

Becoming a Teacher

Research on the work-integrated
learning of student teachers

Edited by
Josef de Beer,
Neal Petersen & Herman J. van Vuuren

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Volume 4

Becoming a Teacher

Research on the work-integrated learning of student teachers



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NWU Self-Directed Learning Series
Volume 4

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Research on the work-integrated learning of student teachers

Editors

Josef de Beer

Neal Petersen

Herman J. van Vuuren



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Research justification

This book disseminates original research on learning in and from practice in pre-service teacher education. Authors such as Lederman and Lederman (2015:670) have described the student teaching practicum or work-integrated learning (WIL), which is an essential component of pre-service teacher education, as the 'elephant in the room'. These authors noted that '... the capstone experience in any teacher education programme is the student teaching practicum ... (a)fter all, this is where the rubber hits the road' (Lederman & Lederman 2015:670). However, many teacher educators will agree that this WIL component is sometimes very insufficient in assisting the student teacher to develop an own footing and voice as a teacher. This is the 'gap' that this research book addresses.

Most of the chapters in the book report empirical data, with the exception of two chapters, that can be categorised as systematic reviews. Work-integrated learning is addressed from various angles in the chapters. Chapter 6 focusses on research related to what makes Finnish teacher education so effective, and in Chapter 4, researchers of the University of Johannesburg disseminate their findings on establishing a teaching school (based on Finnish insights) in Johannesburg. Chapter 3 highlights the challenges faced in open learning and distance learning teacher education contexts. Several of the chapters disseminate research findings on alternative interventions to classic WIL, namely, where 'safe spaces' or laboratories are created for student teachers to learn and grow professionally. These could either be simulations, such as software programs and avatars in the intervention described in Chapter 2, student excursions, as portrayed in the findings in Chapter 5, Chapter 7 and Chapter 10, or alternative approaches to WIL (e.g. Ch. 11 and Ch. 12).

The book is devoted to scholarship in the field of pre-service teacher education. The target audience of this book comprises scholars working in the fields of pre-service teacher education, WIL and self-directed learning.

The book makes a unique contribution in terms of firstly its extensive use of cultural-historical activity theory as a research lens, and secondly in drawing on various theoretical frameworks. Both quantitative and qualitative research informed the findings of the book.

In accordance with the requirements of the Department of Higher Education and Training, this book contains more than 50% original content not published before, and no part of this work has been plagiarised.

Josef de Beer, Research Unit Self-Directed Learning, Faculty of Education, North-West University, Potchefstroom, South Africa

Contents

Abbreviations, Boxes, Figures and Tables Appearing in the Text and Notes	xxi
List of Abbreviations	xxi
List of Boxes	xxiii
List of Figures	xxiii
List of Tables	xxiv
Notes on Contributors	xxvii
Foreword	xxxvii

Chapter 1: The journey of becoming a professional teacher: Policy directives and current practices 1

Herman J. van Vuuren

Abstract	1
Introduction	2
Concept description of work-integrated learning	3
Policy guidelines for work-integrated learning programmes	7
The Constitution of the Republic of South Africa (Act 108/1996)	8
The policy on The Minimum Requirements for Teacher Education Qualifications	9
The South African Council for Education professional teaching standards	13
The <i>National Education Policy Act</i> (Act no. 27 of 1996)	17
The <i>South African Schools Act</i> (Act no. 84 of 1996)	18
The <i>South African Council of Educators Act</i> (Act no. 31 of 2000)	18
A rationale for work-integrated learning	19
The learning part of work-integrated learning	20
Assessment as an integral part of work-integrated learning	22
University engagement	25

Mentoring in work-integrated learning	27
The role of the academic supervisor	27
The role of the school-based supervisor (teacher educator)	28
Benefits of mentoring for the mentee	30
Benefits of mentoring for the mentor	31
Key elements of a successful mentoring programme	32
Reflection	33
Benefits of an effective work-integrated learning programme	34
Student teachers	35
Employer (education authorities)	36
Higher Education (universities)	36
Work-integrated learning and diversity awareness	37
Guiding principles for student teachers to deal effectively with diversity in schools as part of their involvement in work-integrated learning programmes	38
Introspection and reflecting about personal perceptions on diversity	38
A balanced approach in recognising diversity	39
Standards for professional conduct	39
Continuous support	39
Integrate diversity into work-integrated learning programme	40
Creating a shared vision	40
Conclusion	40

