) highlight approaches adopted in sub-Saharan Africa for the

measurement of '21st century skills' in order to paint a picture of mainstream approaches to measurement of these skills. Next, Nakabugo et al. (2024) draw attention to the household-based mode of assessment used in the program. This and the following chapter by Mutweleli et al. (2024) draw attention to the ground-breaking nature of this assessment enterprise. Both the measurement of these generic competencies and use of household-based approaches to assessment are relatively recent in their own right. Combining these two initiatives provides a proof of concept illustrating the viability both of capturing the skills and doing so in environments not dependent on manipulables or technologies. Muteleli and colleagues describe how and why a scenario-based approach to assessment was used for three of the target constructs – problem solving, respect and self-awareness. Having established the context, the constructs, and the methods, the narrative shifts to outcomes and to reflection. Ariapa et al. (2024) provide the technical details behind the methods of test and scale development used, and describe the proficiencies of adolescents across Kenya, Tanzania mainland, Uganda, and Zanzibar in practical terms—what the adolescents can do. They describe the way that tasks and their items were tagged to the constructs, give details about the psychometric qualities of the tool, and provide survey level results that present the proficiency levels of the adolescents. The final two chapters turn to organisation and aspiration. Turner et al. (2024) draw the portrait of the collaborative endeavour across the three countries, their networks and organisations, and individuals, to seek understanding of how this multi-faceted technical project survived and thrived. And Mugo (2024) takes the narrative back to its beginning, focussed on global and local policies and the strategic impact of education shifts for Kenya, Tanzania, and Uganda. He explores the systemic issues associated with use of evidence to inform policy, reflects on ALiVE's path, and draws five implications for policy and practice.

1.4 Conclusion

The goal of ALiVE is to inform the education visions of the three participating countries, by providing evidence of adolescents' current functional levels associated with life skills and values valued by their education systems. This goal represents the understanding that the intentions of education systems and their consequent inputs are insufficient to bring about change. Additional evidence, in the form of achievement data gathered from the concerned adolescent population, must be brought to bear in order to identify exactly what the current functioning of those adolescents is. This information then provides a road map to develop that functioning. The following chapters describe a technical achievement. The achievement lies in two phenomena. The first is the development of an assessment tool to measure selected life skills and value, which when administered at large-scale household level, generates robust evidence of how a representative sample of young Africans see themselves and others, how they can solve problems and collaborate. The second is the collaboration across a large group of individuals and organisations primarily from non-government sector but with commitment from government and academia, to engage in learning by doing.

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Chapter 2
Generating Evidence from Life Skills Assessments to Inform Policy in East Africa

Khadija Shariff, Devotha Festo Mlay, and Samuel Otieno Owino

Abstract Life skills are rapidly becoming recognised as critical skills for children to acquire in order to succeed in school and in life. This is particularly true in the sub-Saharan African (SSA) context where youth educational attainment is low, unemployment and informal employment is high and a growing youth bulge provides both an opportunity and a high risk for the development or under development of SSA countries. Developing appropriate life skills and values in youth has become imperative for education systems in order to ensure youth have the chance to succeed, especially in terms of employment after finishing school. Global large-scale learning assessments have primarily been focused on basic or foundational competencies such as literacy and numeracy. These assessments have paved the way in showing how large-scale evidence generation can influence policy and practice in different countries. When it comes to the life skills and values space however, few assessments have produced evidence to influence systemic shifts in educational delivery. This chapter outlines how the Assessment of Life skills and Values in East Africa (ALiVE) collaboration has addressed gaps in large scale evidence of life skills and values, and more specifically a lack of life skills and values assessments contextual to East Africa.

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2.1 Introduction

Values and life skills are understood and defined differently in different contexts (Care, 2024, Joynes et al., 2019). A process initiated in East Africa by members of the Regional Education Learning Initiative (RELI) in 2018 explored the use of the different conceptualizations in Kenya, Tanzania, and Uganda. Umbrella terms such as twenty-first century skills, social-emotional learning competencies, transferable and transversal skills, soft skills, and whole child development competencies were explored. It was concluded that despite the perception of 'life skills' referring to the need to equip children with attitudes and behaviours to support the control of HIV-AIDS and substance use in several African contexts (Akyeampong, 2014), the term was also accepted in curriculum as referring to the more generic skills. Beyond the concept of skills was a set of personal attributes which constituted values. The RELI group then adopted life skills and values as the overall concept for use in their work in East Africa, and the Assessment of Life Skills and Values in East Africa (ALiVE) initiative was born.

This chapter reviews the use of learning assessments to influence policy. The review provides a context for ALiVE's goals, the challenges it is designed to address, and how it addresses them to ensure children in East Africa acquire life skills and values to thrive in school and in life.

There is an increasingly identifiable link between these generic skills and work readiness that is considered urgent especially in sub-Saharan Africa (SSA). According to the Global Employment Trends for Youth 2022 report (International Labor Organization, 2022), youth unemployment in Africa is below the world average for both men and women, with women at 13.3% and men at 12.3%, for a total average of 12.7% in 2022. The seemingly low levels of unemployment reflect the fact that most young people in SSA cannot afford to remain unemployed. What is often not reflected in the numbers is the quality of employment and the need to engage in insecure, often low-productivity, jobs for income (International Labor Organization, 2022). Many young people are engaged in informal jobs due to there being a lack of alternative options and little information and support with regard to other options. This is a cause for concern. The growing youth bulge presents an opportunity for future development of countries willing to tap into the so-called demographic dividend through investment in human capital. This investment would contribute to ensuring that young people develop the technical and socio-emotional skills and values necessary to become productive and contributing members of society (UK Aid, 2018). On the other hand, it is feared that if highly youthful societies do not take advantage of the demographic dividend, it may result in detrimental side-effects, exacerbating crime, violence, and continued poverty (UK Aid, 2018).

Recent studies in employability conducted in East Africa are showing that more effort is needed to invest in education and skills building of youth in the region. A study on perceptions of employability skills needed by employers and final year students from Higher Education Institutions in East Africa revealed a significant difference in prioritization of the employability skills between employers and final

year students (Kalufya & Mwakajinga, 2016). Another study assessing perceptions of academics, employers, and civil servants regarding graduates' employability skills in East Africa revealed general perceptions that graduates' skills are insufficiently developed (Guardia et al., 2021). An Inter University Council for East Africa (IUCEA) survey polling employers across the region concluded that graduates lacked employability skills including technical mastery and basic work-related capabilities (IUCEA, 2014). Additionally, a study was conducted in Kenya in 2017 to explore 'soft skills' nurturing among Technical and Vocational Education and Training institutions and preparation of students for self-employment. The study showed that Technical and Vocational Education and Training institutions did not nurture soft skills such as time management, problem solving, decision making, and creativity and others for their survival and self-employment (Murgor, 2017). In Uganda, the Skilling Uganda Business, Technical and Vocational Education and Training Strategic Plan affirms that more than 60% of large and medium sized companies consider the training provided by such institutions to be irrelevant to their requirements (Mitana et al., 2019). According to the IUCEA, over half the graduates from the East Africa Community region lack the necessary skills to be employed in the labour market and over 40% of them lack adequate soft skills or life skills (IUCEA, 2014). While those going to school and graduating from higher education institutions lack adequate skills for employment, even more concerning is the large number of youth in East Africa who are Not in Education, Employment or Training. These youth, along with the more than 20% of East Africa youth who are recorded as unemployed, make up a large segment of the youth population. This points to a dire need to address the shortcomings in the education sector that are signified by high dropout rates and exit from schooling without adequate skills and qualifications to progress in life.

2.2 Learning Assessments as Evidence for Influencing Policy

Learning assessment data have been used by education systems and development partners to shape education policy and practice. Notably, UNESCO's Institute of Statistics (UIS) has identified several cross-national learning assessments that meet the criteria to measure the proportion of children and young people achieving minimum proficiency in reading and mathematics to inform monitoring under the Sustainable Development Goal 4. International large-scale assessments drawn upon include the Programme for International Student Assessment (PISA), Trends in International Mathematics and Science Study (TIMMS), and Literacy and Numeracy Assessment (LaNA).

Regionally, most notable large-scale assessments are Southern and Eastern Africa Consortium for Monitoring Education Quality (SACMEQ), Programme for the Analysis of Education Systems (PASEC), Pacific Islands Literacy and Numeracy Assessment (PILNA), Southeast Asia Primary Learning Metrics (SEA-PLM), and Regional Comparative and Explanatory Study (ERCE). Other assessments that are

implemented both regionally and nationally are Early Grade Mathematics Assessment (EGMA) and Early Grade Reading Assessment (EGRA). UNESCO, UNICEF, and the World Bank as development partners, also conducted the Measuring Early Learning Quality and Outcomes (MELQO) program.

Regional assessments are of course facilitated at country level. For example, UNICEF administered MELQO in collaboration with the National Examination Council of Tanzania in 2015. In Kenya, the Kenya National Examination Council administered SACMEQ. True national assessments are typically undertaken by ministries of education. For example, in Uganda, the Uganda National Examination Board administers the National Assessment of Progress in Education (NAPE) focused on Grades 3 and 6; since 1996 at primary school level and 2008 at secondary school level. NAPE collects data on cognitive and non-cognitive skills, and findings are reported at national and sub national levels.

Learning assessments such as these have contributed to informing the formulation, implementation, and review of educational policies and practices globally. For instance, Lockheed et al. (2015) established that donors use PISA results in dialogue with middle-income countries to set agenda relating to reform of curricula, standards, and teacher professional development.

In East Africa, the Uwezo citizen-led assessment has been implemented for more than 6 years across Kenya, Tanzania, and Uganda, and has focused on assessing learning outcomes related to numeracy and literacy. Its aim is to provide credible data that stimulates policy dialogues and drives educational reforms by using the clarion call *'Are our children learning?'*. Although with varying degrees of acceptance and acknowledgment by the respective governments, the Uwezo assessments in the three countries have helped to draw attention and spark dialogue on the poor learning outcomes across schools in the three countries (Nakabugo, 2021).

2.2.1 The Pitfalls and Challenges of Evidence Use

Education systems worldwide face pressure due to the increasing number of children entering formal education, and to the need to deliver education of high quality that is relevant for the fast-changing and complex world. Research-based evidence can positively impact quality, design, and effectiveness of policies (Goldman & Pabari, 2021). In fact, better utilization of research and evidence in development policy and practice can help save lives, reduce poverty, and improve the quality of life (Young, 2005). Using research to inform policy and practice: (1) ensures that policy decisions are informed by and anchored on a solid evidence base; (2) minimizes policy failures and waste of resources on unworkable programs; and (3) can drive innovations which have the potential to transform societies. One example of evidence generation both informing and resulting from national level policy and practice that contributes to global transformative development is the monitoring and gathering of data for tracking the Sustainable Development Goals through UIS. The UIS has set up an infrastructure that facilitates sharing of data and evidence from

each participating country. The UIS guidelines provide for different approaches to be used to generate evidence as long as the data is credible, reliable, and can provide insights into areas or sectors being analysed.

There is evidence that the relationship between evidence production and its utilization may not be linear (Manning et al., 2020), meaning that data availability is not the main reason for failure to use evidence for decision making. Studies have shown that even though more learning data have become available in sub-Saharan Africa (SSA), they have not been effectively used in educational planning. For instance, a three-country study on use of learning assessments across Kenya, Tanzania, and Uganda revealed several factors that hinder the uptake and utilization of education data and evidence in education policy making (GESCI, 2022). The main factors included poor conceptualisation of learning assessments, minimal capacity to interpret data and evidence, poor attitudes towards learning assessments, weak institutionalization of research, weak dissemination, and poor stakeholder engagement (GESCI, 2022). Another study that covered Ghana, Guinea, Namibia, Senegal, The Gambia, and Zambia found that lack of capacity to analyse learning data, lack of assessment data integration with other data sources, missing feedback loops between different administrative levels, and the absence of a comprehensive policy framework for producing learning data, also impedes their effective use (IIEP-UNESCO, 2022).

Policy making is an intricate and multi-stage process (Anderson et al., 2022). Influencing policy and practice is an iterative process that considers several factors, particularly the political and socio-economic environment where the action is taking place. Policy influencing refers to how "external actors are able to interact with the policy process and affect the policy positions, approaches and behaviors" (Court et al., 2006, p. 6). In reality, policy making does not follow a linear approach and usually involves both formal and informal processes across a range of actors and institutions until the intended policy influencing objective is reached (Court et al., 2006). According to a study on experiences with evidence-informed policy, influencing is often a complex web of processes that requires different ingredients including: a robust evidence base, building coalitions, learning the rules of the game in many different systems, and a process of continuous reflection and change in the light of experience and context (Mayne et al., 2018).

2.2.2 Addressing Gaps in Evidence and Policy

The Assessment of Life Skills and Values in East Africa (ALiVE) intentions were stimulated both by the documented gap between labour market and appropriately skilled workforce and by the challenges experienced in the education systems in East African countries, specifically Kenya, Tanzania, and Uganda as they responded and adapted to the growing market demands, through reforms in the formal education system. These two categories of concern overlap in several ways, with their

foundations rooted in societal norms about education. Three specific responses from ALiVE are discussed in this section.

2.2.2.1 Evidence and Capacity Limitations

The first gap addressed by ALiVE is the absence of a large-scale assessment of life skills and values, and the limited capacities of practitioners in the region to generate this evidence. Although there is evidence of large-scale assessments impacting policy, as noted above these have primarily targeted literacy and numeracy achievement. In the life skills and values space, there have been few large-scale assessments, although there are some tools that target child wellbeing and social-emotional development. The tools are mainly from the United States and other high-income countries. Some of the most popular include the International Development and Early Learning Assessment (IDELA; Save the Children, 2019), MELQO (UNESCO et al., 2017), the Social-Emotional Assessment/Evaluation Measure (SEAM; Squires et al., 2013), the Child Behavior Questionnaire (CBQ; Goodman & Scott, 1999), and International Social and Emotional Learning Assessment (ISELA; D'Sa & Krupar, 2019). Their focus is mainly on the early years and not the pre-pubescent or adolescent years. In terms of types of assessments, many are self-rating scales, and none of them have been developed for SSA contexts. A study commissioned by Echidna Giving in 2018 (Wamahiu & Bapna, 2019) that mapped life skills implementation across East Africa revealed that although organizations in East Africa are working on nurturing life skills and values, few are using contextually relevant tools. In most organizations that are engaged in the programs, test and scale development expertise, and large-scale assessment capacity, is low. ALiVE's response has been to design, plan and implement a large-scale assessment of life skills and values across Kenya, Tanzania, and Uganda.

2.2.2.2 Limited Contextual Understanding of Life Skills and Values

The second gap addressed by ALiVE is the absence of contextual definition of life skills and values in East Africa. Terms used to describe generic cognitive and social-emotional skills or life skills vary in the education space. Values, and how they are defined or understood, are intertwined in a cultural, social or political context. Wamahiu and Bapna (2019) revealed that in East Africa there is no common understanding of these skills, and little understanding of how to develop or measure them. This situation has also been documented in Asia and the Asia-Pacific (e.g., Care & Luo, 2016). Education systems are faced with the need to define and describe these skills in ways that make sense to the broader population and especially to parents, in ways that will engage community support to change perceptions of what education provides and what this might mean for how different qualities in children might be valued. Without these common understandings, the historical prioritization by parents and teachers of academic scores at the expense of other competencies

(Kenya Institute of Curriculum Development, 2016), will continue the practice of underfunding life skills programs and education (Fagan & Mihalic, 2003).

2.2.2.3 Limited Policy Uptake of Evidence by Government

The notable disconnect between written intentions and learning outcomes, particularly in life skills and values, is a third gap addressed by the ALiVE initiative. The growing demand for the development of generic competencies across the globe has prompted over 100 governments in the past couple of decades to introduce these complex skills into their policies and curricula (Care & Kim, 2018). This has been the case for governments in East Africa, with the Tanzanian government being the first to develop a competency based curriculum in 2008 and more recently Kenya and Uganda doing the same. Despite progress in integrating values and life skills in curricular frameworks, actual implementation varies from country to country. For example, in Kenya, life skills and values are in the curriculum, but according to some sources there is little assessment of the same, and teacher's understandings of these competencies are low (Atikiya, 2021). There is progress however with the Kenya Institute of Curriculum Development and the Kenya National Examinations Council in 2023 providing guidance on designs for assessment and developing assessment frameworks. The recent pattern in Uganda is similar; the new secondary curriculum includes 'generic skills', and the Ugandan education system is now faced with operationalising the acquisition of these 'essential skills' (Mitana et al., 2019). In Tanzania, life skills have been integrated into various subjects at the secondary level with reporting in 2018 that at that time teacher's capacities and assessment practices were lacking (UNICEF, 2018). There is a clear pattern of policies and curricula on non-cognitive competencies and life skills being hindered by examination-oriented classroom practice (Allen et al., 2016). Notwithstanding these challenges, in all three countries there is an acknowledgement that co-created and contextualised tools are needed to assess outcomes in these areas (Wamahiu & Bapna, 2019).

2.3 The ALiVE Way

ALiVE was designed to generate evidence to influence policy and practice in the incorporation and assessment of contextualised life skills in the education sectors of Kenya, Tanzania, and Uganda. ALiVE is a collaborative initiative of RELI's Values and Life Skills (VaLi) cluster, composed of nearly 20 civil society organizations promoting values and life skills across the region. Participating organizations were experiencing similar challenges related to values and life skills education across the three countries, and so worked towards finding answers to three critical questions: (1) How are life skills and values understood in context? (2) How are life skills and values assessed in context? (3) What works in nurturing life skills and values?

ALiVE's findings in response to the first two questions were accompanied by the expectation that policy uptake of evidence would answer the third question.

The initiative was conceptualised as three pillars which also define the anticipated outcomes:

> an assessment pillar designed to ensure that evidence on contextualised life skills and values was generated; an evidence-led advocacy pillar designed to ensure that evidence generated would inform policy and the public; a learning community pillar designed to strengthen local capacities.

ALiVE's theory of change (Fig. 2.1) illustrates how the three pillars lead to the ultimate outcome of learners being equipped with values and life skills. Each of these pillars overlap and result in key outputs contributing to impact. As contextualised assessments are co-created by local experts, local capacities evolve. As these local experts interact within a broader learning community of civil society and government, East African voices become amplified regionally and internationally.

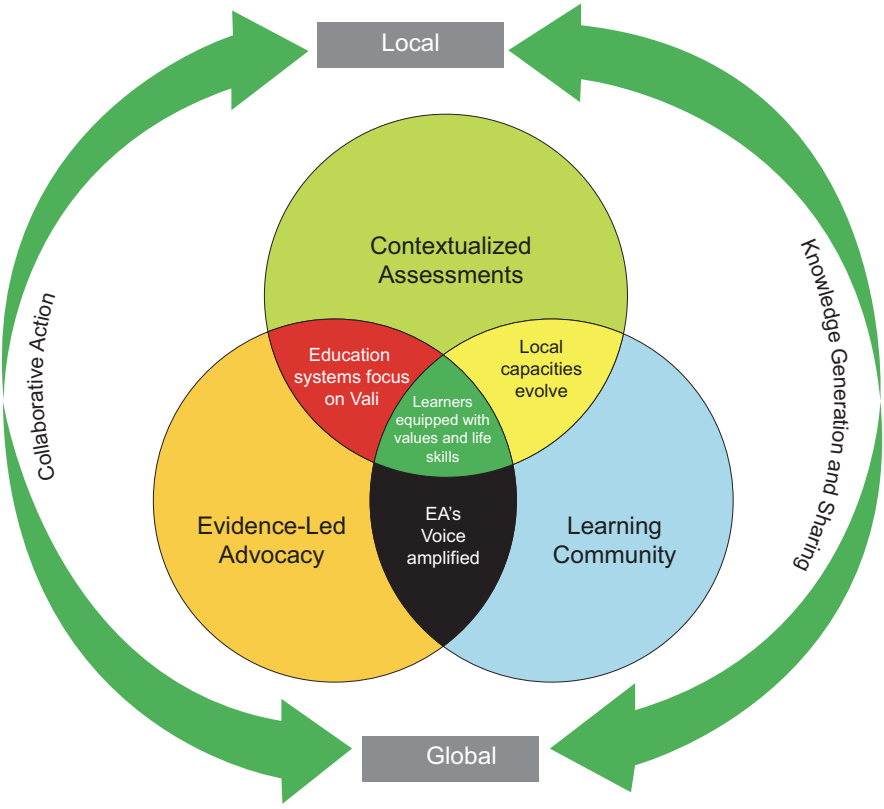

Fig. 2.1 ALiVE theory of change

2.3.1 Pillar 1: Contextualised Assessment

The pillar was designed to respond to the low capacity in the region on how to develop life skills and values assessments and to the lack of evidence on life skills and values in East Africa. The pillar focused on capacity enhancement of local experts and practitioners, particularly curriculum and assessment experts from the participating governments, as well as Regional Education Learning Initiative (RELI) members, to develop expertise in the assessment of life skills and values. Through this capacity enhancement process, evidence on adolescents' life skills and values could be used for awareness raising and policy advocacy. The pillar consisted of creating an assessment tool based on contextualised definitions of the identified competencies. The competencies were selected through a consultative process that included scanning of the curricula of Kenya, Tanzania, and Uganda and a consensus process with the VaLi members of RELI. The selected competencies were three life skills (collaboration, problem solving, and self-awareness) and the value of respect. The tool development process was undertaken through five workshops over a period of 10 months followed by a pilot phase. The pillar achieved the conduct of a household-based assessment of the ALiVE survey tool to over 45,000 adolescents across Kenya, Tanzania, and Uganda, hence producing large-scale evidence of functioning levels of adolescents on the targeted competencies. The process adopted three features to make it a viable mechanism for generating evidence to influence policy.

- Contextualisation: Contextualisation was a process to identify local understandings and definition of the skills. An ethnographic study generated an understanding of how the selected ALiVE competencies were defined in local environments. Over 350 participants in villages across 15 districts in Kenya, Tanzania, and Uganda, were interviewed to collect a first round of information. The districts represented diverse groups of people including fishing, pastoralist, agricultural, semi-urban, urban slums, and rural communities. Language diversity was catered for with over 17 different languages represented. Within these communities, leaders, parents, teachers, social workers, and others working with children, along with adolescents, were targeted and purposively selected to be part of the study. Key information interviews generated an understanding of how these groups define the chosen competencies. Participants were asked questions about how they defined the competencies, the terminologies for these in their language, the characteristics of those who have these competencies, and so on.
- Tool Development: The tool development process involved local practitioners and teachers who used their understanding and experience of and with adolescents in their context. The development team included technical experts from curriculum and examination councils, representatives from civil society, local colleges and universities including those with experience in psychometrics and psychology. The team for the ALiVE tool development process comprised 47 individuals who worked virtually and in-person over the period of creation, piloting, and finalisation. The participants were taken through a process of defining

the skills based on the contextualised study, developing skills frameworks based on the skill structures, developing tasks based on the context, pre-testing the tasks to check for validity, and piloting the tasks. The tasks designed were either scenario or performance-based tasks. This was a major point of departure from the self-rating scales predominantly used to measure life skills and values.

- Household-based Assessment: The household-based mode of assessment was a key characteristic of ALiVE, reflecting the emphasis on all adolescents, rather than only those attending formal education. It also reflected the focus on context and environment by ensuring appropriate sampling of the target population across the three countries. Household assessments generate rich data on target competencies but also capture socio-economic and environment information. This contextual information provides insights to strengthen evidence generated. For example, competencies can be analysed against schooling, gender, geography, socioeconomic status, ability, and age. The assessment process started with a training of trainers where the development team built the capacity of trainers in each country. These trainers then trained over 3000 test administrators across the three countries. For the assessment itself, the test administrators worked in pairs going from household to household over a three-day period in each enumeration area. Ultimately 45,442 adolescents were assessed across the three countries. In each village or enumeration area, test administrators were escorted to each household by community leaders or village chiefs.

2.3.2 Pillar 2: Evidence-Led Advocacy

This pillar was designed to represent the evidence generated from the assessment pillar to policy makers, practitioners, parents and the community about the status of life skills and values in the three countries. The pillar drew on identification of key messages from the large-scale assessment results and was nuanced through identification of key stakeholders at local, national, and regional levels. Targeted outreach to media was a core strategy to raise visibility, particularly associated with events including government representatives; while establishing technical credibility was attended to through publication and presentation in professional media. Additional information about the philosophy and approach undertaken by ALiVE can be found in Mugo (2024; Chap.12, this volume).

The key messages were determined on the basis of analysis of the adolescent response data. High-level findings were packaged into reports for dissemination. A report was developed for each of the four education systems (Kenya, Tanzania mainland, Uganda, and Zanzibar) with key findings for each skill. Analysis of the results showed how adolescents performed across gender, age, schooling, and ability categories. Also reported were district comparisons, associations between the competencies, and associations between these and basic literacy and digital literacy skills. A regional summary report was also launched, introducing an approach to reporting results within a learning framework as distinct from a summative achievement

approach. The learning framework approach is an intentional strategy for ALiVE in emphasising integration of life skills and values within overall education provision.

Identification of key stakeholders was undertaken through liaising with members of RELI and central government units within the four education systems. The dissemination process was launched at national level in each country, then moved to the district and community levels, simultaneously including engagement with media channels. Targeted outreach was designed to capture media interest in general education reporting, and the visibility of ministers and high officials in the education systems.

Concurrently with direct advocacy to government, ALiVE represented its learnings through preparation of technical reports to establish credibility in the assessment community, publications in academic literature, and presentations in local, regional, and international events.

2.3.3 Pillar 3: Learning Community

ALiVE took a self-conscious and deliberate approach to learning. The intention was to strengthen local capacity in assessment and representation of evidence to effect change. At a RELI organisational level, the intention was to create a unified regional voice as to how life skills and values could be nurtured and assessed. The approach involved three elements: learning by doing; learning from and with one another; and learning for learning. Through the *learning by doing* approach, local experts were engaged and able to benefit from the development work including conducting literature searches and reviewing academic referencing tools; development and refinement of constructs; tool development and assessment; data analysis and reporting; and academic authoring and publication. *Learning from and with one another* involved the establishment of a learning community that were engaged through 13 'learn-shops' organised over a 3-year period. Over 2000 participants were drawn from the RELI network, government, academia, and collaborating institutions. Global actors in the life skills space such as Amplify Girls, EASEL-Lab at Harvard, OECD, INEE, The Life Skills Collaborative, among others, facilitated and contributed to the learning. A culmination of this learning from and with one another was the VaLi-Africa conference, the first of its kind in East Africa, bringing together national and global players in the life skills and values space. As a result of these learning processes, individuals have been empowered to amplify their voices in the space of life skills and values through presentations at conferences and meetings reaching over 10,000 participants. In the *learning for learning* approach, the ALiVE team underwent a process of documenting the learnings of ALiVE. This process yielded five learnings briefs as well as a formative learning framework which are now being used to inform a second phase of the ALiVE initiative. Additional information about the learning approach undertaken by ALiVE can be found in Turner et al. (2024; Chap.11, this volume).

2.4 Conclusions

ALiVE has taken an intentional step to gather evidence to inform growing concerns about the nature of education in the participating countries. The use of that evidence is the most critical element in ALiVE's agenda, but is totally reliant on the generation of high quality data which is valid for purpose. ALiVE has contributed to global expertise through its generation of large-scale, household-based, multi-national assessment of 'non-traditional' competencies, namely life skills and values. While the utility of large-scale assessments is sometimes hindered by factors such as limited capacity of policy makers to engage with evidence, poor dissemination strategies, and inadequate engagement of key stakeholders, ALiVE adopted strategies to tackle these barriers throughout its development, implementation, reporting, and dissemination processes. And while local stakeholders' voices are sometimes limited in reach, ALiVE's focus on learning and building a learning community of both local and global actors, is strengthening local expertise and amplifying local voices to the global stage.

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Chapter 3
The Contextualisation of 21st Century Skills in East Africa

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Abstract The world is concerned about young people's preparedness to face challenges in the workplace, as well as society's ability to respond to the social and economic issues of the twenty-first century. To respond to this challenge in the past decade, the education systems in East Africa have incorporated life skills and values into their policies and curricula; however, the actual implementation and incorporation of teaching and learning practices that foster these skills in the classroom is mostly unexplored**.** It has also been noted that tools used to measure 21st century skills in non-Western contexts have been borrowed from Western literature. This leaves no room for different understandings and conceptualisations of the skills to be measured. The Assessment of Life Skills and Values in East Africa (ALiVE) team addressed the gap in existing literature by exploring the understanding of collaboration, problem solving, self-awareness, and respect in the East African context through rapid ethnographic interviews. Each of these constructs are represented in the education systems of Kenya, Tanzania, and Uganda. The researchers interviewed a total of 368 participants (80 from Kenya, 55 from Tanzania, and 95 from Uganda). Of these, 76 participants were adolescents; 78 were parents; and 76 were teachers. What emerges prominently in the East African context is that personal identity incorporates more communitarian than individualistic features compared to the Western descriptions of the self. As a consequence, when designing a data collection tool for assessing life skills in the East African context, there are several conceptual, ethnographic, and epistemological elements to be considered—not only at the initial stage of conceptualising the framework of a tool, but also in the process of tool development, data collection, and data analysis.

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3.1 Introduction

3.1.1 The Importance of Twenty-First Century Competencies and Their Relevance to the Global and East African Contexts

The dawn of the twenty-first century has brought rapid and sweeping technological and cultural changes to the entire world. As a result, we are facing more numerous and complex problems that require a radically different set of competencies and way of thinking. In a constantly changing world, it is difficult to anticipate the knowledge or skillset necessary for professional success, since it is increasingly challenging to predict the types of jobs we will be doing. We do know that there is an ever-growing need for individuals who can process data, evaluate concepts, and develop arguments. This kind of skillset belongs to individuals who possess the high levels of social understanding and critical-thinking skills needed to make intelligent judgements about public issues (Fong et al., 2017; Pascarella & Terenzini, 2009).

Employers are concerned about young people's preparedness to face challenges in the workplace, as well as society's ability to respond to the social and economic issues of the twenty-first century. By 2030, the youth workforce will be over 40% of the population in developing countries, with approximately 11 million young people entering the labour market each year (World Bank, 2015). This could potentially stimulate the economic development of these countries and reduce poverty, but young people must acquire the necessary skills to access and retain productive jobs. While employers value academic skills in young people, they are increasingly prioritising life skills and good values (Rosekrans & Hwang, 2021).

The complexity of contemporary life reveals the inadequate nature of traditional learning methods; education systems must adapt if they are to equip youth with the competencies that the market demands. In this regard, the Learning Metrics Task Force convened by the Brookings Institution and UNESCO's Institute of Statistics coordinated a global consultation to improve students' learning outcomes in 118 countries, including 11 countries in Africa. The task force highlighted that in addition to numeracy, literacy, science, and technology, learning should include students' physical, social, and emotional wellbeing, as well as actual learning to learn (Anderson & Ditmore, 2016). The World Economic Forum (Boston Consulting Group, 2015) conducted a meta-analysis of research in primary and secondary education and clustered the skills needed in the twenty-first century into three macro categories. First, *foundational literacies* include the skills that students apply to everyday tasks such as literacy, numeracy, ICT literacy, and basic knowledge of the cultural environment in which they live. The second, *competencies*, describes the qualities of students who know how to deal with complex challenges. Critical thinking, problem solving, creativity, collaboration, and communication are the most relevant competencies. Finally, *character qualities*, such as persistence, grit, adaptability, leadership, and curiosity describe how students approach a challenging environment.

In the East African context, recent labour market surveys (Guàrdia et al., 2021; Omala et al., 2016) highlight the demand for a workforce that possesses 'soft skills' and higher-order thinking skills. The 2019 Echidna Giving Life Skills and Mindset Change Project conducted a study that recognised that for several decades, ministries of education and civil society organizations in Kenya, Tanzania, and Uganda acknowledged the effectiveness of life skills, especially in combating HIV/AIDS and sexual and gender-based violence, as well as resolving conflicts, promoting peace, nurturing leaders, empowering girls, advancing gender equality, and changing mindsets. There is, however, limited evidence on how this happens, and there is no consensus on the correct approach to fostering these skills from the child's experience in family and community and through the education system (Deitz et al., 2021; Rosekrans & Hwang, 2021).

3.1.1.1 The Relevance of Twenty-First Century Competencies for Revised School Curricula in Kenya, Tanzania, and Uganda

Sustainable Development Goal 4.7 (SDG) emphasises the importance of ensuring that all learners acquire not only knowledge but also skills to promote sustainable lifestyles and a culture of equity and excellence. Accordingly, quality education should aim to foster not only cognitive learning objectives but also social and emotional objectives (Care et al., 2018a, b).

Despite this recognition and the explicit demands of the labour market, the education systems have yet to make widespread changes (Jukes et al., 2018). A study (Care et al., 2018b) of policies, curricula, and vision statements from over 150 governments around the world highlighted a gradual increase of a range of skills and competencies—such as communication, critical thinking, problem solving, and collaboration—in policies and curriculum statements. However, the study also showed that almost 90% of the countries has yet to take the necessary steps to implement those polices and bring about a transformational shift in the pedagogical approaches used in the classrooms (Care et al., 2016, September; Care & Anderson, 2016). The challenges are political as well as procedural and technical. In the East African context, the focus on competencies requires a shift in the learning theory, including pedagogical and assessment practices (Cheptoo & Ramadas, 2019).

In Kenya, Tanzania, and Uganda, students' learning has remained inadequate, despite the fact that Free Primary Education has increased enrolment. The education systems in these countries are not effectively helping children attain life skills and good values (Cheptoo & Ramadas, 2019). To respond to this challenge in the past decade, the education systems in East Africa have incorporated life skills and values into their policies and curricula; however, the actual implementation and incorporation of teaching and learning practices that foster these skills in the classroom is mostly unexplored. At the time of writing, for instance, teacher education curricula and continuous professional development policies do not nurture teachers' competencies in enhancing life skills and values, due to lack of clarity on the pedagogical practices that can enhance such skills and values in schools. There is also little evidence on whether

teachers themselves possess the life skills and values they need to transfer to learners. Moreover, teachers lack knowledge of what works best to enhance and assess these competencies in the classroom (Giacomazzi et al., 2022a). The following paragraphs describe how the governments of Kenya, Tanzania, and Uganda have incorporated education for these competencies into their education systems.

The stated goal of Kenya's education philosophy is to prepare students for social cohesion, human growth, and economic development. The need to make Kenya's education philosophy more explicit (within policy documents) can be traced back to the Koech Report and subsequent Sessional Paper No. 1 of 2005 on education (Ministry of Education Science and Technology, 2005), research, and training. Before the Koech Report, most education reforms were explicit in terms of educational goals, but the philosophy was somewhat implicit. The current Kenya Competency Based Curriculum (CBC) philosophy aims to provide holistic, quality, and inclusive education and training for greater social cohesion and sustainable development. It devotes special attention to the role of life skills and values at all stages of education, from preschool to senior/upper secondary school (Heto et al., 2020). The expectation is that a student can acquire specific values that encompass the moral, socio-cultural, civic, environmental, cognitive, and physical dimensions at each level. It therefore adopts a more holistic approach to a student's formation.

In Tanzania, the history of CBC can be traced back to a philosophy of education based on self-reliance, which was promoted by Nyerere (1967). This curriculum aimed at preparing learners to cope with life's problems in creative and innovative ways. The CBC was developed and adopted in 2005 as the result of a training system gap that negatively affected the quality of graduates being sent into the job market. The previous curriculum was heavily content-based and was not explicit about the kinds of competencies needed. The purpose of the CBC in Tanzania is to equip students with creative and inquisitive minds as well as employability skills needed to perform different roles. Challenges nevertheless persist because students have not been able to practice and apply what they have been learning such that they can solve societal problems as was envisaged (Nkya et al., 2021).

For many years Uganda's philosophy of education has been criticised for not responding to the needs of society, because the country's mode of teaching is largely content-centred and exam-oriented. This traditional mode of education has been blamed for producing individuals with no values or skills. To address such public concerns, the Ministry of Education and Sports through the National Curriculum Development Centre (NCDC), set out to review the curriculum at all levels. The review process began with the development of an Early Childhood Development Curriculum (ECDC) framework in 2005. This was followed by the review of the primary curriculum, which emphasised the use of a familiar language at the early stages of learning. The biggest highlight of the review, however, was the launch of the new lower secondary school's competency-based curriculum (NCDC, 2019). The new curriculum emphasises what learners are supposed to do, not what they are supposed to know. This makes it adaptable to society's evolving needs and presents the country with an opportunity to nurture learners who possess what the curriculum refers to as 'generic skills' and values.

3.1.1.2 Reconciling Western Conceptualizations of Twenty-First Century Competencies with East African Perspectives

While the development of twenty-first century skills is perceived as key to a young person's achievement of positive academic and life outcomes around the world, it is evident that most of the research studies on this topic have been dedicated to the investigation of these competencies in Western, industrialized, and high income contexts (Giacomazzi et al., 2022a; Jukes et al., 2021a). This is concerning if we consider the case of sub-Saharan Africa. Even though it is one of the youngest and most populated regions in the world, there are few studies dedicated to the investigation of life skills and values in this context (Deitz et al., 2021; Jukes et al., 2021b; Rosekrans & Hwang, 2021). It has been noted that tools used to measure these competencies in non-Western contexts have been borrowed from Western literature (Jukes et al., 2021a). This leaves no room for different understandings and conceptualizations of the skills to be measured. Moreover, while interventions aimed at enhancing social and emotional skills in Western contexts consistently demonstrate positive academic and behavioural results (Taylor et al., 2017), in non-Western contexts, evidence is less conclusive (Deitz et al., 2021; Rosekrans & Hwang, 2021). This might suggest that the measurement tools or the interventions implemented do not respond to the needs in all contexts. Moreover, there are studies that demonstrate differential impact of the same intervention in different contexts (Deitz et al., 2021).

According to the science of cognition, children's development is influenced by the culture and language of their community. Culture, as a system of shared beliefs, customs, and values of a community or society, shapes how people make sense of their reality and determines how they interact with it. These factors play a key role in defining which life skills and values a specific group of people deems worthy or desirable (Giacomazzi, 2022; Jones et al., 2021). Through interaction with their community of origin, children are exposed to cultural practices that contribute to their development (Bronfenbrenner, 1986). According to Rogoff (2003), a child grows while participating in the community; it is a process of transformation through participation in the group of people to which one belongs. It is for this reason that life skills and values can be understood only through the lens of culture; they may vary and evolve differently, depending on cultural circumstances.

As shown, governments in East Africa are clear about the need for children to develop twenty-first century skills, under umbrella terms such as 'core competencies' and 'generic skills'. Kenya, Tanzania, and Uganda have all rolled out competency-based curricula which include these skills, but the three countries are now grappling with the challenges of implementing these key reforms. Across the world, the implementation of such reforms requires a shift in learning and assessment practices, which remains challenging for education systems (Anderson & Ditmore, 2016).

The first challenge that needs to be addressed is the lack of understanding of the nature of these skills and how they are manifested and perceived by the local contexts. A recent systematic review of the literature on the topic (Giacomazzi et al., 2022a)

highlighted that few researchers who aim to assess or enhance life skills in sub-Saharan countries have recognized the importance of starting from the local understandings of the skills, and few studies have investigated these local understandings (Jukes et al., 2021b). The lack of attention to the local interpretations of a skill results in the development of pedagogical approaches and assessment tools that are irrelevant to learners (Giacomazzi et al., 2022a). This has clear repercussions for what happens in the classroom, since the way the curriculum presents the skills shapes the learning objectives and the pedagogical and assessment strategies in the classroom (Care et al., 2018b; Jukes et al., 2021b). It is therefore paramount to investigate the skills constructs that the curricula aim to develop, and so identify and describe the elements that might demonstrate that a person possess the skills in a specific context.

Another important element in understanding life skills is the fact that the demonstration of skills differs in relation to a person's stage of development and level of proficiency in that skill. The development of skills implies the ability to apply the skills to increasingly complex situations. The skills are gradually and progressively acquired in more sophisticated ways, which can be described differently depending on the context and targeted population (Care et al., 2018b). Nurturing a skill implies the need to identify a learning progression that applies across contexts in which the skill is demonstrated and can be enhanced. The concept of learning progression is common in most educational contexts and is widely understood by teachers and students. For example, in learning mathematical concepts, one builds on sequentially defined steps, and at each level, teachers can identify what they can expect from their students. Similarly, if teachers aim to enhance a specific skill in students, they should describe how students develop the skill at different levels of complexity (Care et al., 2018b). Yet with twenty-first century skills, the evidence of what works at different levels of sophistication is not very clear.

Another challenge is related to how one should measure twenty-first century skills. The lack of knowledge about the learning progressions that describe these skills poses major challenges in terms of how to assess these skills. As a consequence, the majority of the tools used to assess these skills in sub-Saharan Africa present issues of reliability and validity (Deitz et al., 2021). Measurement tools that were validated in one context might not be relevant to another.

To conclude, while the process of globalization is unavoidable and heavily influences the conceptualization of these generic skills, we should look to promote intercultural competency (Deardorff, 2006), a plurality of epistemological beliefs and worldviews, and sensitivity to specific contexts (Assié-Lumumba, 2016; Lee, 2017). Constructs developed within Western culture may not be universally applied to all contexts; their transferability to the local context must be questioned and investigated (Lee, 2017). In the East African context, the system reforms and the practices of nurturing and measuring generic skills should promote the use of methods and tools that are respectful of the local perspectives. The starting point for development and use of such tools should be the contextual definition of these skills.

3.2 Method

In August 2020, the Assessment of Life Skills and Values in East Africa (ALiVE) team addressed the gap in existing literature by exploring the understanding of collaboration, problem solving, self-awareness, and respect in the East African context. Each of these constructs are represented in the education systems of Kenya, Tanzania, and Uganda.

3.2.1 Study Design

A qualitative approach allowed deep immersion into local realities through rapid ethnographic interviews: an approach previously used in Uganda (Boothby et al., 2017). In a rapid ethnographic study, the timeframe for fieldwork is limited; such studies are usually conducted in places where time and resources are not always available. Rapid ethnographers go into the field with a well-structured interview guide and a narrow set of research questions.

The central aim of this design was to provide rich insights into how East Africa views life skills and values in order to document how the selected skills and values relate to the culture and to identify the perspectives and practices of adolescents, parents, and educators in their context.

The study was conducted during COVID-19 pandemic. During the time of the data collection, schools in Kenya and Uganda were still closed and the communities were still affected by restrictions in terms of mobility. It was also a time in which media were often referring to the lack of like skills and values in youth as a challenge the society had to face in times of pandemic.

3.2.2 Sample

The study sample included adolescent boys and girls from 13 to 17 years of age; parents and guardians; and key persons such as teachers, social workers, and local leaders from 15 districts across the three countries. The researchers purposefully sampled study participants in areas with the following characteristics: (a) urban, low-income areas within the capital city; (b) rural, agriculture-rich, and within 100 km from the capital city; (c) rural areas, 300–400 km from the capital city; (d) rural, pastoralist areas, 400–800 km from the capital city; and (e) those with different characteristics from those mentioned above, including fishing communities. The study randomly sampled two villages from each selected district. From each selected village, at least four interviews were conducted with adolescents (two of each gender, and with a mix of those in primary school, secondary school, vocational training, and those out of school); four interviews with parents (two of

interviewed adolescents and two of non-interviewed adolescents, while mixing fathers and mothers); and four interviews with key persons (teachers, social workers, and other people who consistently work with adolescents). The researchers interviewed a total of 368 participants (80 from Kenya, 55 from Tanzania, and 95 from Uganda). Of these, 76 participants were adolescents (36 males, 40 females); 78 were parents (35 males, 43 females); and 76 were teachers (42 males, 34 females).

3.2.3 Tools

The researchers conducted rapid interviews using a structured interview guide. The participants were asked to reflect on a specific skill (or value) and think about possible words or ways of defining the skill. The researchers then invited them to state and explain it in their mother tongue. Then they asked the participants to think about an adolescent (aged 13–17) they knew who clearly demonstrated the skill. They also invited the participants to reflect on the behaviours this adolescent displayed and on how they could assess whether another adolescent had that skill. Finally, the interviewer would ask a question about the systems that could allow an adolescent to nurture the skill in his or her life (i.e., family, school, peers, etc.).