Chapter 2: TeachLive™: Learning from practice in a mixed-reality teaching environment **43**

Carisma Nel, Elma Marais & Lisa Dieker

Abstract	44
Introduction	44
Mixed-reality simulated classrooms and training student teachers	47
Research methodology	48
Sampling	49

The TeachLivE™ mixed-reality classroom simulator	50
Operational components of TeachLivE™	53
Data collection methods and procedure	55
Data analysis	58
Findings and discussion	58
Conclusion	63
Acknowledgements	64
Chapter 3: The value of work-integrated learning for professional teacher development programmes in open distance learning	65
<i>Divan Jagals</i>	
Abstract	65
Introduction and problem statement	66
Literature review	69
The historic and modern concept of open distance learning	70
Advancement in open distance learning technologies	71
Scholarship on work-integrated learning	72
Work-integrated learning models	74
Metacognitive awareness in work-integrated learning	76
Metacognitive knowledge	76
Metacognitive awareness	78
Tier I: Implicit awareness	78
Tier II: Perceptual awareness	78
Tier III: Meta-representational awareness	79
Conceptual-theoretical framework	79
Philosophical analysis of the conceptual-theoretical framework	82
A philosophical concept analysis of value	82
Philosophical analysis of the self-concept in learning	84

Discussion: Considerations for the value of work-integrated learning	84
Reflections on metacognitive awareness	85
Conclusion and the way forward	86

**Chapter 4: Work-integrated learning and teaching schools:
The University of Johannesburg teaching school experience 89**

Sarita Ramsaroop, Nadine Petersen & Sarah Gravett

Abstract	90
Introduction and background	91
Design principles of a practicum model	92
Coordinating learning experiences in coursework and the practicum	94
Research methodology	100
Findings	101
Learning from mentoring that straddles technical mastery and inquiry	101
Learning spaces working together to develop inquiry-oriented student teachers	105
Preparation for the world of reality	108
Discussion	110
Conclusion	113

**Chapter 5: The first-year student teacher as a
self-directed learner 115**

Neal Petersen, Josef de Beer & Elsa Mentz

Abstract	115
Introduction: Becoming a teacher in a complex 21st century	117
The value of educational excursions and its place in the formal curriculum	118
The gap that this chapter addresses: Developing self-directed learning during excursions	121
Self-directed learning	122

Research questions	123
Methodology	124
Research paradigm	124
Research design	124
Cultural–historical activity theory	125
Measuring instruments and data-gathering instruments	126
Population, sampling and participants	128
Data analysis	128
Ethical considerations	129
Results	129
Quantitative results	129
Qualitative data and findings	133
Theme 1: Student teachers have a disposition towards valuing diversity and a realisation that they have to be inclusive teachers (practitioners)	133
Theme 2: Some evidence exists that student teachers were aware of their own learning needs, but student teachers expected the pre-service programme to address these needs	135
Theme 3: Student teachers become more aware of the value of engaging pedagogies and a pedagogy of play	137
Theme 4: A strong realisation developed amongst student teachers of the benefits of group work for their own professional development and for their future classrooms	139
Theme 5: Little evidence exists that the student teachers possess the ability to do deep reflection	143
Theme 6: Cultivating higher-order cognitive skills	146
Theme 7: Student teachers' attitudes and dispositions towards the excursion (and on becoming a teacher)	147
Theme 8: Student teachers' views on the complexity of teaching	149
Discussion and conclusion	152