3.2.4 Coding and Data Analysis

The analysis of the content generated codes related to the definition of the construct as described by the participants, the set of subskills or dimensions related to each construct, the dispositions and values the adolescents displayed, the suggested methods to assess the skill, and the support systems and other factors that could enhance the skill. As recommended by Gibbs (2018) and using the Dedoose program (version 8.3.41.), the researchers conducted an analysis of the understanding of each skill and the one value—paying specific attention to elements of contextualisation in contrast with what had been established from the literature review.

3.3 Discussion

The full reports of the contextualisation studies elaborate on the local conceptualisation of the three skills and the value that were investigated (RELI, 2023). This section discusses the key features that emerged: the communitarian understanding of the self; the importance of nurturing positive relationships; collaboration as means to help the community; and the strong focus on respect.

What emerges prominently in the East African context is that personal identity incorporates more communitarian than individualistic features compared to the Western descriptions of the self, as it has been highlighted by Grosser and Lombard (2008): "We have to encounter the collective we, before we encounter the collective I. I am only a person through others" (p. 1368).

In problem solving, for instance, the skill is mostly aimed at resolving interpersonal conflicts; the findings suggest that the life of each adolescent is closely related with the life of their community, whether it is the family, the school, or the larger society. Even in the process of problem solving, the participants highlighted how crucial it is for them to compare their views about challenges facing them with those of more experienced peers or older family or community members. In this regard, for instance, the *Baganda* tribe in Uganda promotes a sense of community by underscoring the importance of respecting elders and by discouraging selfish attitudes that aim only at achieving personal interests (Kassimir, 1998). The findings suggest that self-empowerment can be achieved through fostering a sense of community belonging (Giacomazzi et al., 2022b). There seems to be a fine line in problem solving between incorporating others' advice and over-reliance on someone else's suggestions, but this may suggest the need to rethink how epistemic beliefs and perspectives are usually transferred across cultures and applied to sub-Saharan contexts.

The findings related to problem solving resonate with understandings that emerge from interviews on self-awareness in Kenya, Tanzania, and Uganda. Notably, some of the most frequently mentioned competencies in the contextualization study were self-confidence, relationship skills, communication skills, and guidance and counselling. Self-awareness is strongly influenced by the relational components of East African life. In this context, the values and behaviours that are more frequently relatable to a self-aware adolescent are related to respect, positive conduct, obedience, discipline, humility, and fearing God.

Working together with the aim of helping the community is a feature of the East African understanding of collaboration. The participants in this study did not emphasise common goals, but rather the self in relationship with the community. Adolescents in this context appear to collaborate largely in solving problems affecting their community. Here, collaboration is not reduced to the accomplishment of a task in the family or at school, but it is seen as a way of conceiving of oneself; collaboration is driven more by the need to stick together than by the goal to be achieved. In the literature, collaboration is mostly established to complete a task that would not be possible to accomplish alone (Hesse et al., 2015). Similar to the findings on the self-awareness and problem solving skills, the values associated with collaboration are related to respect, unity, trust, and love. The value of unity emerges in the interviews as a synonym of *collaboration* (Fontana et al., 2022). Sharing responsibilities and having strong relationship skills are therefore considered necessary for the process of collaboration.

The study revealed similar patterns for adolescents who are perceived to value respect: they exhibit strong relationship and communication skills, guidance and counselling skills, teamwork or collaboration skills, self-confidence, empathy, and

self-regulation skills. At the same time, several participants connected respect with valuing others and further elaborated by referring to caring for others, considering others important, and recognizing their worth. On the other hand, self-respect—meaning one's self-understanding and self-knowledge—did not emerge strongly from the interviews.

Table 3.1 compares various frameworks of social and emotional learning skills with the findings of the four contextualization studies on problem solving, collaboration, self-awareness, and respect.

The differences between the skills conceptualisations of the ethnographic studies and those present in the literature from Europe and North America need to be considered when designing assessments and integrating them into the curriculum. When assessing life skills and values, the use of imported tools from different cultural environments may produce results that are not relevant to the situation on the ground and may misrepresent actual competencies. Also, lower performance of

Table 3.1 Comparison of life skills and the value of respect across the contextualisation study and published literature

Collaboration	Contextualization study	Hilton & Pellegrino Clusters of twenty-first-Century Competencies (EASEL Lab, 2023a)
Definition	Working/staying together	Coordination
	Teamwork/cooperation	Cooperation
	Helping the community	
	Sharing	
Subskills	Relationship skills	Communication
	Communication	Interpersonal skills
	Guidance & Counselling	*Empathy/perspective taking*
	Goal setting	*Conflict resolution*
	Self-confidence	*Negotiation*
Problem solving	**Contextualization study**	**IDEAL Framework** (Bransford & Stein, 1993)
Definition	*Facing problems*	Identify the problem
	Finding solutions	Define the problem
	Identifying a problem	Explore possible strategies
	Judgment	*Anticipate outcomes and act*
	Asking for advice	*Look and learn*
	Knowing/understanding a problem	
Subskills	*Communication*	*Attentional control*
	Cooperation/collaboration	*Planning*
	Guidance/counselling	*Time management*
	Leadership	*Emotional control*
	Relationship skills	*Organization skills*
	Self-confidence	

(continued)

Table 3.1 (continued)

Collaboration	Contextualization study	Hilton & Pellegrino Clusters of twenty-first-Century Competencies (EASEL Lab, 2023a)
Self-awareness	**Contextualization study**	**CASEL Framework** (CASEL, 2023)
Definition	Knowing/understanding self	Accurate self-perception
	Taking care of self	Identifying emotions
	Being a good person	Recognizing strengths
Subskills	Self-confidence/self-esteem	Self-confidence
	Communication	*Self-efficacy*
	Relationship skills	*Growth mindset*
	Guidance and counselling	
	Self-regulation	
	Goal setting	
	Planning	
	Empathy	
Respect	**Contextualization study**	**Sesame Workshop Global Framework for Learning** (EASEL Lab, 2023b)
Definition	Valuing others	Positive regard toward self
	Fearing god	Regard for others
	Taking care of self	
	Knowing or understanding self	
	Being a good person	
Subskills	*Expressive communication*	Self-confidence
	Relationship skills	Social awareness
	Receptive communication	Self-worth
	Guidance and counselling	Empathy
	Empathy	*Appreciate similarities and differences*
	Self-regulation	*Show respect for tradition*
	Teamwork/cooperation	
	Self-confidence/self-esteem	

populations in low- and middle-income countries could be due in part to the way the tool was designed, to social biases, or to the lack of relevance of the tools to the context.

Note that most of the tools developed in Western countries use self-report measures (Deitz et al., 2021; Smart et al., 2019). Self-report tools offer valuable information about people's perceptions of their own abilities, and the information they gather can predict future life outcomes. Yet people often overestimate or underestimate their performance based on their social bias. In the East African context, the importance people give to what the community members think about them may also influence respondents' perceptions. That is why it is important that tool developers consider various methods of assessment, beyond self-reporting, that could reduce such biases. Observation protocols, performance-based or social-network measures,

as well as scenario-based or task-based tools might be more appropriate to assess life skills in a specific context.

The contextualisation studies of the competencies investigated by ALiVE resonate with the findings of similar studies on critical thinking conducted in South Africa. For instance, Grosser and Lombard (2008) and Madondo (2018) advocated for traditional African cultures to be considered when designing critical thinking assessment tools. These authors showed how the African communitarian and altruistic lifestyle differs from the Western individualistic one. This, for example, leads to the common practice in the African context of avoiding a rhetorical method of investigating or arguing about a problem with others. Consequently, it is quite uncommon to find parents and teachers who highlight the importance of argumentation (Grosser & Lombard, 2008). For this reason, approaches aimed at assessing skills like problem solving or critical thinking in the classroom should consider the communitarian approach to life that encourages collaborative approaches to addressing a challenging situation (Giacomazzi et al., 2022a). Similarly, in East Africa, assessment methods that rely on rhetorical argumentation or dialogical explanation of one's standpoint should be discouraged in favour of methods that allow for collaborative resolution of problems.

3.4 Conclusions

The contextualisation process of twenty-first century skills should begin by conceptualising the skills that need to be measured in a specific setting. The ALiVE project's approach to investigating the meaning of collaboration, problem solving, self-awareness, and respect in Kenya, Tanzania, and Uganda showed that the local understandings of these skills is influenced mainly by the communitarian concept of the self, which is a characteristic of the East African culture.

When designing a data collection tool for assessing life skills in the East African context, there are several conceptual, ethnographic, and epistemological elements to be considered—not only at the initial stage of conceptualising the framework of a tool, but also in the process of data collection and data analysis. The epistemological beliefs of the targeted population might differ from those of the researchers; this conceptualisation study thus offers useful insights for the contextual definition of the behaviours that manifest a specific skill in the population of interest. It goes beyond the problem of language and of an accurate translation of the tool; the choice of the assessment method and of the toolbox, as well as the definition of a rubric for describing the observable traits of those with a low, medium, or high level of each component of the skill, should be driven by an in-depth understanding of the context in which the assessment tool is to be used. In the case of tools developed for adolescents, for example, the involvement of parents and educators who know the young people to be assessed, their behaviour, and their culture, is important for ensuring appropriateness (including age-appropriateness) and relevance. This highlights the importance of considering context at every level of the educational and assessment process.

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Chapter 4
Problem Solving in East Africa: A Contextualised Approach to Defining the Construct

Esther Care and Mauro Giacomazzi

Abstract Problem solving is a term that describes a vast number of processes and applications. Countries in East Africa, as well as globally, are looking to equip their young people with problem-solving competencies, which are then hoped to resolve the major issues that all societies confront. Accordingly, it is one of the competencies included in curricula developed by East African education systems. The development of conceptual and assessment frameworks by the ALiVE team was contextualised through reference to recent research undertaken in the ALiVE participating countries. Aspects of this conceptualisation differ from those used in most large-scale assessments; and the ALiVE approach to design and development of the assessment was construct-driven. This means that the form of the assessment tasks, coding criteria, and intended reporting style, are determined by the substance of the construct and how visible signs of this substance might best be captured. The framework was developed through a realistic appraisal of what would be possible to assess at household level. In development of the assessment tool, three factors were considered: the nature of the construct itself; the medium through which the assessment would be conducted; and the use to which the assessment results would be put. The chapter describes the formal process followed in defining problem solving and developing its assessment tools. A set of six workshops attended by 47 representatives of the collaborating organisations structured the process of creation; initially engaging at a level of simplicity to ground differing understandings of the skill, and then moving to the complexity of test and scale development processes. The data from the large-scale assessment indicate that ALiVE's measurement of problem solving is robust, with the results reflecting maturation with more education. This means that instructional time in the context of a general curriculum is providing a learning environment in which problem-solving processes can be nurtured.

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4.1 Introduction

Problem solving is a term that describes a vast number of processes and applications. It is used as we struggle with daily domestic logistics, used in mathematics classrooms as students are presented with 'specific problems', measured in large scale assessment programs to evaluate domain general problem-solving abilities, and referred to as wicked problems as we confront global issues. There is no doubt that all these applications draw on human cognition—how to analyse issues and resolve these in ways to achieve some desired goal or goals. Problems are all around us. The problems may vary in importance to the individual and the society, but have one common quality. A problem is a scenario which challenges us with the unknown. If a solution is known, it is no longer a problem. Initial engagement with a scenario is often to evaluate whether a problem actually exists. What may be a problem for one individual or in one context, may not be a problem for another—because they have different experiences, different knowledge, and different resources at hand. Problems are fascinating. Problems can present situations which lead to negative outcomes, or which can provide outcomes that help our societies progress.

We vary in our ability to solve problems, and this has raised interest in the teaching and assessment of problem solving. Problems themselves vary widely, and this has led to interest in both domain-specific and domain-general application of problem-solving proficiencies. Do we use the same strategies or processes to solve a problem at home, or at school, or at work? Researchers who have identified sets of processes that need to be invoked to solve problems would answer in the affirmative. And it is this perspective that has fed twenty-first century interest in assessment of problem solving—with, for many jurisdictions, the consequent intention to improve citizens' problem-solving abilities.

Countries in East Africa, as well as globally, are looking to equip their young people with problem-solving competencies, which are then hoped to resolve the major problems that all societies confront. Problem solving is one of the competencies always included in any description of twenty-first century skills, and typically included in curricula developed by education systems.

Since 2003, problem solving has been one of the constructs assessed in the OECD's Programme for International Student Assessment (PISA), strengthening global knowledge of the construct within the confines of achievement that can be measured within the educational context. Notwithstanding the acceptance of a core definition and description of problem solving implied by the just under 80 jurisdictions and countries which participated in the 2018 PISA round, several countries have shown interest in their own formulation of the concept. For example, Molnár et al. (2022) report on how students from Jordan and Hungary approach problem solving differently, while Wicaksono and Korom (2022) draw on problem-solving frameworks predominantly developed or adapted for use in Indonesia.

Problem solving in basic education systems has tended to be domain-specific. In other words, problems are posed to students within a particular domain, for example mathematics or science, and methods for resolving these problems are pursued

based on the knowledge domain required as well as a set of cognitive processes. The domain-specific approach to problem solving is best characterised by the work of Polya (1945), whose focus was on mathematics. Particularly in the twenty-first century, researchers have focussed on the complexity of problem solving as we face ill-defined problems (Funke, 2014), leading to more interest in domain-general applications of problem solving (Rudolph et al., 2017; Greiff et al., 2014), which are hoped to lead to building greater proficiencies. These problems are characterised by lack of definition, with goals unclear, and means of moving towards those goals also unclear.

Increasingly, the domain-general conceptualisation of problem solving has become the target of international large scale assessment programs, including microworld situational scenarios (Greiff et al., 2015), and computerised tasks based on aspects of daily life included in PISA since 2012 (OECD, 2013).

The distinction between domain-specific and domain-general approaches to problem solving is particularly relevant when considering how the education sector seeks to promote problem-solving competencies versus societal interest in the functioning of society and management of global issues. National curricula typically promote problem solving as it pertains to specific areas of learning, and mainly to mathematics and science. However, the current focus on problem solving highlights the anomaly between formal education's traditional approach to the capability within mathematics and science studies, and society's need for individuals to apply the steps of problem solving in daily life. Conceptualising problem solving as a twenty-first century skill is to prioritise its application in daily life, and to transfer use of steps or processes previously exercised within academic or research studies to practical issues.

Another characteristic of problem solving is how it has increasingly been viewed as an information processing competency. It is therefore a competency that is more frequently described as a set of processes than as a skill. This characteristic sets it aside from many other competencies that fall under the twenty-first century skills' or lifeskills' umbrellas. The characteristic facilitates both our understanding of the competency and our ability to assess it. The Assessment of Lifeskills and Values in East Africa (ALiVE) project, designed to measure the lifeskills and values of adolescents, has benefited from this feature in that it provides the opportunity to formulate the processes and find 'carriers' for these in daily life. And this is where we return to the need to ensure that the conceptualisation of the construct is true to its context.

4.1.1 Conceptualising Problem Solving in East Africa

The first task for ALiVE in developing tools for assessing the lifeskills and values of adolescents across Kenya, Tanzania, and Uganda, was to agree on commonly held understandings of these competencies in the participating countries. The development of conceptual and assessment frameworks by the ALiVE team was

contextualised through reference to recent research undertaken in the ALiVE participating countries. Giacomazzi et al. (2022) explored the nature of problem solving across contexts, with a focus on its nature in three East African nations. Kenya, Tanzania, and Uganda in recent years have all integrated various lifeskills into their national education curricula (Kenya Institute of Curriculum Development, 2019; NCDC, 2019; Nkya et al., 2021), raising questions about reliance on Western definitions of these constructs and relevance of these constructs.

Giacomazzi et al. (2022) describe problem solving as "identifying the problem, knowing and understanding the problem, asking for advice, evaluating the options and choosing between them, and finding the best solution" (p. 5). Many of the respondents in the contextualisation study associated problems and problem solving with interpersonal conflict or community difficulties. Asking for advice referred to seeking guidance from significant others and the community. Aspects of this conceptualisation differ from those used in most large-scale assessments and those associated with domain-specific competencies which prioritise cognitive elements only. A key element identified by Giacomazzi et al. (2022) is the social aspect of problem solving, and this of course draws attention to the role played by culture in our understanding of how problem solving takes place and is manifest. Incorporating this element is more complex than may initially appear. The consideration of community and relationships rests on an individual's knowledge of these aspects of human life. At an individual level, difficulty in problem solving occurs where limited knowledge is available or when a situation itself is ambiguous. In extreme instances of such ambiguity, and particularly in cases where the problems are widely seen as critical, such problems have increasingly been been termed 'wicked problems' (Funke et al., 2018).

The ALiVE team that investigated problem solving also drew on the highly visible framework used by OECD PISA (2013). That framework was set in principles well aligned with ALiVE's current concerns with education and the strengthening the integration and development of these skills: "The acquisition of increased levels of problem-solving competency provides a basis for future learning, for effective participation in society and for conducting personal activities" (p. 120). The framework drew on an information processing approach, distinguishing it from domain-specific knowledge and approaches. The processes explored in PISA were: exploring and understanding; representing and formulating; planning and executing; and monitoring and reflecting.

Tobinski and Fritz (2017) draw attention to problem solving occurring at the intersection of available and missing knowledge. They make the point that the initial state of a problem is based on previous knowledge. Although their interest was in handling of complex problems in the physical environment, the principle is useful in consideration of how the social context impacts problems and their solutions. Tobinski and Fritz (2017) draw attention to the initial difficulty and recognition of a problem being contingent on existing knowledge. If assessment of problem solving is to provide the same opportunities for any individual to demonstrate their problem-solving processes, then the scenario or situation which constitutes the problem needs to be equally familiar to all being assessed.

4.2 Argument and Approach

The significant challenges for ALiVE in development of an assessment for problem-solving skills of adolescents were: to accommodate the contextualisation recommendations inherent in Giacomazzi et al. (2022) in adoption of a conceptual structure with its consequences for an assessment framework; and to generate assessment tasks compatible with the limitations and affordances of household-based assessment.

The ALiVE approach to design and development of the assessment was construct-driven (Wilson, 2005). This means that the form of the assessment tasks, coding criteria, and intended reporting style, are determined by the substance of the construct and how visible signs of this substance might best be captured. The theoretical structure of the construct, problem solving, was therefore fundamental to the assessment design and form.

Drawing upon research literature including sources quoted in this chapter, and the Giacomazzi et al. (2022) contextualisation study, the ALiVE initiative adapted a conceptual structure for problem solving and developed its assessment framework. The framework was developed through a realistic appraisal of what would be possible to assess at household level. Figure 4.1 illustrates both the structure and framework.

The first step in problem solving is to identify whether a problem exists. This step can be complex and will vary in cognitive demand according to the nature of the situation and the resources of the individual. A straightforward approach is to ask "who", "what", "how", and "why". The answers to these questions help to define the problem space; its current status and the 'discomfort' that characterises it; and the artefacts available within the space and those required upon which to draw (Care & Griffin, 2017).

The conceptual structure shows the over-arching construct of problem solving, and three dimensions – defining the problem, finding the solution, and applying the

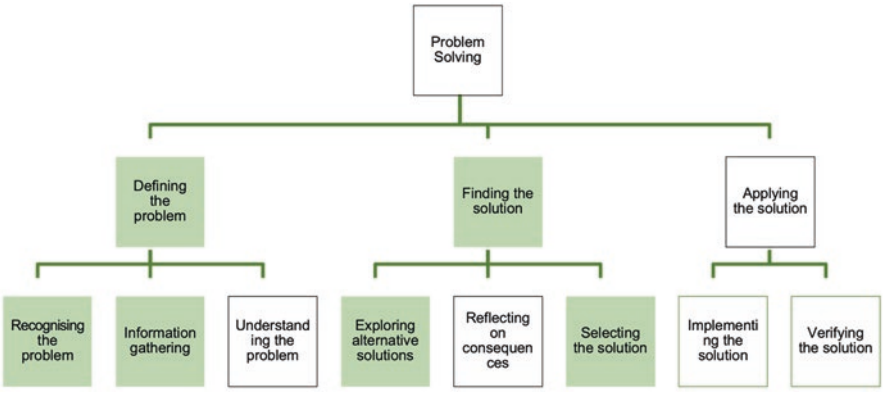

Fig. 4.1 Conceptual structure and assessment framework for problem solving

solution. Within each of these dimensions are sets of processes, or 'subskills'. The subskills that could reasonably be assessed within the context of household-based assessment are identified in the assessment framework. These are shown in Fig. 4.1 as shaded. The dimension of 'applying the solution' was not targeted in the assessment program, due to the logistical problems of enabling the activities. For each assessment task, ideas were created to formulate a scenario in which each of the problem-solving processes could be targeted. The ideas were generated by the ALiVE team and were drawn from community experiences. The ideas describe possible scenarios in daily life; the assessment tasks comprised the scenario and a series of questions about it that would prompt responses interpretable within the problem-solving logic and its processes.

The structure and the assessment framework adopted for the development of the household-based assessment draw on the OECD's PISA problem-solving framework (2013) and the findings of Giacomazzi et al. (2022). The primary difference lies in how some of the cognitive processes are clustered together, and the inclusion of advice seeking. To some degree the differences are also a function of the generic levels at which processes are presented. For example, in the same way that ALiVE's structure depicts dimensions and subskills within these, the OECD PISA example combines two distinct processes within what is shown in Fig. 4.2 as each of four steps.

4.2.1 From Concept to Assessment Development

In development of the assessment tool, three factors were considered. These were: the nature of the construct itself; the medium through which the assessment would be conducted; and the use to which the assessment results would be put.

ALiVE

recognising the problem	information gathering	understanding the problem	exploring alternative solutions	reflecting on consequences	selecting the solution	implementing the solution	verifying the solution

Giacomazzi et al. (2022)

identifying the problem	knowing and understanding the problem	asking for advice	evaluating the options	choosing and finding the best solution	

OECD PISA (2013)

exploring and understanding	representing and formulating	planning and executing	monitoring and reflecting

Fig. 4.2 Problem solving processes across conceptual structures

4.2.1.1 Nature of the Construct

The adoption of the assumption that several distinct processes underly a problem-solving event, has implications for how assessment task scenarios must be created. Ideally, any given scenario will stimulate multiple processes, responses to which will be recordable and codable. Since a certain sequence in enactment of the processes typically occurs, both description of the task and the following questions and prompts must follow a logical order. The predictability of responses is a significant requirement in building the sequence. It means that each question and prompt must be phrased in such a way that the response can be interpreted within the parameters of the process for which the question or prompt has been created.

4.2.1.2 Medium of Assessment

The intention of ALiVE, as discussed in Shariff et al. (2024; Chap. 2, this volume) was to collect evidence of the competencies of 13–17 year old adolescents across Kenya, Tanzania, and Uganda regardless of whether they were attending formal education or not. Hence, the optimal way of accessing this group was through a *household-based* approach. This approach had implications for the administration of assessments, as well as the form of the assessment tools.

The main features of the administration can be described briefly across practical matters, while these had implications for the nature of the assessment itself. It was essential that Test Administrators were fully versed in how to approach the adolescents, how to standardise the assessment interaction, and how to interpret responses so as to code these appropriately. In order to ensure this, the Test Administrators participated in three days of training, one day of which was dedicated to familiarisation with the life skills and value to be assessed. The assessment of problem solving was to last for no longer than 7–10 min for each adolescent, with the prompts being provided orally on a one-to-one basis, with no stimulus aids.

The implications of these features were several.

- For orally administered assessment, lack of written or pictorial records or prompts meant that the assessment scenarios needed to be sufficiently simple and short that the task did not pose a significant short-term memory load for the adolescent;
- Each assessment task needed to be communicable by the Test Administrator using simple language which could reasonably be comprehended by 13–17 year old adolescents across a range of backgrounds, education experience, and abilities;
- Each assessment task needed to be capable of generating a predictable range of responses that would be amenable to immediate recording and coding by the Test Administrator;

- Each assessment task needed to have the potential to stimulate responses across several of the hypothesised problem-solving processes, in order to maximise time use efficiency; and
- While drawing on situations familiar to the adolescent target group across the three countries the assessment tasks needed to be situated in contexts that would not discriminate between adolescents based on gender, religion, culture, or language.

4.2.1.3 Use of the Assessment Results

The intended use of the assessment results was for advocacy, not for reporting at individual adolescent level that could be used for instructional intervention. Accordingly, broad brush levels of competency and patterns across the adolescent target group in terms of gender, education, geographic location, language, would be the focus of reporting. Results could be framed in descriptive text that would clearly communicate what adolescents are able to do, so that these could be relayed to the education community. Given this anticipated use, it was important to generate information across a coherent but minimal number of subskills, to optimise messaging.

4.3 Method

4.3.1 Structuring the Work: Conceptualisation and Assessment

The formal work sessions for defining problem solving and developing its assessment tools began in April 2021, with the first of six workshops attended by 47 representatives of the collaborating organisations. For each life skill and value, teams were assembled. The teams reviewed the findings of the contextualisation study and set the task of achieving consensus on a single definition for each construct. Drafts were presented for discussion across the four teams. This was followed by highlighting sources for task ideas which led on to technical sessions on issues of fairness and difficulty levels. The 'skills' teams then took their work back to country convenings for further analysis. The second workshop reviewed status, checking likely alignment of task ideas against concept domains. This process continued through to July at which point 'think-alouds' (cognitive laboratories) were held to check early assumptions of the teams about the tasks, items, and scoring rubrics. By September of 2021, the analysis of student data from the think-alouds was used to set the assessment blueprints by identifying what was, and was not, possible to assess given the field conditions under which the large-scale assessments would be undertaken. From this time onward, each skill team worked independently of each other to fine-tune the assessments and the scoring rubrics. The problem-solving

team drew primarily upon members from Uganda.[1] Team membership fluctuated somewhat over the full development period. Analysis of dry run and pilot data early in 2022 was undertaken in a week long in-person workshop participated in by researchers.[2] This workshop assembled the evidence for finalisation of the large-scale assessment tools, confirmed construct structures, and subskills within constructs, through statistical analysis of the response data. Within the workshop, separate teams were again convened to focus on the specific constructs. Analysis of data from the large-scale analysis was undertaken across October to November 2022.[3]

With the conceptual structure and descriptions of the processes within this available to them, the ALiVE problem-solving team first engaged in idea creation. Prompts for the process were to consider scenarios that adolescents might typically encounter, and evaluate whether these would provide the opportunity for display of the dimensions and their subskills. As the ideas were successively explored and critiqued, the elucidation of performance indicators and their quality criteria took place (Care et al., 2016). The first 'check' of the utility of the task ideas and their operationalisation into scenarios, prompts, and identification of performance indicators was undertaken through a cognitive laboratory process (Zucker et al., 2004; Griffin et al., 2012) with adolescents from the target population. Analysis of responses informed a review phase in which some task ideas were discarded, and for others their task descriptions, prompts, and performance indicators were refined. The next phase was a pilot of the assessment tasks with 392 adolescents (Kenya n = 154; Tanzania n = 79, Uganda n = 159). The pilot generated more information about time required for the assessment, need for modifications in phrasing of tasks, and refinement of coding criteria (informed by exploration of reliability across coders). These pilot data were also used to explore the robustness of the dimensions and subskills scales. The final check included 308 Kenyan adolescents in a 'dry run' of the full assessment. The responses were collected by Test Administrators using tablets and the application Kobo Collect. These responses were then analysed to explore item response distributions, and variations across performance indicators. Subsequently, very minor amendments were made in phrasing, and some rubrics were redefined to ensure accuracy of coding.

All problem-solving assessment tasks followed the same measurement design, with each task item generating one response for each subskill scale. From an initial pool of nine assessment tasks, six were good fit solutions, in the sense that these generated scales with excellent internal reliabilities. Of these six, just three were selected for the final large-scale assessment, in the interests of maintaining reasonable testing times for the adolescents. The responses given by adolescents to the tasks were coded according to criteria in the form of rubrics, contributing to the reporting for each subskill across three proficiency levels as illustrated in Table 4.1.

[1] Kandi Alum, Martin Ariapa, James Droti, Mauro Giacomazzi, Joan Annet Kajura, Asha Kukundakwe, Mary Goretti Nakabugo, Florence Nansubuga, Faridah Nassereka, Godfrey Ntubiro, Saint Kizito Omala.

[2] Problem solving participants: Martin Ariapa (Uganda), Daniel Marandu (Tanzania), Walter Odondi (Kenya).

[3] Martin Ariapa, Esther Care, Masa Pavlovic.

Table 4.1 Subskills descriptions and performance indicators at increasing levels of proficiency

		Levels of proficiency		
	Subskills descriptions	1 Adolescent is…	2 Adolescent is…	3 Adolescent is…
Performance indicators	**Recognising the problem**			
	This subskill targets an individual's ability to explore and analyse a scenario to identify if there is a likelihood of a non-positive situation or outcome.	*Unable to recognise key features of a situation that identify it as a problem*	*Able to recognise a key feature of a situation that identifies it as problematic*	*Able to recognise multiple key features that imply there is a problem*
	Information gathering			
	This subskill targets an individual's ability to think logically about what might have caused or contributed to a problem.	*Unable to identify what information is needed in order to solve the problem*	*Able to identify one aspect or set of factors that, if known, might help to solve the problem*	*Able to identify different aspects or sets of factors that, if known, might help to solve the problem*
	Exploring solutions			
	This subskill targets an individual's ability to link their knowledge of the problem with possible actions or solutions.	*Unable to link ideas about nature of the problem with ways of dealing with it*	*Able to identify one main approach to solving the problem*	*Able to hypothesise several possible solutions of different nature to solving the problem*
	Selecting the solution			
	This subskill targets an individual's ability to evaluate multiple possible solutions to a problem	*Unable to suggest a solution with justification for it*	*Able to suggest a solution but is not able to justify why this is preferred*	*Able to suggest and justify a preferred solution from among several*

Each of the levels of proficiency for the performance indicators provided in Table 4.1, contributes to the over-arching identification of levels of performance for the over-arching skill, problem solving, which is reported in Ariapa et al. (2024; Chap. 10, this volume)

Of interest is the degree to which this sequence model, running from recognition of problem to information gathering, then to exploring solutions prior to selection, is at odds with the cyclic notions of problem solving. Complex problem solving (Greiff et al., 2015; Bennett et al., 2003) typically refers to multiple cycles both across and within each of the separate subskills. This possibility was not allowed for in the ALiVE assessments, which instead followed a one-step logic within each process model.

4.3.2 Implications of a Contextualised Definition of Problem Solving

The role played by the contextualised definition of problem solving was made explicit in the task idea creation and subsequent item development, and was demonstrated in response data gathered during the pilot phase.

It is notable that the subskill of *information gathering* is the most difficult to perform by adolescents across Kenya, Tanzania, and Uganda (see Ariapa et al., 2024; Chap. 10, this volume). The performance indicator at the highest level, 'able to identify different aspects or sets of factors that, if known, might help to solve the problem', is similarly difficult across all three assessment tasks. This demonstrates that the difficulty is not specific to task, but is associated with the subskill itself. It may be that this phenomenon is associated with the difference noted above between emphasis on cognitive processes seen in most conceptual structures for problem solving, rather than on relationships or community (Giacomazzi et al., 2022). The subskill requires that an individual hypothesise factors or elements that are part of a problematic situation, and then seek to inform these. This is essentially what is referred to elsewhere as exploring the problem space (e.g., Care & Griffin, 2017; Newell & Simon, 1972). If a first instinct when confronted with a problem is to seek advice from others (Giacomazzi et al., 2022), then this might impact on diverse approaches to *information gathering*. The issue can be seen through analysis of qualitative responses from adolescents to one of the tasks during the pilot process.

4.3.2.1 Task Example 1

One task scenario presents the issue of two school friends fighting. Data were collected during the pilot phase which informed the later coding of responses. The adolescent is asked 'to solve this problem, what else do you need to know about it?' From the qualitative responses collected in the pilot, approximately two thirds of adolescents respond that they need to know the cause of the fight; about one third respond that they need to know who started the fight or what the relationship is between the two friends. There is therefore little variation in responses, which demonstrates paucity in searching for other relevant artefacts or elements in the problem space. Questioning the reason for the fight implies that there might be some (possibly community) value judgement about justification for the fight, while questioning the relationship may address the point made in the contextualisation study—that relationships need to be prioritised. Whether these community or relationship priorities crowd out adolescents' capacity to brainstorm other salient factors is a reasonable question. Whether both these main responses are symptomatic of reported comments collected in the contextualisation study is an interesting point. One young Kenyan is reported to have commented on problem solving:

> Whenever he wants to solve a problem, he's the person who does not ambush you wanting to solve the problem. He can't be on one party's side; he takes sides with both parties. If he takes sides with one person, he is not a problem solver. (Giacomazzi et al., 2022, p. 7)

This limited variety of responses is noted in another task. The limitation may be due to widespread recognition of the type of risk described by the task, which therefore inhibits canvassing of more options.

4.3.2.2 Task Example 2

Another task scenario describes a younger sibling taking longer than anticipated to return from doing an errand. The interpretation of the scenario is based on the individual respondent's knowledge of their community and the occurrences that typically take place within it, reflecting Tobinski and Fritz's (2017) point that pre-existing knowledge impacts on how an individual interprets any given event. In the pilot run for the assessments, just 6% of adolescents responded that there was no problem. A strong consensus for recognition of the problem at community level was indicated by the limited number of reasons proffered for the situation identified as a problem by the remaining 94%. Over one half identified 'something bad' including predominantly kidnap, accident, and rape, while 'child associated' reasons such as getting lost, being distracted by friends, and playing, accounted for less than a quarter of reasons. Whether this particular set of reasons, in the proportions obtained, would have been proffered in other socio-economic, cultural or national environments is not known. However, the homogeneity of responses suggests a shared cultural understanding of most likely risks in the communities in which this adolescent group was based. It also sets the 'difficulty' level for the problem by virtue of establishing this common knowledge base.

The lack of variation in responses to need for additional information to inform the problem space may therefore be attributed to multiple factors, including the contextualised reality described above. A second may be the familiarity of the scenarios themselves on which the problems were based. Familiarity was a major criterion used to develop and then evaluate task ideas for problem setting (Tobinski & Fritz, 2017). Familiarity was judged necessary due to the household-based assessment approach that could not assume formal education content upon which to set problems. However, that familiarity itself could have nullified the need to think more creatively about the situation. And this takes us to the third factor, familiarity with an educational assessment paradigm. In all three countries, the experience of young people is that their responses to any assessment situation will be judged as either correct or incorrect—there is less scope for nuance. This may make it more likely that respondents will take a safe option of responding in conventional ways.

4.4 Discussion

Adolescence is recognised as a time of growth across physical, cognitive, and social-emotional development (Erikson, 1968). It is a time when individuals take on significantly different roles from those which they have played in the past, and often significantly different from each other. Some adolescents remain primarily dependent on their family or carers while others run independent lives. Some are prepubescent while others are married or have offspring. To create assessment tools at the level of simplicity required for ALiVE while simultaneously engaging the interest of this target group poses some special problems. The difficulty for ALiVE was somewhat offset by the decision to use scenarios from daily life. Although individuals at different levels of maturity might respond to these differently, the scenarios themselves would be similarly familiar to all. As shown in Ariapa et al. (2024; Chap. 10, this volume) that assumption of responding at different levels of maturity was well-founded. However, the data also indicate that education has at least as great, if not more, influence on problem solving competencies in this population. If education has an impact on these competencies, it follows that problem solving is not purely a function of general intelligence nor of cognitive maturation. It means that instructional time in the context of a general curriculum is providing a learning environment in which problem-solving processes are nurtured. This can only be a positive for the goals of ALiVE and the education systems of the participating countries—Kenya, Tanzania, and Uganda.

The most known household-based assessments across Africa and Asia focus on literacy and numeracy (e.g., Uwezo, 2019; ASER, 2021). Such assessments of course are concerned with what is correct and what is not. In other words, accuracy is valued. This is typically well understood by children and adolescents, both in assessment at household level and in the school. The assessment of skills, however, cannot focus on accuracy since their application is about appropriateness rather than a binary judgement of success or failure; assessment therefore is about determining a level of competency. Responses are best interpreted as indicating either less or more of the target construct. Bringing an 'accuracy mindset' to an assessment event can be counter-productive when in fact the goal is to determine whether an appropriate level of skill is brought to the demand. In the case of problem solving, its very nature requires generation of multiple hypotheses and solutions, and encourages trial and error. It is essentially an iterative process, and to judge just one step as accurate or inaccurate does not do justice to the overall process.

Guidance to test-takers is generally provided before any assessment event, and so was the case with the ALiVE assessment. However, given lack of familiarity with this type of assessment, it is plausible that the adolescents might not have well understood the assessment goal of canvassing their thoughts, views, and processes. In addition, many adolescents were shy, and may have been inhibited in taking on a more interactive, conversational role in the assessment event. Giving short answers with the goal of providing a correct response may therefore have led to some under-performance.

The brevity of responses could also have been influenced by the framing of the task scenarios themselves. Since it was important to limit the cognitive load, given the lack of support materials, the stimulus text describing each scenario was kept as short as possible. This could have framed the mode of the adolescents' responses by encouraging them to be equally brief.

Two criteria applied to the creation of tasks were that responses would fall within a relatively limited range, and be compatible with coding. Formulation of tasks that fulfilled this curriculum could have cut out alternative scenarios that might have stimulated more varied or more creative responses, hence limiting the true range of competencies. The predictability was necessary, given the practicalities of the one-to-one assessment administration, the lack of additional stimulus materials, the relatively short training of the Test Administrators, and the need to record and code on the spot. However, evidence from the large-scale assessment results indicates that few adolescents were actually able to demonstrate high level competencies, so it is possible that this concern had an impact on this particular test event. It is important to consider for future development, whether artificial limits on opportunities to demonstrate high level competencies might be presented by such assessment approaches.

The development and use of assessment tasks to capture demonstrations of problem-solving behaviour from adolescents in ALiVE was contextualised in three ways. The definition and structure of the construct was based on a study of understandings of that construct. The task ideas were derived from events and circumstances familiar in the lives of the adolescents. The environment in which adolescents demonstrated the skill was their home and community. Notwithstanding this localisation of the development, process, and use, the tasks functioned in a manner interpretable within existing knowledge about problem solving as researched widely (e.g., Csapó & Funke, 2017). This outcome is testament to the ubiquity of problem solving as a human process, the robustness of its core elements, and its adaptability under different circumstances.

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Chapter 5
Self-Awareness and Respect in East Africa: A Contextualised Approach to Defining the Constructs

Purity Ngina, Victoria Mwema, Stella Rose Akongo, and Mauro Giacomazzi

Abstract The Assessment of Life Skills and Values in East Africa Study (ALiVE) focussed on four competencies with respect as the only selected value. This chapter explores the concepts of self-awareness and respect, delving into the process undertaken by ALiVE in the development of assessment tools to measure these constructs in East Africa. Self-awareness and respect are presented together due to some associations between them. Cultural influence on values such as respect is evident in worldwide perspectives, as well as in its local conceptualisation in East Africa. The chapter describes global and local perspectives on these constructs, and identifies the unique aspects of local conceptualisations in the East African region. The chapter discusses how self-awareness and respect are understood by adolescents, parents, and the communities in Kenya, Tanzania, and Uganda, and the implications of this on the development of the assessment tools. In addition, the assessment frameworks for both constructs are presented. These are expanded through description of the hypothesized proficiency levels and illustrated by sample tasks.

5.1 Introduction

Adolescents make up a population of 1.3 billion worldwide, with the sub-Saharan Africa population of adolescents expected to reach 500 million by 2050 (UNICEF, 2022). Africa faces significant problems that cripple its economic growth. The

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African continent has the youngest population in the world with 70% of youth in sub-Saharan Africa under the age of 30. It is therefore critical to build the skills of youth as a backbone to development of society and community. Youth unemployment is one crisis rocking the economy. To empower youth, it is critical to nurture their key life skills and values as well as their technical work-related skills. Social-emotional skills such as self-awareness, and values such as respect, are critical to building of confidence, resilience, and interpersonal capabilities.

In re-thinking the educational goals of today, scholars have argued for an education system that seeks to open the mind, nurture the spirit, and awaken the heart (Elmore, 2014). In response to this demand, the education systems of Kenya, Tanzania, and Uganda have adopted competence-based curricula that have integrated learning beyond the academic into education. Self-awareness is one such area of learning that has received attention because of its associations with cognitive development, and due to its influence on attainment of learning outcomes (Bryce et al., 2015). To Eysenck (1994), a deeper understanding of self is fundamental not only to growth, but also to success in school and later in life. While educators are now being drawn into nurturing and developing these competencies in learners through a variety of experiences in and out of the classroom, there is need for educators to understand more about the domain of self-awareness.

Regarding respect, East African countries have embraced values-based education as part of their curriculum reforms. In Kenya, for instance, the implementation of a new curriculum aims to nurture values such as love, responsibility, respect, unity, peace, patriotism, social justice and integrity within learners (KICD, 2019). The objective is to integrate these values into classroom instruction. However, like many other countries, East African countries face challenges in measuring the progress and effectiveness of values-based education. One of the reasons for this limitation is the lack of a systematic approach to evaluate the extent of values teaching in schools (Salleh et al., 2017). A related difficulty is the actual assessment of values, with researchers concerned about how to approach this, its validity and associated ethics issues (Forster, 2001).

Self-awareness and respect are key elements of a person's identity, attitudes toward others and society, and consequent capacity to interact with others. These concepts in traditional African and other cultures, and current perspectives about them, are brought together in this chapter. Each construct is considered separately to track their histories before drawing them together through their parallel assessment in the Assessment of Life Skills and Values in East Africa (ALiVE) initiative. The combination of the two constructs in this one review is intentional. There are interesting links between the two which imply some interdependence. Self-awareness is discussed first, following the logic of an argument that holds that awareness of self and others is a necessary recognition for the development of respect, for self, others, and the environment.

5.2 Review of Literature

5.2.1 Self-Awareness

Self-awareness is discussed as a prominent life skill, useful for improved work and life outcomes (Lawrence et al., 2018; Svalgaard, 2018). Studies have found that individuals with high levels of self-awareness tend to be more effective in the workplace. This is attributed to their ability to accurately evaluate their own capabilities, enabling them to adopt appropriate strategies for interpersonal interactions and task completion. Conversely, individuals low in self-awareness are less effective due to apparent misjudgement of personal competence and contributions (Carden et al., 2022).

Self-awareness is believed to enhance decision making, team performance, and authentic leadership (Carden et al., 2022). Organizations increasingly rely on teams to carry out complex tasks. Teams are comprised of individual members whose unique characteristics, including knowledge, skills, attitudes, beliefs, dispositional tendencies, and behaviours, collectively shape the team's overall capacity (Kozlowski & Klein, 2000). Despite the extensive body of literature on teams and team-member characteristics, the role of self-awareness is relatively un-explored. This is despite widespread recognition that individual contributions are crucial for team-level functioning (Dierdorff et al., 2019).

In terms of life outcomes, self-awareness has been recognized by practitioners and researchers as a crucial tool for reducing psychological distress and as a pathway to personal growth for individuals. Various aspects of self-awareness, such as mindfulness and rumination, play a mediating role in the impact of mindfulness-based interventions on mental health outcomes (Gu et al., 2015). Nevertheless, the significance of self-awareness extends beyond well-being and mental health to significant effects on day-to-day functioning. It has implications for performance, as reflection and mindfulness promote persistence in tasks despite performance-related stress, while rumination is associated with interpersonal difficulties (Sutton, 2016).

The literature on self-awareness often fails to acknowledge the complexity of the construct (Carden et al., 2022; Sutton, 2016; Sutton et al., 2015). It is frequently conflated with self-consciousness and self-knowledge, leading to confusion and inconsistency in understanding. According to CASEL (2023), people are self-aware when they can accurately recognize their own emotions, thinking, and values and how these determine how they behave. Dierdorff et al. (2019) define self-awareness in regards to team performance as an individual's ability to assess and understand what one offers behaviourally to the team. Morin (2011) considers self-awareness as the ability to become the object of one's focus by looking at oneself from others' viewpoints, thereby creating an imagined distance between the individual and the self. Goleman (2006) affirms that self-awareness is knowing one's emotions (emotional intelligence), which Salovey and Mayer (1990) define as "the subset of social intelligence that involves the ability to monitor one's own and others' feelings and

emotions, to discriminate among them and to use this information to guide one's thinking and actions" (p. 189).

These perspectives and interpretations of self-awareness (Sutton, 2016) make complicated theory development in education, the establishment of accurate measurement tools, and progression of research (Carden et al., 2022). This complexity is not surprising when considering the broader notions of self and of awareness. Self is subject to diverse philosophical perspectives (Bachkirova, 2011). Firstly, there is the social behaviourism view, which considers the self in relation to social processes and communication (Carden et al., 2022). According to this perspective, the development of self is influenced by observing and interacting with others (Baumeister, 2005). Secondly, there is the intrapersonal perspective that posits the existence of multiple layers and dimensions within the self (Harter, 2006). These dimensions can be both conscious and unconscious (Bachkirova). Therefore, the key distinction between these two perspectives lies in whether the self is understood in relation to others, or whether it is focused on the various layers and dimensions within oneself, as emphasized in the multidimensional layered view. More frequently, it is argued that the self is inherently multidimensional, comprising conscious and unconscious layers, and is influenced by observations of others.

The concept of awareness alone also presents a somewhat perplexing picture. Awareness is often used interchangeably with consciousness (Fromm, 1965; Vaneechoutte, 2000) and psychological mindedness (Beitel et al., 2005). The literature on awareness can be categorized into three core concepts (Carden et al., 2022). First, cognitive awareness emphasises an individual's comprehension of their own perception and thinking, with awareness representing the capacity to gain a thorough and accurate understanding of these processes. Second, there is a perspective that asserts awareness to be multilevel, encompassing both conscious and unconscious aspects, culminating in a stage of awareness where individuals process their physical and mental experiences (Vaneechoutte, 2000). The third conceptualisation considers awareness in relation to recognising and understanding the emotions and feelings of others, taking into account one's impact on them (Beck et al., 2004).

Given the lack of consensus regarding self and awareness, it is not surprising that the self-awareness construct is also unclear (Sutton et al., 2015). Initially, the concept of self-awareness was perceived to have two dimensions (Duval & Wicklund, 1972). The first dimension is subjective self-awareness, which refers to a state of consciousness where attention is focused on external events. The second dimension is objective self-awareness, which involves a concentrated focus on the self. This two-dimensional approach suggests that self-awareness is achieved by directing attention towards oneself and comparing one's actions to self-established standards. This comparison can lead to an aversive state if a discrepancy arises between self-perception and self-developed standards, resulting in a negative state of mind (Silvia & Duval, 2001). This perception of self-awareness as an aversive state is associated with the rumination aspect of self-consciousness (Trapnell & Campbell, 1999), which tends to focus on negative thoughts such as past mistakes or feelings of inadequacy, potentially leading to mental health issues. However, there is an alternative perspective that distinguishes between rumination and reflection in which the latter

is considered a positive process that fosters self-consciousness and facilitates learning (Carden et al., 2022).

A recent systematic review of the literature on self-awareness shows a hierarchically-structured conceptualisation of self-awareness (Fig. 5.1). The main components of the construct of self-awareness are shown as either intra- or

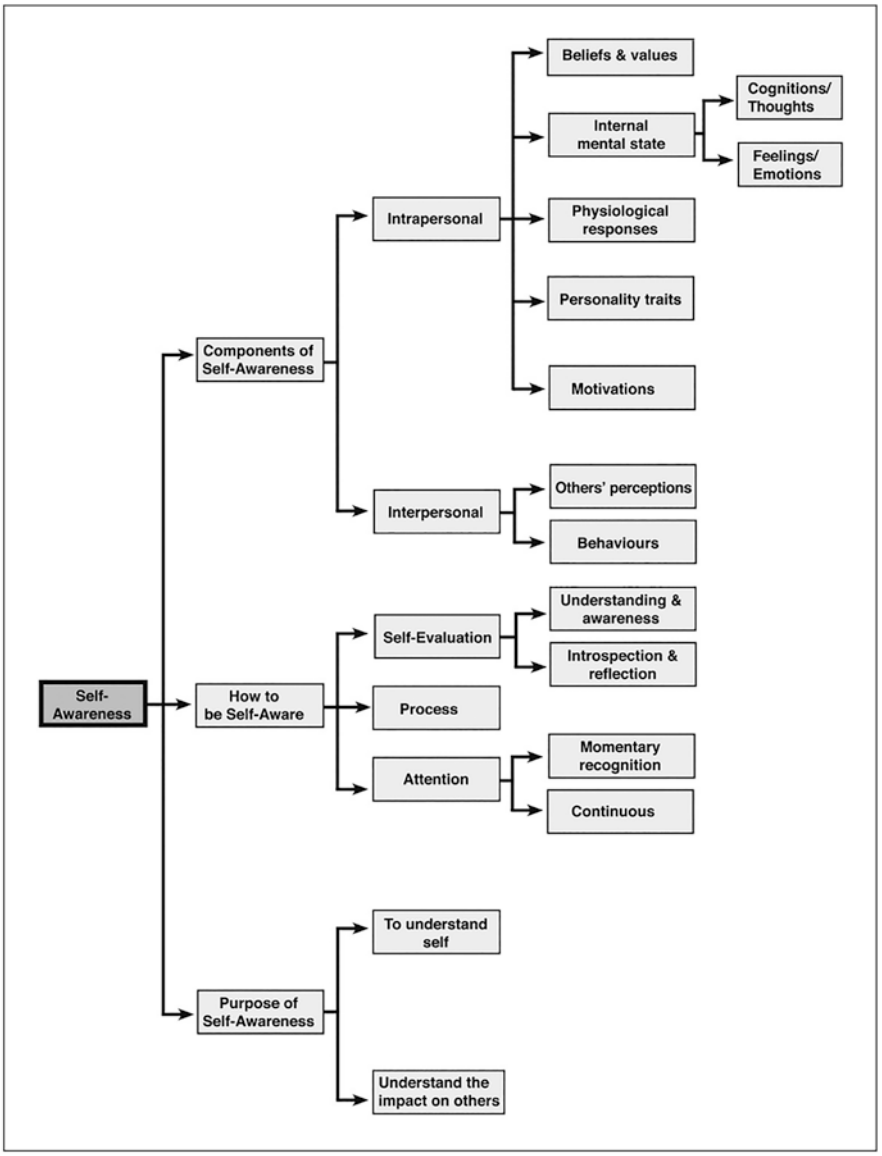

Fig. 5.1 Hierarchical structure of self-awareness. (Carden et al., 2022)

inter-personal components. The intrapersonal aspect focuses on an individual's awareness of their own resources and internal state of mind, while the interpersonal aspect centres on an individual's awareness of their impact on others. Across the two aspects, Carden et al. (2022) identified seven separate components: (i) beliefs and values: personal attitudes and important concepts that individuals introspectively explore to understand their behaviour and reactions; (ii) internal mental state: includes cognition and emotions; (iii) physical sensations: refers to physiological responses or bodily reactions; (iv) personality traits: awareness of one's character traits, strengths, and weaknesses; (v) motivations: personal drivers or reasons for behaviour; (vi) behaviours: actions that others observe and can interpret, thereby affecting interpersonal interactions; and (vii) others' perceptions: awareness of how one is perceived by others, often involving feedback from others.

These components enable individuals to understand their behaviour and choices and ultimately develop self-awareness. Introspective exploration and objective examination of these components are emphasized in the literature.

5.2.2 Respect

Respect is recognized as an essential socio-emotional virtue in everyday life. Its central role in shaping and guiding meaningful human interactions and for living quality, morally upright lives is a point of emphasis (Dillon, 2003; Malti et al., 2020). They identify it as important for forming and maintaining human relationships, while being complex, contextual, and multidimensional in nature. While a disparity exists in literature as to what constitutes respect, three defining features of respect are mentioned; attention—an engagement with the object in order to fully recognize it; consideration—examining the object; and deference—the acknowledgement of the different social positions.

Respect can be regarded as manifest through the valuing, holding in high esteem, admiring, or honouring the good and moral features of oneself and others (Dillon, 2003; Malti et al., 2020). The distinction between such positive positions and visible signs of respect, particularly where obedience or status implies particular ways of behaving, complicates understandings of respect. Feeling, or not feeling, respect for something or someone is not necessarily demonstrated by behaving in a culturally or socially respectful way (e.g., Arrington, 1978).

From a philosophical perspective, respect is considered as the fair and equal treatment of all humans with dignity for the fact that they are humans (Dillon, 2003; Malti et al., 2020). Dillon asserts that all humans capable of rational action are owed unconditional respect because of their intrinsic worth and value. In this context, respect entails expressing consideration of another person to fully recognize her or him (Malti et al., 2020). This is expanded upon in that respect can be shown through silently observing in order to evaluate what the other needs (Lawrence-Lightfoot, 2012).

According to OECD (2018) respect is one of the most frequently cited values in the education curricula and "it concerns the capacity of one to value oneself, others, and the environment we are all in, and to give due regard for the feelings, wishes, or rights of self and others as well as those surrounding us that may not express wishes (e.g., environment, animals). Respect is demonstrated through behaviour and communication which will vary based on cultural context. Respect for cultural diversity, for example, means valuing the many differences and similarities of others that may be present. Respect for nature involves environmental ethics" (pp. 25–26). Respect can thus be seen as multidimensional since it lies in awareness and honouring of self, others, and the surroundings.

Respect for self is defined as an evaluation of one's personhood, rights, character, status, and achievements, including self-appraisal of one's talents, accomplishments, and excellencies (Seglow, 2016). It has three components (i) self-worth (the value that one attaches to his/her attributes, talents, skills, abilities, and strengths, which allows the person to act in a way worthy of admiration and to stand for what he/she beliefs on); (ii) self-acceptance (the ability of one to realise one's mistake, forgive oneself, and appreciate one's weakness); and (iii) self-love (the ability of one to reduce harm to self, take care of and appreciate oneself unconditionally). According to Harter (2006), self-worth is the awareness of good possessed by the self and refers to the overall appraisal of one's worth or value as a person. This shows how self-worth and self-awareness are intertwined since self-awareness allows one to have a deeper understanding of their inner being. According to Hibbert (2015), self-awareness is the foundation of self-worth. She argues that one cannot achieve self-worth without being self-aware. Self-love on the other hand is a gentle love for self where one strives to cultivate care for self and development (Benjamin et al., 2006). According to this view, people with self-love will do no harm to self (either body or reputation), and will always work to overcome their weaknesses, leading to achieving self-worth. Scholars such as Lin et al. (2003) and Huang et al. (2018) agree with this idea of self-love as the ability to cherish one's character and pay attention to one's words, ability, and deeds.

A second dimension of respect in the literature relates to respect for others. Respect for others includes acknowledging peoples' capability, not hurting others intentionally, paying attention when others speak, affirming others' qualities, treating others equitably, treating with consideration and treating people equally (irrespective of their race, tribe, culture, religion, age, social, economic status, physical ability, and abilities, regardless of preferences) (Wood, 2009). Other indicators include acknowledging personal and physical boundaries and not invading others' privacy, appreciating other's perspectives/contributions and points of view, valuing others' time and property, and avoiding hasty judgments when reacting to people.

The third dimension is respect for surroundings—place or environment. The question of whether the value of respect should be extended only to rational beings or to other entities as well has sparked debate. Critics of Kant's ethical theory argue that by emphasising the moral worth of rational beings and treating non-persons as mere means to their ends, supports the domination and exploitation of non-persons

and the natural environment. Nevertheless, other interpretations of Kantian ethics affirm that respect for persons logically entails respect for non-persons. It suggests that not only should humanity in persons be respected, but also things that bear certain relationships to rational nature. Moral agents are recognised as having the highest moral standing and worth while acknowledging that other beings have lesser but still morally significant standing and worth, deserving some degree of respect. This perspective allows for the justifiable use of non-persons while respectfully acknowledging their moral worth. Extensive philosophical work, particularly in environmental ethics, explores the practical implications of extending respect to entities beyond persons.

5.3 Self-Awareness and Respect in East Africa

In 2018, the Regional Education Learning Initiative (RELI), through the Values and Life Skills (VaLi) thematic group, proposed a collaborative effort with local leaders in Kenya, Tanzania, and Uganda to develop assessments tailored to the context. The initial phase involved conducting ethnographic interviews in various locations, including rural and urban areas, within these countries. These interviews, carried out in November 2020, targeted adolescents, parents, and key individuals such as teachers, social workers, youth patrons/matrons, and religious leaders. The purpose of the study was to gather data on participants' perceptions and understanding of specific ALiVE competencies. To achieve this, an ethnographic design was employed to explore and capture participants' perspectives and comprehension of self-awareness and respect in the contexts of the participating countries (Ariapa & Akongo, 2021; Serwanga & Atuheire, 2021).

The second phase involved the development of contextualised assessments of self-awareness and respect through a series of workshops and collaborative activity. Formal work sessions began in April 2021, with the participation of 47 representatives from collaborating organizations. Teams were formed to review the findings of the contextualisation study and so to establish consensus on definitions of self-awareness and respect. The phase continued with checking the assessment tools at multiple stages to test assumptions about the tasks, items, and scoring rubrics. Each skill team worked independently to refine the assessments and scoring rubrics. Adolescent responses to the assessment tasks were collected through dry run and pilot events. These data were analysed to explore how they cohered with the hypotheses that had been formed by the skills teams about the nature and structure of each of the constructs.

The third phase saw the implementation of large-scale assessment across Kenya, Tanzania, and Uganda. The assessment was implemented at household level in order to capture the proficiencies of adolescents both in and out of school, and in and out of employment (Nakabugo et al., 2024; Chap. 8, this volume). This was followed by analyses of the data from over 45,000 adolescents to generate results that were then disseminated in each country (Ariapa et al., 2024; Chap. 10, this volume).

The assessment tools were developed to cohere with the conceptualisations of self-awareness and respect as identified through the contextualisation study. The two teams dedicated to the development of assessment tasks for self-awareness and respect developed scenarios to address these constructs and selected subskills. The scenarios were based on community experiences and described everyday life situations. Each assessment task comprised a description of a scenario and a series of questions that prompted responses that would reflect behaviours aligned with the subskills (Mutweleli et al., 2024; Chap. 9, this volume). The scenarios were designed to prompt responses that could be evaluated according to hypothesised levels of proficiency.

The following sections describe the contextualised structure for each construct, identify which subskills of the constructs were targeted for assessment, and tabulate descriptions of the levels of proficiency at which adolescents could respond when their self-awareness and respect behaviours and perceptions were prompted.

5.3.1 Self-Awareness in ALiVE

The contextualisation study found that self-awareness is mostly referred to as the ability to understand and know oneself (Serwanga & Atuheire, 2021). Self-knowledge involves a clear understanding of one's rights, identity, emotions, preferences, abilities, strengths, and weaknesses, as well as desires and goals. For some participants in the contextualisation study, self-awareness went deeper, determining how one behaves towards teachers, parents, and peers in the community. However, some participants limited self-knowledge to the understanding of one's surroundings or environment, without considering internal reflection and evaluation.

Another aspect that emerged in the definition of this skill is the notion of taking care of oneself. Participants highlighted that a self-aware individual makes careful choices regarding health and psychological well-being. This includes proper nutrition, medication adherence, and awareness of how one's behaviour can impact well-being. Figure 5.2 summarises the skill structure of self-awareness as it emerged from the contextualisation study and identifies the dimensions or subskills that were assessed.

The conceptual structure of self-awareness consists of two dimensions: internal self-awareness and external self-awareness. These dimensions resonate with the framework developed by Carden et al. (2022). Each dimension contains subskills. Taking into consideration the affordances of household-based assessment, those subskills that were targeted for assessment were self-management and perspective taking (shown shaded in Fig. 5.1).

The behaviours exhibited by the adolescents can be understood and evaluated based on the proficiency levels in Table 5.1. These levels represent increasing levels of sophistication and complexity as the adolescents demonstrate their abilities.

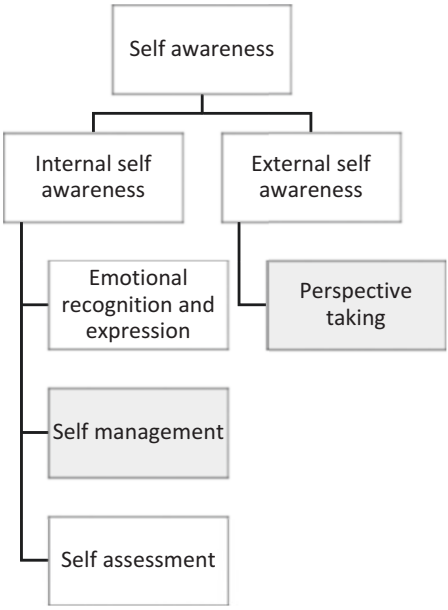

Fig. 5.2 Self-awareness skill structure

Table 5.1 Qualitative descriptors of self-awareness levels of proficiency

Construct	Level 1 Adolescent is…	Level 2 Adolescent is…	Level 3 Adolescent is…	Level 4 Adolescent is…
Self-management: This subskill targets an individual's ability to recognize and express emotions, to assess self, to reflect, and to manage emotions.	Unable to regulate negative emotions or responses	Able to control self in a negative or stressful situation through repression of emotion or avoidance	Sufficiently self-aware and confident in self to respond adaptively to most situations	Sufficiently self-aware and confident to respond adaptively even when directly confronted or attacked
Perspective taking: This subskill targets an individual's ability to understand why people behave the way they do towards one, to accept feedback, and to recognise one's impact on and place in family, society and community	Aware of others' perspectives only in relation to oneself	Aware that others may be impacted by multiple factors	Aware that others act on the basis of multiple factors, both personal and community	
Self-awareness	Unable to recognize and control one's emotions and unaware of how others might feel	Able to control one's emotions-driven reactions and has some insight into how others might see a situation	Able to regulate one's emotions and reactions, and aware of the multiple ways that others might perceive and react to situations	

The proficiency levels in Table 5.1 are stated as performance indicators so that there is a direct link to behaviours or perceptions prompted by the tasks and phrased in terms aligned with self-awareness. The assessment for self-awareness consists of five task scenarios with a subset of 12 items. The items in these tasks assess two subskills of self-awareness: self-management, which involves managing emotions and stress, and perspective taking, which involves understanding others' views and actions, adjusting to them, and recognising one's own identity and position in the family, society, and community.

As an example, one task scenario prompted adolescents to reflect on the possibility of parents not providing an anticipated gift: "Your parents told you they are going to give you a bicycle for your birthday to help you go to school, and you have excitedly told your friends. When the day arrives, your parents do not give you the bicycle." Several follow up questions were asked to understand the ability of the respondent to see somebody else's perspective, and to self-manage their own response. Adolescents were asked: "How will you react to your parents? And why?"; "If you were one of the friends, how would you react?"; and "Your friends are laughing at you, how would you react?"

Disappointment and anger were the most frequent responses from adolescents in the pilot study. Quite frequent also was reference to the parents having lied, which is not actually described by the scenario. It is striking that only a few said that they would "feel bad but have to understand the reason behind." Concerning them being the object of derision by friends, most adolescents expressed sadness or disappointment. Very few took a conscious decision to confront the matter with friends through a discussion that would have respected both the motivations of the parents and the disappointment felt by the adolescent.

5.3.2 Respect in ALiVE

The contextualisation study (Ariapa & Akongo, 2021) found that valuing others was identified as the primary definition of respect. Valuing others involves honouring, taking care of others, considering them important and useful, and treating adults and elders with dignity. The study also revealed that respect has meanings variously influenced by culture and prevailing social norms. A comprehensive understanding of respect and its expression requires familiarity with one's community and its language, and the ability to navigate within its social conventions to ensure acceptable and respectful interactions. Aspects such as self-care, self-awareness, and being a good person, also emerged as defining elements of respect.

According to most participants interviewed, respect is closely linked to one's behaviour and conduct. Actions such as greeting others, appropriate dressing, obedience, refraining from wrongdoing, discipline, and demonstrating exemplary character are all seen as manifestations of respect.

Respect for others, from the East African perspective (Ariapa & Akongo, 2021), encompasses the dimension of regarding and valuing others. This dimension is reflected through acknowledging the capabilities of others, refraining from intentionally causing harm, actively listening, and treating others with fairness and equity. Indicators of respect for others include respecting personal and physical boundaries, refraining from invading others' privacy, and appreciating the perspectives and contributions of others. Figure 5.3 illustrates the structure of the respect construct based on findings from the contextualisation study.

The conceptual structure of respect as a value is aligned with findings from the literature. Specifically, self-respect can be described through three main dimensions (Dillon, 2003): self-respect, respect for other people, and respect for environment or animals. Each of these dimensions has associated subskills. The subskill, respect for others, was directly targeted for assessment. For design of the scenarios, the team searched for generic yet realistic social situations with which all participants could be assumed to be familiar. They were as simple and concise as possible, providing sufficient context to stimulate an authentic set of responses. Their perspectives on respect for others are indicated by how they responded to the scenarios; Table 5.2 describes lower to higher understanding of the implications of respect on daily life and behaviour of the individual.

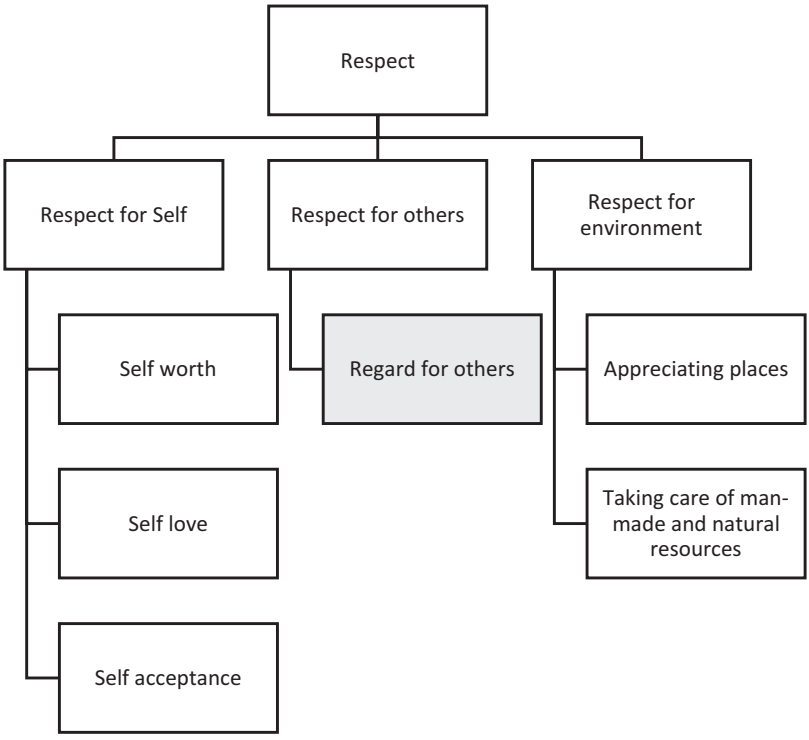

Fig. 5.3 Respect skill structure

Table 5.2 Qualitative descriptors of respect levels of proficiency

Construct	Level 1 Adolescent is…	Level 2 Adolescent is…	Level 3 Adolescent is…	Level 4 Adolescent is…
Respect	Unable to respond in a relevant way.	Aware of infringement of rights, or of bad behaviour by one person toward another but does not 'call it out'.	Able to interpret bad behaviour as lack of respect for others or self, and may take conciliatory steps to resolve situations.	Aware of links between respect for property and respect for person, and will act in a respectful way toward others and in defence of others and self.

The assessment of respect includes four task scenarios with a subset of 10 items. All four scenarios follow a similar pattern, starting from awareness of a lack of kindness to recognising actions that indicate a lack of respect. The items in the assessment evaluate the adolescent's consideration for others and respect for property. They assess awareness of infringing on others' rights, recognition of personal wrongdoing, respect for the rights of others, and willingness to take responsibility for one's actions.

One task scenario used in the assessment was described as follows: "Amani's parents went to a wedding and left her with the younger sister. The younger sister got sick, and Amani had to take her to the health centre. When they got to the health centre, Amani went straight to the doctor's room, bypassing other patients even though her sister was not very sick."

This scenario provides a situation in which the needs of the self should be evaluated in the context of the needs of others. There are two main steps. First, the adolescent must consider if their own needs pre-empt those of others; and second, if the decision is that their needs are pre-emptive, then the adolescent must consider how to negotiate their primacy. This negotiation would indicate an acknowledgement of the rights of others, an indicator of respect based on personhood.

Of the responses given by the adolescents in the pilot, around 15% of the adolescents showed a lack of awareness of the actual problem caused by Amani. They did not express any concern about the situation, or they responded in ways inconsistent with the actual issue. However, the vast majority affirmed that they would have told Amani to respect the queue or would have recommended that she ask permission to skip it. Taking on the perspective of the patients waiting in the queue, the majority responded that they would have felt disrespected, and angry about Amani's behaviour. These responses were quite homogeneous in nature, perhaps reflecting similar understandings of a familiar situation, as was the intention in the design of the scenario tasks.

5.4 Discussion

The findings of the contextualisation study (Serwanga & Atuheire, 2021) revealed that self-awareness in East African countries refers to a deep understanding of oneself in terms of rights, health, feelings, preferences, abilities, and values that influence decision making. It is a dynamic and continuously evolving process of self-discovery that never achieves saturation. The structure of self-awareness developed by the ALiVE team showed that this skill consists of two main dimensions: internal self-awareness (including the subskills of emotional recognition and expression, self-management, and assessment) and external self-awareness (essentially the skills that inform perspective-taking). These findings align with existing literature (Carden et al., 2022; Lawrence et al., 2018; Morin, 2011).

In terms of contextualising respect, Ariapa and Akongo (2021) highlighted the most common perception of respect as revolving around honouring and valuing others. Behavioural examples of these values include appropriate attire, showing respect to elders through greetings, obedience to authority, humility, and a sense of responsibility. The study participants described a respectful young person as someone who embodies kindness, friendliness, a willingness to learn from others, and a sense of responsibility and accountability towards others. The main dimensions of respect were respect for self, respect for others, and respect for the environment.

Self-awareness and respect are both rooted in an awareness of one's own worth, moderated by internal and external factors. Both constructs concern the need to focus and reflect on one's inner processes and experiences as well as being aware of others' perceptions and experiences (Sutton, 2016). Both constructs focus on the interplay between the self and its surroundings (people and environment) such that a proper understanding of oneself not only leads to self-love and self-acceptance, but also to deeper understanding of the social environment within which the self is located. In the ALiVE framework, this is seen is the dimensions of respect for self, others, and environment, while it translates to internal and external self-awareness in the skills structure of self-awareness.

This linkage is important because it explores self-awareness as foundational to respect. One cannot achieve respect (for self, others, or environment) without appreciable levels of self-awareness. Self-worth, which is a dimension of respect, is described as the value that one attaches to one's own attributes, talents, skills, abilities, and strength. These, in turn, allow one to act in a way worthy of admiration and to stand for what one believes in, intertwined with one's awareness of self.

This chapter described the process of developing contextually appropriate tools for measuring self-awareness and respect. Prior to this time, in the East African context, the assessment of self-awareness and respect relied on tools that were developed in other countries and not contextualised. The chapter emphasized the importance of ensuring a contextually appropriate definition of self-awareness and respect to guide development of assessment tasks that allow for measuring skills and values and tracking progress.

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Chapter 6
Collaboration in East Africa: A Contextualised Approach to Defining the Construct

Claire Scoular and David Alelah Otieno

Abstract Collaboration has been highlighted internationally as a key skill for learning, working, and living in the twenty-first century. However, to teach it well, enhance its performance, and measure its growth, it is essential to have a clear and consistent definition of the skill. There are a number of frameworks that describe collaboration in a way that is meaningful to learning and growth. Despite some differences across frameworks, it is clear there is a common core set of contributing subskills. This suggests that collaboration is of global interest, and that there are components that transcend national or cultural specificities. Notwithstanding, definitions and frameworks need to be suitable for the context in which they will be applied, ensuring the approach is integrated and sustainable in education systems. One focus of the ALiVE project was to develop a collaboration framework suitable and relevant for the sub-Saharan African context. The approach included auditing frameworks internationally, curricula regionally, and conducting an ethnographic study. The resulting framework was used in the development of assessment tasks to sample the skill among adolescents in Kenya, Tanzania, and Uganda. The issues highlighted in this chapter reveal the need for further study of collaboration in specific contexts in order to understand local variations and ensure optimal approaches to measurement.

6.1 Introduction

For many education systems, there is increasing focus on integrating skills that are deemed to be relevant for learning in the twenty-first century. This increased focus is reflected by many international organisations which emphasise the high demand

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for such skills in the workforce. For example, the World Bank (2019) issued a call for action for governments to invest in building the skills in demand in the labour market during schooling. One skill that is consistently mentioned across education systems and organisations is collaboration. The need to develop collaborative skills has been voiced by governments in response to the complex, multi-layered challenges that learners and workers are likely to face in the future (UNESCO, 2015). Digitisation, demographic shifts, and globalisation have transformed daily social interactions, schooling, and the workplace, and require individuals to work collaboratively to make decisions and solve problems. The OECD (2019a) has couched this skill as social-emotional, to emphasise the need for individuals to adapt to and engage with their environment and with others. These imperatives require learners to develop the skills to work effectively with their peers to address complex multilateral, regional, and historic challenges (OECD, 2019b). The World Bank (2010) has likewise emphasised the importance of developing social skills, including teamwork and adaptability, "to collaborate with and motivate others in a team, manage client relations, exercise leadership, resolve conflicts, and develop social networks" (p. 14). For both OECD and the World Bank, collaboration can be framed as a skill that supports the attainment of social and economic goals across various contexts.

Within classrooms, collaboration has been described by the UNESCO International Bureau of Education (2016) as involving social relationships between learners that foster "positive interdependence, individual accountability, and interpersonal skills" (p. 140). Educators are therefore framed as facilitators who skilfully develop and enhance their learners' education journeys by using pedagogical strategies and tasks that are challenging, stimulating, and meaningful. Importantly, collaboration is distinct from cooperation; the former is characterised by learners working in a coordinated fashion to solve a problem, while the latter involves the division of work responsibilities between learners (UNESCO International Bureau of Education, 2016).

Assessment of Life Skills and Values in East Africa (ALiVE) is an initiative of the Regional Education and Learning Initiative (RELI), a network of more than 70 civil society organizations in East Africa. ALiVE is a collaboration within itself seeking to *generate evidence* on life skills, including collaboration, and use this evidence to *engage in public policy reforms* as well as *strengthen local capacities* in life skills competencies in Kenya, Tanzania, and Uganda specifically.

In seeking to respond to economic and societal challenges, curriculum reforms since the 1990s in East African countries (and other sub-Saharan countries) have generally shifted away from educator-centred and content-focused approaches, towards a more learner-centred approach, and emphasising thinking as well as social-emotional skills. While barriers that limit education access and equity, and traditional designs and implementation of curriculum, assessment, and pedagogy, continue to challenge the pace of progress in East African countries (Chisholm & Leyendecker, 2008; Cunningham, 2018), these reforms are resulting in improvements. For example, the process of shifting Kenya's education sector towards a competency-based curriculum, as well as reforming educator professional development, textbooks, and local school management practices, have resulted in this country becoming a top performer across East Africa (Simon, 2022; World Bank, 2022),

while Tanzania's Free Education Policy for secondary education (Standards 1–4) has shown signs of improvement in learner enrolment rates and increased educator numbers since 2015 (Mashala, 2019). Collaboration as a skill has been identified as essential for learning and life in these countries and was therefore made a priority for defining and measuring as part of the ALiVE initiative.

6.1.1 What Is Collaboration?

Social interaction is critical for learning and plays a positive role in developing cognitive ability (Wittrock, 1989). In the context of education, collaboration occurs when learners work together to achieve a common goal in a shared learning environment (Underwood & Underwood, 1999). Generally, the nature of collaboration tends to focus on ability to learn from the interactive situation (O'Neil et al., 2003). Social interactions that occur during collaboration such as discussing, justifying arguments, and negotiating with others can help to improve individual understanding (van Boxtel et al., 2000). Learners process information differently when they work in groups compared to working independently.

A focus of early research on developing social skills focused on teamwork or cooperation, which depend upon symmetry of action with learners working on parallel tasks and eventually bringing the different tasks together (Dillenbourg, 1999). By contrast, collaboration requires interdependent teams or individuals that rely on the actions of others and, in particular, on the need to share responsibility and engage in the active division of labour (von Davier & Halpin, 2013; Hesse et al., 2015; Lai, 2011).

A comprehensive understanding of what constitutes the fundamental building blocks of collaboration, and how it develops and changes over time, will support effective methods of assessing, monitoring, and teaching it. A detailed definitional framework of collaboration can provide the means through which to build reliable and valid assessment tools to measure the skill. *Four conceptual structures* useful for contextualising ALiVE's development of an assessment framework for collaboration are discussed here. These structures demonstrate the commonalities across definitions, while also explaining their differences.

As part of the *Assessment and Teaching of 21st Century Skills* project (Griffin & Care, 2015), Hesse et al. (2015) broke collaboration into three strands: Participation, Perspective Taking and Social Regulation. *Participation* refers to learners' engagement with the task, the extent to which they persevere to solve the problem and how well they interact with others. *Perspective taking* focuses on the quality of the interaction between learners during collaborative problem solving, such as how learners respond and adapt to one another. *Social regulation* refers to how learners navigate the collaborative space and includes negotiating and resolving differences, evaluating their self and their peers and taking responsibility for the solving of the problem. This three-strand structure was built for the 'social' aspect of the two-dimensional notion of collaborative problem solving, the social and the cognitive. Its situating

within this broader context explains the very active nature of each of the strands, with each providing critical input.

A framework that built on the work of Hesse et al. is that of Scoular et al. (2020b)—the *Collaboration Skills Development Framework*—which depicts collaboration as strands and subordinate aspects (Fig. 6.1). The similarity of the strands with those of Hesse et al. (2015) point to the commonality of understandings about the construct. For Scoular et al. (2020b), strands refer to overarching components, while aspects refer to specific content within strands. The aspects relate to specific behaviours that can be observed and monitored in the classroom and in real-world contexts. These are designed to facilitate teaching and guide assessment. For example, educators can write assessment items to measure specific aspects, or integrate teaching of just one aspect into a lesson, rather than the whole skill. This educational perspective accounts for the deconstructed nature of the framework—into actionable aspects.

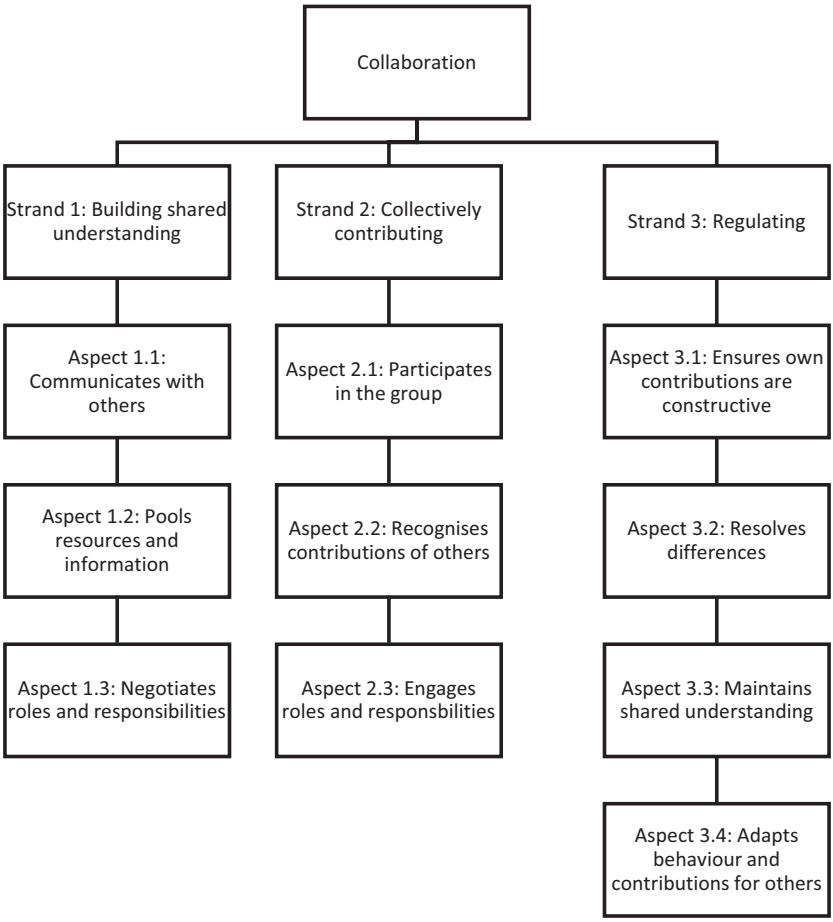

Fig. 6.1 Collaboration skill development framework. (Scoular et al., 2020b)

The *OECD's Assessment Framework* for its Study of Social and Emotional Skills described collaboration as the degree to which individuals can successfully work together while maintaining positive relationships and minimising conflicts (Kankaraš & Suarez-Alvarez, 2019). Inherent within this description is a "concern for the well-being of others" (p. 39), and an emphasis on three subskills:

- Empathy: involves perspective taking and having concern for the well-being of others
- Co-operation: harmonious living with others
- Trust: a general assumption that others have good intentions.

These subskills, while reflecting the perspective taking concept in other frameworks, highlight the social-emotional context of the OECD study. There is less emphasis on action, and more on the quality of interaction.

The *Cambridge Life Competencies Framework* as described by the Cambridge Language Research Team (2020) includes collaboration as a key competency. Within this framework, collaboration is seen to have occurred when "learners work well together in groups through actively taking part in group activities, listening to others, sharing tasks and finding solutions to problems" (p. 3). The skill is composed of four core areas and their corresponding components (Table 6.1). Most strongly aligned with the OECD framework, this framework reflects the community and lifelong dimensions of 'life competencies.' It reflects the action of collaboration but in all respects draws attention to 'the other.'

Within the collaboration frameworks mentioned, the elements that are common include: participation and responsibility, communication, and regulation. Table 6.2 shows a comparison of the frameworks and includes ALiVE's adopted structure.

6.2 Concept of Collaboration in ALiVE

Comparing the four frameworks supported the development of an operating structure for collaboration for use in ALiVE. Three dimensions of collaboration were defined for the ALiVE framework: working together, negotiation, and communication, each including associated subskills. In ALiVE, collaboration was viewed as an end in itself—a domain-general skill necessary for learning and engaging effectively in work and society. The focus is on the nature and quality of the collaborative interactions among group members (Fontana et al., 2022). In exploring collaboration across Kenya, Tanzania, and Uganda, the first step was to conduct a rapid ethnographic study to understand local perspectives. Teachers, parents, community leaders and adolescents were asked to share their views on collaboration in terms of its meaning, and how it could be assessed. From the study, 187 of the participants' described collaboration as 'working together'. However, in practice the emphasis is not on *working* together, but on *being* together. Approximately 15% of the participants defined it as 'teamwork' or 'cooperation'.

Table 6.1 Cambridge life competency framework for collaboration

Core area	Core area component
Taking personal responsibility for own contribution to a group task. Refers to active participation in group activities and roles, the sharing of ideas, and a willingness to explain their contributions.	Actively contributing to a task Taking on different roles
Encouraging effective group interaction. References the ability to listen to and acknowledge others' aligned views/conflicting views; utilise goal-orientated strategies within the group (e.g., taking turns, constructive feedback, and provide potential solutions); and establish positive and supportive group relationships.	Listening and responding respectfully Establishing ways of working together Engaging and supporting others
Managing the sharing of tasks in a group activity. Refers to the ability to identify tasks that need to be completed by the group and appropriately managing the distribution of task responsibilities between group members.	Agreeing what needs to be done Managing the distribution of tasks
Working towards task completion. Ensure that progress is being made to achieve the group's task goals. This could include engaging in evaluation processes, identifying the most appropriate solution to complete the task, and engaging in conflict resolution.	Ensuring progress towards a goal Identifying issues and challenges Resolving issues

Table 6.2 Identification of common elements across frameworks

Frameworks	Participating and responsibility	Communication	Regulation
ATC21S (Hesse et al., 2015)	Participation	Interaction	Social regulation; perspective taking
Scoular et al. (2020b)	Collective contribution	Build shared understanding	Regulation
OECD (2019a, b)	Co-operation	Empathy	Trust
Cambridge Language Research Team (2020)	Responsibility; toward task completion	Group interaction	Sharing of tasks
ALiVE (Fontana et al., 2022)	Working together	Communication	Negotiation

From the ethnographic study, very few participants said that collaboration meant achieving a common goal, which element was a key feature in all of the frameworks reviewed here. Several of the participants elaborated that achieving a shared goal is not necessarily what drives collaboration, but rather it is the element of doing something together. The terms *sharing*, *unity*, and *love* were frequently used by the participants to define collaboration. Further, a crucial component of collaboration identified by participants is *belonging to the community*.

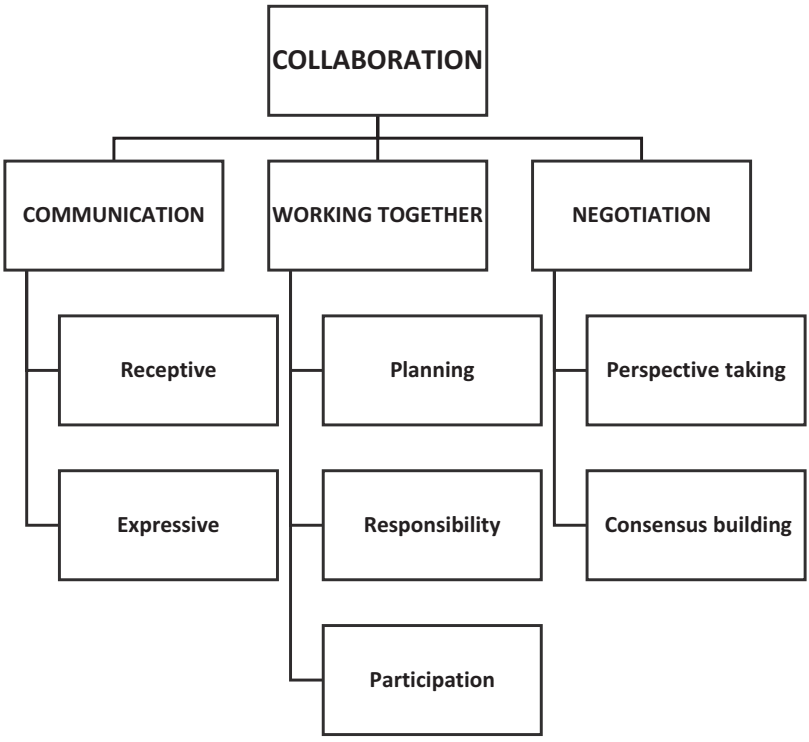

Fig. 6.2 The ALiVE collaboration framework

This participant feedback was used to refine the definition, while also drawing on existing frameworks and literature, and on the national education curricula in the three countries. Collaboration between countries on this step was not only in the spirit of the ALiVE endeavour but was integral to ensure a framework relevant within each country. The ALiVE framework depicts collaboration across three dimensions and their subskills (Fig. 6.2).

6.2.1 Dimension 1: Communication

Communication is the act of transferring information from one person to another, whether vocally, visually, or non-verbally. Communication is the essential channel used by collaborative partners to send and receive information, keep one another informed, and convey opinions to influence group actions (Mattessich et al., 2001). Collaborators must explicitly communicate their ideas, knowledge, and opinions when working on a task in their groups, as it is through this communication that they can guide the direction and process when working on a task (Driskell et al., 2018).

This dimension targets an individual's ability to listen (receptive) and speak (expressive). Receptive communication is the ability to listen and understand words and language. Much of this type of language is receiving and interpreting communication from our environment, experiences, and of course others. Expressive communication on the other hand is the ability to speak or create narrative. It involves the use of words, sentences, gestures, and writing to create a message or convey meaning. Both receptive and expressive communication is essential for effective collaboration (Lai, 2011). When participants explain their ideas to others their understanding and thinking becomes explicit and self-awareness and understanding is likely to increase (Scoular & Care, 2019). Providing clear explanations enhances collaborative interactions. This is critical to the act of working towards a common goal.