Chapter 6: Self-directed learning in teacher education: Lessons from Finland	157
<i>Elsa Mentz & Josef de Beer</i>	
Abstract	157
Introduction	158
Theoretical and conceptual framework	161
Social constructivism and self-determination theory as a theoretical framework	161
Self-directed learning as a conceptual framework	162
Pre-service teacher education in South Africa	163
What motivates South African student teachers to choose the profession?	164
Selection of student teachers and controlled entrance to the profession	164
Emerging teacher identity among South African student teachers	165
Knowledge base of South African student teachers	165
Support and mentoring of student teachers in South African schools	166
Lack of liaison between South African universities and schools	167
Breakdown of discipline in some South African schools, and lack of respect for teachers	168
Compliance nature of South African school education	168
Pre-service teacher education in Finland	169
What motivates Finnish student teachers to choose the profession?	169
Selection of student teachers and controlled entrance to the profession	170
Emerging teacher identity among Finnish student teachers	170
Knowledge base of Finnish student teachers	171
Support and mentoring of student teachers in Finnish schools	171
Liaison between Finnish universities and schools	171
Discipline in Finnish schools and respect for teachers	172

The nature of Finnish school education	172
Methodology	172
Results	174
Results from interviews with Finnish student teachers with regard to the objective of fostering self-directed learning	176
Results from interviews with Finnish student mentor teachers with regard to the object of fostering self-directed learning	178
Results from interviews with Finnish teacher educators with regard to the objective of fostering self-directed learning	180
Discussion	182
Looking at pre-service teacher education in Finland and South Africa through a cultural-historical activity theory lens	182
Differences in context between Finland and South Africa	184
Conclusion	186
Good liaison between schools (teaching schools) and faculties of education	186
A strong focus on research in pre-service teacher education	187
Better selection processes of prospective student teachers	188
Fostering self-directed learning	188
Chapter 7: The affordances of case-based teaching that draws on drama in pre-service teacher education	189
<i>Josef de Beer, Marthie van der Walt & Byron Bunt</i>	
Abstract	190
Introduction: The so-called ‘theory–practice divide’ and the affordances of excursions and case-based teaching in pre-service teacher education	191
Theoretical framework: Social constructivism	192
Vicarious learning	193
Experiential learning	193

The conceptual framework: Excursions, case-based teaching, dramatising cases, the apprenticeship of observation and critical reflection	194
Excursions as a ‘safe space’ for learning	194
Case-based teaching	196
Dramatising cases	197
Apprenticeship of observation	199
Critical reflection	204
Reflection and dramatising cases	206
Fostering self-directed learning	206
Methodology	207
Research design	207
Data collection	207
Data analysis	208
Ethics	208
Findings	208
Theme 1: Student teachers dissected complex problems and developed more insights into the dilemmas of being a teacher in the 21st century	209
Theme 2: The excursion assists student teachers in gaining improved metacognitive knowledge and reflective skills	210
Theme 3: Dramatising cases hold opportunities for developing understanding and empathy for the task of teachers	211
Theme 4: Student teachers came to a better understanding and appreciation of the value of cooperative learning	211
Theme 5: Development of self-directed learning	212
Discussion and conclusion	213

Chapter 8: ‘WIL goes POP’: The role of a professional orientation programme in addressing the apprenticeship of observation in first-year Bachelor of Education students 215

Carolina Botha & Elizabeth M. Reyneke

Abstract	216
----------	-----

Introduction	217
WIL goes POP: The rationale	219
The aims	220
Pedagogical cornerstones	221
The theoretical framework	223
Apprenticeship of observation	224
Work-integrated learning as a vehicle for change	226
De(re)constructing the apprenticeship of observation	227
The role of self-directed learning in teacher training	231
Getting practical about scaffolding to teach	233
Unpacking the components of work-integrated learning	233
Work-integrated learning: Learning from, in and for practice	234
The structure of the programme	235
Methodology	237
Findings	238
Theme 1: Student teachers deconstructed their dominant discourses about teaching	239
Theme 2: Student teachers developed more nuanced views of the complexity of the teaching profession during professional orientation programme	240
Theme 3: Student teachers experienced the programme as long and cumbersome	241
Theme 4: Students considered content in themes to be varied in the successful impact it had on their perception of teaching	241
Theme 5: First-year student teachers are not used to act as self-directed learners	243
Recommendations	244
Conclusion	245
Chapter 9: The role of reflection as a vehicle for self-directed learning during work-integrated learning of student teachers	247
<i>Julialet Rens, Lounell White, & Lettie Botha</i>	
Abstract	248

Introduction	249
Literature review	250
Reflection	250
Metacognition	255
Self-directed learning	256
Professional identity	257
Research methodology	260
Research design	260
The third-generation cultural-historical activity theory as research lens	262
Activity system 1: Teacher educator's perspectives	263
Activity system 2: Student teachers' perspectives	265
Data analysis and findings	266
First-year student teachers showed naïve preconceived views on teaching	266
Second-year student teachers held uninformed views of teaching and learning strategies, and often reverted to 'chalk and talk' approaches	267
Third- and fourth-year student teachers held more nuanced views of teaching and learning strategies, and showed more evidence of critical reflection	268
Second-year student teachers were unable to identify appropriate teaching resources	271
Fourth-year student teachers recognised the importance of contextualised learning	271
Fourth-year student teachers identified that suitable classroom management is conducive for the learning process	272
Student teachers, as they progressed with their degrees, became more aware of the role of observation and critical reflection	273
Fourth-year student teachers provided evidence of critical reflection, which guided the development of their own professional identity	275
Materialisation of contradiction of control between activity system 1 and activity system 2	276
Conclusion	277

Chapter 10: The role of work-integrated learning excursions in preparing student teachers for diverse classrooms and teaching social justice in South African classrooms	279
<i>Tswakae Sebotsa, Neal Petersen & Melissa Speight Vaughn</i>	
Abstract	280
Introduction	281
Background: Our young democracy remains an unequal society	281
A need to address issues of social justice and diversity in teacher education	283
North-West University	284
Problem statement	285
Research questions	288
Primary research question	288
Secondary research questions	288
Excursions and self-directed learning	288
Context of work-integrated learning excursions	288
Conceptualising work-integrated learning within a self-directed learning context	291
Theoretical/conceptual framework	294
Social constructivism	294
Zone of proximal development	294
Zone of proximal teacher development	296
Conceptual framework	297
Social justice	297
Dramatical collisions	298
Engaging pedagogies	299
Methodology	305
The aim of the study	305
Research paradigm	305
Research design	305
Measuring instruments and data-gathering instruments	306
Population, sampling and participants	306
Data analysis	307
Ethical considerations	307

Findings and discussion	308
The student teachers reported effective learning through the pedagogy of play during the excursion	308
Student teachers increased awareness of agency and inclusivity	310
The student teachers reported an understanding of and respect for diversity in the South African classroom	312
Revisiting the research questions	314
Research question 1: How did the implementation of the engaging pedagogies during the excursion sensitise student teachers to teach social justice in diverse classrooms?	314
Although student teachers had emotional experiences during some of the activities, they do realise the need to be inclusive	315
Student teachers acknowledged that, in order to respect other cultures or groups, good communication is needed	316
The excursion provides a fertile learning space to address personal biases and preconceived ideas	317
Research question 2: How did the excursion facilitate students' awareness of their own cultural biases?	318
Research question 3: How did the exposure to social justice issues contribute to a context of discomfort to assist student teachers in identifying their personal barriers to teaching diversity?	319
How does Wardford's zone of proximal teacher development incorporate self-directed learning?	320
Recommendations and conclusion	321
Recommendations	321
Conclusion	322

Chapter 11: A hybrid model building on prolepsis for effective practice teaching in pre-service life sciences teacher education **323**