6.2.2 Dimension 2: Working Together

Collaboration goes beyond coordinating and cooperating; it requires some interdependency between participants. Collaboration involves participants working together on the same task, rather than a division of labour working in parallel on separate elements of a task (Lai, 2011). This interdependency should commence from the planning stage of a joint initiative. In collaboration, setting goals is a prerequisite to driving plans into execution. Goal specificity improves a group's performance (Weldon & Weingart, 1993) and goals need to be appropriate to the task to be efficient (Stevens & Campion, 1994). PISA's CPS framework identifies goal setting as a collaborative process and specifies that students should be able to identify and describe the tasks that need to be completed, which specifically includes creating team goals (OECD, 2013).

Planning requires taking responsibility to solve a problem. Proficient collaborative problem solvers should encourage shared responsibility for the task. Some teamwork models align learner ability to take responsibility with their ability to lead (O'Neil et al., 2003), although collaboration does not require one individual to take sole responsibility or leadership for the task—there must be a distribution of responsibility. Hesse et al. (2015) suggest that if learners do not adopt shared responsibility, group members may disengage from a task. The group needs to negotiate their responsibilities to ensure that there is the best match to the expertise, information, or skills held by any given group member (Scoular, 2019).

Finally, proficient collaborators will participate throughout the activity and see it through to the end goal or solution (DiCerbo, 2014). Proficient collaborators will make multiple attempts at group tasks and try alternative strategies to reach the end goal even during difficult situations or problems (Scoular & Care, 2019).

6.2.3 Dimension 3: Negotiation

When working collaboratively, learners need to find effective ways of resolving any conflicts that arise when trying to reach the common goal. Learners may bring different opinions but these must be with careful consideration of the views of others (Scoular, 2019). Negotiation skills are the result of rational thinking based on informed choices and interacting such that ideas are both shared and accepted across the collaborators.

Perspective taking is essential to negotiating in collaborative teams. Understanding the perspective of others can change interactions and how individuals respond and adapt to one another (Dehler et al., 2007). For example, the ATC21S project assessed students' audience awareness during online collaborative tasks and observed that students with higher proficiency demonstrated fewer activities before stopping and waiting for their partner to provide their perspective (Care et al., 2015). The ability to adapt one's interaction style for others is based upon individual awareness of others' ability, style and needs (Hesse et al., 2015). Proficient collaborators acknowledge that others may have a different perspective, which may be beneficial to the group. Listening to, acknowledging, understanding, and critiquing the perspective of others can lead to changes in a person's behaviour and group dynamics.

6.2.4 Measuring and Monitoring Collaboration

Each of the frameworks discussed in this chapter adopts the assumption that collaboration skills can grow, can be improved through teaching and intervention, and can be measured and monitored. This view is signified by the developmental framework of each with levels of proficiency outlined from early to more advanced application. A key feature of these levels is that they are not linked to specific years of schooling. Learners of the same age can be at very different points in their skill development. Assessment of functioning levels are an alternative to judging success only in terms of year-level or curriculum-based achievement standards. This approach is akin to that adopted in ALiVE.

Developmental frameworks not only identify increasing levels of proficiency but may also link these with maturational features from infancy to adulthood. For example, the OECD's collaboration framework provides initial evidence that might be used to support the development of a skills progression (Kankaraš & Suarez-Alvarez, 2019). In this framework, collaboration has been framed using the subskills empathy, co-operation, and trust, with the presence, absence, and development of these subskills having the potential to indicate levels of collaboration. The presence of empathy during childhood, for example, has been associated with 6 and 9 year old children displaying social justice values (e.g., fair treatment and equality) later in life at age 12, while the absence or lack of empathy during early childhood

has been associated with adverse outcomes during the adolescent years. Observable behaviours regarding empathy might include whether a child consoles another or sympathises with the poor, while a lack of empathy might be exemplified by a tendency to misinterpret, ignore, or disregard what a person feels. Cooperation has also been observed to trend in predictable ways. Cooperation or cooperative behaviours typically decline during later childhood (e.g., between 6 and 10 years old) and increase again as adolescents approach their twenties; suggesting that some aspects of cooperation can be shaped by developmental, epistemological, or environmental factors. Children who are capable of cooperating easily make friends and respect group decisions, while those who are less capable may be more prone to arguments and conflicts or be unable to compromise (Kankaraš & Suarez-Alvarez, 2019). Finally, individuals who are more trusting are more likely to lend their belongings and avoid conflict, while those who are less trusting are prone to arguments with others and being unable to compromise.

In the case of the ALiVE collaboration framework, this was developed specific to understandings of likely skills demonstrations by adolescents. Hence identification of functioning levels in Table 6.3 represents a relatively narrow 'developmental' range for the skill. Notwithstanding, the range as described can be used as a skeleton upon which more flesh can grow as the framework is used to develop assessment tasks targeted at a wider age range.

Table 6.3 Qualitative descriptors of collaboration levels of proficiency

	Level 1	Level 2	Level 3	Level 4
Collaboration overall	Does not engage either by being attentive to discussion, speaking, or through action	Is attentive to the discussion and may query the views of others, but does not contribute in word or action	Collaborates through speaking and being attentive in discussions, and engaging actively in performance tasks	Collaborates through taking positions and contributing ideas, prompting others, and being attentive to others' inputs
Communication	Does not appear to be attentive to the activity	Appears to listen to the discussion	Communicates by listening and speaking	Engages with others through listening, speaking, and prompting others to contribute
Working together	Does not engage in the activity or with others	Engages slightly in the activity as a follower	Contributes to the task actively	Engages in the activity oneself as well as involving others
Negotiation	Does not appear to be attentive to the activity	Participates through querying the inputs of others	Contributes through questioning others and providing own perspective	Engages through questioning and responding to others and contributing own ideas

The assessment of collaboration in ALiVE was based on performance-based tasks. The situations presented to adolescents were based on real life contexts—making use of day-to-day situations that would be familiar to respondents. Participants were presented with a task followed by a series of questions that required the adolescents to focus on how they would work together towards a common goal. The tasks were designed to target a range of sub-skills in the collaboration framework. The observable behaviours of the adolescents can be interpreted within the proficiency levels outlined in Table 6.3. The levels indicate progressive sophistication and complexity over the levels.

6.2.5 Assessment Considerations

Collaboration is a complex skill, with many subskills and layers. Design of assessments to capture collaborative proficiency is complex but requires simplicity in the actual approach. A task must be sufficiently 'dimensional' that it requires varied inputs from several individuals, and sufficiently simple to enable the capture of those individuals' contributions. The form of tasks and mode of assessment delivery is therefore seminal to useful assessment. In the case of ALiVE, the mode of assessment delivery was at household level. In other words, adolescents from the community would be assessed in their home environments, and these adolescents would be assessed doing familiar tasks that would not require additional information inputs. All of these elements combined to guide the process of task development. Three such elements are outlined below, and how these elements were managed is described through discussion of one task developed for the ALiVE large scale assessment program.

The *multi-dimensional* nature of a complex skill like collaboration requires analytical decomposition of the skill in order to ensure that what is being measured is true to the construct. In this case, the assessment tasks must be designed to require collaboration, rather than teamwork or cooperation, and to elicit behaviours from which we can judge the capacity to collaborate. Each of these characteristics has implications for design of the tasks. One such consideration is the distribution of resources. The nature of collaboration relies upon *asymmetry of resources between individuals*, representing a real-world view of diversity of expertise, knowledge, and information (Care et al., 2016). Collaboration requires informational or competence diversity to ensure there is a purpose in working together, rather than working alone (Scoular & Care, 2019; De Wit & Greer, 2008). Therefore, assessments in which individuals each possess unique resources that are required for task completion, provides for more authentic coverage of the construct. If assessment tasks are presented that require individuals to work together, and if there is a mutual benefit from working together, then they are more likely to stay engaged in the task and see the benefit of contributions from others for themselves. At most basic therefore, tasks must be designed such that individual contributions to the goal can be observed.

The measurement of a complex skill such as collaboration is not a matter of identifying success or failure. Interest in measurement of life skills tends to centre on degree of skill rather than presence or absence. Assessing for degrees of difference in proficiency is a challenging endeavour requiring innovative approaches. At most basic, tasks must provide the facility to stimulate *varying levels of proficiency* from adolescents, providing responses that can be evaluated using standardised guidelines.

Another consideration is *group composition*. The issue of how groups should be formed is an important one, since individuals may perform differently depending on the group to which they are assigned, with factors such as differences in ability (Wildman et al., 2012), personality characteristics (McGivney et al., 2008), and gender (Bear & Wooley, 2011) all potentially influencing how individuals within a group might collaborate. Decisions about group composition for any assessment of collaboration should be made with the purpose and the nature of the evidence it aims to collect firmly in mind, with the knowledge that such decisions may influence what aspects of the skill can be elicited by the assessment.

6.2.6 A Collaborative Task

The design of tasks to capture adolescents' collaborative proficiencies responded to the practicalities of ALiVE's large scale household-based assessment program. How the considerations identified above were factored into the task design is described with reference to one of the tasks used—the making of a ball. The initial instructions given to each group of four adolescents were: "As a group, discuss and agree on available materials that can be used in making a ball, and then make a ball." Additional prompts were given at each of three stages in task completion: (1) discussion of possible materials to use; (2) agreement on the materials; and (3) the making of the ball. The stepped instructions were necessary in order to partition the different activities in such a way that the subskills (or dimensions) of collaboration could be observed. The initial discussion provided data for the observing Test Administrators to rate communication; the agreement process provided data for rating of negotiation skills; and the final activity provided data on how the adolescents worked together. Without this explicit partitioning, it would not have been possible for the Test Administrators to capture the behaviours and evaluate these against the rubrics designed to rate them.

In turn, each activity stage and its related subskill provide the opportunity for young people to demonstrate their varied proficiencies. Scoring rubrics are shown in the context of each of the subskills in Table 6.4. As can be seen, each of the criteria across levels 0 to 3 captures higher levels of competency than the one prior. These criteria capture relatively broad levels of proficiency, aligned with the simplicity of the task design, and they fulfil ALiVE's reporting needs. Other assessment environments, particularly those supported by online technologies, can capture more finely delineated levels of proficiency (e.g., Griffin et al., 2013) as well as more of the behaviours that contribute to collaboration (Scoular et al., 2020a).

Table 6.4 Activities, structure, subskills and scoring criteria for 'make a ball' task

Activity	Subskill	Performance indicator	Criteria to score proficiency levels			
			0	1	2	3
Discuss materials to be used in making the ball	Communication	Ability to speak and listen	Does not speak and is not attentive in the discussion	Does not speak but is attentive in the discussion	Speaks and is attentive in the discussion	Speaks, **prompts others** and is attentive in the discussion
Agree on materials to be used in making the ball	Negotiation	Ability to express own opinion and ability to accept others opinion	Does not question the views of others and is not attentive in the discussion	Questions the views of others but does not take a position	Questions the views of others and takes a position	Questions the views of others, takes a position and adds something new, contributes ideas
Make the ball	Working together	Ability to participate (in making the ball)	Does not collect materials and does not engage in making the ball	Either collects materials or engages in making the ball	Collects materials and engages in making the ball alone	Collects materials, **involves others** and makes the ball

A feature of the collaboration assessment in ALiVE was its necessary simplicity. Given reliance on daily life to act as the host and the stimulus for collaboration, and on the household-based administration mode, the provision of different resources to individuals in each of the adolescent groups was not viable. Therefore, tasks needed to be designed such that they required input from more than one individual in a less defined manner than has been the case in technology-supported large-scale programs such as OECD's PISA and ATC21S. In this way, although the individuals within a group did not have access to different resources to bring to bear in the task, thus fulfilling the *asymmetry of tasks* criterion, they were required to work together in order for the goal of the task to be achieved.

The final element to recognise in the assessment of collaboration in ALiVE is *group composition* and its dynamic. This concern could be controlled for only by virtue of gender identity of the participating adolescents. The nature of the collaboration tasks was such that adolescents, regardless of gender, could easily engage in the activity. In order to control for possible gender effects, the group composition was two males and two females. The results (Ariapa et al., 2024; Chap. 10, this volume) of the large-scale assessment shows negligible differences in performance across gender, but since there were no single sex groups, the possible influence of gender could not be ascertained. A second variable in group composition was age and education level of the four individuals. Due to the sampling design within the local communities, it was not possible to control for this. It is therefore plausible that age and education

differences could have influenced results, with presumably older adolescents taking stronger roles in the activities. The results show that older adolescents in fact did show greater proficiencies in collaboration, and the degree to which this might be due to natural increase in proficiency with age, versus a dominant effect on younger collaborators, could not be ascertained.

To measure collaboration effectively then, there is a clear set of criteria for task requirements and development. Tasks need to be sufficiently innovative in capturing the multi-dimensionality of the skills. Asymmetrical tasks in which learners have access to different resources, and opportunities to work through a process rather than just respond to stimuli, are both essential for capturing varying levels of proficiency. The subskills in the definitional framework provide an easy transition from task to rubric criteria used to judge performance. In other words, the rubrics and associated criteria neatly map back to the framework to ensure a range of subskills are being captured, and in a way that is described as per the definition. Each of these elements has its own contexts and considerations for both development and what would be anticipated of learners. For example, decisions about group composition need to be considered with the context and the demands of the task in mind. It is possible that composition of groups could have an impact at the individual level depending on inclusion or exclusion of specific others, or on demographic criteria, and should therefore be considered at the design stage.

6.3 Conclusion

Collaboration is a vital component of life, whether it is in the workplace, the home, society, or the classroom. It is one of the fundamental skills that was prioritised across the three countries (Kenya, Tanzania, and Uganda) in the ALiVE project. There are some difficulties in measurement and evaluation of collaboration generally, and in integrating the skill into educational systems. Throughout this chapter, the need to define and describe collaboration is key to understanding and measuring the skill. While there are differing frameworks describing collaboration, it is clear that there is a set of underpinning skills across these frameworks internationally. This suggests that collaboration is an important skill of global interest, and there are components that transcend national or cultural specificities.

The chapter also outlines that beyond the importance of defining the skill of collaboration, developing assessment tasks that provide the opportunity to measure ability and monitor progress is essential. The ALiVE project has made progress in identifying task development considerations in the context of East African countries, focusing on measuring collaboration in adolescents using performance-based tasks at the household level. Clearly collaboration is a complex skill to measure given that its application relies on the involvement of others and requires tasks sufficiently complex and multi-faceted to enable learners to demonstrate it. Capacity development in assessment processes needs to take place among educators at all education levels and is a crucial step in ensuring the approach is integrated and sustainable in education systems.

Lastly, the chapter highlights some of the gaps in research at present, for example examining the impact of other variables of interest, such as gender and age, on collaboration. The issues highlighted in the chapter reveal the need for continued exploration of collaboration in specific contexts in order to understand the contributing dimensions and subskills to local demonstrations of the skill.

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Chapter 7
Approaches to Assessment of Twenty-First Century Skills in East Africa

Florence Nansubuga, Martin Ariapa, Martin Baluku, and Helyn Kim

Abstract To address the challenges originating from changes in the global market and with technological progress, sub-Saharan Africa (SSA) is adopting more holistic education systems that offer lifelong competence for workers in the twenty-first century. This transition requires integration of complex cognitive and social/interpersonal competencies, such as critical thinking, teamwork, cultural and diversity awareness, multilingualism, and the use of digital technologies into the traditional educational curricula. However, the transition from traditional to holistic curricula is complicated. Issues include how twenty-first century skills are defined in SSA, how they can be taught, how they can be integrated into curricula, and how they can be assessed. A review of the literature on assessments was first conducted in order to review approaches and tools used to measure twenty-first century skills in SSA. Five assessment approaches were identified: scenario-based, questionnaire, video recording and direct observation, portfolio, and technology-based. Seven tools that met study criteria were examined along five dimensions: purpose, type or form, target population, context, and specific skills, in order to determine their utility for assessment of twenty-first century skills. Findings indicate that five of the seven assessment tools support summative purposes while two support formative assessment. Further to this, two tools were designed for large-scale assessment and three targeted adolescents. In terms of method, scenario-based and self-report were the most common approaches used to collect information on twenty-first century skills in SSA. Notably, the outcomes of scenario-based assessments provided compelling evidence of proficiencies, demonstrating the method's efficiency in task creation, analysis, and scoring rubrics that provide clear distinctions across performance levels.

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7.1 Introduction

Emerging global market trends and technological progress have led to rapid changes as well as job ambiguity in the workplace. Consequently, learning that would enable workers to acquire job opportunities in the twenty-first century has shifted from focusing only on traditional cognitive skills and discipline-specific knowledge to the integration of complex cognitive and social/interpersonal competencies, also referred to as twenty-first century skills, such as critical thinking, teamwork, cultural and diversity awareness, multilingualism, and use of digital technologies (Joynes et al., 2019). There continues to be a large discrepancy between what young people are learning in school and the types of skills that people need to succeed in the workforce and today's society.

Over the last two decades it has been acknowledged that existing education curricula are no longer adequate drivers for success in the increasingly competitive environment (Voogt & Roblin, 2012). To address this problem, international organisations such as the United Nations Educational, Scientific and Cultural Organization (UNESCO), Partnership for Twenty-first Century Skills (P21; Battelle for Kids, 2019) and Assessment and Teaching of Twenty-first Century Skills (ATC21S; Care et al., 2018), have developed initiatives to place these skills at the centre of learning (González-Salamanca et al., 2020). Furthermore, the United Nations 2030 Sustainable Development Goal 4 promotes the need for learners to obtain more comprehensive skills beyond traditional numeracy and literacy, including global citizenship skills, as well as the skills needed to promote sustainable development.

In agreement with these initiatives and Sustainable Development Goal 4, SSA is adopting more holistic education systems that offer lifelong competence for the twenty-first century, and at the same time is embracing innovation, cultural and diversity awareness, and the use of information technology in both formal and informal learning contexts. Nonetheless, there have been challenges, specifically around how to define these skills in the context of SSA, how to teach these skills in classrooms and schools, how to successfully integrate the skills into curricula, and importantly, how to assess these skills (Kim & Care, 2020). One of the most critical concerns has to do with national assessment frameworks. As is also the case of many 'Global North' countries, the national assessment frameworks in SSA primarily focus on the measurement of traditional curriculum-based learning outcomes (Siarova et al., 2017). This has created a need to adjust and expand assessment frameworks in order to identify different methods of capturing the holistic nature of lifelong competencies suitable for twenty-first century living.

There are four goals of this chapter: (1) to discuss some complexities of assessing twenty-first century skills; (2) to identify common methods used to assess these skills and discuss strengths and weaknesses of the methods; (3) to describe general findings from a review of existing assessments of twenty-first century skills in SSA; and (4) to discuss implications of the findings in the context of SSA.

7.2 The Complexities of Assessing Twenty-First Century Skills

Societal demands of education in the twenty-first century have seen a fundamental shift from education in the twentieth century, where knowledge accumulation was highly valued. In today's rapidly changing, globally interconnected world, it is not enough to memorize mathematical facts and vocabulary; instead, there is a need and a real demand for education systems to provide learning opportunities and experiences that align with what learners will face in the real world—where they must not only have information but also know how to use that information in different ways and in different situations. Unfortunately, there continues to be a substantial mismatch between the goals of some education systems—the desire to teach and learn twenty-first century skills—and the implementation of these goals (Care et al., 2019a, b).

Part of the issue is that current teaching approaches are based on offering the same curriculum to every learner at the same grade level. Linked with this approach has been the use of very similar assessment approaches, typically summative, to measure learning outcomes. However, the transversal skills that fall under the twenty-first century competencies skills umbrella are dynamic, and how they are exhibited varies according to the situation and context. The implication is that the traditional, typical way of collecting information to infer learner abilities such as for literacy and numeracy—paper-and-pencil, multiple-choice, short answer questions that ask learners to define a term or provide information about a phenomenon—cannot adequately capture individual abilities in these twenty-first century competencies. Although traditional assessment methods may be able to identify what individuals know, they are unable to demonstrate whether individuals can take what they know and *apply* that knowledge in real-life situations, where they must simultaneously know which skills to use, when to use them, how to use them, and quickly pivot if the situation changes. Therefore, the assessment of twenty-first century skills must go beyond the traditional summative-type tests or examinations that determine whether a learner has grasped (i.e., memorized or comprehended) the domain of interest (Care & Kim, 2018; Galloway et al., 2017; Kim & Care, 2020; OECD, 2017), to the assessment of complex learning processes which are typically not visible, using qualitative behavioural indicators. For example, a question like "What is 24 x 4?" has a correct response, and it is easy to identify whether a learner knows the answer or can work it out. However, open-ended questions such as "What is the best way to approach this problem and why?" are more difficult to assess using traditional assessment methods since there are many ways to respond to this question. In addition to capturing the skills and processes underlying the competencies, assessments need to capture whether and how individuals apply these skills in real-life situations (Kim & Care, 2017).

The challenge is how best to capture these behaviours. Assessments need to be sufficiently broad and dynamic to assess skills that are demonstrated across different situations and in response to different contexts, recognizing that these skills may

be exhibited differently depending on the situation and the learner. At the same time, the assessments and how data are collected using these assessments, need to be systematic, reliable, and practical (Vista et al., 2018). The use of technology-based methods has been one way to address this challenge by transforming qualitative measures into quantitative data that are scored in a consistent way (Sibberns, 2020). Accordingly, computer-based assessment has been recognized as adding value to traditional paper and pencil assessment approaches. Technology-based assessment has the capacity to track a wide range of competencies such as thinking processes and interactions through which the learners arrive at their responses (Sibberns, 2020). Using this type of assessment seems promising; however, technology-based assessment does not of itself ensure validity, and access to technology is still far from ubiquitous in SSA. This, of course, precludes access to some of these digitalized assessment innovations (Scardamalia et al., 2012). One thing is clear—the complexity of twenty-first century competencies makes it challenging to assess them.

A practical challenge in assessing twenty-first century skills is that specific grade- or age-level expectations of learners have not been made explicit. Nor are there widely available curricula that outline what the learning goals are when it comes to these competencies. Several studies found that despite movement in policy, teaching and assessment of these skills remains a challenge both in SSA (Netherlands National Commission for UNESCO, 2015; Kim & Care, 2020) and elsewhere (e.g., Care et al., 2019a, b; Vista et al., 2018).

7.3 Common Methods of Assessing Twenty-First Century Skills in Sub-Saharan Africa

From a review of literature specific to SSA, five approaches to measuring twenty-first century skills are considered here. These include scenario-based assessment, questionnaires, video recording and direct observations of activities, portfolio assessment, and technology-based assessment. Each of these methods is described briefly with reference to these twenty-first century skills.

7.3.1 Scenario-Based Assessment

Scenario-based assessment consists of a description of a situation followed by items (or questions) to which response is required. In the case of twenty-first century skills, this approach enables the task designer to ground assessment activities in the concrete details of a situation so as to stimulate the respondent's multi-dimensional action or thinking. If scenarios are linked to episodes that are familiar to a respondent, the latter generally find it easy to engage in the task. In a study conducted among university students, Haynes et al. (2009) identified some benefits of the approach:

> Scenarios provided all students a chance to participate and give ideas without having to worry about getting a bad grade for the wrong answer. Scenario assessment can even be more beneficial if the context in which the scenarios are applied involves working in teams. (Haynes et al., 2009, p. 4)

Scenario-based assessments that are based on familiar situations remove stressors that might be associated with classroom-based knowledge, and so liberate those being tested to provide more authentic responses. In addition, the approach provides a good milieu within which individuals can express and explore their social, cognitive, and behavioural responses associated with target skills more broadly. Daily life scenarios may be perceived as permitting more nuance in responding than the correct/incorrect response mode that is frequently associated with assessment in the formal education sector.

Scenario-based assessment is subject to complexity in scoring. The development of scoring rubrics is complicated. If done well, rubrics can provide reliable scoring of quite complex behaviours. However, if rubrics are poorly expressed or not thoroughly reviewed for clear thinking, the assessors are blocked from accurately representing the proficiencies of the respondents. The process of designing and redesigning scenarios in response to feedback from the field is also time-consuming. However, if the process is handled appropriately, it becomes possible for the assessor to distinguish a poor performer from a better performer. Finally, the assessor's judgment can be influenced by contrast bias during the scoring of individuals' responses. This can occur when an assessor inappropriately compares a single individual to a group of respondents who performed extremely well or extremely poorly. For example, an average individual may be scored as weak if preceded by others who have performed extremely well on the same task. Note that contrast bias can be reduced if two or more assessors are involved in the assessment and then aggregate their scores (Yeates et al., 2015).

7.3.2 Self-Report Questionnaires

Self-report questionnaires are commonly used to measure participants' attitudes and opinions. Items on self-report measures typically ask respondents to rate themselves on a variety of factors using responses along a Likert scale, such as "strongly agree" to "strongly disagree". There are several popular self-reports and/or questionnaires that have been developed to capture a variety of skills desired in the twenty-first century. These include The Student Experience 21[1] by Battelle for Kids, an online suite of tools that includes a 24-item student perception survey that focuses on hope, engagement, belonging, and twenty-first century learning; and the PISA 2018 assessment of Global Competence (OECD, 2017), which included a self-report component through which students report evaluation of own attitudes and competencies.

[1] TheStudentExperience21 | Battelle for Kids

Many more surveys of twenty-first century skills continue to be developed for different age groups, contexts, locations, and purposes. For example, Boyaci and Atalay (2016) developed a 39-item survey, Twenty-first Century Learning and Innovation Skills, for Turkish primary students using a Likert scale to capture self-report responses on creativity and innovation, critical thinking problem-solving, and cooperation and communication. Kelley et al. (2019) developed an instrument for high school students to assess their self-reported proficiencies for communication, collaboration, critical thinking, and creativity within project-based learning activities. Example items include: "I am confident in my ability to help the team solve problems and manage conflicts" (collaboration); "I am confident in my ability to elaborate and improve on ideas (creativity).

Questionnaires and self-reports are often used to measure twenty-first century skills because they are easy to design and administer, can be completed quickly, tend to be less costly than technology-based assessments and open response formats, and can be easily analyzed quantitatively (Boyaci & Atalay, 2016). At the same time, the method is well-known and therefore familiar to many respondents, making it easier to use. Another benefit is the facility to compare multiple perspectives, such as the student versus the teacher (Kelley et al., 2019).

However, the use of the Likert response method in combination with self-ratings has been criticized for failing to provide evidence of construct validity (Chakrabartty, 2014). Lombardi et al. (2018) pointed out that students may lack objectivity or may bias their responses due to perceived social pressure. In addition, responses to hypothetical statements may not parallel how students would respond when encountering a situation in real life (Soland et al., 2013). This is a particular issue when measuring twenty-first century skills that are less well-defined or more nuanced, and which, therefore, lack key indicators against which a respondent can evaluate themselves. These weaknesses are threats to validity and may pose serious concerns for capturing students' abilities.

7.3.3 Videotaping and Direct Observations

Direct observation or video recording of individuals engaging in tasks is an assessment method for measuring practical or socio-emotional skills in which the target individual or group is observed in given situations to determine how they perform. A set of instructions is provided to the target individuals or groups about the task requirements, the assessment criteria, and the duration of the assessment. It may be that only the administrator evaluates, or that both the administrator and peers participate in the evaluation. A scoring guide, or set of rubrics, is used to rate the performance (Mclean & Connor, 2018; Kemp, 2001).

A study of direct observation of social worker students in field practice revealed that the approach yielded more valid results when clear goals of the assessment are agreed upon by both the assessors and students (Irwin, 2014). Goal setting is therefore viewed as an important step when preparing for direct observation assessment.

Goals provide a clear guide concerning what is expected of the students and may help in reducing their anxiety during the process. The approach has been commended for embracing greater external or contextual validity than self-rating scales, as behaviour is measured in the form of its natural occurrence (Nock & Kurtz, 2005). Unlike many assessment approaches that focus on relatively narrow factors such as frequency, direct observation provides the opportunity to gather a wide range of contextual information about the events that occur during task performance, including the antecedents and consequences of observed behaviour (Nock & Prinstein, 2004).

Despite these benefits, a number of issues have been identified. First, the direct observation approach is costly in terms of administration time and money, while video-based approaches also require adequate technologies and equipment (Irwin, 2014). Second, direct observation may induce respondent-assessor reactivity due to the obtrusiveness of the assessor as the observer. In addition, perceptual bias may influence the assessor's interpretation of behaviours that in turn is used to infer good or poor quality (Skinner et al., 2000). Third, in the case of the education context, there is potential for teachers to experience role conflict when they combine the role of an assessor who is judging students' achievement with that of teacher who is responsible for developing students' skills. Such conflict might ensue from the teachers' natural tendency to help and guide a student; or from their own concerns that student performance might reflect on perceptions of teacher success (Kemp, 2001). To achieve success in utilizing direct observation assessment, it is necessary to train the assessors and equip them with the principles of managing these issues.

The method itself provides a clear opportunity for rich demonstration of complex skills, due to its open-ended nature. In order for assessment of twenty-first century skills to benefit from the method, the target skills must be comprehensively deconstructed and identified in scoring criteria, analysts must be comprehensively trained in observation, and sufficient resources in terms of number of observer analysts must be available.

7.3.4 Portfolio Assessment

In recent years, portfolios have become a popular resource for assessing some twenty-first century skills. A portfolio is a collection of student work that is examined and scored based on a set of predetermined criteria. A portfolio includes learners' annotated evidence, such as peer or teacher ratings, research reports, products, and argumentative essays, that reflect what the learner has achieved in learning (Davis et al., 2001).

Portfolio assessment has the potential to assess complex phenomena such as attitudes and ethics that are difficult to measure using traditional classroom assessment approaches. The use of portfolio assessment in assessing competencies has the added advantage of showing changes in behaviour over time since it is grounded in self-reflection (Bialik et al., 2016; Baki & Bargin, 2004). Portfolio assessment is

widely used in secondary and tertiary education where 'products' are seen as the most informative sources of competence. Predominantly, portfolios have been used in the arts and business fields to assess individuals' competencies. This is because it s a product of the knowledge and skills contribution that is being assessed, as distinct from assessment of dynamic display of skills.

However, one of the major concerns in using portfolio assessment is the issue of validity. The portfolio of work may not include a representative sample of the information across the targeted learning outcomes (Barton & Collins, 1997). Assessors may also find it difficult to verify whether the evidence is attributable to the student or whether it is faked or plagiarized (Davis et al., 2001). In other words, the link between the individual being assessed and their product is not always verifiable.

Another challenge with portfolio assessments is that similar to open response measures, it can be difficult to score consistently given the myriad of evidence that might be part of the portfolio of work. There have been efforts to ensure that portfolios can be scored in a way that ensures high levels of reliability and validity, for example, by developing clearly written rubrics. In other words, assessment developers are focused on ensuring that the scoring process is highly structured to make sure there is consistency in the criteria for scoring as well as increased agreement among raters. Another concern is assessor bias, which makes it difficult to ensure objectivity in scoring. One solution for this is to standardize rubrics, although again excessive standardization of scoring rubrics as an effort to reduce assessors' subjective judgment may remove the nuanced information that might be critical to capturing the target skills.

7.3.5 Technology Based Assessment

Technology-based assessment resources for twenty-first century skills are less accessible in regions that do not have high levels of technological and communications infrastructure throughout governance, societal, and education systems. Technology-based assessment takes many forms and can include the four methods included in the brief review above. Scenario-based assessments, surveys, observation methods, and portfolio designs can all be used to structure assessment tasks and their scoring criteria within technology environments.

Computer-based applications may have additional advantages over other media for assessment because they can provide automated scoring and reporting. In a study conducted by Harahap et al. (2020), a digitalized meta-inquiry assessment helped students to receive rapid feedback at each of the stages including problem formulation, hypothesis development, data collection, hypothesis testing and overall research progress. The social system component in the model allowed students to maintain continuous interactions with teachers and cooperation with colleagues as peer mentors, mediators, and as motivators.

Technology-based assessment has been found to be cost-effective and environmentally friendly because the entire process of inputting responses, scoring, and giving feedback is paperless. Students can respond to questions more quickly than when working with paper and pencil assessment versions (Khairil & Mokshein, 2018). Beyond such facilities as tracking of speed which for assessment in some contexts is valued, assessment of skills such as problem-solving has highlighted the fact that multiple paths through tasks can be tracked, hence enabling other characteristics of these skills to be prioritised (Ramalingam et al., 2017). This tracking facility is a characteristic that lends itself well to the assessment of twenty-first century skills. Since many of these skills are regarded as complex in nature and in demonstration, the facility of tracking branching within a skills demonstration environment is a major benefit.

Some researchers have identified limitations associated with the use of computer-based assessment. Schaeffer and Palmgren (2017) postulated that activities that are ambiguous may fail to transform into assessment frameworks that require standardisation in order for data capture to take place seamlessly. There are also concerns related to inequality when using technology-based assessment. Due to economic variations within and among different locations and schools, some individuals may have more access to devices and greater computer literacy skills than others, thus leading to disparities in performance. Similarly, assessment conditions and procedures, such as internet connection speeds, power fluctuations and hardware and software specifications, tend to vary from one location to another and these may directly affect the performance of some students (Blazer, 2010).

7.4 Overview of Assessments of Twenty-First Century Skills Used in Sub-Saharan Africa

In order to identify existing assessments of twenty-first century skills that are being used in SSA, the authors conducted a review of assessments. Assessments were identified by searching electronic databases, scanning reference lists, and consultations with experts in the field of measurement, assessment, and evaluation. Google Scholar and platforms such as INEE[2] Measurement Library and Research Gate were used to gather a pool of assessments of twenty-first century skills. The criterion applied was that the assessments were used in the region, rather than whether they were developed specifically within or for the context. Assessments were considered only if they focused on twenty-first century skills, had documented technical information, and were developed for children or adolescents. In addition, tools that had a commercial cost associated with the purchase and administration of the assessment were not considered.

[2] Inter-agency Network for Education in Emergencies (INEE)

Based on these criteria, seven assessment were identified and examined along five dimensions. The dimensions are assessment purpose, assessment type or form, assessment context, target population, and skills assessed. These are described below. There are many dimensions upon which reviews of assessments can be based (see Galloway et al., 2017; Lamb et al., 2019; Soland et al., 2013). Given the implementation environment for ALiVE, the five selected dimensions provide a grounded approach to reviewing tools in the context of SSA. The interdependence of decision-making about each of these dimensions is highlighted in the brief descriptions.

7.4.1 Five Dimensions

7.4.1.1 Assessment Purpose

According to Schwartz et al. (2011), there are five broad purposes of assessments, including monitoring system performance, accountability, setting priorities and signaling important competencies, and supporting instructional improvement. The more general identification of assessment for summative or formative purposes overlays this. The purpose is formative if the assessment will be used to support teachers in setting and reviewing instructional goals and providing individualized feedback to students. The purpose is summative if the assessment is used to determine whether an instruction has been effective after the fact, and data can be provided to the individual, school, or system. Some assessment tools are constructed in ways that lend their use to both purposes. The need for detail in assessment results is determined by purpose, with individual formative typically needing more detail than large scale benchmarking or accountability.

7.4.1.2 Assessment Type or Form

Five approaches to measuring twenty-first century skills have been described. These are scenario-based assessment, questionnaires/self-report, video recording and direct observations, portfolio assessment, and technology-based assessment. Some measuring tools draw on more than one approach in order to capture multiple facets of the target constructs. This strategy can elicit rich data but can also present some analytic and reporting challenges. For example, mixing both survey self-report formats together with scenario-based formats presents challenges for data analysis (Hoskins & Liu, 2019). The context or physical environment in which the assessment is to take place must be considered in decisions about the type or form of assessment to be used. Where a household-based assessment is involved, fewer resources will typically be available to draw on for an assessment event than in a

classroom. The availability of resources influences how complex the type or form of assessment can be.

7.4.1.3 Context for Use

The context in which the assessment takes place will determine the type or form of assessment. The main context for use of educational assessments is the classroom. This provides the facility for assessing large numbers of individuals in a relatively efficient and standardised way. However, it also prioritises the use of the written word or technologies in order to enable group administration. Other contexts include out-of-school programs, which may offer a mix of administration facilities; and household-based assessment, which is typically less well-resourced. Household-based assessment has been used in citizen-led approaches to gather large-scale data for advocacy purposes. Each of these contexts offers variably beneficial environments for the assessment of skills like literacy and numeracy, or for assessment of skills such as communication or creative thinking.

7.4.1.4 Target Population

The nature of the target population establishes the possible type of assessment, its context, and the actual target constructs. The maturational level of the individuals and groups will determine what characteristics or capabilities can be assessed, and through what medium. Significant aspects will include whether language and literacy skills can be assumed; and elements such as concentration span, physical comfort, and communication modes will be considered. The capacity of the target population to consent to assessment is an important feature, particularly where the assessment will take place outside of the formal education context.

7.4.1.5 Specific Skills

The selection of skills to assess has a greater influence on decisions on all other dimensions. Different skills require different modalities for expression, and so will determine the type or form of assessment. Since many twenty-first century skills, as discussed, are complex, it may be necessary to accept limitations in their capture. Accordingly, some aspects of a complex skill may be targeted while others will be put aside due to the overwhelming difficulties in collecting evidence. Such decisions are pragmatic, and as long as they are made explicit, can be justified in reporting results.

7.4.2 Selected Assessments

7.4.2.1 Assessment of Life Skills and Values in East Africa (ALiVE; Mugo, 2024)

ALiVE is designed to measure life skills and values of adolescents across Kenya, Tanzania, and Uganda. Tools were developed to assess collaboration, problem-solving, respect, and self-awareness of 13–17 year-old adolescents through the medium of household-based assessment. The goal of ALiVE is to generate evidence of these proficiencies for use by governments in their current efforts to include these competencies in the education system. The tools use scenario and performance-based tasks, scored by qualitative rubrics. The assessments are administered orally on an individual basis apart from the collaboration tasks which are administered to groups of four adolescents.

7.4.2.2 Optimizing Assessment for All (OAA; Kim & Care, 2020)

OAA was a collaborative effort designed to strengthen education systems' capacity to integrate twenty-first century skills into their teaching and learning through use of assessment. Assessments for collaboration, problem solving, and critical thinking were integrated within mathematics, health, environment, English, social studies, and science for grades 4–8. OAA is a set of classroom assessment tasks with both closed and open response types that are scored using rubrics. OAA assessment tasks took traditional test items and revised them to assess complex skills aligned with each country's new learning goals. A critical product of OAA was generic templates which allow for the development of assessment tasks that take into account culture, context, skills of interest, and can be created in any country using their existing items.

7.4.2.3 ISELA (D'Sa & Krupar, 2019)

The International Social and Emotional Learning Assessment (ISELA) was developed among Syrian refugee children in Kurdistan, Iraq, to understand self-concept, stress management, perseverance, empathy, and conflict resolution in children of 6–12 years. The context was conflict-affected and fragile states, and so the tool design targeted understanding childhood resilience. The purpose of tool development was for use in program and national evaluation. The focus is on social-emotional skills acting as protective factors.

7.4.2.4 Educator Assessment of Learners' Soft Skills Ability (EALSA; Education Development Center, 2019)

The EALSA is primarily a work readiness tool developed within the context of the Measuring Skills @ Scale Project. The tool is focused on the skills of communication, interpersonal skills, dependability, and problem solving/critical thinking. It comprises a self-report questionnaire using items that in the main are ***contextualised*** within the work environment. The purpose is to generate evidence of respondents' current levels of functioning and so provide information to instructors about where best to intervene to improve performance.

7.4.2.5 The Youth Power Action Youth Soft Skills Assessment (YAYSSA; Omoeva et al., 2023)

YAYSSA measures social and emotional skills of youth in low-resource settings. Specific targets are positive and negative self-concept, higher order thinking skills, and social and communication skills. The tool is designed for use in evaluation of programs to improve economic outcomes and functioning of youth. It is a self-report tool, with a mix of attitudinal responses to vignettes, and self-evaluation of the individuals' skills.

7.4.2.6 Life Skills and Citizenship Education Measure (LSCE; Hoskins & Liu, 2019)

The LSCE is a product of a collaboration of UNICEF and the World Bank in the Middle East, with the tool developed to measure 12 life skills in the context of Life Skills and Citizenship Education. The goal is to use the information to inform government priorities, policy, and instructional objectives. The current tool captures eight of the skills through a mix of scenario-based multiple-choice response formats and self-report of competencies using Likert scales.

7.4.2.7 Tanzania Life Skills Assessment (Research Triangle Institute, 2019)

The Tanzania Life Skills Assessment takes a self-report approach to its item design for grit and self-control, and a performance-based approach to problem solving which collects a number of methods respondents use to solve word problems associated with EGRA. Based on listening to brief scenarios, the respondent identifies how likely they are to behave in the same way as the protagonist.

7.4.2.8 Review of Selected Assessments

Each of the seven assessments was reviewed in light of the foregoing description of common methods used in the assessment of twenty-first century skills, and the five dimensions. Table 7.1 provides a summary of information for each assessment. Note that the inclusion of these assessments is neither an endorsement nor confirmation that they are reliable and valid.

Table 7.1 Selected assessments of twenty-first century skills in sub-Saharan Africa

Assessment	Purpose	Type/Form	Context	Population	Target skills
Assessment of Life Skill and Values in East Africa (ALiVE)	Summative: setting policy priorities	Scenario-based and performance-based with scoring rubrics	Household	Adolescents aged 13–17 years	Problem solving, self-awareness, collaboration, and respect
Optimizing Assessment for All (OAA)	Formative	Scenario-based with scoring rubrics	School	Children in grades 4–8	Problem solving and collaboration
International Social and Emotional Learning Assessment (ISELA)	Summative: program monitoring	Vignettes; performance-based	School	Children aged 6–12 years	Social-emotional: self-concept, stress management, perseverance, empathy, relationship management, and conflict resolution
Educator Assessment of Learners' Soft Skills Ability (EALSA)	Formative	Multiple choice, scenario-based questions	School; program	Students in secondary and tertiary	Work readiness: communication, interpersonal skills, dependability, and problem solving/ critical thinking
Youth Power Action Youth Soft Skills Assessment (YAYSSA)	Summative: Program evaluation	Self-report	School; program	Youth aged 15–19 years	Self-concept, higher-order thinking skills, social and communication skills
The Life Skills and Citizenship Education (LSCE) measurement instrument	Summative: setting policy priorities	Multiple choice, scenario-based questions; self-report	School	Grade 7 children	Creativity, problem solving, negotiation, decision-making, self-management, respect for diversity, empathy, and participation
Tanzania Life Skills Assessment	Summative	Self-report; some performance-based	School	Late primary school-aged children	Academic grit, self-control, and problem solving

Most of the seven tools capture information for summative purposes, with just two of these designed to inform policy. The two tools that are designed to inform the education sector most consequentially are derived from two quite different sectors, but both draw on strong government support. ALiVE and LSCE are both large-scale initiatives, one supported primarily by the civil organisation sector, and the other supported by UNICEF and the World Bank. Their target skills draw on the cognitive, interpersonal, and intrapersonal, including competencies associated with global competence and citizenship. With the exception of EALSA and its focus on work readiness, and OAA and its classroom focus, the remaining tools prioritise skills that might act as protective factors or skills of interest in the face of conflict and adversity. In terms of method, self-report remains the dominant method of collection of information. Given the dominant use of this method, the contexts in which several of the tools were developed, and the age of samples that contributed data, there may be concern about the degree to which respondents were at a level of cognitive or social-emotional maturity to able to provide data truly symptomatic of authentic actions in a real world.

7.5 Conclusion

Sub-Saharan African countries are increasingly adopting twenty-first century skills or life skills into their primary and secondary education. However, in the main, assessment remains focused on traditional academic-oriented curricula. As national education systems move more rapidly into nurturing and assessing new competencies, there are few resources available to draw from.

Methods currently used in the region have not been reviewed critically to stimulate change in the approach to assessment of these dynamic competencies. This chapter focused on identifying some assessment approaches for twenty-first century skills applied in SSA. The form of assessment tools found most commonly used in SSA for measurement of these skills are scenario-based assessment with standardized scoring rubrics, and self-report questionnaires using Likert scale response options. While self-report questionnaires are favoured for their simplicity in design, administration and scoring, there are serious concerns about the degree to which they stimulate socio-culturally desired responses. Scenario-based activities however, have gained recognition for their ability to prompt respondents into multidimensional action or thinking, fostering idea generation without fear of presenting incorrect responses. An example of this approach, from East Africa, is the ALiVE project, which employed a context/scenario-based assessment method to gauge adolescents' proficiency in specific competencies. The outcomes of this assessment furnished compelling evidence supporting the method's effectiveness. Furthermore, the robustness of the scoring approach adopted facilitated useful behavioural differentiation across proficiency levels, providing information that could be used for instructional purposes by teachers.