Josef de Beer & Sarah Gravett

Abstract	324
----------	-----

Science teacher education in South Africa: Can the phoenix rise from the ashes?	325
Alternatives to the traditional school practicum	328
The school practicum intervention	329
Background: Why this intervention?	329
The approach: Scaffolding learning across a zone of proximal teacher development	330
The process followed during the intervention	330
Prolepsis	333
Research methods	334
Ethical considerations	335
The findings: The affordances of such a novel approach to pre-service teacher education	335
The findings: The main themes that emerged	335
The intervention assisted student teachers in replacing transmission-mode teaching approaches with more engaging pedagogies	336
The intervention provided student teachers with more nuanced understandings of the nature of science	337
Student teachers' professional developments were scaffolded through the mentoring of peers and teacher educators	338
The intervention facilitated the development of affective outcomes, such as taking responsibility for the learners and adopting a pedagogy of care	339
The findings illustrate student teacher learning across the zone of proximal teacher development	340
Stage 1: Student teachers are required to reflect on prior experiences and assumptions	342
Stage 2: The expert-other assistance stage	344
Stage 3: Internalisation	346
Stage 4: The recursion or the de-automatisation phase	348
Another student teacher reflected as follows (cited in De Beer 2017):	350
Comparing the student teachers who participated in this intervention to their peers who did not	352
Implications of the findings and conclusion	353

Chapter 12: An alternative model for work-integrated learning in South African schools	357
<i>Izak J. Oosthuizen, Lloyd Conley & Carolina Botha</i>	
Abstract	358
Introduction	358
Problem statement	359
Aim of the chapter	367
Methodology	367
Theoretical framework	367
Exposition of some existing work-integrated learning theories	368
Externships	368
Job shadowing	369
Apprenticeship of observation	369
Internships	370
Synopsis: Work-integrated learning as the ‘elephant in the room’	373
Exposition of an alternative model	378
Conclusion	381
References	383
Index	425

Abbreviations, Boxes, Figures and Tables Appearing in the Text and Notes

List of Abbreviations

AAR	After-Action-Reviews
AETID	Advances in Educational Technologies and Instructional Design
AIDS	Acquired Immune Deficiency Syndrome
ANC	African National Congress
ARC	Action Review Cycle
BAR	Before Action Review
CAPS	Curriculum and Assessment Policy Statement
CBD	Central Business District
CELDS	Centre of Education Leadership Development and Support
CHE	Council on Higher Education
CL	Cooperative Learning
CoP	Community of Practice
CPD	Continuous Professional Development
CREST	Center for Research in Education Simulation Technology
DBE	Department of Basic Education
DGMT	Douglas George Murray Trust
DHET	Department of Higher Education and Training
F&A	Famine and Abundance
FET	Further Education and Training
FG	Focus Group

GDE	Gauteng Department of Education
HEI	Higher Education Institutions
HEQF	Higher Education Qualification Framework
HIV	Human Immunodeficiency Virus
ICT	Information and Communication Technologies
IQMS	Integrated Quality Management System
ISTE	International Science and Technology Education
ITE	Initial Teacher Education
ITERP	Initial Teacher Education Research Project
MRTEQ	Minimum Requirements for Teacher Education Qualifications
NWU	North-West University
ODL	Open Distance Learning
PBL	Problem-based Learning
PCK	Pedagogical Content Knowledge
PDS	Professional Development Schools
PIRLS	Progress in International Reading Literacy Study
PISA	Programme for International Student Assessment
PLC	Professional Learning Community
POP	Professional Orientation Programme
PPC	Person-Process-Context
PPS	Professional Practice Schools
PTS	Professional Teaching Standards
RAM	Random Access Memory
RTOP	Reformed Teaching Observation Protocol
SACE	South African Council for Education
SDL	Self-directed Learning
SDLI	Self-Directed Learning Instrument
SDT	Self-determination Theory
SKA	Square Kilometre Array
STEAM	Science, Technology, Engineering, the Arts and Mathematics
TEI	Teacher Education Institutions

TIMSS	Trends in International Mathematics and Science Study
TP	Teaching Practice
TS	Teaching School
UJ	University of Johannesburg
WEF	World Education Forum
WIL	Work-integrated Learning
ZPD	Zone of Proximal Development
ZPTD	Zone of Proximal Teacher Development
CHAT	Cultural-historical Activity Theory

List of Boxes

Box 2.1: Professional growth plan.	56
Box 5.1: Descriptive statistics: Mean and standard deviation of the 20 questions of the SDLI.	131