The review of tools in this chapter highlights the relative paucity of diversity in tools development in the SSA region. This finding alone is useful in guiding future efforts to experiment with multiple approaches rather than defaulting to approaches that have been used traditionally to capture evidence of achievement in subject-matter in the education sector.

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Chapter 8
Opportunities and Challenges in Household-Based Assessment of Life Skills

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Abstract Household-based assessments (HBA) in education are novel. Conducting household-based learning assessments has long been associated with non-government organisations as evidenced in India, other parts of South Asia, East, West and Southern Africa, and the Americas. The use of HBA to measure life skills expands the use of this approach that was long characterised by assessing foundational literacy and numeracy skills. Experiences from the Assessment of Life Skills and Values (AliVE) by the Regional Educational Learning Initiative (RELI) reveal that opportunities for using HBA to measure life skills are immense. Through a collaborative initiative, ALIVE as a process delivered a tool that was used across Kenya, Tanzania, and Uganda mobilising stakeholders among policymakers, education researchers, teachers, civil society organisation leaders, local partner organisations and citizen assessors from areas where a sample of adolescents aged 13–17 was identified, selected and assessed on the value of respect and life skills of self-awareness, problem solving and collaboration. This household-based assessment approach reveals that despite the immense opportunities, there are also challenges. This chapter provides the context of ALiVE, traces the process of implementing ALiVE using the household-based approach, and discusses the opportunities and challenges associated with using HBA in measuring life skills. These opportunities include the ability to capture a larger range of children than can school-based assessments, the liberalisation of assessments, the inbuilt advocacy and technology opportunities, the deepening of external accountability systems, and engagement capabilities. Among the challenges discussed in using HBA for measuring life skills is the need to identify and define the purpose, the complexity of identifying groups to assess, the logistical challenges in implementation and associated costs, difficulties in scheduling, and the reality that still not all children will be reached. Despite this set of challenges, HBA demonstrate the opportunities that exist outside school to provide data at large scale for reporting and advocacy.

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8.1 Introduction

Nansubuga et al. (2024) provide a detailed description of methods available for assessing life skills. In this chapter, the focus is on the opportunities and challenges of using household-based assessments (HBA) for measuring life skills, drawing on the experience of applying the approach in the context of the Assessment of Life Skills and Values in East Africa (ALiVE) project. The chapter traces the origins of household-based learning assessments over the past one and a half decades when the approach emerged, principles and standards developed, methods defined, assessments created, and lessons learned, before delving into use of the approach in assessing life skills and values.

In this chapter, five critical processes in the ALiVE process that define its rigour (sampling, tools development, selection of assessors, training, and the actual assessment activity) are presented in detail to situate the opportunities that HBA bring to measuring life skills. HBA in education are recent strategies used for estimating the education system's efficacy, effectiveness, and efficiency in resource application. Although household-based surveys are a common epistemological approach in social sciences, the household as a point of identifying and assessing learning is relatively recent. The most documented HBA, also considered the prototype of household-based learning assessment in education, is Pratham's Annual Status of Education Report (ASER, 2005).

Pratham, one of the largest education non-government organisations in India that had been working across the informal settlements of Mumbai City, developed an innovative approach to establishing levels of foundational learning skills among children of school-going age. Motivated by the realisation that not all children of school-going age were actually in school, Pratham decided to use the household as the point of collecting the data. The Pratham assessment therefore harvested data on learning levels for out-of-school children as well as school attendees. Taking an age group of 6–16 years as the assessment group, the criterion-referenced learning assessment pegged on Grade 2 reading and numeracy expectations was the first step in universalising assessments at large scale. Citizen volunteers in their thousands were recruited from the sampled villages, trained, and deployed back in their communities (hamlets and villages), to sample-based identified 20 households within each, recorded details of all children in the target age group, and surveyed the children aged 6–16 regardless of their schooling status. The deployment of citizen volunteers for the complex task of assessing learning at household level, also led to referring to these assessments as citizen-led assessments. Sometimes the two terminologies i.e. household-based and citizen-led assessment have been used interchangeably or simultaneously (Nakabugo, 2016, 2021). The initial ASER citizen-led HBA in 2005 sampled more than 600 districts across India (Goodnight & Bobde, 2018).

The ASER approach would later spread across South Asia starting with Pakistan, later in the East African countries of Kenya, Tanzania, and Uganda, West Africa, and Latin America, in what became a horizontal transfer of learning across the global south. The East African initiative, named Uwezo (meaning 'capability'), conducted its first pilot assessment in Kenya in 2009. Following the success of this pilot, the assessment was rolled out in Uganda and Tanzania in 2010, and other countries in Africa such as Mali and Nigeria, among others, also embraced the approach. By March 2020, citizen-led HBA had been embraced fully in 15 countries on three continents (Table 8.1) and had assessed over 8.5 million children in literacy and numeracy in over 30 languages including English, French, and Portuguese.

The ASER transfer maintained the original approach, but with adaptation of tools to meet the demands of each context (Mugo et al., 2016). The ASER tools and approach would later be called a method of education system feedback and program evaluation. The approach gained new names as adjustments were made to its use (as indicated in Table 8.1) while processes were adopted among them retaining the age of assessment, use of citizen assessors (and criteria such as levels of education), tools development, assessing at the household, retention of reading and numeracy as basic competencies to assess, and administration of instant feedback as essential elements in the assessments (Nakabugo, 2021).

Table 8.1 Citizen-led assessment/household-based assessment initiatives globally (as of March 2020)

Name of the initiative	Country	Year of first [pilot] assessment
ASER Centre	India	2005
ASER Pakistan	Pakistan	2008
Uwezo Kenya (now operating as Usawa Agenda)	Kenya	2009
Uwezo Tanzania	Tanzania	2010
Uwezo Uganda	Uganda	2010
Bɛɛkunko	Mali	2011
Jàngandoo	Senegal	2012
MIA (Medición Independiente de Aprendizajes - 'independent assessment of learning')	Mexico	2014
LEARNigeria	Nigeria	2015
IID (Institute of Informatics and Development) and BRAC	Bangladesh	2015
TPC Mozambique	Mozambique	2016
ASER Nepal	Nepal	2016
VIdA (Valoración Intersubjetiva del Aprender – 'intersubjective assessment of learning')	Nicaragua	2017

Source: People's Action for Learning (PAL) Network: http://palnetwork.org/ In Nakabugo (2021, p. 51)

In the adaptation of the approach, generic steps required in large-scale assessment were taken, including: defining the purposes of the assessments that make them fit for purpose; definition of skills and competencies to be assessed (including defining rubrics as performance indicators); and establishing the elasticity of the tools across diverse targeted groups (through the iteration of several field trials), before the tools were deployed for use. This collaborative approach drew on curriculum development and assessment agencies in respective countries, and on researchers, psychometricians, and practising teachers to ensure rigour and quality (Mgalla et al., 2020). Since the assessments are household-based and within communities, the selection of assessors is a critical issue. According to PAL Network (2021), working with citizen volunteers requires the development of criteria that include identifying volunteers from communities where they are likely to work, and establishing their thresholds of education. For the former, the assumption is that by selecting volunteers (surveyors) who hail from their community, these are likely to participate in collectivising citizen agency, that is, citizens taking collective action to find solutions to the learning challenge, a key ingredient in the design and implementation of the citizen-led bottom-up approach to improving learning outcomes (Goodnight & Bobde, 2018).

Wiles et al. (2013) argue that when applying innovative approaches in research, uptake and acceptance of these new approaches and their findings in the broader social science community may often be slow. Yet, although HBA are novel, their implementation and role in altering the education landscape cannot be underestimated. The 'World Development Report: Learning to realise the promise of education' (World Bank, 2018) frames the learning poverty phenomenon based on data from these HBA.

It is because of the potential advantages of the household-based approach to learning assessment and its global acceptability as a credible research approach, that the Uwezo HBA approach that had been adapted in the East African context was embraced in ALiVE.

8.2 The ALiVE Study

In 2019, the Regional Education Learning Initiative (RELI) (an initiative of civil society organisations in East Africa) coalescing around its values and life skills thematic group, began consolidating experiences, literature, and practice of life skills and values in education across the East African countries of Kenya, Tanzania, and Uganda. This led to the development of a contextualised tool for measuring the selected life skills of collaboration, problem solving, and self-awareness, and the value of respect. HBA was undertaken across the three countries between April and August 2022, with its results reported in Ariapa et al. (2024). ALIVE's rigour is drawn from five distinct processes of sampling, tools development, recruitment of assessors (citizen volunteers and teacher trainees), training and data collection methods/actual assessment.

8.2.1 Sampling

The HBA approach involved drawing a population sample to assess life skills and values among adolescents aged 13–17 years who were both in and out of school. The assessment was conducted with a geographically representative sample of sub-national units (districts/counties) in each country, with 20 enumeration areas in each sub-national unit, and 20 households with adolescents selected to participate in the assessment. The ALIVE sampling was a three-stage process.

8.2.1.1 Sampling Stage 1

This stage involved the selection of the sub-national units and enumeration areas to be visited. The relevant national Bureaus of Statistics undertook this task. The Bureaus identified the sub-national units from each national census frame and then proceeded to identify 20 enumeration areas (EA) in the respective sub-national units.

8.2.1.2 Sampling Stage 2

This stage involved the physical identification of the selected enumeration areas and selection of households to be visited. ALIVE, being a collaborative undertaking, involved the use of sub-national partners based in their respective areas. The partners were mostly drawn from organisations which had previously conducted HBA (e.g. Uwezo learning assessments) in their respective areas. The selection of the households was supported by technology. Upon the liaison team (a district coordinator and two village coordinators) reaching the EA, they worked with relevant local government administration officers to identify the boundaries of the EA. Subsequently, they walked through the entire EA to list households with adolescents. This task, identified as household listing, used an online form that captured basic information about the name of the household head, number of the adolescents regularly living in the household, and a description of the household heads. These lists were collected and 20 households for each EA were sampled randomly.

8.2.1.3 Sampling Stage 3

This stage involved the selection of the adolescents to be assessed. Households listed were those found to have adolescents. Once the assessors reached the households and introduced themselves, they re-established the number of adolescents in the households and selected two adolescents from five scenarios: (i) households with one adolescent (ii) households with two adolescents of either gender (iii) households with two adolescents of different gender (iv) households with more than two adolescents of the same gender (v) households with more than two adolescents of different gender.

8.2.2 Tools Development

ALIVE embraced a collaborative process of contextualising tools development for the assessment. This involved setting up a technical team drawn from the project core team members (from the three countries), experts from universities, practicing teachers, and officers from curriculum and assessment bodies from the respective countries. The team under the guidance of an external adviser identified the skills and values to assess, developed a skills framework, drafted items (tasks), pre-tested them, and piloted them before constituting a panel that assembled the final assessment tool. As the assessment was to be conducted at household level, was to involve in-school and out-of-school adolescents, and was to be conducted by non-conventional assessors (citizen volunteers and teacher trainees), extra attention was given to ensuring that the tasks were simple and could easily be understood by the assessors and adolescents and that they were relevant and acceptable in the local context. Pre-testing and piloting the tool in different social and cultural contexts helped in phrasing the assessment tasks appropriately.

8.2.3 Recruitment of Assessors/Enumerators

Since ALiVE was to be conducted at household level (not at school) and within communities, the selection of assessors was a critical issue. Given the more complex nature of the ALiVE tools compared to those assessing basic literacy and numeracy, the minimum education qualification of the assessors was set to a minimum of 6 years of secondary education (Advanced Level) for the citizen volunteers. Similar to Uwezo, ALiVE collaborated with district-based local organisations that mobilised qualified volunteers to carry out the assessment and obtain other relevant data across the householdsand community settings. Calls for volunteer posters were displayed in sampled villages to recruit competent persons living within the communities to undertake the assessment activities.

In Kenya and Uganda some assessors were teacher trainees who were pursuing a teaching qualification at diploma or degree level. These were selected through partnering or direct contacts with the selected teacher training institutions that were located in the sampled assessment districts. It was also important to select assessors who were ethically in good standing in the community or faculty. Hence, validation of this attribute, such as a recommendation from the local or teacher training institutional leadership, was critical for purposes of child safeguarding and credibility of the assessment process. The language of the assessor was also a consideration in the recruitment of the enumerators. While assessing at the household level, it was

important that the assessor was able to administer the tasks in a local language widely spoken in the area in case the adolescent being assessed opted for that. This was to ensure that the adolescents' responses to the tasks was not constrained by language barriers.

8.2.4 Training of Enumerators

A cascaded mode of training as is usually done with Uwezo learning assessments was applied to ALiVE. The first step was trainer recruitment from the existing pool of Uwezo trainers to supplement staff from ALiVE implementing organisations who had participated in the technical process of developing the assessment tools. Together with district coordinators, these constituted a team of trainers who would then train the enumerators at district level. The trainers underwent a 3-day training of trainers that was conducted by a select team of Master Trainers and staff from ALiVE implementing organisations. Those newly trained were then deployed in pairs to allocated districts, supported by two to three Village Coordinators, to conduct volunteer trainings. The volunteers were prepared through familiarisation with ALiVE, the assessment process, entry into the community, and acquired the necessary skills to assess, grade and record the assessment results for all adolescents, and abide by set safeguards and ethical standards. As noted above, selected trainers and district coordinators who followed a well-structured training manual designed by ALiVE, facilitated the district-based volunteer training.

8.2.5 Data Collection

Decisions on when to conduct data collection were devolved to respective countries. The timing of the assessments was aligned with the expected periods during which adolescents would be at home, considering that most adolescents were of school-going age and therefore would only be home when schools are closed.

In each household, up to two adolescents, preferably a male and a female, were selected and assessed in the selected life skills of problem solving and self-awareness and the value of respect. Each of these adolescents also undertook a literacy assessment pegged on the Grade 4 curriculum in their respective countries. Additionally, three groups of four adolescents per group in each EA (a male only, female only and mixed group) were identified and assessed on the life skill of collaboration. This process provided rich experiences that offer learning on the challenges and opportunities of using HBA to measure life skills.

8.3 Factors in Use of Household Based Assessment for Measuring Life Skills and Values

8.3.1 Opportunities and Challenges Presented by Household-Based Assessment

The opportunities and challenges associated with using HBA are many and varied. Some of these are discussed in this section, informed by research studies and by the ALiVE experience.

Muñiz and Fonseca-Pedro (2019) list ten steps in assessment, Downing (2006) lists 12, and Foertsch (2014) lists five steps for effective test development (Table 8.2).

Analysis of these steps reveals the phases of pre-development, development, and post-development. The ALiVE process included the steps listed in Table 8.2 as well as some additional development activities. ALiVE included an extensive literature review; a contextualisation study of how the community regarded life skills and values leading to the contextual definition of the selected constructs (life skills and value); hypothesising the constructs' structures; drafting of tasks and accompanying rubrics; paneling of materials and revising the tools based on the responses

Table 8.2 Steps in assessment

Muñiz and Fonseca-Pedro (2019)	Downing (2006)	Foertsch (2014)
1. Stating the problem 2. Writing specifications for the test 3. Writing and moderating items 4. Informal trialling of items on native speakers 5. Trialling of the test on a group of non-native speakers similar to those for whom the test is intended 6. Analysis of results of the trial; making of any necessary changes 7. Calibration of scales 8. Validation 9. Writing handbooks for test takers, test users and staff 10. Training staff	1. Overall plan 2. Content definition 3. Test specifications: Blueprinting the test 4. Item development 5. Test design and assembly 6. Test production 7. Test administration 8. Scoring examination responses 9. Establishing passing scores 10. Reporting examination results 11. Item banking 12. Test technical report	1. Define traits 2. Define test characteristics 3. Develop/identify set of items 4. Obtain item statistics 5. Finalise specifications and procedures

collected; field trials of the tools; finalisation of tool; assessment activity; scoring and reporting.

8.3.2 Opportunities

Five reflections on the opportunities that HBA bring in assessing life skills are shared, drawing on the ALIVE experience.

Opportunity One: HBA can capture a larger range of children than can school-based assessments

Using HBA as distinct from school-based assessment enabled ALiVE to access a wide range of adolescents, which suited ALiVE's target population that was age-based rather than grade-based. ALiVE's target population was adolescents aged 13–17 years irrespective of their schooling status. These included the out-of-school adolescents occasioned by three circumstances. First, there are adolescents who never enrolled in school. Second, there are adolescents who have completed a particular level of education and have not proceeded to the next. Third, there are adolescents who have dropped out of school. When assessments are school-based, these categories of adolescents would be disenfranchised since they are available only in the community spaces. It is this capacity that makes HBA a valuable facilitator in moving towards universalising data gathering that informs national information needs.

Opportunity Two: HBA liberalise assessments by enabling non-government agencies to convene and coordinate assessment efforts

Assessments have long been associated with formal education settings. Expertise, whether in or outside governments, mostly focuses on the school where mobilisation of learners is easy. Equally, approval processes for school-based assessments are faster to enable than assessments conducted outside the school and where multiple players are involved. Hence, there is little evidence of policy-driven assessments that have been conducted outside the school setting.

ALIVE demonstrates the convening power of non-government agencies. Through collaboration, ALiVE mobilised actors which included policy agencies (curriculum development and assessment bodies), practicing teachers, academia, and project managers to collaboratively design and implement an assessment around areas considered to be complex to assess. To a large extent, it can be argued that the convening power of the assessment rested with the non-government sector. Perhaps this was possible only because assessments were outside of the formal education system where no policy agency could claim to mark its territory. Although framed as an assessment, ALiVE cuts across sectors allowing for a sector-wide approach to planning and designing, including multiple players at both national and sub-national

levels, use of citizen assessors (not assessment experts let alone practicing teachers), and local administrators; all in the context of bringing assessment right into the household. This reveals the power that non-government organisations can have in convening to encourage complex policy processes.

Opportunity Three: Inbuilt advocacy is an ingredient of HBA

HBA have been designed specifically to engage with key education stakeholders at all levels, right from the smallest unit of society, the household unit, up to the national policy-making level in Ministries of Education. Nakabugo (2016) shares experiences on the Uwezo studies' influence on policy that has been punctuated with deliberate and early buy-in from stakeholders. Right from inception and similar to Uwezo assessment purposes, ALiVE was not only focused on collecting data on life skills and values but also on using the assessment evidence to trigger a national conversation at all levels to raise awareness of the need for all young people to acquire these skills and values. Hence, in agreement with Mayne et al. (2018) who argue that the data generation process for policy-based advocacy processes is as important as the data itself, the process was equally important for ALiVE. As such, policymakers and other key actors in the system, including parents and caretakers, ought to be part of the evidence generation and not be recipients at the tail end. The household-based approach enabled this to happen. Policy actors at national level were involved in the ALiVE assessment process either as members of the technical team that developed the assessment tools or as members of the Advisory Committee that was regularly consulted on the assessment plans or as observers of the actual assessment process.

Often, data generators exclude input from end users. As such, advocacy is left with responding to two issues; defending the method followed, and justifying the content of the findings. When findings are shocking, users look out for ways to question the evidence. And one such fallback position is often to query the method used in generating the data. Through co-creation, evidence users can be mapped early in the process, and spaces can be deliberately created for the users to interact with the process as the evidence is built. This was the case with the ALiVE assessment process. Ultimately, the users develop a deep understanding of the process and are then freed to deal with the evidence without doubting its source. This co-creation approach has been argued to deliver better advocacy results (Avermaet & Shohamy, 2022).

In the case of ALIVE, the co-creation approach adopted through the convening power of non-government efforts allowed for multiple partners to plug in to define the life skills, develop the skills structure, draft tasks, subject them to pre-tests, pilot, and assemble them before rolling out the assessment. At each point, the inclusion of different partners, organisations, policy institutions, and individuals helped to clarify questions about the definitions, skills structure, items, and assessment processes. This allowed learning to take place in real time. Ultimately, one may argue that ALiVE served the advocacy purposes of creating awareness around life

skills even while still engaged in generating the target illustrative evidence on the status of life skills among adolescents in East Africa. That the assignment was conducted at the household level meant that all the parents of the over 45,000 adolescents were sensitised on life skills. At each household, a message on nurturing life skills was left through a calendar containing a checklist of six things that a parent/caretaker could undertake to nurture life skills for the adolescents. This reveals the inbuilt advocacy power of HBA generating early positive effects. Since key actors were involved in the assessment process at different stages, one key stakeholder linked to a national assessment agency noted at the launch of the ALiVE report in Uganda in December 2022: "This assessment and its findings are timely. As we are in the process of preparing assessment tools for the first candidates going through the new lower secondary curriculum, we will invite ALiVE team to contribute to this process". This level of acceptability was mainly possible because the official had interacted with the assessment process as a member of ALiVE Advisory Group.

Opportunity Four: Technology is a facilitator of measuring life skills in HBA

Use of Information and Communications Technology (ICT) in research has become more of a necessity than an option in contemporary research due to its advantages in easing administration, record keeping, capture, storage and analysis of data, and in report writing. Similarly, the ALiVE collaborative process benefited immensely from the availability of different technologies before, during, and after the assessment. Because of the many processes involved in executing HBA, the critical role of ICT in research was magnified. Before the assessment, the second stage of sampling (listing of households) was loaded on an Android enabled app – KoboCollect. This allowed for the collection of basic information on the eligible households for listing (households with at least one adolescent and the bio-details of the household head). During the assessment, the same technology was used by the assessors to read out the task and item prompts to the adolescent, and to record response codes. The inbuilt features of the tools allowed for skip logic (increasing data reliability by reducing errors). With data being recorded using technology, it was possible to process the data script, enabling data recheck before data collection was completed. The choice of such applications which allow for storage of data before being uploaded allows for iteration where corrections need to be made, on any smartphone, making them easier and cost-effective to use. As such, the turnaround for data submission is shortened and processing reports can take a shorter time. This demonstrates that HBA facilitated by technology is a feasible pathway to pursue when assessing life skills even in East African contexts.

Opportunity Five: Using HBA to measure life skills may deepen external accountability for school systems

School systems are the universal pathway to the acquisition of knowledge, skills, and attitudes necessary for societies to thrive. Ideally, schooling is available throughout childhood. Some school systems begin admitting and enrolling children as early

as 3 years and children exit secondary schools on the eve of adulthood. Within East Africa, the primary school starting age is 6 years in Kenya, Tanzania, and Uganda. With 12–13 year education systems, learners exiting the school are young adults. In some cases, the time in education varies due to delayed enrolment and grade repetition (a common phenomenon associated with resolving the challenge of delayed acquisition of grade-specific skills and competencies within cohorts).

Recent evidence indicates the prevalence of learning poverty, with more children reaching age 10 years without mastering foundational learning skills such as literacy and numeracy (World Bank, 2021, July). In an assessment of functional systems that realise better outcomes, Fullan and Quinn (2015) argue for external accountability as part of strengthening school systems to deliver quality education for all children.

The ALIVE initiative reveals that life skills can be measured, and can be measured at household level. It is possible to assess the extent to which adolescents have mastered these skills in the contexts where they are expected to demonstrate them. This is timely feedback to the education system; one that is formally charged with the responsibility of nurturing life skills and values. In analysis of who should undertake an evaluation, Tyler (2005) argues that external parties should be the ones to undertake evaluation. The opportunity availed by HBA, such as expanding assessment of life skills and values to a wider population and aiding multi-level advocacy, cannot be overemphasised. Nonetheless, the approach also faces some limitations, including inability to reach all children in the target population as well as cost implications caused by scattered samples, as distinct from centralised assessments where all those targeted are in one location (school). In the next section we describe some of these challenges.

8.3.3 Challenges

In this section, we reflect on the challenges that HBA face in assessing life skills, drawing on the ALIVE experience. The challenges relate to limitations of the approach in reaching all targeted children as well as administrative and cost implications of the approach.

Challenge One: HBA programs face the additional effort of defining their purpose

Whereas the purpose and functions of school-based assessments are well known, there is no generally recognised purpose for HBA. The purpose and functions of an assessment program dictate the nature of the program, the form of the assessment, and how it is reported. Assessment is generally a core business of schools. Hence, when assessment takes place outside the school boundaries, it is often subjected to more scrutiny than school-based assessments. This explains the questions that have been occasionally raised against HBA (Nakabugo, 2021). In one instance, a Ugandan State Minister is quoted as slamming findings of an Uwezo report that had indicated that a significant number of children in upper primary classes lacked Primary 2

literacy and numeracy competences. He described the report as "malicious since the assessment parameters were not systematic and their credibility was questionable" (Kugonza, 2017, in Nakabugo, 2021, p. 53). To counteract such accusations, the assessment procedures must be rigorous and transparent. Uwezo ensures this, and it was also ensured in the context of assessing life skills and values in ALiVE. The processes of how the ALiVE assessment was conducted are well documented from setting the scope, task development, through to when the final tools were finalised and used for data collection.

Challenge Two: Identification of target groups to assess in HBA programs may not be straightforward

While assessment within the formal education sector typically targets students' performance by grades and subject levels, and selection of the students is therefore straightforward, HBA requires intentional and systematic sampling strategies to be implemented in order to meet program goals. Sampling for HBA requires more elaborate processes. In the context of ALiVE, systematic steps were implemented to reach the targets set in the sampling frame.

Clearly sampling for HBA is more elaborate than for those assessments conducted at school level. Hence, HBA may be more resource intensive than school-based assessments, a point elaborated below.

Challenge Three: The processes, logistics planning and cost of HBA can be complex and intensive

All assessment programs, whether school-based or community-based involve a series of pre-assessment, assessment and post-assessment activities, including mobilising people to undertake the different activities, introducing the assessment to different authorities, preparing related materials and tools, carrying out the assessment, monitoring and quality assuring the assessment processes, and receiving the field returns and checking them for completeness. In addition, however, HBA requires intensive engagement due to the different layers of stakeholders involved and the fact that the assessment is conducted door to door, unlike school-based assessments where children to be assessed are all in one place. In the case of ALIVE, multiple players were involved. They included the core team that convened the expertise and the assessment infrastructure, the technical team that contextualised the assessment tool through a co-creation processes, government delivery systems that were involved in the approval processes, and partners who coordinated the assessment, obtained approvals and consent at all levels and undertook the actual assessment. Costs associated with this process are due to the multiplicity of stakeholders and to the fact that a long-term infrastructure, such as exists in ministries of education, is not in place.

Challenge Four: The choice of timing for conducting HBA is delicate

A major challenge to HBA is to reach its target population. Unlike school-based assessment where the target group is already 'captured' and its availability known, this situation does not obtain in HBA. HBA must identify timing when likelihood of reaching the required samples (response rates) is maximised. HBA must be planned

and undertaken when the target groups are likely to be in the household. Therefore, assessments that target school-age individuals should be conducted after school and work hours (mostly evenings, weekends, and during school holidays). Since targeted respondents may well be temporarily out of the households when visits are made, the sampling strategy must include over-sampling estimates. Since likelihood of reaching target groups may vary, it is also necessary to undertake pre-assessment research to identify likely factors that might impact on availability.

ALiVE was conducted during the school holidays. As a regional initiative, ALiVE was alive to the fact that the school calendars across the three countries vary. As such, it was impossible to standardise the timing of the data collection even after the completion of the logistics related to the assessments were completed. Although the sampling design included oversampling to deal with non-response and attrition cases, ALiVE stretched the data collection process allowing for callbacks to households where adolescents were temporarily absent. In cases where listed households were completely unavailable, such households were replaced.

Challenge Five: HBA may not reach all children after all

HBA is presumed to have the power to obtain critical information about learning from all young people, not just those who attend school. Country-wide data on citizens is required, not just data on those who are 'easy to access', for country planning across social, educational and economic sectors. Yet HBA also exclude some populations such as children in foster homes, street children and those living in exclusive institutions such as refugee settlements and barracks (Nakabugo, 2021). Among the out-of-school in the home, there may be children who are living with sensory impairments of hearing and vision whose functional disabilities preclude them from fully participating in the assessments. The cost of adapting the tools and expertise needed to avail the assessments to all children in the household, including those with severe disability, was not possible for ALIVE; children living with sensory disabilities were excluded from the study.

In summary, HBA provide many opportunities to measure complex competencies such as life skills and values. Due to their broad target scope, HBA provide access to those who are not accessible through formal institutions such as schools. Despite the highlighted challenges of HBA, such as the populations they exclude and their resources and cost intensiveness, the network and collaboration of a wide range of stakeholders involved in their co-creation and execution makes them worthwhile. Most important to note is that life skills themselves are nurtured and demonstrated in spaces beyond schools such as households and communities. Explicit acknowledgement of these through the assessment initiative creates awareness of the importance and role of these skills and deepens conversations between citizen assessors and households.

8.4 Conclusion

The application of HBA in measuring education outcomes, especially life skills and values, is a relatively new idea. To date, influence of HBA, when applied to foundational skills of literacy and numeracy, on education policy and practice cannot be underestimated (World Bank, 2018). It has formed the basis for the World Bank framing the learning poverty phenomenon. In East Africa, program interventions have been designed and implemented in response to the body of knowledge generated from the Uwezo HBA. The Education Programme for Results has been implemented in Tanzania since 2014, targeting children attending public schools that constitute the majority of the children missing out on foundational learning competencies. Similarly, in Kenya, Primary Education Development Project, operational since 2016 and funded by the Global Partnership for Education, focused on improving the teaching and learning of mathematics in Primary Grades 1–2 in Kenya (Piper et al., 2017).

The process of applying HBA to life skills in ALiVE has revealed its immense capacity, and can seed consideration of assessment of other characteristics of interest. The approach can be replicated by assembling the right stakeholders to co-create the process. It is also clear that the process is not devoid of challenges. What is clear from the ALiVE process is that these challenges do not outweigh the opportunities that HBA present for accessing information across the population. The documentation of process by ALiVE provides a valuable resource that can inform refinement, uptake and replication in other contexts.

Finally, ALiVE has demonstrated that despite the challenges associated with assessing complex skills, it is possible to overcome them. What emerges is that HBA are agile and flexible to accommodate the measurement of skills considered complex such as life skills. By working with citizen surveyors and applying a collaborative contextualisation of the assessments, the policy intentions can be achieved and advocacy for life skills made possible.

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Chapter 9
Scenario-Based Assessments: Experience from East Africa

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Abstract How to assess twenty-first century skills continues to challenge measurement experts in education. Scenario-based assessment, a strategy used in the Assessment of Lifeskills and Values in East Africa (ALiVE) project, offers some benefits for these performance-based skills. In this chapter, scenario-based assessment is defined and described together with a discussion of assumptions made in developing such assessments. The creation of tools for assessing three life skills and the value of respect is used to illustrate issues encountered in the process. The daily life activities of adolescents in home, school and community environments in East Africa provided the substance for stimulus scenarios to which adolescents responded in this large-scale assessment program of more than 45,000 adolescents. The technical processes undertaken by the test development team are described across stages of idea creation, think aloud, and dry run; culminating in a pilot in Kenya in order to generate data for reviewing scale development before the large-scale assessment. Through this process, lessons were learnt that may inform future use of scenario-based assessments in contexts similar to those in which ALiVE operated.

9.1 Introduction

In Kenya, Tanzania, and Uganda, education is undergoing reform in order to include values and competencies as integral components of learning, going beyond knowledge acquisition and emphasis on literacy and numeracy as the only foundational

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skills (Kenya Institute of Curriculum Development, 2017). The inclusion of competencies and values as part of the learning process broadens and challenges the form and use of assessment as these newly adopted competencies may require different assessment mechanisms. Educational assessment of traditional academic subjects has tended to focus on whether a competency or knowledge area has been achieved or not, with an assumption that there is a finite range which can be labelled as failure at one end, and success at another. A different approach is increasingly being applied to less content-focused learning. In this approach, there is no absolute range of performance, since what is being assessed are naturally occurring competencies. In addition, display of the competencies is typically viewed as context specific, being sensitive to critical features of the environment and the socio-cultural context.

Several factors influence how assessments are designed. These include the purpose, the context, and practical constraints. Assessment tasks should provide individuals with opportunities to demonstrate their competencies in meaningful contexts. Therefore, development of assessment tasks needs to be undertaken in such a way that the tasks target the intended population in a known context, and for a known purpose. Assessment tasks can take many forms, and selection of form is a key decision in this targeting. One form is the scenario, the subject of this chapter. Use of scenario-based assessment (SBA) has been viewed as effective in assessment of values, which are dependent on one's perception of situations and learning experiences (Haynes et al., 2009). In the case of values, these are both complex and formed by an array of social influences. Conventional test items that assume closed responses or closed self-report options may under-represent the complexity of some constructs. One of the features of SBA is that it can allow those assessed the opportunity to express themselves. In literacy assessment, for example, Sabatini et al. (2019) argue that there is need to move beyond the constraints of the traditional passage and question format of reading comprehension tests, and instead use scenarios to allow individuals the opportunities for self-expression. Similarly, for values, a method of assessment that allows adolescents to express themselves in their own words relative to specific scenarios and to consider their local context would be appropriate.

9.1.1 Characteristics of Scenario-Based Assessment

Scenario-based assessment is a method of evaluation in which situations that are hypothetical, but based in real life, are created, and to which individuals are asked to respond. An SBA task and its items typically takes the form of a brief description of a situation, followed by a series of questions or prompts designed to elicit behaviours or perceptions associated with the target construct. SBA therefore provides a method for assessing individuals in a meaningful and purposeful context with tasks that relate to their experiences. The approach is useful for bridging across informal but complex social activities in order to provide information about human behaviour in real world situations (Haynes et al., 2009), in such a way that the formality and rigour required to generate robust and credible data is ensured.

Three characteristics of SBA are of particular interest in the case of assessment of life skills and values at household level, as envisaged by the Assessment of Lifeskills and Values in East Africa (ALiVE) initiative. These characteristics are familiarity, explanatory facility, and capture of complex phenomena. These characteristics are discussed in the context of the SBA design allowing for open-ended responses which are then coded according to criteria set to differentiate between performance levels.

9.1.1.1 Familiarity

The familiarity facility that SBA can offer is two-dimensional. First, the content of the scenarios can draw from daily life of the target respondents. Second, the administration mode of SBA can be less formal such that it allays respondents' assessment anxieties. SBA is apt for assessing competencies and values since these are acquired and developed through daily experiences - whether formally through structured learning processes, or informally as when adolescents interact in the community more broadly. Such experiences present the content used to stimulate responses (Haynes et al., 2009). Sabatini et al. (2019) argue that texts or stories used to assess literacy should reflect matters familiar to the target group. While Sabatini et al. focused on assessment of literacy, the lessons learnt can be extended to the assessment of life skills and values.

The second dimension concerns administration mode. SBA's use of an open-ended response format can reduce the perception that there is only one correct answer to an assessment item. This can encourage respondents to be more discursive in ways that reveal more about their perceptions and capacities. Scenarios can allow individuals to take varied approaches to demonstrating their capacities, making this approach beneficial for those who have difficulty with other assessment formats. The open-ended response mode can simulate a daily conversation in the hands of an experienced test administrator or interviewer.

Life skills and values are attributes that relate to or direct one's behaviour. They are presumed influenced by socialisation processes within the family and community. As such, the assessment of such attributes requires assessment approaches that reflect that socialisation. People generally find scenarios easy to identify and discuss, as they constitute the patterns of their everyday life. The use of scenarios within the mode of less formal discussion is effective because the technique links what might otherwise just be stated, to actual activity or behaviour. This characteristic leads to the potential role of SBA as an explanatory facility.

9.1.1.2 Explanatory Facility

Using real-world problems and social context provides a natural base for assessment of cognitive abilities and motivation to participate in creative activities (Quitadamo & Brown, 2001). Twenty-first century skills, although diverse in nature, typically draw

on the analytical mind, on perspective taking, creative thinking, and flexibility. A well-constructed scenario triggers questions like, "What's the goal of all this?" "What do I need to consider in this situation?" The scenario is ideally presented in such a way that respondents will think and react as naturally as they would in a real-life situation. Such assessments help learners to visualize, conceptualise, and comprehend the situations presented. Accordingly, SBA can support learning.

The use of real-life situations can validate individuals' understanding of those situations and build their confidence in how to handle similar situations in future. One of the major benefits of using a scenario-based approach to learning is the development of the learner's ability to comprehend situations and identify relevant factors (Bell et al., 2004). Learners can immerse themselves in a situation and practice skills, while continuously learning from their mistakes. Driscoll and Carliner (2005) supported SBA due to the perspective that it enriches the process of learning by engaging learners in brainstorming, critical thinking, application and synthesis of real-life social situations. Use of relatable and engaging story-like scenarios resonates with learners. The experiences stick with learners longer, hence enhancing learning. The principles of situated learning theory (Lave & Wenger, 1991) argue that authentic activity, context, and culture are important components of knowledge acquisition. This takes us to the capacity of SBA to make visible the nature of the target construct, by virtue of constructing tasks and designing items that generate open-ended responses that are directly interpretable within the conceptual structure of the target construct. Haynes et al. (2009) in designing assessments for learning experiences, argue that scenario-based evaluation enables structured analysis of the causal forces behind phenomena of interest.

9.1.1.3 Capture of Complex Phenomena

Development of SBA tools assumes several features. First, the scenario will be able to address multiple aspects of the construct being targeted. These multiple aspects are defined by the hypothesised structure of the construct. ALiVE took a 'construct-centred' approach to its assessment design (Pellegrino et al., 2016). Second, the scenario must have qualities that enable different levels of performance to be elicited from the respondent. Third, and most critical, the questions that the scenario poses must be able to elicit participant responses that are clearly associated with the competence or value being assessed. In terms of the administrability of SBA, scenarios must be written in such a way that respondents can reasonably be assumed to possess the requisite listening or reading comprehension in the language necessary to understand them.

Construction of SBA tasks that adopt open-ended responses bypasses the need to develop series of branching pathways of prompts in order to capture the progress of individuals through multiple processes or steps, as is typically the mode of thinking through activities such as problem solving (e.g., Graesser et al., 2018). Instead, the design takes account of the key indicators of the steps, monitoring these, and using responses as indicative behaviours of interim processes.

Education systems have traditionally acknowledged acquisition of knowledge through tests and examinations practices which reward correct answers. The shift to twenty-first century skills which prioritises development of skills as described along learning continua requires assessment approaches that can capture increasing development. Such development is typically indicated by how an individual behaves or can perform, as distinct from what an individual might know. SBA is viewed as a reliable and valid assessment method for such performance-based constructs (Care & Kim, 2018).

9.1.2 Use of Scenario-Based Assessment in ALiVE

Reflecting the contextual philosophy of ALiVE, the project selected SBA as the predominant method for assessment of self-awareness and problem solving as well as the value of respect. The medium provided the opportunity to use local stories, narratives or situations to which adolescents could respond from within the household and community environment.

Each assessment task took the form of a hypothetical situation which was described orally to the respondent. The scenarios were based on real life contexts since the strategy was to use daily situations that would be familiar to respondents and would not assume knowledge based on formal education experience. After description of the scenario, a series of questions were asked about how the respondent might react to the situation described. The scenarios and their associated items (questions to the respondents) were designed to stimulate responses that would be interpretable within the conceptualisation of each of the constructs, and that could be construed to indicate proficiency level.

The construction of the scenarios was therefore based on the hypothesised structures of each life skill and value, identified by dimensions and/or subskills (Scoular & Otieno, 2024; Chap. 6, this volume; Ngina et al., 2024; Chap. 5, this volume; Care & Giacomazzi, 2024; Chap. 4, this volume). Associated assessment frameworks were developed which included performance indicators. These frameworks guided the development of scenarios for each construct. In creating scenario ideas, the adolescents' immediate environments were considered, emanating in use of home, community, and school situations.

Table 9.1 presents an example of a scenario-based task from the ALiVE tool. Given widespread familiarity with the nature of problem solving, this skill is used to illustrate the approach. The adopted structure for problem solving identified eight subskills which fell within three dimensions. The assessment framework operationalised four of these subskills organised within two of the dimensions (Care & Giacomazzi, 2024; Chap. 4, this volume). Decisions about the scope of assessment frameworks were made in recognition of the nature and limitations of the planned mode of assessment and its administration. The pragmatism of this approach is demonstrated in this example, where '*applying the solution'* which is the third dimension of the adopted structure, is not included since it would not

Table 9.1 Illustrative task identifying subskills targeted and associated scoring rubrics

Your parents left the house for work. You send your seven-year old sister to buy salt from the nearby shop. After 5 hours, your younger sister is not yet back. Your sister does not usually take all that time.				
Item	***Sub skill***	***Scoring rubric***		
		Low	***Mid***	***High***
Can you explain how this is a problem? OR can you explain how this is not a problem?)	*Recognizing the problem*	Irrelevant explanation	Relevant explanation(s) within one category: Harm to the sister from accident Harm to the sister from someone else Random event	Relevant explanations across two or more categories: Harm to the sister from accidents Harm to the sister from someone else Random event
If you are asked to solve this problem, what else do you need to know about it?	*Information gathering*	Response(s) not related to the problem	Relevant response(s) in one category: Information to understand the cause Information to understand the consequences	Relevant responses across two categories: Information to understand the cause Information to understand the consequences
Suggest some ways to solve this problem?	*Exploring alternative solutions*	Response(s) not related to solving the problem	Relevant response(s) within one category: Asking others for help/ support Searching for her by self	Relevant responses across two categories: Asking others for help/support Searching for her by self
Of the suggested ways of solving this problem, what is the best and why?	**Selecting the solution*	Irrelevant response/ response not consistent with previous item	Relevant response consistent with previous item, but with no or irrelevant justification	Relevant response consistent with previous item, and with relevant justification

Note. * denotes that this item is not scored for respondents who do not provide a minimum of two solutions in the previous item

have been viable within the timeframe and realities of the assessment event. To the degree that some dimensions and subskills were not measurable in ALiVE, it is essential that reporting of results clarifies the detail of what has and has not been measured. Examination of Table 9.1 shows how the phrasing of each question (item) targets the specific subskill which it is designed to stimulate. The SBA approach is totally dependent on the careful deconstruction of complex skills into their component parts.

9.2 Development of Scenario-Based Tasks

A large technical team was formed to develop the ALiVE assessment tool. The team was composed of members from Kenya, Tanzania, and Uganda, and sub-divided into country-based groups for much of the development work. The full technical team participated in five workshops which focused on different aspects of test development. The aspects included but were not limited to: defining and describing the targeted skills and value; setting the scope and drafting the assessment frameworks; idea generation; and scenario development accompanied by scoring decisions. These tasks were undertaken through iterative processes of review, 'think aloud' and paneling activities, and piloting. Finally, data from the pilot were analysed for final revision of materials.

Those processes particular to task development are highlighted in this section.

9.2.1 Idea Generation

The process of idea generation entailed the consideration of the context of adolescents based on their daily life experiences with reference to family, school and community activities and the probable roles of the youth in different tasks. It was challenging to generate ideas that would 'carry' content and prompts that would stimulate adolescents' demonstration of competencies. The team needed to consider how familiar situations presented the opportunity for targeting the constructs and their subskills, having but recently gone through the process of deconstructing the skills. In addition, ideas were subject to debating cultural differences across the three countries, supported by the results of an earlier contextualization study (Giacomazzi, 2024).

9.2.2 Checking Utility and Developing Rubrics

The '*think aloud*' activity was used to check first drafts of tasks. The goal was to determine whether an assessment task actually captured the intended competencies by analyzing the behaviours and metacognitive reflection of the responding adolescents as they worked through the tasks. The activity was also used as a strategy to collect likely responses which would inform the development of scoring criteria, or rubrics. 'Think aloud' involves individuals articulating their thinking as they complete a task (Eccles & Arsal, 2017). As adolescents went through each of the tasks, they were requested to report on their mental processes orally, explaining their thinking and reasoning. The transcripts of these think aloud activities informed the review process. Checklists were designed to identify whether: scenario tasks were

capturing the targeted competences, dimensions, and subskills; the tasks and items were clear; the tasks were perceived as familiar or reasonable by the adolescent.

Where necessary the tools were translated to local languages used in Kenya, Tanzania, and Uganda. This was to eliminate any language comprehension barriers to actual understanding of the tasks. To harmonize the think aloud data collection across the three countries, each member of the National Technical Team participating in the think aloud activity as an assessor was given standard field instructions which included a script to introduce oneself to the adolescent, clearly state one's name, the organization represented, the purpose of the meeting with the adolescent, and what the adolescent was expected to do. All meetings with adolescents were undertaken by a pair of assessors. After the introductions, the two assessors modelled thinking aloud in order to help the adolescent understand what to do or how to respond to the items. Once the adolescent had fully understood what to do, the assessors read the tasks to the adolescent providing enough time for the adolescent to think through the task. In the event that the adolescent needed help with the item, the assessors repeated the item and/or asked the adolescent to think more. If the adolescent was not able to respond to the item, assessors would prompt to ascertain what kind of help was needed; for example, whether it was a comprehension, familiarity, or difficulty issue. This was recorded on the think aloud record form before moving to the next task. The record form included details on identity of assessors, the location where the activity was taking place, the adolescent's name, sex, education (in school/out of school) and age. The record form had adequate space to allow the assessor to write for each item the adolescent's responses, both initial responses and additional responses after probing. From each of the participating countries, three or four adolescents took part.

A workshop was organized for country teams to present reports of the think aloud activity focusing on issues and solutions related to administration of the think aloud, usability of the tools, and behaviours of the adolescents as they responded to the tasks. In terms of administration issues, each team reported on:

- Instructions to young person: what was the range of needs in terms of modelling what was required, or expanding on instructions?
- Recording information: how adequate was the record form for capturing observations?
- Physical environment for the process: were there any issues associated with the location for the activity that might impact on the young person's performance or behaviour?

The usability issues of interest were whether there was evidence that the adolescent found understanding instructions difficult or anomalous; whether the content of the tasks was perceived as sensitive in terms of culture, gender, religion or custom. The main question for the think aloud activity was whether the task and its items appeared to capture the targeted subskill. The question was answered through two processes: first was aggregating the response data from across the three countries' think aloud activity, using the same protocols to ensure comparability across records and across country, and adding commentary based on observations of the

adolescents; second was analysing the data in order to make decisions about the utility of the tasks and items for targeting the skills and subskills and for capturing different levels of quality, and to initiate the development of scoring criteria.

9.2.3 Paneling

Armed with the information derived from the think aloud process, the technical team proceeded to review tasks to decide which would proceed to the pilot. Paneling is a quality assurance process to check and improve draft assessment items in terms of content and construct validity, and capacity of the items to capture differences in performance. A panel was formed to focus on each construct. The model for allocation of members to panels was to allocate a minimum of two individuals who had worked on a construct to that construct's panel in order to ensure expertise to respond to other panelists' queries; and roughly equal allocations of individuals from other construct areas. The role of the two 'construct representatives' was to respond to queries, to explain and to clarify, not to defend or argue the case. Membership of the panels was: 14 for problem solving, 13 for self-awareness, and 9 for respect. Each panel was guided by a paneling checklist in their review of draft tasks. The panels examined whether the task and item combinations assessed (part of) the construct, what respondents would need to know to respond to the scenarios, the authenticity of the scenarios, the precision and clarity of the phrasing of tasks and items, the amount of time needed to produce an answer, adequacy of the scoring rubrics, and equity for respondents of different backgrounds. A sample of items in the paneling checklist is provided in Table 9.2.

Table 9.2 Sample items on the Panelling checklist

Does the item test the underlying construct that is the focus?
Is the item at the right level in terms of the expected ages of the test-takers?
Is the form, presentation, and language of the item coherent? Unambiguous? Clear?
Is the question expressed as briefly as possible?
Are assumptions of prior knowledge in the item appropriate?
If a constructed response item, is it clear what would constitute an answer to the question? That is, will test-takers know what they are being asked to produce?
Are there dependencies between this item and others, or between parts within the item? Does one item or part give a clue to the next one? Is this intentional?
Does the way the item or task is phrased, provide a clue to a preferred response?
Is there reasonably a possibility that responses can be given over a range of proficiencies?
How will the test-takers perceive this material? (group members should imagine the cognitive or social demands of the items from the point of view of test-takers)
Is the item likely to be biased, that is, is it likely to be easier or more difficult for subgroups for reasons other than differences in the ability being measured?
Does the item breach ethical, cultural or other sensitivities?
How would the material stand up to public scrutiny?

The panels summarised the results of their deliberations and recommendations using a paneling summary form whereby members reported the quality of the task in terms of how effectively it captured the subskills targeted, and whether its items had potential for differentiation across different levels of proficiency. Members were then required to make a preliminary decision on whether a task or its item/s should be edited, discarded or retained.

An important activity which took place at this stage was the determination of the levels of difficulty of the assessment tasks. The utility of tasks and items depends not only on whether they appear authentic and targeting the skills, but on whether they can differentiate between levels of proficiency. The issue of whether the tasks and items could identify levels of proficiency was explored using two sources of information:

1. A priori descriptions of hypothesised indicative responses
2. Analysis of responses from the think alouds to identify different levels.

The activity informed reciprocal goals: identifying if the scenarios could stimulate responses across a range of lower to higher proficiencies; and developing rubrics that could describe these levels of proficiency based on adolescents' responses. Each 'skills team' compared the think aloud data with *a priori* descriptions of the hypothesised responses or behaviours. The teams checked frequency data of responses collected through the think aloud activity against the *a priori* responses ranging from low to high proficiency levels. Where there were no frequencies against a level, this stimulated discussion on whether to improve or drop the task. Another method used involved comparison of think aloud-derived responses with each other. Teams transcribed the individual responses onto sticky-notes and arranged these in ascending or descending order according to members' judgement of increasing or decreasing proficiency. The final step was the development of rubrics that distinguished between proficiency levels. If rubrics that could comprehend the responses for coding could not be established, the task was discarded. This establishment of coding criteria, or rubrics, was a pre-requisite for the next activity, the pilot study.

9.2.4 Pilot and Dry Run Studies

The pilot study was undertaken across Kenya, Tanzania, and Uganda in November 2021. The number of adolescents participating varied from N = 366 for respect, to N = 392 for self-awareness and N = 395 for problem solving. Guidelines for the exercise covered what the assessors were expected to do before, during, and after the assessment with regard to safety precautions, protocols to be followed, and ethical considerations. The pilot generated identification of terminology and language issues; and response data from the adolescents, both qualitative and quantitative. Data analysis involved calculation of descriptive statistics, including frequency distributions, measures of central tendency and dispersion. Item response data were

used to explore scale composition, followed by establishing model fit. The output of these analyses, supplemented by analyses of dry run data, was used to make final decisions on each SBA task to be used in the large-scale assessment. Notably, the pilot collected not only data coded according to the [then] rubrics, but also the verbatim responses of adolescents. This rich data source provided the facility for further review of coding categories where anomalous patterns of data were apparent. In turn, this informed slight changes in scenario wording and rubrics criteria prior to the dry run.

A dry run was undertaken with N = 337 adolescents in Kenya in February 2022 as a test of the whole process, as distinct from the earlier pilot for which the focus was on finalization of tools based on how the test items functioned. The dry run provided field experience to guide the fine-tuning of administration guidelines and some slight re-phrasing of scenarios. The dry run used cell-phone based data capture through KoboCollect, and only coded responses to items were recorded. An analysis team comprised of 13 members from the original technical team as well as academics and statisticians drawn from universities and the government sector engaged in exploration of the dry run data. Again, item response distributions were analysed, scales were reviewed, and associations between the constructs explored. These activities led the team to reach:

- Consensus on the underlying definitions and descriptions of the constructs (problem solving, self-awareness, and respect)
- Agreement on the skills structures of the target competencies.
- Agreement on the coding of the target competences.

That ALiVE decided to adopt SBA as the main assessment approach is not a claim that the method is perfect, either for the target constructs, or for the contexts in which the assessments were to take place. Challenges remain.

9.3 Challenges of SBA Illustrated

As with development and use of any assessment methods, what they offer in terms of benefits does not come easily. Some of the challenges associated with use of SBA are illustrated through ALiVE's experience.

Assessment of twenty-first century skills demands multiple modes or multiple data points in order to capture their complexity effectively. Since many of these skills are demonstrated through behaviour rather than through written or oral responses, observation of behaviour as individuals perform tasks would be recommended, all things being equal. The SBA approach taken by ALiVE opts for immediate judgment by assessors concerning the relevance and skill level of an individual as they perform or provide a response. There is therefore an inherent risk posed by the capacity of assessors to capture and interpret behaviour accurately. According to Pellegrino et al. (2016), an assessment is designed to observe learners' behaviour and draw inferences about what the learner knows or can do. The detailed

development processes undertaken in this study were designed to identify fit-for-purpose coding criteria that would be relatively easy to understand and apply during an assessment event in the field. From the robust scales derived from the large-scale study results (Ariapa et al., 2024), it is clear that such understanding and application was possible in this instance. However, if the SBA offered stimulus for a wider range of proficiencies, coding would arguably present greater challenges. Hence the approach has a clear limitation for application in contexts such as household-based assessment.

Whitlock and Nanavati (2013) argue that acquisition and demonstration of skills in assessment contexts may not strongly relate to the skills that are brought to bear in real-world experience. This is precisely the situation that SBA avoids since, in this current application, it is to familiar situations that adolescents are asked to respond. Of course, a response to a hypothetical, even if authentic, situation is not the same as a true response triggered by events. To this extent, SBA cannot emulate real life. In addition, the need for simplicity of situation to act as a stimulus might under-represent the real demand of such situations and so be incapable of stimulating less visible skills that might be part of a natural response. What is important is that the SBA has the capacity to stimulate different responses across different individuals. This was witnessed in the ALiVE assessments as adolescents interpreted and responded to similar tasks differently. For instance, the first scenario on problem solving focused on fire breaking out and the adolescents were required to respond to the first task asking whether they considered this situation to be a problem. A sample of responses showing different levels of proficiencies is given in Table 9.3.

Putting aside where such differences in response are accounted for by variations in proficiency, the assumption that responses are fully determined by the construct

Table 9.3 Verbatim responses representing different proficiencies

Response	Proficiency level			
	0 No response/ I don't know	1 Irrelevant explanation	2 Relevant explanation(s) within one category (a) damage to property; (b) risk to life	3 Relevant and multiple explanations across both categories (a) damage to property; (b) risk to life
No response	0			
I'm not the one who started the fire		1		
Yes, because the house is on fire			2	
Yes, it destroys property and people may die				3

being targeted, is questionable. One of the significant challenges in assessment of complex social skills is that these are influenced by multiple phenomena, some of which are cognitive, some interpersonal, some intrapersonal, and some contextual. Ascribing a response or reaction to just one source, whether it be a trait or a situational state, is to ignore the complexity of human being and behaviour. This remains a challenge in SBA and for ALiVE. As with other methods of assessment, the claims for construct validity will remain for adjudication by replication.

The development of SBA entails investment of time and effort to develop relevant and engaging scenarios to assess the intended construct, and according to Ryan (2006) may not necessarily provide the intended value. One challenge is designing an administrable assessment that can encompass all the intended elements of the target construct. The SBA development team needed to keep in mind that the goal was to sample adolescent proficiencies for the purpose of establishing regional profiles, rather than to comprehensively describe those proficiencies at individual level. In addition, the household-based assessment context would be such that maintaining adolescent attention beyond 40–50 min would be unsustainable. These realities led to the diminution of the original construct structures to the assessment frameworks – the more easily assessable elements would be targeted in the interest of evaluating these reliably.

It is worth noting that SBA, as a method and as an interaction mode was in general not familiar to the adolescents. Hence, they may have experienced some confusion about what was expected of them, notwithstanding the overwhelmingly positive motivation to be involved in the activity. A general challenge of SBA may have exacerbated that confusion: the ability of individuals to perform tasks within constrained time limits due to task complexity. Building mental models is known to be complex and individuals may take time to navigate the complexities of extracting meaning and integrating background knowledge (Kintsch, 2012). Whether this in fact did impact on adolescent capacity to demonstrate optimal levels of skill is not known.

9.4 Conclusion

The use of SBA in the ALiVE project served a major requirement that the assessment of life skills and a value be contextualised in terms of the constructs themselves, how they play a role in daily life, and where they are demonstrated. These three conditions established a context in which adolescents were presumed to enter the assessment event confidently. The scenarios themselves were key in confirming familiarity of content in the actual tasks. The contextualisation of the skills and value themselves in the early part of the study (Giacomazzi, 2024; Chap. 3, this volume) ensured that interpretation was such that tasks would stimulate the cognitive and social-emotional processes of interest. The place provided the actual physical environment in which the scenarios would typically play out. In addition, the simplicity of the scenarios used for the tasks was such that task descriptions and prompts could be translated and administered in the local languages of the adolescents.

Establishing these conditions does not however guarantee accuracy of results, particularly the proficiency levels estimated on the basis of adolescent responses. A question that remains to be answered is whether the results from the assessment under-estimate adolescents' actual proficiencies. This possibility is raised due to the observation made by some assessors that adolescents were unaccustomed to the assessment mode and unsure of how to respond. The mode was less formal than routinely associated with assessment activity, and less formal than an adolescent might expect with an adult with whom they are unfamiliar. The training of assessors needs to be comprehensive in order to approach and interact with the adolescent appropriate to the goal of the activity, and to master the coding rubrics. If assessors are not properly trained, they are likely introducing measurement error by either under or over reporting the proficiency levels. The practice of pairing of assessors to administer the tasks and code the adolescents' responses minimised the coding errors hence enhancing the reliability and validity of the findings.

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Chapter 10
Measuring Adolescents' Life Skills and Values: Method and Results from East Africa

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Abstract The goals of the ALiVE initiative, to capture and disseminate estimates of adolescents' life skills and values at a level that would provide valuable information to ministries of education, guided the development of an assessment tool. The aim was to produce a tool that had the capacity to assess the proficiencies of adolescents in East Africa through a household-based approach. This approach required that the tool could capture these cognitive, interpersonal, and intrapersonal capacities; not rely on knowledge and skills built through formal education; and would be compatible with oral administration of the assessment with participating adolescents. The process of development is described as taking place within these parameters. Results from the assessment of 45,442 adolescents across Kenya, Tanzania, and Uganda are presented following the technical information generated through the test and scale development process. The patterns of results are uniformly similar across each of the education systems, although there are some slight differences in levels of proficiencies. The outcomes provide confidence in the test and scale development processes followed, and in the use of household-based assessment for measurement of life skills and values.

10.1 Introduction

This chapter provides two main sets of information. First, it describes the development and validation of the tool designed to measure proficiencies demonstrated by adolescents aged 13–17 years in Kenya, Tanzania, and Uganda in the three life skills and one value measured under the Assessment of Life skills and Values in East Africa (ALiVE) initiative. Second, it provides and discusses results from the

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large-scale assessment program that relied on the tool. The information provides the background to the assessment results that is needed to inform policy of the participating countries as they seek to include life skills and values in their national curricula.

ALiVE began in August 2020, starting with a contextualisation study designed to explore the nature of life skills and values in the East African community. With outputs from this study, a process of re-framing these 'constructs' (a term that is used to represent particular constellations or groups of behaviours or characteristics) was undertaken to ensure appropriate interpretation in the East African community. The activity reflected a well-recognised model of creating psycho-social measurements (Wilson, 2005) in which the process requires clarification of the construct, development of tasks and items, collection and scoring of responses, and production of measures. From the contextualisation study, the conceptual structures of the target constructs were agreed upon, followed by development of assessment frameworks which identified the measurable components of those constructs. Guided by the assessment frameworks, the ALiVE team moved into task and item development in March 2021, which was finalised by August 2022. The large-scale assessments across the three countries were administered to over 45,000 adolescents late in 2022.

Development of tasks and items to measure the constructs was undertaken mindful of the intended mode of data collection and of the intended use of results. Of particular note was that results were to be used to provide broad descriptors of adolescent proficiencies at aggregate levels. There was no assumption that results could or would be used to describe the proficiencies at individual level or for diagnostic purposes. Accordingly, the test and scale development process was focussed on identification of key indicators of the constructs and their subskills rather than a comprehensive and deep evaluation of demonstration of competencies. The goal guiding the process was to enable reporting of competencies in a way that would provide ministries of education with sufficient information upon which to consider best integration of these into mainstream curricula. As documented in Care (2024; Chap. 1, this volume) all three participating countries and their four education systems have either recently incorporated these competencies into their curricula or are in the process of doing so. Several are in the process of delineating how, and at what levels, integration should be managed. The information generated by the ALiVE program therefore provides empirical evidence of current levels of functioning in the 13–17 year old age group that can be factored into decision-making by the national education systems. The constructs for which a tool was created are collaboration, problem solving, respect, and self-awareness.

10.2 Method

10.2.1 Design

The design of the tool was influenced by several factors. The first of these was the use to which the assessments would be put; the second was the intended mode of data collection; the third was principles of test and scale development.

- ALiVE was designed to capture a glimpse of functioning across life skills and values, as aspired to by ministries of education in the respective educational jurisdictions (Kenya, Tanzania mainland, Uganda, and Zanzibar). The assessments were not designed for diagnosis of individual functioning but rather to establish a basis upon which countries might evaluate their educational goals given their embrace of life skills and values in recent years, and to inform their curricular planning.
- ALiVE was interested in a representative sample of the participating countries' adolescents who might be in or out of school or employment, since the targeted competencies have been highlighted by employers and in the technical-vocational sector as well as by ministries of education. This interest, therefore, required household-based assessment. This medium for assessment, in turn, requires manageable interactions in the field distinct from interactions that can be managed at the group level in a formal education environment. Manageability in the field implies assessment forms that can be communicated orally, in time-efficient ways, and through content such as daily life scenarios that are not reliant on school-based learning.
- ALiVE committed considerable effort to definition and description of the target constructs. This was undertaken both due to observance of a well-established test and scale development model (Wu et al., 2016), and to the combination of two relatively recent innovations. First, the assessment of twenty-first century competencies remains in its early days (Griffin et al., 2012; Care et al., 2018), and second, household based assessment at large scale has emerged in the past decade as an acceptable and sufficiently stringent approach to collection of data that prompts government action (e.g. Uwezo, 2021) or contributes to monitoring of the Sustainable Development Goals (UNESCO UIS, 2022). The household mode has been used predominantly for measurement of numeracy and literacy rather than competencies associated with socio-emotional functioning. Ensuring common understanding of the target competencies is therefore not only essential in the routine test and scale development processes, but in ensuring same understandings when hundreds of Test Administrators and other personnel are involved in data collection.

10.2.2 Sample

The sampling frame used for this study was derived from the Population and Housing Census frames for Kenya, Tanzania (mainland and Zanzibar), and Uganda. This frame included a complete listing of census enumeration areas and households. In each country, a multi-stage sampling approach was used to select households and adolescents for the assessment. The approach involved selection of districts/counties; followed by the selection of enumeration areas; that is, the smallest areas of clustering the population within a country; and then selection of households within each selected enumeration area. The desired sample sizes were determined by considering: the degree of precision desired for the study estimates, the cost and operational limitations, the efficiency of the design, and a fixed number of households per enumeration area. A total of 45,442 in-school and out-of-school adolescent boys and girls aged 13–17 years from 35,720 households, 1991 enumeration areas, and 85 districts/counties were assessed as shown in Table 10.1.

Of the enumeration areas, reached were just 18 less than the planned allocations. Approximately 10% less households were reached than planned (35,720 of 40,000). Discrepancies in both cases were distributed across each of the jurisdictions. Sampling weights calculated based on sampling probabilities for each sampling stage were used in the analyses to ensure that the results accurately reflect the characteristics of the population being studied. Adjustments for non-response were also made by including in the sampling weights the household response rate adjustment factor. The sampling weights were then used to adjust analysis of the sample data to account for any differences between the sample and the population.

10.2.3 Ethical Considerations

The research protocols were reviewed and approved by the relevant research regulatory authorities in the four jurisdictions. Practical strategies adopted to safeguard participants' rights and safety included obtaining informed consent from all participants and, as far as possible, ensuring voluntary participation. Both parent or guardian consent and adolescents' consent were sought before the start of the assessment. Individuals' identity was safeguarded through codes in storing and sharing data.

Table 10.1 Sampling across districts, enumeration areas, , and adolescents

Variables	Kenya	Tanzania Mainland	Uganda	Zanzibar	Total
Districts/counties	20	34	20	11	85
Enumeration areas	798	673	400	120	1991
Households	14,161	11,802	7815	1942	35,720
Adolescents (problem solving, self-awareness and respect)	17,276	14,645	11,074	2447	45,442
Adolescents (collaboration)	7494	6827	4476	1319	20,116

The activities were undertaken in recognition of three risk factors that highlighted the project as requiring of human research ethics attention. These included: the age of the young people was such that they were regarded as a vulnerable group; the area of enquiry included self-awareness and respect, two social functioning aspects of life that can be seen as sensitive; the scenario form of assessment was contextualised within issues that could occur in daily life, which could reasonably be seen as sensitive topics for some.

Two approaches to risk minimisation were taken. First, the development of the tool included multiple iterations of review of content in order to ensure that this would not confront the participants with issues relating to sensitivities associated with culture, gender, ethnicity, language, or religion. Second, the training of Test Administrators included sensitivity awareness to such issues and provided clear guidelines for how to approach and interact with the participating adolescents and their parents.

10.2.4 Data Collection

The ALiVE assessment events were conducted by 3080 Test Administrators (TA) across the four jurisdictions—with two of these allocated for each adolescent interviewed. These assessors participated in three-day training workshops which introduced them to the purpose of the assessment, the nature of the targeted constructs, the assessment tool and scoring rubrics, and ethical issues and principles. They also participated in a field practice exercise to familiarise themselves with the assessment protocol.

The data collection tools drew on two formats:

- Scenario-based tasks were used to assess problem solving, self-awareness, and respect. The scenarios were based on elements of daily life with which adolescents could be expected to be familiar. Each scenario, of 1–4 sentences, was read aloud to the adolescent, followed by a series of questions. Either English or the local language was used. Adolescents responded orally, again in English or the local language, as preferred, with TA noting down the responses and coding these based on scoring rubrics. TA were paired so notations and coding could occur in real-time and be reviewed at the day's end for verification before submission. The number of tasks and associated items are summarised in Table 10.2.
- Performance-based tasks were used to assess collaboration. The tasks were administered to groups of four adolescents in both single-sex and mixed-sex groups. Adolescents who had already completed the individual scenario-based tasks of problem solving, respect and self-awareness, formed these groups. The tasks were read aloud to the group in the language preferred by adolescents. The first two tasks required the group to work with physical materials available within the immediate environment or provided to the groups. TA were again paired such

Table 10.2 Numbers of tasks and items in the ALiVE tool set

Constructs		# items
Problem solving: 3 task scenarios		12
Dimensions and *Subskills*	Defining the problem	6
	Recognising the problem	3
	Information gathering	3
	Finding the solution	6
	Exploring alternative solutions	3
	Selecting the solution	3
Self-awareness: 5 task scenarios		12
Dimensions	Internal self-awareness	6
	External self-awareness	6
Respect: 4 task scenarios		10
Dimensions	Regard for others	10
Collaboration: 3 performance tasks		8
Dimensions	Communication	3
	Negotiation	3
	Working together	2

that the notations and coding could occur in real time, and be reviewed at the day's end for verification before submission. The number of tasks and associated items are summarised in Table 10.2.

- A household survey tool was used to collect household and adolescent background data. Information gathered included: household head (gender, education), number of members in the household, types of walls of the main house, main source of lighting, the main source of water, number of meals regularly eaten, number of assets owned, media preference and use, and adolescents' characteristics such as gender, education level, age, and functioning (hearing, seeing, walking, remembering and self-care). The household tool was responded to by the head of the household.

Recording of responses from all tools was enabled through the TA use of KoboToolbox on mobile devices (tablets or phones) (Kobo Organization, n.d.). Case records were uploaded at the end of each day of testing to the main data repository.

Table 10.2 makes explicit both the target life skills and one value and their contributing dimensions or subskills. Note that the dimensions and subskills do not fully represent the overall constructs in every case. Additional information about the conceptual structure and assessment framework for each construct is found in each of the three chapters dedicated to these (Scoular & Otieno, 2024; Chap. 6, this volume; Ngina et al., 2024; Chap. 5, this volume; Care & Giacomazzi, 2024; Chap. 4, this volume). As made explicit by these sources, the assessment frameworks which led the design of the tasks and items were guided by the conceptual models but determined by the pragmatics of the planned assessment approach. Responding to the household-based environment, the conditions for data capture were such that the more easily

identifiable indicators of the various constructs were prioritised for measurement. Tasks and items were developed to encompass the dimensions and subskills identified in Table 10.2. This chapter reports on the main construct for collaboration, problem solving, and respect, and across the two dimensions for self-awareness.

10.2.5 Structure of the Tools

10.2.5.1 Collaboration

The assessment constitutes three tasks, with a subset of 8 items. Two tasks follow the same pattern, targeting a step approach to collaboration. The items assess the adolescent's *communication*—which is about listening (receptive) and speaking (expressing); *negotiation*—which is needed for one to reflect on other people's views vis á vis their own, including accepting feedback and reaching a consensus; and *working together*—to plan and engage in activities. The last task includes only the communication and negotiation phases. The final tool provides 8 data points. Additional information on the construct can be found in Scoular and Otieno (2024; Chap. 6, this volume).

10.2.5.2 Problem Solving

The assessment constitutes three contextualised task scenarios, each containing four items. A task scenario comprises a brief description of a situation with four items, each of which targets a different aspect of an adolescent's problem-solving proficiency. All three task scenarios follow the same pattern, with each of the four items targeting a step or process approach to problem solving. The first two items of a task scenario assess the adolescent's *recognition of the problem*, followed by gathering *relevant information*. The second two items assess the adolescent's *exploration of alternative solutions* and *selection of the best solution*. The final tool therefore provides 12 data points. Additional information on the construct can be found in Care and Giacomazzi (2024; Chap. 4, this volume).

10.2.5.3 Respect

The assessment constitutes four task scenarios with a subset of 10 items. All four task scenarios follow a similar pattern, from awareness of lack of kindness to recognition of actions betokening lack of respect. The items assess the adolescent's regard for others and regard for property: awareness of infringing on others' rights, recognition of one's wrongdoing, respect for the rights of others, and willingness to make amends for wrongdoing. The final tool provides 10 data points. Additional information on the construct can be found in Ngina et al. (2024; Chap. 5, this volume).

10.2.5.4 Self-Awareness

The assessment constitutes five task scenarios with a subset of 12 items. Unlike the case of the problem-solving tasks and items, the items across these five tasks follow slightly different patterns. The items assess the adolescent's self-awareness through two subskills: *self-management*—managing emotions and stress; and *perspective taking*—understanding views and actions of others, adjusting to others' views and actions, and recognising one's identity and where one fits in family, society, and community. The final tool provides 12 data points. Additional information on the construct can be found in Ngina et al. (2024; Chap. 5, this volume).

10.2.6 Data Analysis

Initially, classical test theory was used to explore the functioning of tools across its items. Specifically reviewed were: the distribution of responses across items; the patterns of responses for each item by country, gender, age, and education levels of the adolescents. Reliability coefficients were then calculated to establish the scales' coherence.

The Rasch model was used to explore and quantify the participants' responses.[1] Using the Rasch model provided tools for interpreting skills that underpin constructing and developing empirical proficiency levels. Proficiency levels describing increasing competency levels were developed for the over-arching constructs. Following these test and scale development processes, further

[1] The Rasch model was used to calibrate the participants' response data. A Rasch analysis places the participants' ability and item difficulty on a common metric. The Rasch model provides a method for scaling persons and items on the same metric, called a logit scale, which allows for direct comparisons between item/task difficulty and students' ability. The model requirements are that item parameters are independent of the students/participant being measured. Similarly, estimates of participant abilities are independent of a set of items used to measure underlying ability/trait. In order to use the model, it is necessary to test for the fit, which indicates how well the data meet the model requirement. Fit statistics are used to investigate how each data point (both at the item and person level) conforms to the expectations of the model. Misfitting items or persons can distort measurement and may suggest that some items do not align with the construct being measured or that some persons did not engage with the items as expected. Examination of item fit and spread provided evidence for construct and criterion validity.

Differential item functioning (DIF) was conducted to establish the scope of use and the generalisability of results across and within countries. DIF is a statistical method used to detect differences in item performance for individuals with the same underlying ability but belonging to different subgroups. In the context of the psychometric analysis, the presence of DIF can indicate the presence of bias and impact. Bias refers to a systematic error that unfairly advantages or disadvantages certain groups of test-takers. If an item is biased, it may be easier or harder for certain groups of assessed students, not because of differences in the test takers ability but because of other unrelated factors. On the other hand, an item may show DIF due to differences in educational opportunities or cultural experiences, which are not biased but rather real differences in ability distribution on the measured trait. That is, bias can lead to DIF, but not all DIF is due to bias.

analyses were performed to explore the four constructs across jurisdictions and by selected variables—gender, education level, adolescent age, and disability status.

Finally, based on the Rasch model analysis outputs, patterns were recognised regarding increasing proficiency levels across the four main scales and the subscales for problem solving, self-awareness and collaboration. The results demonstrated the utility of the rubrics used for coding responses.

10.3 Results

10.3.1 Demographic Characteristics of Adolescents

Younger and older adolescents were almost equally distributed across the two main age ranges (13–14 years and 15–17 years) (Table 10.3). Approximately 13% of the adolescents assessed were out of school—not currently studying. For adolescents not currently in school, the achieved highest level of education was recorded as primary or secondary for analysis. Across the full sample, about 30% of adolescents assessed reached secondary education level, and 65% reached primary education level. Note that there are some variations across the four jurisdictions in allocation of Grades 7 and 8 to primary versus secondary education.

Disability status of the adolescents was determined using the Washington Group Short Set of Questions. Parents were asked whether their children had any difficulty in vision, hearing, walking, memory, self-care and language/communication and how severe such difficulty was. Overall, parents reported about 12% of the adolescents had some form of difficulty.

Table 10.3 Gender, age distribution and education status of adolescents

	Male n(%)	Female n(%)	Other n(%)	Total n(%)
Gender	22,092(48.6)	23,264(51.2)	86(0.2)	45,442(100.0)
Age group				
13–14 years	10,699(48.4)	11,860(51.0)	46(53.5)	22,605(49.7)
15–17 years	11,393(51.6)	11,404(49.0)	40(46.5)	22,837(50.3)
Schooling status				
In school	18,842(85.3)	20,555(88.4)	73(84.9)	39,470(86.9)
Out of school	3250(14.7)	2709(11.6)	13(15.1)	5972(13.1)
Education level				
Primary	14,956(67.7)	14,602(62.8)	53(61.6)	29,611(65.2)
Secondary	6015(27.2)	7586(32.6)	28(32.6)	13,629(30.0)
Disability status				
No form of disability	19,542(88.5)	20,407(87.7)	75(87.2)	40,024(88.1)
At least 1 form of disability	2550(11.5)	2857(12.3)	11(12.8)	5418(11.9)

10.3.2 Psychometric Properties

10.3.2.1 Reliability Analysis of the Tools

Table 10.4 presents alpha coefficients as a measure of internal consistency in the scales for the over-arching constructs and relevant dimensions for collaboration, problem solving, respect, and self-awareness.

For all scales, the alpha reliability coefficients indicate high homogeneity of content. The average inter-item correlation coefficients for the over-arching constructs ranged from 0.300 (for self-awareness) to 0.448 (for problem solving), suggesting that the target items are reasonably homogeneous, and contribute unique variance to their over-arching constructs.

10.3.2.2 Item Fit Statistics[2]

All items across the four constructs demonstrated 'good' fit statistics. That is to say, the weighted mean-square values were all between 0.7 and 1.3 (Wu et al., 2016). See Appendix 1 (a, b, c, d) for the mean squared residual based item fit statistics, weighted and unweighted.

10.3.2.3 Differential Item Functioning

Use of assessment tools across countries or cultures raises issues of validity of comparisons between groups. Such issues may reside in matters of language, societal norms, religion, ethnicity, as well as age and gender. Test developers make efforts to

Table 10.4 Summary of reliability coefficients

Target dimensions and constructs	# items	Alpha
Overall: Collaboration	8	.887
Overall: Problem solving	12	.907
Problem solving: Defining the problem	6	.823
Problem solving: Finding the solution	6	.871
Overall: Respect scale	10	.828
Overall: Self-awareness	12	.837
Self-awareness: Self-management	6	.754
Self-awareness: Perspective taking	6	.738

[2]The Rasch model requires that item parameters remain fixed irrespective of the persons being measured; and vice versa, person parameters remain the same irrespective of items being used to measure. This property of the Rasch model allows for development of common metrics and criterion-referenced interpretation of individual performance. Fit of data to a model is required to justify use of Rasch analysis to develop performance measures and to compare individuals' performance across different subgroups in a population.

design assessments in ways that will avoid differential bias among groups. Notwithstanding, it is also necessary to check whether such bias may have occurred after the fact. The results and information from Differential Item Functioning (DIF) analysis provide a rich source of information for exploring the possibility of bias of measurements across groups.

Since the ALiVE tool was used across three countries and four education jurisdictions, each of which varies in both explicit and subtle ways, it was important to check for DIF. Analyses were conducted across the four jurisdictions to provide insights into whether items functioned differently or similarly across the educational jurisdictions. Detection of DIF was undertaken through visual inspection of the results from scatterplots using item thresholds derived from the Rasch model. For each of the three over-arching constructs (collaboration, problem solving, respect) and the two dimensions of self-awareness (*self-management* and *perspective taking*), item thresholds for each of the study jurisdictions were placed on the Y-axis and the regional item thresholds—all four jurisdictions together—were placed on the X-axis. In addition, scatterplots for each of the study jurisdictions against each other were analysed. Figure 10.1 provides an example that shows least differences obtained for a jurisdiction against the region, while Fig. 10.2 provides two examples that illustrate greatest differences found of all comparisons, and this time between two jurisdictions.

The comparison of thresholds in the Fig. 10.2 scatterplots illustrates how slight the differences are, even in these cases which are the most extreme. Two scatterplots are provided, both for the *self-management* dimension of self-awareness, and with each comparing one of the Tanzania jurisdictions with Kenya. Looking at both scatterplots is instrumental in demonstrating the resilience of the patterning of the items, notwithstanding their elevation varying.

As shown, there is negligible differential item functioning in the four constructs across the four jurisdictions. In exploring the slight differences that do occur, it is

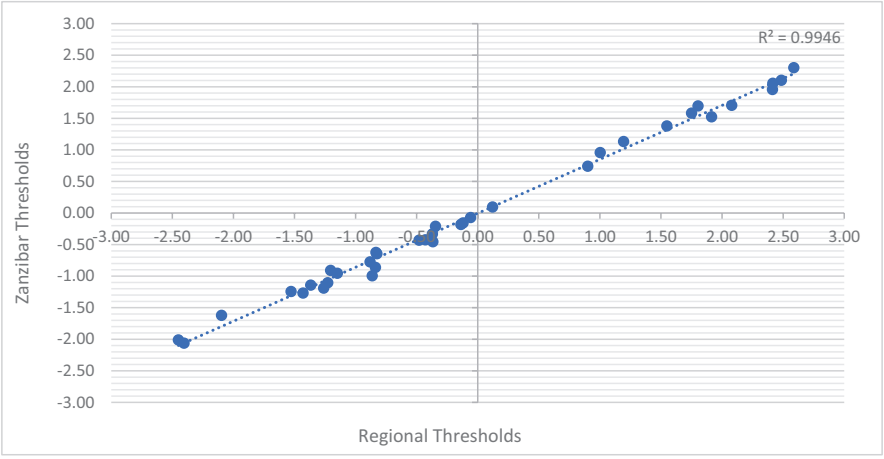

Fig. 10.1 Scatterplot of problem solving item thresholds: Zanzibar against region

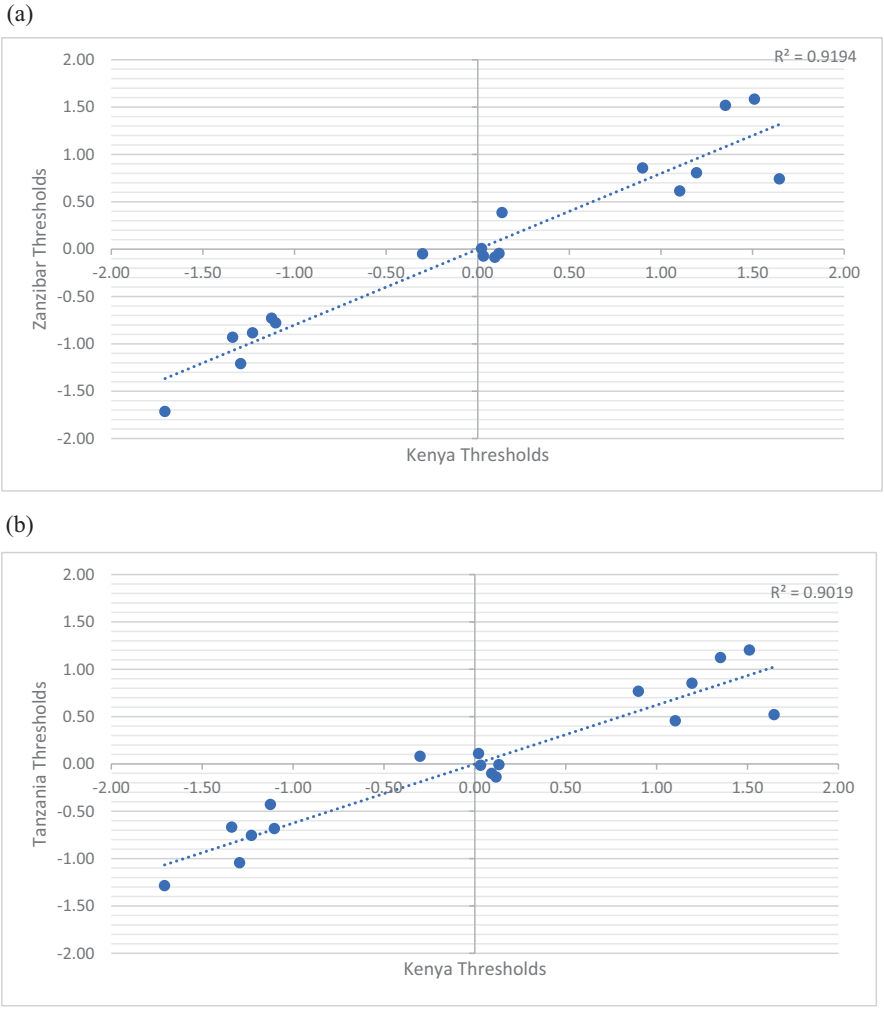

Fig. 10.2 (**a**) Scatterplot of self-management item thresholds: Zanzibar against Kenya. (**b**) Scatterplot of self-management item thresholds: Tanzania mainland against Kenya

clear that they are due primarily to group difference in performance rather than bias. Overall, items for all constructs pattern very similarly across the four jurisdictions. Where differences occur, these are in terms of levels of proficiency rather than patterning differences which might imply bias.

10.3.2.4 Item Spread

'Person-ability maps' based on the Rasch model provide a view of how well items cover a range of proficiencies via their physical separation on a graph. Such a map, or graph, shows whether items are separated enough to differentiate between the

performance of different respondents. The person-ability map allows for the placement of items and persons on the same scale. Naturally, the higher a person's ability, the greater the probability of appropriately answering an item or demonstrating a higher level of proficiency.

The patterns demonstrated by the person-ability maps validate the approach to item design, allowing for identifiable differences in responses and informing their coding. The clear separation of response codes across the items for all the constructs demonstrates that the coding rubrics indeed captured similar degrees of discrimination across proficiencies for most items. An ideal test would be characterised by items distributed right across the possible range of person abilities. Such an instance would allow for optimal differentiation of one person's abilities from another. In these cases, there is sufficient delineation between each coding level to justify the attribution of descriptive scoring statements for the various categories of proficiencies. The task and item design for all constructs was such that three or four levels of response were provided for through scoring rubrics. That the categories of responses in the main adhere to these levels is indicative of the robustness of the design and of the rubrics. The maps indicate how the response categories tend to pattern, and support the creation of the descriptive statements that are strongly aligned with the original scoring rubrics. Hence, both the content of the rubrics and how the resulting category responses are located in the graph space provide confidence in setting cut-offs which are then used to identify ranges of performance within achievement levels with corresponding descriptive statements.

The person-ability maps for the four constructs (see Figs. 10.3, 10.4, 10.5, and 10.6) represent the coded responses of adolescents through low to higher performance levels. The horizontal blue lines on each map identify the approximate location of the cut-offs. Each map provides an illustration of the capabilities of the adolescents in the context of the demands of the tasks. The distribution of adolescents is on the left-hand side of the graph, and on the right are the item numbers and coding according to the partial credit model. Each item and its label appear at a position horizontally parallel to those adolescents who have a 50% chance of demonstrating that particular item's performance. These adolescents have increasing probabilities of being able to demonstrate the proficiencies represented by item by category responses, the lower these appear on the graph.

Along the right-hand side of each graph is the 'logit' scale, showing the numeric equivalents of the graphed locations. Each item identified along the bottom of the graph is represented at the different levels of quality at which adolescents respond to that item (shown as Cat1, Cat2, Cat3). For example, in Fig. 10.3, the lowest level response to item CT11, Cat1 (at a logit of about −1.8), represents the lowest level of quality response for the item, while Cat3 (at a logit of about 2.3) represents the highest quality response. The graph also illustrates how different items vary in difficulty. For example, item CT13 at the far right of the graph is the 'easiest' item for adolescents to demonstrate overall. Information about the coding rubrics for the constructs can be found in this volume (Scoular & Otieno, 2024; Chap. 6, this volume; Ngina et al., 2024; Chap. 5, this volume; and Care & Giacomazzi, 2024; Chap. 4, this volume).

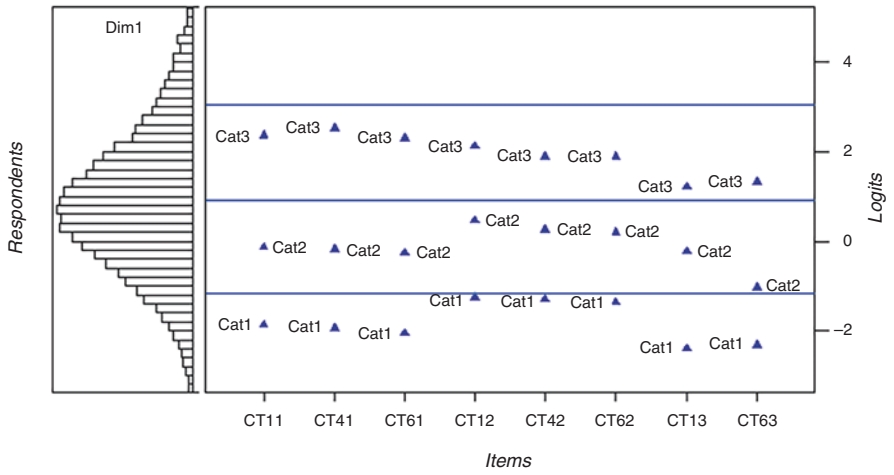

Fig. 10.3 Person-ability map for collaboration

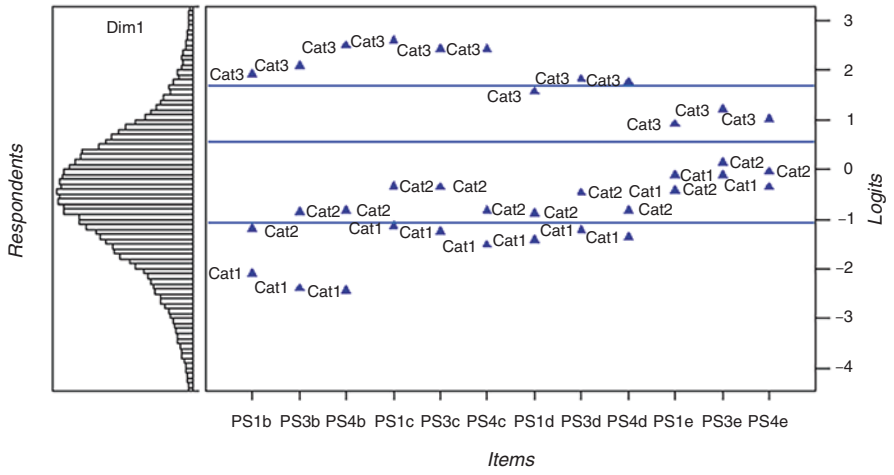

Fig. 10.4 Person-ability map for problem solving

The figures provide additional information about how items contribute to subskills, and how these subskills are variably easier or more difficult for adolescents to demonstrate. For example, CT13 and CT63 are items that target *working together* in collaboration. Together these are the activities that more adolescents find easy to engage in, as distinct from *communication* (CT 11, 41, 61) and *negotiation* CT 12, 42, 62) which cover a broader and more complex range of performance.

Figure 10.4 reveals a less even distribution of proficiencies within each item for problem solving. Items contributing to the dimension of *defining the problem* (PS1b, 3b, 4b, 1c, 3c, 4c) cover a wide range of proficiencies due to the highest level of

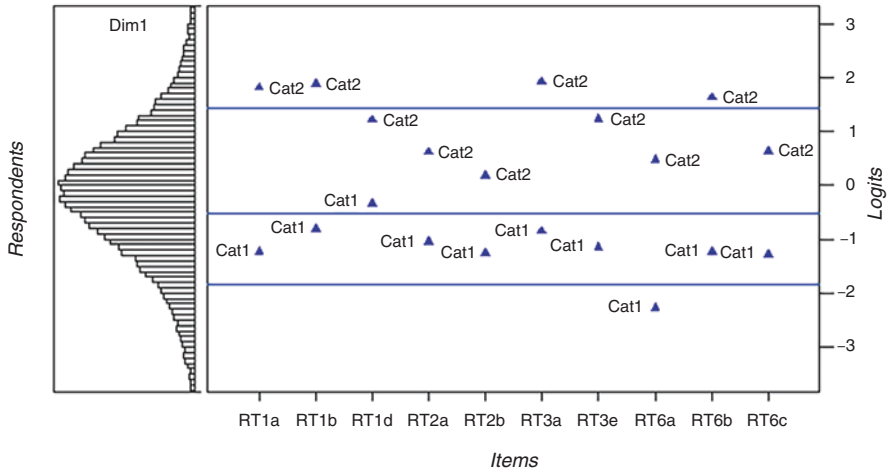

Fig. 10.5 Person-ability map for respect

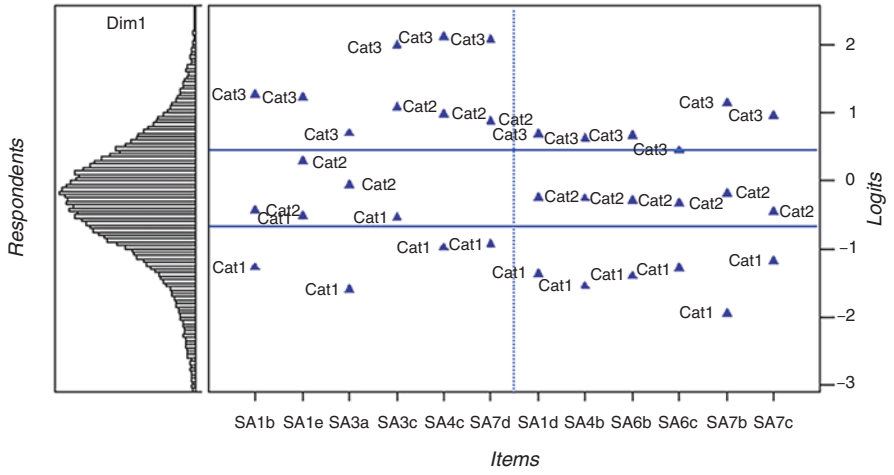

Fig. 10.6 Person-ability map for self-awareness (including both self-management and self-awareness)

responses presenting considerable difficulty for respondents. Ideally the task and item design could include additional features which would allow for more nuanced responses between the highest and middle categories. The remaining items which contribute to *exploring the solution* cover a relatively narrow range of proficiencies. Again, the task and item design needs some improvement in order to capture more differentiated abilities for this dimension.

Figure 10.5 illustrates the perspectives associated with respect expressed by the adolescents. It should be kept in mind that the measurement of respect was limited

to *respect for self and others*, and did not include respect for property and the environment (see Ngina et al., 2024; Chap. 5, this volume). Similarly, the mode of assessment did not allow for identification of the subskills, that would separate *respect for self* and *respect for others*.

Figure 10.6 shows location of items across the range of responses to the self-awareness tasks and items. The graphic divides items that contribute to the two dimensions for ease of reference. The pattern of items hypothesised to assess adolescent's self-awareness indicates how these two dimensions—*self-management* and *perspective taking*—draw on adolescents' capacities differently, notwithstanding their strength of association (r = 0.668). Although the two scales demonstrate high reliability, contributing robustly to the over-arching skill, *perspective taking* (SA1b, SA1e, SA3a, SA3c, SA4c, and SA7d) appears slightly more difficult to demonstrate than *self-management* (SA1d, SA4b, SA6b, SA6c, SA7b, and SA7c). Therefore, reporting results for each scale separately provides useful information to inform teaching and learning in the education context.

10.3.2.5 Summary of Approach

The Rasch model was used to calibrate the participants' response data and establish the ability and item difficulties on a common scale. This approach ensured that item parameters were independent of the participants being measured and estimates of participant abilities were independent of the items used to measure the underlying ability/trait. The fit statistics were used to investigate how well the data met the model requirements, and misfitting items or persons were identified and addressed to ensure the validity of the results. Differential item functioning was used to detect differences in item performance for individuals with the same underlying ability but belonging to different subgroups, such as gender, education level, and adolescent age. The presence of DIF was explored to establish the scope of use and the generalisability of the results across and within countries and to distinguish between bias and real differences in ability distribution. The Rasch model analysis outputs provided tools for interpreting skills that underpinned constructing and developing empirical proficiency levels, which described increasing competency levels for the over-arching constructs.

10.3.3 Proficiencies Distributions across Jurisdictions

ALiVE reports adolescents' demonstration of their life skills and values through brief statements. These statements make explicit how the adolescents actually respond—as opposed to reporting scores, for example. Varying across the four constructs, there are

three or four statements which describe increasing levels of development or proficiency. These descriptions are based on analysis of the items that fall within the various cut-offs shown in Figs. 10.3, 10.4, 10.5, and 10.6. All items were designed such that adolescents could respond to these at varying level of proficiency or quality which were captured through the scoring rubrics. Reviewing the behaviours targeted by those rubrics against placement of the items in the person-item maps acts as a confirmation of the increasing levels of quality. Adolescents performing within each of the descriptive levels are shown in Tables 10.5, 10.6, 10.7, 10.8, 10.9, and 10.10.

In this section the distributions of adolescent proficiencies for each construct are shown in the context of jurisdictional differences. As pointed out in the presentation of the DIF results, there are no differences across Kenya, Tanzania (mainland and Zanzibar), and Uganda in terms of how items contribute to the scales—this is uniformly consistent. Some differences in distributions of the proficiencies are highlighted.

10.3.3.1 Collaboration

Four levels of performance describe what adolescents were able to demonstrate during the collaboration tasks (Table 10.5). Overall, most adolescents were attentive to the discussions; they queried the views of others and engaged actively in the performance tasks. Relatively few either did not engage visibly (9.5%) or prompted others to engage (10.0%).

Table 10.5 Collaboration: descriptive statements and adolescents' proficiencies

Collaboration proficiency levels	Kenya	Tanzania Mainland	Uganda	Zanzibar	Regional
	% of N = 20,116 adolescents				
Level 1: does not engage either by being attentive to discussion, speaking, or through action	7.3	13.1	9.4	10.3	9.5
Level 2: is attentive to the discussion and may query the views of others, but does not contribute in word or action	44.7	42.2	50.2	44.7	44.8
Level 3: collaborates through speaking and being attentive in discussions, and engaging actively in performance tasks	37.7	33.3	34.2	32.9	35.7
Level 4: collaborates through taking positions and contributing ideas, prompting others, and being attentive to others' inputs	10.4	11.4	6.1	12.1	10.0

Table 10.6 Problem solving: descriptive statements and distributions of proficiencies

Problem solving proficiency levels	Kenya	Tanzania Mainland	Uganda	Zanzibar	Regional
	% of N = 45,442 adolescents				
Level 1: struggle to recognise a problem or its nature and therefore unable to identify possible solutions	29.1	38.3	33.1	22.6	32.9
Level 2: able to recognise existence of a problem from one perspective, and act on that to identify a possible solution	51.1	43.0	52.7	43.6	49.1
Level 3: able to recognise existence of a problem from one perspective, able to identify a main approach to solving the problem, and can justify it	15.0	11.1	11.5	19.7	12.9
Level 4: able to recognise existence of a problem from multiple perspectives, understanding that there may be multiple solutions to evaluate and select from	4.8	7.6	2.7	14.0	5.1

Table 10.7 Respect: descriptive statements and distributions of proficiencies

Respect levels of expression	Kenya	Tanzania Mainland	Uganda	Zanzibar	Regional
	% of N = 45,442 adolescents				
Level 1: unable to respond in a relevant way	6.7	10.1	5.4	4.0	7.4
Level 2: aware of infringement of rights, or of bad behaviour by one person toward another but does not 'call it out'	35.6	30.6	37.1	22.6	34.4
Level 3: able to interpret bad behaviour as lack of respect for others or self, and may take conciliatory steps to resolve situations	51.6	46.9	51.7	51.1	50.2
Level 4: aware of links between respect for property and respect for person, and will act in a respectful way toward others and in defence of others and self	6.1	12.5	5.8	22.3	8.0

Table 10.8 Self-management: descriptive statements and distributions of proficiencies

Self-management proficiency levels	Kenya	Tanzania Mainland	Uganda	Zanzibar	Regional
	% of N = 45,442 adolescents				
Level 1: unable to regulate negative emotions or responses	25.7	27.4	26.1	19.0	26.3
Level 2: able to control self in a negative or stressful situation through repression of emotion or avoidance	55.7	40.9	53.8	45.0	50.7
Level 3: sufficiently self-aware and confident to respond adaptively even when directly confronted or attacked	18.7	31.8	20.1	36.1	23.1

Table 10.9 Perspective taking: descriptive statements and distributions of proficiencies

Perspective taking proficiency levels	Kenya	Tanzania Mainland	Uganda	Zanzibar	Regional
	% of N = 45,442 adolescents				
Level 1: aware of others' perspectives only in relation to oneself	29.2	34.0	27.2	21.6	30.0
Level 2: aware that others may be impacted by multiple factors	67.6	57.3	68.6	62.8	64.7
Level 3: aware that others act on the basis of multiple factors, both personal and community	3.3	8.7	4.3	15.7	5.3

10.3.3.2 Problem Solving

Four levels of performance describe what adolescents were able to do during the problem-solving assessments (Table 10.6). A reasonably large proportion of adolescents (32.9%) struggled to identify possible solutions to a problem, while nearly half (49.1%) of the adolescents were able to recognise existence of a problem from one perspective and act on that to identify a possible solution. Relatively few were able to justify solutions or identify multiple approaches to solving a problem. There is a slight skew in the distribution of the Zanzibar adolescents, with fewer than expected at the lowest level, and more than expected at the higher levels.

10.3.3.3 Respect

Four levels describe how adolescents expressed respect in terms of regard for others and self (Table 10.7). Overall, a large proportion of the adolescents were aware of poor behaviour (34.4%), and able to interpret this as lack of respect for others or

self, with need for conciliatory steps (50.2%). However, very few were able to act respectfully in defence of others and self. It is noteworthy that a larger proportion of Zanzibar adolescents were part of these few.

10.3.3.4 Self-Awareness: Self-Management

Three levels of performance describe how adolescents demonstrated *self-management* (Table 10.8). Overall, the majority of adolescents (50.7%) were able to demonstrate how to control self in a negative or stressful situation through repression of emotion or avoidance. They were less able to respond adaptively when presented with situations in which they might be directly confronted or attacked.

10.3.3.5 Self-Awareness: Perspective Taking

Three levels of performance describe how adolescents demonstrated *perspective taking* (Table 10.9). Most (64.7%) of the adolescents were aware that others may be impacted by multiple factors. They were, however, less able to see views on self from the perspective of others. Again, there is a slight skew in results from Zanzibar with less than expected performing at the lowest level, and more at the highest level. The lower proportion of adolescents performing at the highest level is a clear indication of the greater complexity of this skill, that perhaps requires more experience or maturation.

Review of the proficiency levels across each of the constructs reveals some differences in distributions across the jurisdictions. In the main, these differences are re-aligned with reference to proximate categories. This finding supports the patterns revealed by the person-item maps, that adolescents across the four jurisdictions responded in very similar ways, differing only slightly in the actual performance levels (as demonstrated in particular by the smallest group, Zanzibar). These similarities provide confidence in the sequence of incremental learning steps in the life skills and value processes.

10.3.4 Proficiencies by Age and Education

Gender had no impact at any levels for any of the constructs—in other words, males and females performed similarly to each other across the board, regardless of jurisdiction. The disability index information presented in Table 10.3 was derived from parent data where these parents identified that their adolescents had ‘at least some difficulty’. Based on the data collected on disability, there are no associations with performance on the life skills and value tasks. Accordingly, detailed information on performance by disability is not reported here. Information on age and education status is provided since these two factors appear to be associated with performance. In brief, as adolescents age, and as adolescents move through education grades, their performance improves (Table 10.10).

Table 10.10 Proficiency levels of adolescents by age and education

Adolescents' characteristics		Level 1	Level 2	Level 3	Level 4
		% of adolescents			
Collaboration					
Age group	13–14 years	11.7	47.5	34.5	6.4
	15–17 years	7.4	42.4	36.8	13.3
Education level	Primary	10.8	46.7	33.5	9.0
	Secondary	6.0	40.5	41.4	12.1
Problem solving					
Age group	13–14 years	38.7	46.5	11.2	3.7
	15–17 years	27.3	51.5	14.7	6.5
Education level	Primary	38.6	47.3	10.7	3.4
	Secondary	17.5	54.4	18.6	9.4
Respect					
Age group	13–14 years	9.2	38.5	46.1	6.2
	15–17 years	5.6	30.5	54.1	9.8
Education level	Primary	8.6	39.1	46.5	5.8
	Secondary	2.8	23.1	60.5	13.7
Self-management					
Age group	13–14 years	29.9	50.1	20.0	*NA*
	15–17 years	22.7	51.2	26.1	*NA*
Education level	Primary	29.8	51.5	18.7	*NA*
	Secondary	15.8	49.7	34.5	*NA*
Perspective taking					
Age group	13–14 years	35.2	60.9	3.9	*NA*
	15–17 years	25.1	68.4	6.6	*NA*
Education level	Primary	34.8	61.7	3.5	*NA*
	Secondary	16.8	73.5	9.8	*NA*

Note: *NA* not applicable

Age has an influence on the demonstrated proficiencies of adolescents across all the constructs. Older adolescents demonstrate higher proficiencies compared with the younger adolescents. For example in the case of collaboration, 13.3% of the adolescents aged 15 to 17 years compared with 6.4% of the adolescents aged 13 to 14 years, collaborated through taking positions and contributing ideas, prompting others, and being attentive to others' inputs (Level 4). On Level 1, 7.4% of adolescents aged 15 to 17 years compared with 11.7% of the adolescents aged 13 to 14 years did not engage either by being attentive to discussion, speaking, or through action.

Education level also is associated with increasing proficiencies. More educated adolescents demonstrated higher proficiencies compared with the less educated adolescents. For example in *self-management*, 34.5% of the adolescents who have reached secondary level of education compared with 18.7% of those who have attained a primary level of education are sufficiently self-aware and confident to respond adaptively even when directly confronted or attacked (Level 4). On Level

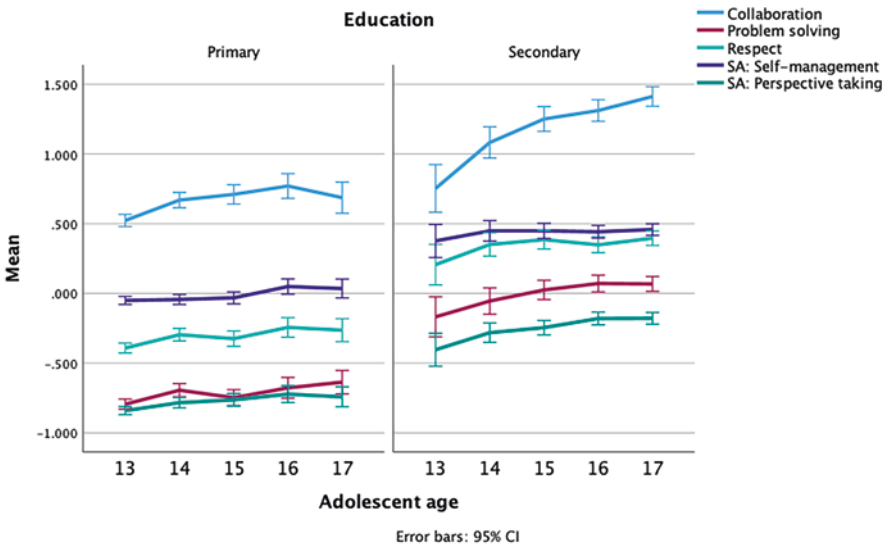

Fig. 10.7 Associations between age, education, and proficiencies

1, 15.8% of the adolescents with a secondary level of education compared with 29.8% of the adolescents with a primary level of education are unable to regulate negative emotions or responses.

Although there are obvious associations between age and education level, it is the latter that appears to be more strongly associated with increasing proficiencies, as illustrated in Fig. 10.7. There is no doubt that adolescents currently studying in secondary school demonstrate higher proficiencies than do those still in the primary years. Whether this is due to the effect of schooling or to other factors, uncontrolled for, that characterise the two groups, is not known. The primary school attendees account for more than double the sample size of the secondary (see Table 10.3) but both groups are very sizable, so the difference cannot be attributed to the variability that might be associated with small sample sizes. There is also a general flattening effect over age for the primary school attendees, and for the *self-management* dimension of self-awareness across the full sample.

10.4 Discussion

ALiVE developed an assessment of three life skills and one value, creating a tool that gathered responses from adolescents to a variety of scenario-based and performance tasks. The open-ended responses of the adolescents were coded according to rubrics that allowed for evaluation of levels of quality in those responses. The coded

data were then analysed according to their hypothesised contributions to overarching constructs, and in some cases to dimensions and subskills. The aim was to develop a measure that would generate information about what adolescents are able to do in terms of collaboration and problem solving, and how they perceive themselves and others around them in terms of respect and self-awareness. Scale reliabilities and person and item fit statistics calculated from the collected data support the validity of the assessment for its intended purpose. Given the comprehensive and systematic sampling, generalisability of the results can reasonably be claimed. To date, there has been no other study to collect evidence of life skills and values at large scale through household-based assessment. The initiative demonstrates that robust and useful tools can be developed for use outside of the formal classroom space to generate data that is useful within that space.

There are limitations to note. These include impact of the chosen medium of assessment (oral one-to-one administration in the household), use of coding rubrics, training of Test Administrators, use of local language translations. The impact of some of these limitations is unknown and will require more controlled assessment environments in order to ascertain. However, the matters of range of targeted proficiencies, and training of the Test Administrators, are briefly discussed in this section.

The tools are simple in structure and the approach to coding of adolescent responses is not highly nuanced. Scoring rubrics were sufficiently behaviour-focussed to enable Test Administrators a high degree of reliability in coding. Decisions about the nature of the tasks themselves and the decision to code across only three or four levels were made in the light of the logistics and realities of household-based assessment in low resourced environments. These decisions have had the consequence that more finely delineated differences in proficiencies between adolescents are not accommodated in the current descriptive statements. Development of more assessment tasks and more detailed rubrics could be modelled on what has been used to date in order to increase the range of information that can be captured. In ALiVE all adolescent respondents engaged with at least three of the constructs. This meant reduced assessment time available for any one of these and so led to pragmatic decisions about complexity of tasks and coding.

The training of Test Administrators was undertaken with a similar approach across jurisdictions. However, there were some differences in criteria used to recruit and select these, and the actual training events were particular to each jurisdiction. Due to this potential variability, and also to general concerns where ratings or performance are required, it is possible that assessor bias might have influenced the assessment process either on a case to case basis, or through slightly different jurisdictional approaches to the training. The interaction between Test Administrators and adolescents also could influence the confidence of the adolescent, who typically was engaging in an unfamiliar process—notwithstanding that the content of the assessment tasks themselves was familiar, being based in daily life. The extent to which this possibility could have led to under-estimates of real proficiencies is not known. Further research with the ALiVE tools could focus on investigating issues of bias and interaction modes.

Another potential influence on adolescents' capacity to respond at their most proficient level was language. The tools were translated into several local languages commonly spoken in the sampled districts, and adolescents were given the choice of language in which to interact. During the assessment, Test Administrators would use a language with which the adolescent was most comfortable, typically either English or the local language. After electing for one language, in some cases adolescents requested to switch to another to comprehend the tasks better. Another aspect of the language issue pertains to the actual translations of the tool. These were not subjected to back translation as a standard process, and different quality assurance approaches were used. Further research under more controlled conditions could explore the influence of language on assessment results.

The creation, development, and use of ALiVE's tool was accomplished through the efforts of teams across the three participating countries (Turner et al., 2024; Chap. 11, this volume). One outcome of these efforts was the assessment of over 45,000 adolescents, generating data on life skills and a value to inform curricular and assessment needs of the four educational jurisdictions involved. Another outcome was the confirmation that life skills and values can be captured through a household-based assessment model, providing a template for the future.

Appendix 1: Item Fit Statistics for the Over-Arching Constructs

(a) Item fit statistics for collaboration

	Unweighted fit			Weighted fit		
Item	Fit value	t-stat	p-value	Fit value	t-stat	p-value
CT11	0.98	−2.17	0.030	0.99	−1.16	0.247
CT12	0.96	−4.19	0.000	0.97	−2.65	0.008
CT13	0.92	−7.72	0.000	0.94	−6.09	0.000
CT41	0.99	−1.37	0.170	1.00	0.10	0.923
CT42	0.98	−1.46	0.146	1.01	0.61	0.544
CT61	0.94	−5.20	0.000	0.97	−3.07	0.002
CT62	1.14	9.67	0.000	1.14	13.71	0.000
CT63	1.04	2.81	0.005	1.06	5.57	0.000

(b) Item fit statistics for problem solving

	Unweighted fit			Weighted fit		
Item	Fit value	t-stat	p-value	Fit value	t-stat	p-value
PS1b	1.10	12.35	0.000	1.10	14.82	0.000
PS1c	1.04	6.08	0.000	1.06	8.36	0.000
PS1d	1.04	5.35	0.000	1.05	7.03	0.000
PS1e	1.11	11.41	0.000	1.10	15.99	0.000

(continued)

Item	Unweighted fit			Weighted fit		
	Fit value	t-stat	p-value	Fit value	t-stat	p-value
PS3b	0.98	−2.53	0.011	1.01	0.95	0.341
PS3c	0.98	−2.43	0.015	1.01	0.72	0.472
PS3d	0.92	−9.67	0.000	0.95	−8.23	0.000
PS3e	0.87	−15.48	0.000	0.91	−15.47	0.000
PS4b	0.87	−14.62	0.000	0.91	−14.30	0.000
PS4c	1.00	0.28	0.777	1.05	7.86	0.000
PS4d	0.88	−6.31	0.000	0.98	−2.78	0.005
PS4e	0.91	−5.44	0.000	1.00	0.56	0.579

(c) Item fit statistics for respect

Item	Unweighted fit			Weighted fit		
	Fit value	t-stat	p-value	Fit value	t-stat	p-value
RT1a	0.94	−10.11	0.000	0.95	−8.74	0.000
RT1b	0.94	−9.50	0.000	0.95	−7.75	0.000
RT1d	0.97	−3.35	0.001	1.00	−0.92	0.359
RT2a	1.11	14.42	0.000	1.09	16.15	0.000
RT2b	1.07	8.46	0.000	1.06	10.14	0.000
RT3a	0.95	−7.53	0.000	0.97	−5.91	0.000
RT3e	0.95	−8.37	0.000	0.96	−6.59	0.000
RT6a	1.04	5.86	0.000	1.04	6.42	0.000
RT6b	0.95	−7.47	0.000	0.97	−5.66	0.000
RT6c	1.08	11.15	0.000	1.08	13.19	0.000

(d) Item fit statistics for self-awareness

Item	Unweighted fit			Weighted fit		
	Fit value	t-stat	p-value	Fit value	t-stat	p-value
SA1b	0.99	−2.13	0.033	0.99	−1.85	0.065
SA1e	1.06	7.73	0.000	1.07	11.10	0.000
SA3a	1.05	7.89	0.000	1.04	7.08	0.000
SA3c	0.95	−7.40	0.000	0.97	−3.88	0.000
SA4c	0.96	−6.39	0.000	0.97	−4.31	0.000
SA7d	0.94	−8.61	0.000	0.96	−6.03	0.000
SA1d	1.01	1.79	0.074	1.01	1.76	0.079
SA4b	1.05	8.31	0.000	1.05	7.81	0.000
SA6b	1.02	2.57	0.010	1.02	3.10	0.002
SA6c	1.01	0.69	0.493	1.01	1.75	0.081
SA7b	1.00	0.59	0.553	1.00	−0.05	0.962
SA7c	1.01	1.65	0.099	1.02	2.65	0.008

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Chapter 11
Reflections on ALiVE's Collaborative Endeavour

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Abstract AliVE's visible achievement has been to develop contextualised assessment tools for three life skills and one value, undertake a large-scale assessment program at household level across three countries, and engage with hundreds of stakeholders in the process. What is less visible is how this has been achieved, who is responsible for it, and what the motivating force behind it has been. This chapter describes reflections on the collaborative processes that underlie these activities. In so doing, the chapter locates that collaboration within the history of community and civil society contributions to education in East Africa, and more specifically within Kenya, Tanzania, and Uganda. The chapter's reflections make explicit who the contributors were and how they were able to work together. In these reflections two factors are of particular interest. The first concerns the link between the way individuals and organisations worked together, and the actual life skills that were the object of their attention, in particular the skill of collaboration. The second is the constituting of the endeavour as a learning journey. The process is seen not merely as a production of an assessment tool and consequent results which can be used to advocate for life skills in education, but as a vehicle for equipping collaborators with the technical and work skills that they can take forward into future education spaces.

11.1 Introduction

Collaboration has many places in the heart of the ALiVE program. First, it sits at the heart of ALiVE's understanding of lifeskills and values, as one of the constructs contextualised and measured by the program. Second, it sits at the heart of ALiVE's

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orginal theory of change, as a prioritisation of collaborative action to develop contextualised assessments, evidence led advocacy, and a learning community. Finally, collaboration is the foundation which ALiVE stands on. ALiVE was conceptualised as a program of the East African Regional Education Learning Initiative (RELI), which is a learning community of more than 70 organisations working on education in Kenya, Tanzania, and Uganda. ALiVE has been put into action by the Values and Lifeskills cluster of RELI, meaning that it is not a program of one organisation, but of many working together.

This kind of collaborative action in assessment is new in many ways. It gives equal priority to contextual, experiential, and technical knowledge, rather than placing priority on the latter. It also prioritises negotiation and consensus. The hypothesis is that by working collaboratively, ALiVE can go further in achieving its three goals than it could ever have done if it had been delivered by one organisation. The successes of ALiVE in achieving its three goals is undisputed and is given space in the rest of this volume. In this chapter we explore what collaboration meant for ALiVE, and what the endeavour can tell us about the future of collective action in education.

11.1.1 The Nature of Inter-Organisational Collaboration: Benefits and Challenges

Dillenbourg (1999) holds that collaboration is more likely to occur in situations where the agents or partners have relatively similar levels of expertise and power relations. Collaboration should not be dominated by a single party's views since this can compromise mutual engagement, interdependency, and interactivity (Chrislip & Larson, 1994), and can also result in command and control behaviour instead of creating a shared vision and goals (Anslinger & Jenk, 2004). Mutual engagement and interdependency can only thrive if participants are willing to share their ideas, listen, and learn from others (Lai, 2011; Chrislip & Larson).

Inter-organizational collaboration offers various benefits, some of which are more explicit than others. Collaboration can provide a structure for transmitting knowledge and managing responsibilities, as noted by Kosmutzky and Putty (2016). In addition to these tangible benefits, collaboration can offer social benefits such as building professional networks, gaining friendships, and a sense of self-fulfillment for contributing to a common goal (Ulnicane, 2015).

The nature of collaboration itself can have a significant impact on a project's success. Ulnicane (2015) emphasized that regular communication among partners is crucial since the project outcomes depend on the contributions of partners with diverse expertise. Selden et al. (2006) observed that the greater and more intense the involvement of partners in collaboration, the better the implementation, and greater the ownership of the project objectives. Leahey (2016) notes that successful collaboration requires an organized series of activities that focus on interpersonal

relationships, as well as the operating systems of the partnering organizations. The crucial factor is the identification of a common purpose.

Collaborating across teams of experts can bring about various benefits, but it also comes with some drawbacks. One disadvantage is that individual contributions may go unnoticed as recognition is often given to the whole team (Kosmutzky & Putty, 2016). Moreover, collaborative processes can be time-consuming and require regular coordination and communication, which may be challenging for a diverse team that lacks intercultural and interpersonal competencies (Dusdal & Powell, 2021). Another challenge is the need for planning and technological support to promote trust and sensitivity among team members who might be working from different locations (Livingston, 2003). Cummings and Kiesler (2005) add that spatially spread networks require significant coordination efforts to bring together ideas and expertise.

Chrislip (2002) highlighted the importance of creating a collaborative environment that allows participants to be part of the process and gives them a sense of buy-in. This environment is characterized by three components: step-by-step discussion of goals and benefits, clarification of rules and guidelines around open communication to obtain feedback from each party, and anticipation of possible challenges. Finally, the different operating contexts of each partner can pose a challenge to collaboration, as socio-cultural, political, and economic differences may affect the partners' ability to provide resources and fully participate in project activities (Anslinger & Jenk, 2004). This challenge can be addressed by clearly defining and agreeing upon the requirements and expectations of each partner during the planning stage.

11.1.2 Historical Context for Civil Society Collaboration in East Africa

On a global scale, civil society actors have long been involved in the field of education. Between 1950 and 1990, there was an unprecedented expansion of international non-government and civil society action in the field (Mundy & Murphy, 2001). The World Conference on Education for All (WCEFA) held in Jomtien, marked a new age for non-government actors in international educational cooperation and a recognised role in the provision of global educational services. While the WCEFA is considered by many to have encompassed a Western-led agenda which emphasized a North to South delivery of education, the conference triggered an international network of civil society actors to come together to reshape the education landscape.

In 1999, the non-government organisations Oxfam, ActionAid and Education International formed the Global Campaign for Education (GCE) in preparation for the World Education Forum in Dakar which in part brought civil society organisations to the table to influence the global education agenda (GCE, 2022). Today, the

GCE comprises over 100 national and regional education networks and international organisations, representing thousands of Civil Society Organisations (CSOs) as well as women's groups, parents' associations, teachers' organisations, child rights campaigners, youth groups and academic institutions.

Since Kenya's independence in 1963, community-based organisations (CBOs) have been key players in the development of education provision in Kenya (Mundy et al., 2010). The period preceding the 1992 multiparty declaration was a significant time for civil society to unite as it rallied against the one-party state in power. Civil society such as the Women's Movement, Christian organisations, university students, and the rural poor, ran opposition campaigns, which when backed by the international community, brought about a historic multi-party election (Muthoni Githuku, 1993). In 1999, the ElimuYetu Coalition was formed, which brought together education-focused civil society and helped influence the abolition of elementary school fees (Mundy et al., 2010). The coalition is still active today and acts as the national platform for civil society organisations (CSOs) and non-state education stakeholders to lobby for education for all in Kenya (Elimu Yetu Coalition, 2022). Similarly, the 2002 elections also marked a major turning point where CSOs were permitted to develop and hold more recognized space in the Kenyan educational landscape. By 2005, the Kenya Education Sector Program aimed to bring local organisations and international organisations together under a government policy (Riddell, 2007).

After Tanzania's independence, the country entered a period of forming a new nation, guided by President Julius Nyerere's philosophy of African socialism, which focused on the creation of a self-sufficient welfare driven society. From 1960 to 1980, the government invested a lot into education initiatives to address the fact that only about 20% of the population had received or were in formal education. From 1990 to 2000, there was an unprecedented expansion of NGOs and CSOs addressing social issues, including educational provision. In particular, the multi-party elections in 1995 opened up space for civil society at the national level (Simon & Sikoyo, 2021). In 1999, the Tanzania Education Network/Mtandao wa Elimu Tanzania (TEN/MET) was founded to coordinate civil society stakeholders to influence basic education policy and practices. Notably, they joined the Global Campaign for Education in 1999. However, in 2010 there was a shift in the government's attitude towards civil society, which inhibited civic space and withdrew the gains that had been made over the previous 10 years. It has only been in the past 3 years that civil society and government have been in partnership to address social issues. During this period, TEN/MET continued to bring together CSOs in the educational sector and today are still the key network in Tanzania, comprising 158 education organisations which work together to improve education policy and practice (TEN/MET Coordinator, personal communication, 2022).

Civil society in Uganda played a critical role in the country gaining independence in 1962. However, not long after, civil society organisations were brought close to the state to ensure they were operating in the interest of the government (de Coninck & Larok, 2021). From 1986, Uganda saw a growth of civil society

organisations, backed by international donor funding. The government did not interfere with their work as long as they had non-political agendas and focused on the provision of social services including education. However, in the late 1990s, the state redefined the space that civil society was permitted to occupy, ensuring they operated under supervision of the Ministry of Internal Affairs (de Coninck). Within this new restrictive civic space, education-focused NGOs still managed to form the Forum for Education NGOs in Uganda (FENU) in 2001 to bring together CSOs and CBOs, and other education stakeholders to advocate for quality education (FENU, 2022).

RELI was formed in 2017 as an innovative network that unites more than 70 East African organisations to strive for improved learning outcomes in Kenya, Tanzania, and Uganda. RELI has a wide array of achievements such as increasing inclusion of learners from conflict-affected areas in Uganda, engaging in curriculum focused policy advocacy in Kenya, and building the capacity of Teacher Development professionals in Tanzania.

This historical context shows the long journey towards more collaboration in education by civil society actors in East Africa. It is this historical trajectory which created the fertile ground for ALiVE as a collaborative endeavour.

11.1.3 Defining Collaboration in ALiVE

The title of this chapter refers to ALiVE's collaborative endeavour. How can we define collaboration in the context of a program such as ALiVE? ALiVE is a project led and delivered by several organisations working together. These organisations range in size and mandate and are represented in the ALiVE program by individuals with diverse backgrounds and technical specialisations.

A study (Nansubuga et al., 2023) which looked at the inter-organisational collaboration in ALiVE asked the questions: what motivated collaboration in ALiVE? What challenges did the collaboration process face, and how were they mitigated? And, what matters most in ensuring and sustaining success in collaboration?

The findings show that motivation to collaborate requires clear vision, teamwork, learning, leadership, collective decision-making, and commitment. Challenges faced in collaboration were interdependence (and the pressure it entails), unlearning to re-learn (that is the process of moving away from bias and preconceived ways of doing), and joint ownership (the lack of independence). Finally, building on both the motivators and the challenges, the study showed that the three most important activities were defining goals, defining how (ways of working together), and maintaining consistency and continuity in participation. This framework is shown in Fig. 11.1.

Building on this framework and drawing from the technical discussion on collaboration as a skill, presented in Scoular and Otieno (2024; Chap. 6, this volume), an operational definition is used in this chapter:

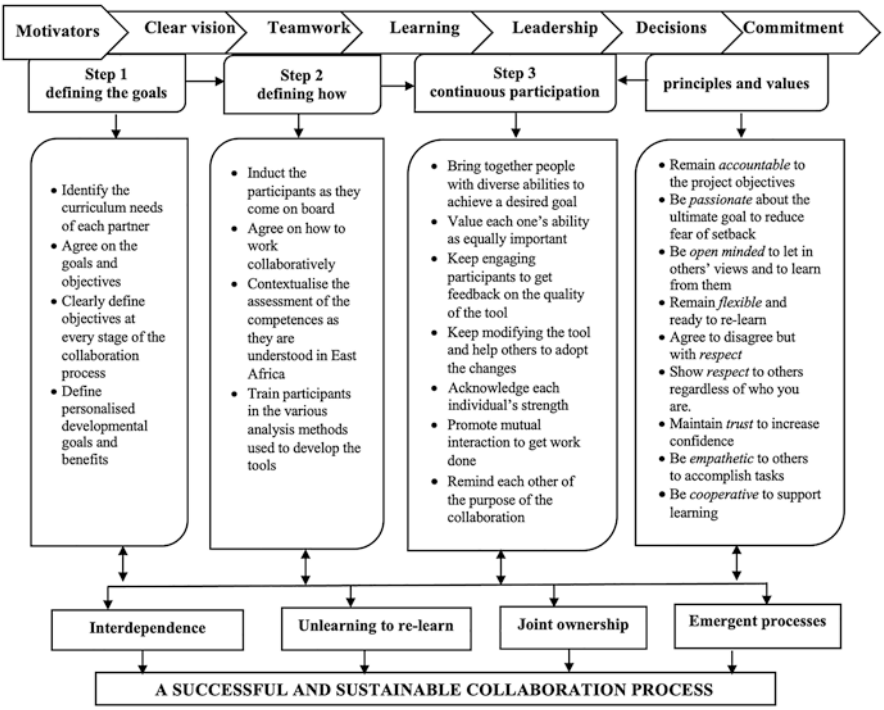

Fig. 11.1 Framework for collaboration in practice (Nansubuga et al., 2023)

> Collaboration is the process of two or more people working together on a common task to realize shared goals, and involves a high level of negotiation, interactivity, interdependence, taking leadership, accommodating each other, consensus building, and division of labor in a group setting. (ALiVE, 2020)

11.1.4 Questions for the Chapter

Having reviewed the history and role of civil society in education in East Africa, we now turn to ALiVE. Using qualitative data gathered from a process of reflection engaged in by ALiVE members, the following questions are addressed:

(a) How is ALiVE aligned with collaboration and its subskills as they were defined by the contextualisation process?
(b) What were the perceived benefits of collaboration in achieving ALiVE's goals?
(c) What was learned about how to put collaboration into practice? This includes:

(i) *What worked for building collaboration in ALiVE?*
(ii) *What challenges were faced? How were they overcome?*

11.2 Methods

11.2.1 Approach

Data were collected as outputs of a reflective exercise undertaken by the ALiVE team between July and November 2022. The purpose of the process was to articulate and document what had been learned during the first 3 years of the ALiVE program.

The learning process was directed by a steering committee consisting of Regional Learning Leads (Uwezo Uganda and Zizi Afrique), National Learning Leads (Strathmore University in Kenya, GLAMI in Tanzania, and Luigi Giussani Institute for Higher Education in Uganda), and an external Global Learning Partner (Oxford MeasurEd). The process was facilitated by the Global Learning Partner, but all key decisions relating to research questions, research design, analysis and synthesis were taken by the Regional and National Learning Lead organisations.

At the beginning of the process, the global learning partner developed a toolkit to structure individuals' reflections on the ALiVE program. This toolkit focused on defining and describing 'moments of learning'. These moments were defined as a specific incident or event which triggered a realisation or new insight. The toolkit was based on a short survey which was distributed by national learning leads to collect data from across the three countries. The result of this was over 100 insights reflecting what has been learned over the course of ALiVE's development and technical activities.

Analysis workshops were convened to analyse the data from the surveys. These workshops were attended by individuals who had been involved in the ALiVE process to varying degrees, from technical team members to government counterparts and other organisations working on similar programs. All who took part in the analysis workshops had also submitted their reflections, though not all who submitted reflections took part in the analysis.

Once detailed notes from the three analysis workshops had been collected, the national learning leads synthesised findings across the three countries.

11.2.2 Participants

The participants from whom data were collected were all individuals who had played an active role in the delivery of the ALiVE program. This included the technical team members, as well as national advisory committee members and others who had been involved during the process. A summary of these participants and their affiliations is shown in Table 11.1.

Table 11.1 Participants in ALiVE reflective learning process

	Kenya	Tanzania	Uganda
Engagement of contributors			
Contributed data	39	28	27
Invited to participate in analysis	39	15	21
Affiliations of contributors			
Civil society Organisations	24	20	19
Government institutions	8	4	4
Academic institutions	3	2	7
Teachers	4	2	0

11.2.3 Study Limitations

It should be noted that this study did not constitute a formal evaluation of the effectiveness of the ALiVE program. Rather it was an exercise in collective reflection, which placed the experience of individuals at the centre of the data collection and analysis process. This approach was chosen to build a collective, shared understanding of the origins and path of the program, and where it might go in the future, rather than to build a robust evidence base on what had worked for ALiVE.

Questions of time and recall were important limitations to the data collected. Many participants struggled to recall precise details of events which had taken place in the past. This means that some of the broad findings presented here are missing fine grained explanations or examples.

11.3 Findings

Figure 11.2 presents the range of organisations and their roles in the ALiVE program. The figure is structured to show the comparative depth of collaboration of each of these groups, and they are categorised by those whose work is located in East Africa, and those whose support came from outside of East Africa.

11.3.1 Collaboration in East Africa

In each of the three countries, there were two important structures, technical teams and national advisory committees. The **technical teams** comprised individuals from the RELI member organisations, as well as individuals from other organisations working in each country. They worked nationally and led on the

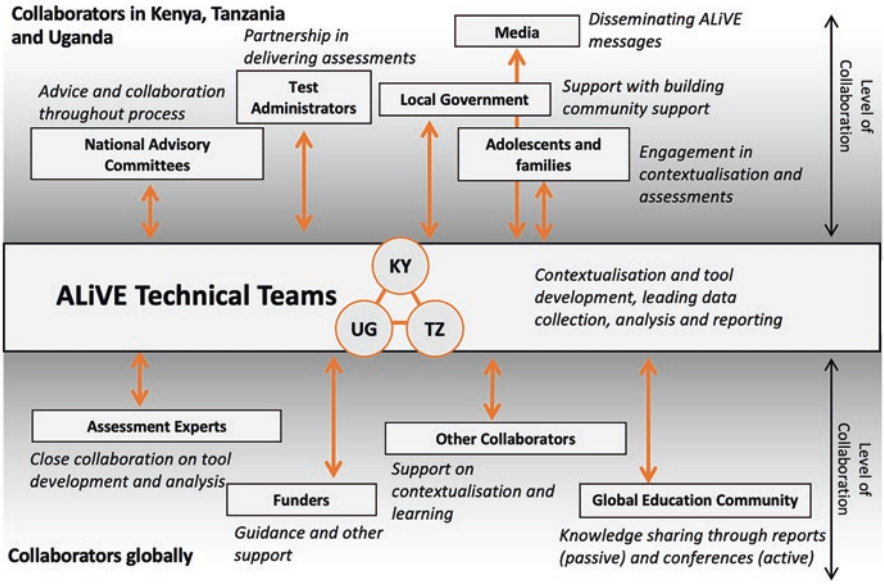

Fig. 11.2 Mapping ALiVE collaboration

contextualisation, tool development, and assessment process. Within these technical teams there were lead organisations at both the regional (Zizi Afrique) and national (Zizi Afrique, Milele Zanzibar Foundation, Luigi Giussani Institute of Higher Education) levels. The **National Advisory Committees** constituted a wider network of individuals involved in assessment in each country. This included representatives from government agencies and other organisations. National Advisory Committees had a non-executive role in delivering ALiVE. They took part in all activities, but their role was to provide advice, rather than to take decisions. The aim was that these committees would ensure that ALiVE was both benefitting from a wide range of expertise and experience in assessment, but also that the program was connected to wider trends in the education sectors in each country.

The organisations involved in the technical teams and national advisory committees (Table 11.2) demonstrates the breadth of collaboration involved in delivering ALiVE.

The regional nature of the ALiVE program is key to its vision. The structure of this initiative has largely followed a regional to national to regional pathway. A general strategic direction is first determined at the regional level. This is then adapted and implemented at the national level, before being brought back and reflected upon at the regional level.

Table 11.2 Overview of technical team and national advisory committee membership

Tanzania	Uganda	Kenya
Technical teams		
Ministry of Education and Vocational Training (MoEVT) – Zanzibar	Teacher & Instructor Education and Training (TIET) Department	RELI Secretariat
Zanzibar Institute of Education (ZIE)	Makerere University	Amplify Girls
Uwezo Tanzania	National Curriculum Development Centre (NCDC)	Secondary School Teacher
Tanzania Institute of Education (TIE)	Educate! [a]	Primary School Teacher
National Examination Council of Tanzania (NECTA)	Girls to Lead Africa[a]	Kenyatta University
Organisation for Community Development (OCODE)[a]	Uwezo Uganda[a]	Kenya National Examinations Council (KNEC)
Global E-Schools and Community Initiative (GESCI [a]	Foundation for Inclusive Community Help (FICH)[a]	Kenya Institute of Curriculum Development (KICD)
In Depth Consulting[a]	Luigi Giussani Institute of Higher Education (LGIHE)[a]	Strathmore University
Girls Leadership and Mentorship Initiative (GLAMI)[a]		Kenya National Theatre
Tamasha[a]		Zizi Afrique
Archbishop Mihayo University College of Tabora (AMUCTA)		
University of Dar es Salaam		
Milele Zanzibar Foundation[a]		
National advisory committees		
MoEVT – Zanzibar	Uganda National Education Board (UNEB)	Teacher Service Commission (TSC)
Tanzania Institute of Education	Kyambogo University	Kenya National Examinations Council (KNEC)
National Parliament (MP)	NCDC	Kenya Institute of Curriculum Development (KICD)
Ministry of Information, Culture, Youth and Sports	Uganda National Teachers Union (UNATU)	PAL Network
MoEVT – Education	Secondary School Headteachers Association	Jaslika
Student – Feza School	Ministry of Education and Sports (MoES) – Private Schools and Institutions Department	Kenya Primary School Headteachers Association
MoEVT – Inspectorate Department	UNATCO – Secretary General's Office	Kenya Secondary School Heads Association

(continued)

Table 11.2 (continued)

Tanzania	Uganda	Kenya
MoEVT – Inclusive Education and Life Skills	MoES – Commissioner Secondary Schools	Zizi Afrique
Prime Minister's Office (PMO) – Labour, Youth, Employment and People with Disabilities	MoES – Directorate Education Standards	RELI Secretariat
National Examination Council of Tanzania (NECTA)		
Zanzibar Examinations Council (ZEC)		
Zanzibar Teachers Union (ZATU)		
Uwezo Tanzania		
Femina		
Forum for African Women Educationalists (FAWE) Zanzibar		
University of Dar es Salaam		
MoEVT – Permanent Secretaries Office		

[a]Denotes RELI Members involved in ALiVE

11.3.2 Global Collaboration

A central assumption for the ALiVE endeavour has been the autonomy to determine what gets measured and what the assessment data is used for within East Africa. This stands against a historical background in which how constructs are defined and tools developed has been dominated by research from the Global North. For this ambition to be achieved it was essential that the locus of control remained in East Africa. This, however, did not mean that ALiVE did not look to benefit from collaborations and exchange of ideas and experience with individuals and organisations globally.

This global collaboration can be broken down into three kinds of collaboration. Firstly, ALiVE collaborated with a community of funding organisations. These organisations were central in investing in the vision of ALiVE, providing not only funding but also guidance and networking to support the delivery of ALiVE. Secondly, ALiVE collaborated with several individuals and organisations who provided technical support or external facilitation on key activities such as the contextualisation research, tool development, and the learning process. Finally, ALiVE collaborated with the global education research community through conferences and publications.

11.3.2.1 How Did ALiVE Embody the Subskills of ALiVE as Defined by the Contextualisation Process?

ALiVE encompassed all of the elements that were identified in the operational definition of collaboration provided earlier in this chapter, throughout the contextualisation, tool development and assessment processes.

The issue of common task and shared goals are clear. Reflections from the learning process place strong emphasis on the collaboration being goal focused, with a clear end point of having collected, analysed and published the data from the assessment of lifeskills and values. The main focus for collaboration was in shared tasks related to this goal.

Looking at the traits of collaboration put forward by this definition, we see first **negotiation** throughout the process. The essential task of developing the assessment tools was to decide what should be measured and how, based on the outputs of the contextualisation studies. Participants in the reflection process frame this as a process of negotiation between different technical perspectives on the same challenge, for example between practitioners and academics, or those whose background is in lifeskills education, and those whose background is in statistics and research and so on. This negotiation was seen as an essential consequence of the diversity within technical teams. This process also accounts for the **consensus building** element of the definition.

The collaboration in ALiVE stretched across borders and involved more than 20 separate organisations. This required both **interactivity** and **interdependence.** The former was structured through regular meetings within and between national teams. The more than 40 individuals who comprised the three technical teams worked interactively on all tasks throughout the process. This was facilitated by technology, which became particularly important in the context of travel restrictions during the COVID-19 pandemic. This interactivity reflected the interdependence between individuals and teams. The diversity of the ALiVE collaboration was its strength. By having a diverse array of expertise, ALiVE could draw on a wide range of perspectives (see Table 11.2 for affiliations of technical team members). The final result depended on interdependence, since no one person held all of the skills needed to complete the tasks.

The ALiVE **leadership** structure centred around the co-Principal Investigators and the regional leadership team. This team was responsible for the overall agenda setting for ALiVE, as well as for building a culture of collaboration. The two main approaches used by leadership to create collaboration were *structural,* that is approaches which formally mandated time and resources for collaborative activities, and *cultural,* that is the active promotion and modelling of collaborative approaches to working.

The final component of ALiVE's definition of collaboration is **division of labour.** While there was some division of tasks in ALiVE, it is not an element which characterises the program. In comparison to other similar programs, ALiVE prioritised *working together* rather than allocating tasks to individuals or small teams.

Another way of looking at the concept of division of labour is to think of it as equal division of responsibilities between all participating organisations, rather than consolidating activities into smaller sub-teams with specific expertise. In this latter way of thinking about division of labour, ALiVE fits the definition more closely.

11.3.2.2 What Were the Perceived Benefits of Collaboration in Achieving ALiVE's Goals?

The reflective data show how participants see the role of collaboration in the ALiVE effort. The ALiVE goals were to (i) develop contextualised assessments, (ii) use assessments for evidence led advocacy, and (iii) to develop a learning community within the program.

For the first goal, collaboration was seen to be central in ensuring the **contextual relevance** of the constructs and tools. The process of working closely with adolescents, communities and government on the contextualisation process created new perspectives on what is important to measure. Working with adolescents to contextualise construct definitions forced the technical teams to confront and un-learn biases in how they perceived adolescence, life skills, and values.

The collaborative approach taken by ALiVE was found to have a strong practical benefit in creating an enabling environment for the **program's advocacy work**. National advisory committees involving government agencies and teachers was a feature of ALiVE from the beginning. Participants reflected that this allows for a greater ownership of the results of the assessment than could have been achieved otherwise. By providing government partners with the opportunity to 'get their hands dirty' and become involved with the assessment process from start to finish, it ensured that when results emerged, they were seen as legitimate and credible.

The potential for this advocacy work was also reflected in engagement with communities during the assessment process. This process provided an opportunity to engage with families on the importance of life skills and values. These opportunities were infrequent, but represent a potential opportunity afforded by the collaborative approach.

> I was with a group of parents in the village in a collecting data about their understanding of life skills and values. It was a great concern for parents more than assessment. I realised that It was important to nurture life skills and values and that parents played a major role. … Parents expressed the urgency of the need for support on how to nurture life skills and values, more than on how to assess them. The need was more than I knew before. (Learning Insight on Community Engagement in Tanzania)

Finally, the collaboration within the program was seen as central to the work on creating a **learning community** in ALiVE. Reflections emphasised the importance of diversity of opinions and experiences in creating an environment for organisational growth within ALiVE. This commitment to learning as a collaborative activity was manifested in the reflective process itself from which these findings are drawn.

11.3.2.3 What Was Learned About How to Put Collaboration into Practice?

What Worked for Building Collaboration in ALiVE? Creating a collaborative and productive space within a collective of diverse individuals and organisations is not straight forward. Synthesising reflections from the first 2 years of the ALiVE program, three characteristics appeared central to collaboration; alignment of goals, principles and values, and leadership.

The first of these emphasises the importance of understanding alignment between programmatic, individual, and organisational goals. As no one organisation was fully dedicated to ALiVE, this alignment ensured that individuals and organisations would continue to prioritise ALiVE activities, alongside their other commitments. Establishing alignment starts with a shared vision and understanding of the purpose of what is being done. Secondly, it involved understanding what each individuals' and organisations' goals are and how the program will support them in achieving those goals. If each collaborating individual or organisation has a clear view of these two things, it was felt that they would stay committed to the collaboration.

During the reflection process, the importance of principles and values as foundations for collaboration emerged. The key principles and values that emerged were trust, transparency, and passion. Trust was defined as being important for establishing confidence in the fact that your collaborators share the same vision as you. This allowed individuals to seek and accept compromise. Transparency as a principle was important for establishing trust, as well as for ensuring that expectations are clear. Passion underpins these, with teams reflecting that it was a shared goal, and the passion for seeing that goal actualised which drove forward collaboration.

There was consensus that a program such as ALiVE, delivered by multiple organisations across multiple countries, requires strong leadership. The purpose of this leadership is not just to ensure that activities take place, but that they take place collaboratively. The reflections indicate that leadership that promotes collaboration has two key characteristics. The first is to lead by example when it comes to the values stated above, ensuring that leadership is based on trust, transparency, and passion of the shared goals. It also means placing importance on collaboration. Looking back at the first phase of ALiVE, it was felt that often when a decision was to be made between the 'quick' way and the collaborative way to complete an activity, the leadership of ALiVE prioritised collaboration.

What Challenges Were Faced in Building Collaboration? How Were They Overcome? With the technical and advisory teams contributing to the project, most individuals also had full-time workloads that demanded their attention. This situation led to long hours for members of the technical teams as they sought to find balance and ensure the project was successful. Individuals' motivation and productivity can be affected by their perceptions of the contributions and participation of other group members, which creates more challenges the larger the collaborating team grows.

Beyond the practicalities of working in teams of individuals, reaching compromise on deeply held beliefs presented challenges. This was particularly evident throughout the process of defining constructs and deciding how they would be measured. The familiarity of team members with the competencies made it challenging to move beyond individuals' preconceptions to find a shared conception of what should be measured and how. This led to decision-making stalemates which caused delays and frustration. However, in teams' reflections it was felt that this slow road to consensus was an important process for addressing biases and moving beyond pre-conceptions. As outlined previously, principles and values such as trust, transparency, and passion were important in facilitating this consensus building.

Beyond the universal challenges associated with building collaboration between heterogenous individuals and groups, ALiVE faced practical, systemic challenges. A significant part of the ALIVE process took place when COVID-19 had major impact through lockdowns and restricted movement locally and globally. Physical meetings were scarce. Abiding by global precautions and restrictions, the natural order and work medium for workshops had to be redefined. This called for innovation, and the use of more virtual communications than would otherwise have been the case.

The crucial role that digital technologies play in human connections has been increasingly apparent as a consequence of the COVID-19 outbreak. Taking into consideration that ALIVE was a regional initiative, technology enabled the progress made by ALIVE. The various platforms that allowed for online meetings and workshops, the highly essential breakout rooms, the shared documents platforms which facilitated simultaneous editing, the shared drives which anyone could access at any time – all of these were both the tools for doing and the tools for communicating.

11.4 Discussion and Conclusion

Findings from the reflective study do not deviate from the definition of collaboration arrived at through the contextualisation process. The reflections presented in this chapter show a strong practical manifestation of the subskills identified by the ALiVE definition (negotiation, consensus building, interactivity, interdependence, leadership, and accommodating each other). This provides a helpful starting point for other organisations embarking on their own collaborative endeavours.

There is alignment between the findings from the reflection study and the framework presented by Nansubuga et al. (2023). The motivators which emerged most strongly were a clear vision and leadership. This focus on leadership may at first seem counter-intuitive, but the findings of this study reflect that in a complex program delivered by disparate and geographically separated organisations, a degree of centralised leadership is necessary. What is important is that this leadership prioritises collaboration. This reflects a saying used often by ALiVE 'if you want to go fast, go alone. If you want to go far, go together'. It shows that collaboration is not an automatic product of shared goals and principles, but something that takes

continuous work and leadership. There is also alignment in terms of the challenges derived through this reflection study and those identified by Nansubuga et al. (2023), with interdependence and the need to unlearn and re-learn through negotiation coming out in this study.

The findings of this study were intended to reflect on what has been learned through the ALiVE program. The data that support the findings were co-created by the ALiVE team members who took part in the data collection and analysis process. The findings that emerge closely reflect therefore the experiences of those involved, as well as their intentions and visions for the future. This is a process that in no way tries to provide a neutral, detached view of the collaborative processes of ALiVE, but rather a reflection by team members on their perceptions of successes and the lessons learned along the way.

The reflections from this learning exercise show the importance of collaboration across ALiVE's three programmatic goals. Collaboration was important for creating learning community, but working collaboratively also enabled the development of tools and ALiVE's work on advocacy. This shows the potential value of collaborative action in assessment development initiatives and can be a starting point for other organisations to think about how to make their work on assessment more collaborative.

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Chapter 12
Implications of ALiVE Process and Evidence for Policy and Practice in East Africa

John Kabutha Mugo

Abstract The process and product of the Assessment of Life Skills and Values in East Africa (ALiVE), including the opportunities created by this assessment, provide a useful lens for viewing the mainstreaming of assessment of these competences in the region. This chapter summarises ALiVE and provides perspectives on the use and lack of use of education evidence. Key insights cover the breadth of factors to be considered in influencing uptake by government. The chapter reviews the global and regional landscapes as they relate to life skills and values, and concludes that these competencies are increasingly acknowledged and adopted. Lastly, the chapter draws from the discussions in this volume to identify and discuss five implications for policy and practice. A call to bolden the focus and contextualise holistic learning is first made. Second is the call for a paradigm shift in assessment, including the review of assessment frameworks, leveraging technology, and prioritising the use of the evidence generated by the assessments. Third is the call to focus on teacher capacities, while considering that these would be facilitated by system-wide focus on capacity development. Fourth is the call for shared space and responsibility between parents and teachers, to perceive assessment as a common project between communities and schools. Lastly is the call for a resilient and comprehensive approach that secures alignment, timeliness, engagement and institutionalisation.

12.1 Introduction

The chapters in this volume have introduced the ALiVE initiative, as both process and product. This social transformation program was designed to: generate evidence on life skills and values in the context of East Africa in order to develop and provide an open-source contextualised measurement tool; use the evidence to

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inform policy and drive public conversations; and use tool development as a process for learning and self-empowerment for local experts in East Africa. Four achievements stand out.

First, a ground-up ethnographic study was conducted in 15 districts across Kenya, Tanzania, and Uganda. It was used as the basis for establishing local understandings of selected competences. Second, a contextualised tool was developed to assess collaboration, problem solving, respect and self-awareness; and a large-scale, household-based assessment was conducted across the three countries, involving a total of 45,442 adolescents, comprising 22,092 males and 23,264 females, and 86 not specified, aged between 13 and 17 years. Beyond the results, this assessment has contributed to both contextualisation and East Africa's agency in contributing to global assessment in this emerging field. Third, four assessment reports and a summary regional report were launched (to include separate reporting for Zanzibar, Tanzania) with in-person participation of more than 500 national-level education actors, and media activation (including community radio) that reached millions of East Africans. This was followed by sub-country level launches in more than 50 districts, involving more than 3000 local level leaders and more than 10,000 head teachers. Fourth, 47 local experts were qualified via a learn-through-doing process that lasted 45 weeks between April 2021 and February 2022. Through this process, the ALiVE Academy has been established as the process that now sustains capacity development for assessment of twenty-first century skills in the region.

The preceding chapters in this book have articulated these achievements at length and shared the emergent knowledge from the ALiVE process. However, before one can draw the implications for policy and practice from the evidence, it is necessary to clarify the conditions necessary for that evidence to inform policy in context. Without this clarity, policy recommendations merely constitute a tick-the-box exercise with little impact.

Globally, there is general acceptance of and movement towards evidence-based policy making. Banks (2009) argues that policies that are not informed by evidence fall prey to the "law of unintended consequences" (p. 2), which often leads to costly mistakes. Head (2015) argues that the movement for evidence-use in policy developed momentum in the 1970s, driven by Weiss (1979), Aaron (1978), Bulmer (1982, 1987) and Rivlin (1971), and has yielded tremendous gains to public administration over the decades.

Evidence-use in policy has met with equal measures of optimism and pessimism. First, there is acknowledgement that while existing documentation confirms that evidence does inform and even influence policy, the path is not linear. The convergence of evidence and policy is not just dependent on science but is highly contingent on political persuasion and on a variety of other economic and organisational factors (Head, 2015; Elliot & Popay, 2000). Second, there is little clarity on what works best to achieve evidence-informed decision making, considering factors like the capacities of policy makers in using evidence and conditions that promote or inhibit evidence use (Head et al., 2014; Stewart, 2015).

Head (2015) submits that even when sound evidence is at hand, the decision-making process in public administration is extremely complicated, and *generally unfavourable to science-driven perspectives*. He argues that policy making is driven more by political interests, conflicts, trade-offs, and compromises than by scientific rigour; and that "the policy process is inescapably anchored in politicised context and that some kinds of evidence are inevitably seen as more relevant than others for underpinning policy positions" (p. 6). This perspective supports earlier arguments (e.g., Maynard, 2006; Weiss, 1979) that evidence uptake is not just dependent on the robustness and clarity on what works but is mostly subjected to personal and political persuasions. In addition, governments prefer using their own internal evidence over that generated by external parties (Head, 2015), and are averse to evidence that presents an issue that is either new or presents an ideological dispute (British Academy, 2008; Head, 2010).

Stewart (2015) adopts the proposal made by the Department for International Development (DFID, 2011) that offered a framework of four barriers to evidence use. First are the individual barriers faced by people in policy-making positions. These include lack of experience and capacity to assess evidence and build mutual trust, as well as negative attitudes towards change in general and evidence in particular. Second are organisational barriers in the responsible institutions, which include unsupportive culture, competing interests, censorship, and mistrust of external evidence, as well as other barriers like cultural and religious notions. Third are communication and relationship barriers, which include message and messenger choice, information overload, use of academic jargon and unactionable messages. Lastly are timing barriers, including the lack of time to understand and reason together, and lack of alignment between researchers' and decision makers' timeframes and priorities of the moment.

A further consideration is how researchers package and communicate evidence. Many researchers naively assume that rigorous evidence and good communication are the sole drivers of evidence-use in policy making (Cherney & Head, 2011), while others make recommendations that are both politically and economically untenable (Stewart, 2015). In confronting these barriers, Head (2015) suggests that any evidence-use case must provide a framework that balances the persuading of decision-makers to formulate a policy, the support needed to roll out policy implementation, and the provision of the necessary conditions for implementation. Further to this, Strydom et al. (2010) suggest that researchers must consider organisational factors (like structure and function), socio-economic contexts (affordability), communication factors (message attributes), notions of credibility of both the evidence and researcher, as well as the political priorities of the reigning government (Elliot & Popay, 2000).

Head (2015) proposes the concept of *knowledge brokering*. This concept calls for knowledge sharing and simplification of information to facilitate communication between evidence producers and users, and approaches that include face-face exchanges, formation of networks and communities of practice, and facilitated sessions.

These global perspectives bequeath to ALiVE a useful framework for viewing the implications of the ALiVE process and evidence for policy makers in East Africa. This framework includes first the aspect of *alignment*, how the evidence is packaged and communicated to speak to the economic contexts and political interests of the three countries. Second is the aspect of *timeliness*. The curricular revisions made by East African systems confirm that life skills and values are both a current point of focus and non-controversial for all four education jurisdictions (including Zanzibar as separate from Tanzania mainland). Third is the aspect of *structured engagement*. This points to the need to go beyond suggestions for evidence-uptake, and factor in support for implementation of those suggestions. This aspect includes the capacities and brokering needed to make policy making and implementation a reality, driven by trust and careful identification of messengers. Lastly is the dimension of *institutionalisation*. The recommendations must include a way to sustain the two-way relationship between the ALiVE community and decision-makers in government, in a form that is aligned to the needs, priorities and capacities of both groups.

12.1.1 Global Education Policy Pertaining to Life Skills and Values

In the initial chapters of this volume, Chaps. 1 and 3, Care (2024) and Giazomazzi (2024) conclude that global policy has embraced the inclusion of twenty-first century competences in education. The Sustainable Development Goal (SDG 4.7; UNESCO, 2015) makes no explicit mention of these competences, but talks more broadly about the knowledge and skills needed to promote sustainable development. Though the reporting on this target is most recently biased towards climate change, a few initiatives continue to drive SDG 4.7 as encompassing social emotional learning and related competences.

The SDG 4.7 was preceded by the Learning Metrics Task Force (LMTF), which led global consultations to explore the improvement of learning outcomes as well as the skills needed for twenty-first century learning, working, and living. The LMTF covered a total of 118 countries (11 in Africa) and concluded that besides the usual academic subjects, learning should include students' physical, social, and emotional wellbeing, as well as approaches to learning how to learn (Anderson & Ditmore, 2016), described in some detail by Giazomazzi (2024; Chap. 3, this volume). However, more recent publications have expressed the perspective that progress is slow, and that universal integration of these competences may not be achieved by 2030, unless the pace is hastened (Jukes et al., 2018; Care et al., 2018).

Several mechanisms support the monitoring and implementation of SDG 4.7, and some focus on partnerships in sub-Saharan Africa. These include the Networking to Integrate SDG 4.7 and Social and Emotional Learning into Educational Materials (NISSEM), the Inter-agency Network for Education in Emergencies (INEE) and Harvard's Ecological Approaches to Socio-emotional Learning (EASEL)

Laboratory, the Karanga Global Alliance, the Global Learning Community coordinated at Utrecht University, and the Global Centre for the Development of the Whole Child at the University of Notre Dame (USA). The OECD has also focused on social-emotional learning, and has developed and conducted several assessments, including pilots with selected countries in sub-Saharan Africa.

12.1.2 Policy Landscape in East Africa

In East Africa, life skills and values are not new in education policy. There have been multiple curricular revisions over the past two decades. The inclusion of these constructs has been associated with the movement of the countries to competency-based curricula, commencing in 2005 in Tanzania, 2016 in Kenya, and 2019 in Uganda.

12.1.2.1 Kenya

The Competency-Based Curriculum (CBC) commenced implementation in 2016 and reached Junior Secondary (Grade 7) in January 2023. The CBC prioritizes seven core competences for basic education, as well as eight values that education should develop (Kenya Institute of Curriculum Development, 2017; Heto et al., 2020). The mode of delivery clarifies integration in academic subjects, with the curriculum clearly identifying the competences and values that the teacher should develop within each topic. Teacher training has included aspects of these competences, though little documentation exists on related classroom practice. Learning assessments have adopted a competency measurement approach, relying heavily on use of rubrics and portfolios in formative assessment. The learner assessments at Grades 3 and 6 have included some of these competences at classroom level, though these have not been released publicly with other learning areas. There is no shared evidence from summative assessment, and no evidence on these competences in policy and public debate.

Wafubwa and Csikos (2021) observe that despite the clear definition of these competences in the curriculum, the assessment framework is too sketchy to direct teachers how to observe and accurately capture competence in demonstrated behaviour. Originally, life skills had been adopted as a stand-alone learning area for junior secondary, but this was later axed by the Presidential Working Party in 2023, seeking to reduce learning areas for junior secondary.

12.1.2.2 Tanzania Mainland

While Tanzania is one country, it is important to be aware that basic education is a devolved function for Zanzibar.

Life skills education is not new in Tanzania. In the mid-1990s, life skills was a subject taught in all schools and covered social skills such as citizenship, emotional and behavioural competencies including acceptable behaviour and respect, as well as some cognitive competencies such as critical thinking, among others (Care, 2024; Chap. 1, this volume). In 2005, Tanzania initiated the movement to competency-based curriculum through a major reform, which also saw the removal of life skills from the list of examinable subjects. Giacomazzi (2024; Chap. 3, this volume) documents that while this was well-intended, it led to rapid de-prioritisation of life skills by the teachers, and the time allocated to life skills was often used to teach examinable subjects. In 2019, the government made a curriculum revision, and with support from UNICEF, revised the National Life Skills Education Framework, including the development of a detailed strategy and formative assessment tools for primary and secondary schools. There is documentation that despite these changes, the implementation of life skills and values remains problematic, and the teaching and learning processes may not be producing the targeted competencies (Nkya et al., 2021).

12.1.2.3 Zanzibar

A national life skills framework was developed in 2010. The framework was intended to promote quality provision of life skills education, with the focus "to attain positive behavioural changes among children and young people in Zanzibar for their own individual and societal benefits in relation to preventing HIV/AIDS infections, substance abuse, early pregnancies, gender based violence and lead more positive and productive lives" (Zanzibar Ministry of Social Welfare, Youth Women and Children Development, 2010, p. 8). In 2022, the President of Zanzibar appointed a taskforce to advise on reforming education. The taskforce report recommends, inter alia, proper definition and integration of life skills and related competences in the curriculum, teacher training and classroom practice and producing prioritized life skills and values through education. The changes are expected to be implemented from 2023. The government, recognizing the insufficient emphasis on life skills, has prioritized the refocus and review of the curriculum. Efforts are being made to integrate life skills into early childhood development and foster collaboration with ALiVE to incorporate these essential skills and values into the curricula. The district-level ALiVE launches have reinforced the government's commitment, emphasizing the importance of political leaders incorporating assessment data into their planning of national plans and budgets (Issa, 2023). These actions reflect the government's dedication to address policy shortcomings and ensure that decision-making processes are grounded in relevant data.

12.1.2.4 Uganda

In Uganda, life skills were embedded in the 2019 Sexuality Education Framework, which identified 20 explicit competencies, including conflict resolution, decision making, communication, negotiation, leadership, goal-setting, assertiveness, refusal skills, coping with emotions and stress, self-awareness, self-control, self-esteem, help- and health-seeking behaviours, time management, employability skills, analysing the media, and journaling. However, the focus on sexuality education received pushback from religious bodies, which operate about three quarters of the schools in Uganda. The Ministry's response was a later revision that broadened the curriculum beyond sexuality education.

In 2019, the National Curriculum Development Centre (NCDC) reformed the lower secondary education curriculum and prioritised a number of competencies. These were referred to as generic skills, and included critical thinking and problem solving, creativity and innovation, communication, co-operation and self-directed learning, mathematical computation, and proficiency in ICT (NCDC, 2020). The curriculum also included life skills as a learning area under cross-cutting issues, which included decision-making, stress management and emotional regulation, and to "solve problems met in different situations" (p. 10). The assessment framework for the new curriculum was released in year 2022 and it requires the teachers to specify the level of students' achievements in terms of subject-specific competencies and generic skills. Further to this, a new curriculum framework was drafted in 2023 for Upper Secondary which includes prioritized values.

12.2 Five Implications for Policy and Practice

> *The ALiVE results have woken us from slumber. We had nothing to show us where we were. Now, the call to action is loud* (Dr Grace Baguma, Head of NCDC in Uganda, at the launch of the ALiVE report on December 13, 2022).

The ALiVE contextualisation study, assessment processes and results, have implications for policy formulation and implementation across the three countries. The evidence backing these implications draws from three main sources, two of which are covered extensively in chapters in this volume: ALiVE contextualisation studies (Shariff et al., 2024; Giacomazzi, 2024; Chaps. 2 and 3); and ALiVE assessment process and results (Nansubuga et al., 2024; Nakabugo et al., 2024; Mutweleli et al., 2024; Ariapa et al., 2024, Chaps. 7, 8, 9, and 10). The third source derives from policy conversations during the report launches in Zanzibar (November 17, 2022), Kenya (November 25, 2022), Uganda (December 13, 2022) and Mainland Tanzania (January 26, 2023). The admissibility of policy conversations as evidence draws confidence from the definition by Strydom et al. (2010), which views evidence as

both research-derived and anecdotal, encompassing knowledge from experts as well as lay persons. The process and results of ALiVE yield the conclusion that while there has been consistent progress made in embedding life skills and values into policy, curriculum and classroom practice, the intended learning outcomes are not yet realized for a majority of the learners. At the same time, this is recognised by the systems in their efforts to more clearly embed the competencies in curriculum and assessment, as well as teacher training and support. Overall, five implications have emerged which speak to both policy and practice.

12.2.1 Implication 1: Boldening the Focus and Fully Contextualizing Holistic Learning

The importance of broadening the focus of foundational learning beyond literacy and numeracy, has been well articulated in this book. Care (2024; Chap. 1, this volume) refers to the World Bank's conceptualisation of 'learning poverty' as referring solely to reading and numeracy. This minimalist approach to foundational learning is creating a push on low-income economies to sacrifice the holistic development of the child, and this abandoning of critical competencies in the nascent stage of the child's development may have dire effect not only on their development and attainment of full potential, but also on the competitiveness of nations in producing skills for the changing world.

The results of the ALiVE assessments (Ariapa et al., 2024; Chap. 10, this volume) have demonstrated that while the three East African countries have been on a journey to include life skills and values in the curricula for now close to two decades, the interventions may not yet be delivering the intended outcomes. In brief, the ALiVE results have shown that most adolescents have commenced their journey to skill acquisition and are at varied points. For instance, in problem solving, most adolescents can identify the problem, but fewer are able to gather and present information needed to characterise the problem, and most of them identify only one solution to a problem, even when they are clearly prompted to identify several. Similarly, in terms of respect for others, most adolescents interpret bad behaviour as a lack of respect for others or self, with fewer taking conciliatory steps to resolve situations, and only a few being aware of links between respect for property and respect for persons.

12.2.1.1 Bold Focus

The dissonance between what happens at school (curriculum) and out in society (daily lives) (Care, 2024; Chap. 1, this volume) is an impediment to curriculum implementation. In other words, a focus on curriculum and school only, with no

associated focus on the influence of society, may not work. A bold focus is needed, in which three things happen. First, the society recognises the need for change and embraces the direction of change. Second, curricula and schooling take up this society challenge. Third, consistency between society and school and curriculum is achieved through increased awareness of communities, adapted political leadership and appropriate investment to support the new direction of education.

This focus is needed to identify and articulate the competencies that each country prioritises, and clearly define and articulate these in the curriculum. The approach taken by ALiVE in carefully inter-weaving skill definitions and skill structures offers one option for curriculum experts in the region. Second is the pursuit of authentic assessments, which focus not on reporting scores, but ways of capturing the competencies and values as they are demonstrated in real life. Again, the ALiVE assessment has demonstrated that measurement of these competencies is possible and challenges the notion that life skills and values are impossible or difficult to measure. Third is equipping teachers with the pedagogical strategies needed for enhancing life skills, beyond the academic-only curriculum. Lastly is the engagement of society. Political leadership, together with community leaders, must champion this so that communities and parents not only change the way children are nurtured and educated, but are active in efforts to achieve coherence with the curriculum and address any dissonance.

12.2.1.2 Contextualisation

Contextualisation and authenticity are key components, not only for developing appropriate assessment strategies, but also providing the space for children to demonstrate these competences in real life (Care, 2024; Chap. 1, this volume). It is important that as countries embolden their focus on life skills and values, they also ensure that the prioritised competences are well aligned to the local context (Mutweleli et al., 2024; Chap. 9, this volume) and not just pick from other contexts where these may be well documented.

In a related publication from this work, Giacomazzi et al. (2022) make a strong case for contextualisation, not just for assessments, but also for pedagogical approaches. Giacomazzi (2024; Chap. 3, this volume) has presented the results of the ALiVE contextualisation study conducted in 15 districts across East Africa. These results guided and framed the development of assessments of problem solving, self-awareness and respect, and collaboration (Care & Giacomazzi, 2024; Chap. 4, this volume; Ngina et al., 2024; Chap. 5, this volume; Scoular & Otieno, 2024; Chaps. 6, this volume), demonstrating the potential of contextualisation to inform curriculum and assessment. The ALiVE contextualisation unearthed unique skill dimensions not captured in global literature. The differences established highlight the importance of not striving for harmonisation across contexts but rather, focusing on common components as well as understanding the competencies in their contexts.

12.2.2 Implication 2: A Paradigm Shift to Assess Life Skills and Values

The way of assessing academic subjects in East Africa's education system is fundamentally different to what is needed for measuring generic competencies. The sometimes non-visible nature of life skills and values, and their high dependency on context, necessitates a different paradigm (Nansubuga et al., 2024; Chap. 7, this volume; Mutweleli et al., 2024; Chap. 9, this volume; Nakabugo et al., 2024; Chap. 8, this volume; and Ariapa et al., 2024; Chaps. 10, this volume). Three implications emerge from these chapters, and from the knowledge accumulated through the ALiVE assessment.

12.2.2.1 Clear Shift of Assessment Frameworks

Life skills and values are dynamic in nature and are less known and understood in the context of formal education. Accordingly, it is particularly important for the assessment of these competencies that measurement procedures commence with proper definition of the constructs, clarification of the constructs, development of tasks and items, collection and scoring of responses, through to the production of measures (Ariapa et al., 2024; Chap. 10, this volume).

To integrate these assessments in the system, investment is necessary. Frameworks must be developed for each competency or value in order to ensure a standardised approach, and to ensure that the outcome will be true to context. The indulgence of the national assessment institutes to contextualise the varied approaches, together with a research component to establish their validity and reliability, is critical. From ALiVE's experience, the development of such frameworks includes a systematic way of establishing the assessable and non-assessable components of a skill, exploring a variety of options to arrive at the most suitable methods for both capturing the responses and behaviours, scoring and analysis, as well as achieving the highest possible psychometric qualities for the assessment tasks. In all this, a framework must deliver a simple approach for teachers to use for formative purposes, as well as schools and the system to use for the summative purpose of monitoring learning outcomes.

12.2.2.2 Leveraging Technology

Two chapters in this volume, Chaps. 7 and 8, Nansubuga et al. (2024) and Nakabugo et al. (2024), have justified the need to consider use of technology in assessment, and used the ALiVE approach to illustrate use of digital assessment. The fact that the assessment of life skills and values is a new thing in East Africa offers the opportunity to introduce it in a new way that does not require change management. The ALiVE assessment, which used smartphones (rather than tablets or other devices that might be more difficult to avail) and Kobo Toolbox (an open-sourced software, rather than software or applications that need purchase or subscription), offers

useful reflection on how the adoption of technology could revolutionise assessment and lower its cost. In a school setting, options might include the development and sharing of level-based item banks that teachers could draw from, the development of a classroom-based digital platform for recording observed behaviours and responses, and the leveraging of technology to automate developing and sharing reports.

12.2.2.3 Inducing Use of Assessment Evidence

Being a new area of education focus, the assessment of life skills and values offers the opportunity for advocacy, to ensure that stakeholders in the system will understand, embrace, and support successful mainstreaming. Thus, the suggestion by Nakabugo et al. (2024; Chap. 8, this volume) is worth consideration, that we treat the data generation process just as importantly as the data itself. This process needs to be open and inclusive (co-creation), facilitating the participation of as many stakeholders as possible, including policy makers and other key actors in the system like local officers and even parents. A second suggestion that emerges from ALiVE and articulated by Head (2015), is that the communication of assessment results needs to speak to the political process, and take advantage of critical political moments. One such moment is the summative assessment for the new lower secondary curriculum in Uganda planned for 2024, the education reform underway in Zanzibar, and the pronouncement of priorities of the current government in Kenya through the report of the Presidential Working Party on education reform.

12.2.3 Implication 3: Teachers' Assessment Capacities

Care (2024; Chap. 1, this volume) argues that a shift in curriculum without a matched shift in teacher attitudes and capacities, and learning resources, may not lead us to where we want to go. The preference of the integrated approach by East African education systems has ushered in the need for teachers to not only pay attention to the achievement of lesson objectives for academic subjects, but also objectives linked to additional competencies. This is not easy to achieve, even for the best teachers.

The conversation among policy actors at the ALiVE launch in Uganda arrived at the conclusion that while a mindset shift was needed, the acquisition of these competences (in both teachers and learners) necessitated a shift in the way of life, not merely a pedagogical one. This, it was seen, implied wide scale mobilisation of teachers to understand why these competencies are needed as a matter of priority, before we can talk about their capacities to teach or develop them. As one participant indicated: *A national approach is necessary, where we walk together as a nation. All teachers must be mobilised to understand, own and nurture life skills*.

Related to this, a further perspective was noted, that while development of academic knowledge and skills is dependent on the content knowledge and pedagogical competence of the teachers, life skills and values require demonstration, implying that teachers would need to possess these.

Teachers' lack of assessment capacities has been documented (e.g., Giacomazzi et al., 2022). However, before we reach teachers, the upstream functions of national assessment and quality assurance systems need to accumulate expertise and pass this on to the trainers of teachers. As noted in various chapters in this volume, assessing these competencies requires specific growth in expertise. The ALiVE academy, which now builds expertise not through boardroom training, but through the measurement development process, offers a useful model for education systems in the region. Through this model, it would be possible not only to build a critical mass of experts over time, but also to harness cross-country collaborative energy for the region. This could produce shared item banks and repositories that could benefit everyone. Once expertise starts accumulating at this level, it will be possible to onboard teacher trainers in a systematic way and unlock the available resources for teacher training at pre- and in-service levels. This can go hand-in-hand with integration of assessments at classroom and system levels, adopting an iterative improvement approach.

12.2.4 Implication 4: Assessment as a Shared Space Between Teachers and Parents

Recalled at the ALiVE launch event in Dar es salaam, the oft-repeated statement '*it takes a village to bring up a child',* remains as true as ever. The conversation in Tanzania noted that the school was unnecessarily burdened by problems that families and communities should solve: '*many children show up at school when they are already broken, and it becomes the impossible task of teachers to mend them'.*

A tough inference can be drawn from these conversations. Intervening in these life skills and values competencies needs communities to engage, where adults and parents are held accountable for demonstrating the skills and values to children. Second is the need for consistency between the home and school value systems, through dialogical relationships between parents and teachers in promoting ways of living that promote the nurturing of life skills and values. Third, the wider community and society, including the media and other communication platforms such as community and political meetings must be seen to be adopting the prioritised values.

ALiVE has two processes that connected closely with communities and parents, and lessons could be drawn for this. First, the contextualisation exercise that was conducted over the COVID period was situated in communities, involving local leaders, teachers, parents, social and health workers, religious teachers (catechists, maalims), and other people who worked with adolescents. Besides producing useful insights for the understanding of the constructs in context, this process enabled community members to contribute to the assessment

development process. This contributes to the suggestions made severally in this volume (Care & Giacomazzi, 2024; Mutweleli et al., 2024; Ariapa et al., 2024, Chaps. 4, 9, and 10), that the assessment of these competences must mirror the daily lives of children in the community.

Second, the ALiVE assessment was conducted in the household, offering opportunity for parents to observe and ask questions on the assessment. The opportunities and challenges of household-based assessments are well covered in the chapter by Nakabugo et al. (2024). Most highlighted is the awareness raising that occurs through these assessments, and the immediacy of feedback obtained through this. However, one challenge that arises is how to balance the exclusion of teachers, when theirs is the accountability burden to nurture the competences. There are suggestions to flip this, where school-based assessments could consider open space for parents and other key actors to participate, as a shared exercise. For instance, the teacher could open space for parent representatives to participate, bringing their experience to it, but also drawing useful parenting lessons from it.

12.2.5 Implication 5: A Resilient, Comprehensive Approach for Change

Heated debate ensued at the Uganda ALiVE launch. One side of the conversation argued that it did not make sense to measure something where no structured intervention exists in the education system, and the other side argued that evidence is needed to drive the shift. The participants recalled a three-decade history of life skills education, from early 1990s, and how focus oscillated across epochs where these skills were and were not examined. Even while the construct of life skills has evolved over this time (Care, 2024; Chap. 1, in this volume), the point was clearly made. Without evidence, such as that provided by ALiVE at this launch, it may have been impossible to achieve such depth and intensity of conversation.

This focus on three decades of intermittent life skills education is a clear indication that change happens slowly, steadily. ALiVE's participatory process of learning how to develop the assessment tool across more than 40 weeks, with 47 East Africans, is one clear manifestation of the resilience of the change. A reflection on the journey forward takes us back to the opening section of this chapter, to five factors.

12.2.5.1 Achieving Alignment

First there must be *alignment* between the call to integrate assessments of life skills and values on the one hand, and political priorities and economic realities on the other (Stewart, 2015). Proper packaging and communication of the evidence ensuing from assessments is necessary to achieve political persuasion (Elliot & Popay, 2000) and the needed convergence with political interests of each country. One

lesson that ALiVE offers is the opening up of assessments as negotiated space with policy makers, rather than producing results, taking evidence to policy makers, and exposing this to the risk of doubt and rejection (Nakabugo et al., 2024; Chap. 8, this volume). Given that political interests and economic realities keep shifting, the assessment process must constantly be re-aligned to emerging curricula and pedagogies.

12.2.5.2 Exploiting Timeliness

Giacomazzi (2024; Chap. 3, this volume) and Shariff et al. (2024; Chap. 2, this volume) concur that the moment is right for the three countries to pay attention to the development of this field. Now, life skills and values are perceived as a non-controversial and timely debate. Within just 3 years, the ALiVE process has attracted immense attention, and now presents a significant opportunity to heighten awareness of the implementation consequences of recent policy. The strengthened bond between state and non-state actors provides a convincing example of how collaborative practice can shift discussion and stimulate action.

12.2.5.3 Sustaining Engagement

Keeping abreast with the political and economic shifts necessitates sustained engagement, beyond suggestion and through to oversight and implementation. The ALiVE process has led to structured partnerships with government agencies across the three countries, as the only pathway to realizing change at the classroom and child level. Three ingredients may be needed to sustain these engagements. First is cultivating trust and collaboration among government institutions (curriculum and assessment centres), so that they break the expert-silos that currently exist. Second is to promote partnership and community building among experts in and out of government. Third is the formalization of relationships and inventing cross-institutional collaboration, so that the sharing of available resources can be smoothed. To achieve this, the programme has rebranded to ‘Action for Life Skills and Values in East Africa’, recognising that assessment alone is cannot achieve the needed change, and expanding focus to support developments in curriculum, classroom-based assessment and pre-service teacher training.

12.2.5.4 Institutionalising What We Produce

Chapters in this volume have described some barriers to assessments of life skills and values. Beyond the technical difficulties faced in producing evidence, there are difficulties that concern evidence use. As mentioned, Stewart (2015) describes four key barriers to evidence use. Beyond the individual, communication and relationships, and timing, lies the organizational or institutional. The anchoring of

assessment processes and tools in existing institutions is key to change. System mapping approaches offer useful strategies for the embedding of capacities, processes, and tools. The myriad spaces for institutionalisation include the political processes of legislation, the technical processes of education strategy and policy development, the teacher training ecosystem, the quality assurance and school-based teacher support systems, as well as the many supportive networks that include teacher and parent associations and civil society networks. These are the institutional spaces in which sustained engagement must focus.

12.3 Conclusion

Since conclusion of the first phase of ALiVE, in what might in retrospect be seen as a deep learning about life skills and values and their assessment, the products of that phase and the discussions with the four education systems across the three countries have generated and contributed to continuing reform and development initiatives across Tanzania mainland, Zanzibar and Uganda. First, these initiatives are taking the form of increasing focus on prioritization, definitions and structures of skills – making these explicit in the curriculum. The second dimension is embedding these in assessments, testing the different approaches to assessment and building system capacities in this area. The third dimension of the initiatives is on teacher training, embedding the competencies in teacher training curricula and working with the teacher training institutions to develop training methods best suited for these skills. If this momentum is sustained, the collaborative work of experts in and out of government is expected to accelerate the movement towards realisation of the learning outcomes across education levels. More valuable still, will be the contribution of East Africa to global knowledge, on what works and what does not in achieving system shift outcomes for learners' life skills and values.

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