List of Figures

Figure 2.1: Participants in the TeachLive™ simulator.	52
Figure 2.2: After-action review process for simulation.	53
Figure 2.3: Operational components for TeachLive™.	54
Figure 3.1: An integrative conceptual-theoretical framework for the value of WIL.	81
Figure 4.1: Making sense of the spaces of practical learning in becoming a teacher.	97
Figure 5.1: Some of the student newspaper articles that provide insight into the lack of critical reflection by student teachers.	144
Figure 5.2: Utilising cultural-historical activity theory as a research lens.	150
Figure 6.1: Comparing three activity systems, namely, the perspectives of teacher educators, mentor teachers and student teachers on pre-service teacher education in Finland.	175

Figure 6.2: Utilising cultural–historical activity theory on an institutional level, to juxtapose Finnish and South African pre-service teacher education.	183
Figure 8.1: Learning experientially.	222
Figure 8.2: Model of transitions in student teachers.	228
Figure 9.1: Cultural–historical activity theory on a personal plane (adapted from Mentz & De Beer 2017). Activity system 1 refers to the teacher educator’s perspectives while activity system 2 refers to the student teacher’s perspectives.	264
Figure 10.1: The model of a PPC within the strand of SDL.	292
Figure 10.2: A reflection on the famine and abundance game, from a newspaper artefact.	309
Figure 10.3: Student teachers’ reflection on the simulated HIV game.	310
Figure 10.4: Student teachers’ newspapers articles in terms of the famine and abundance game.	311
Figure 10.5: The use of drumming to embrace diversity during the excursion.	313
Figure 11.1: The life sciences intervention cycle.	332
Figure 12.1: Model for an alternative WIL format.	375

List of Tables

Table 3.1: Google search results on the state of the literature.	67
Table 5.1: Descriptive statistics: Reliable domains of the SDLI and total SDL mean score.	132
Table 7.1: The design of the ‘dramatisation of case studies’ activity based on Warford’s (2011:254) stages in scaffolding learning across the ‘ZPTD’.	192
Table 10.1: Scaffolding student teachers’ learning across the ZPTD.	295
Table 10.2: Engaging activities during the excursion programme.	301

Table 11.1: Summary of findings during the initial phases of the programme (February and March, which in South Africa is the start of the academic year) (the different columns refer to the different data collection instruments that were used in the study).	343
Table 11.2: Summary of findings during phase 2, the scaffolding within an expanded ZPTD (March to May).	345
Table 11.3: Summary of findings during phase 3, the internalisation phase (April to November).	347
Table 11.4: Summary of findings during phase 4, the recursion or de-automatisation phase (July–November).	349
Table 12.1: Problems experienced by novice teachers in South Africa.	362

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Foreword

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As the national teacher education system focusses its attention more and more on the issue of quality initial teacher education (ITE) as one of the important levers that can lead to an improvement in education outcomes in a complex and multi-faceted education ecosystem that is impacted by a range of factors both within and outside of the direct control of the teacher education community, the teaching practice (TP) or work-integrated learning (WIL) component of initial teacher education (ITE) is being brought much more sharply into focus.

And rightly so.

The Council on Higher Education's (CHE) *Report on the Review of Academic and Professional Programmes in Education* (CHE 2010) commented that the success of a teacher education programme is largely dependent on the quality of its TP/WIL component.

Some of the weaknesses that the CHE review identified regarding TP/WIL included the significant difference in the amount of time allocated for it in programmes offered by different universities, limitations in the diversity of experience across school contexts, poor relationships and contractual arrangements between teacher education institutions and schools, poor mentorship of students and the wide variations in supervision and assessment practice across institutions. The review report also made the point that the root of many of the weaknesses lies

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in inadequate resource allocation, both human and financial, to support the TP/WIL component of ITE programmes, and noted that TP/WIL is clearly an area that requires extensive discussion in the sector.

The Department of Higher Education and Training supported Jet Education Services to undertake the *Initial Teacher Education Research Project* (ITERP) (Deacon 2016) in 2014, to ‘examine the extent to which the ITE programmes offered by universities are adequately preparing teachers to teach in South African schools’. The study found that the ‘work-integrated learning (WIL) or TP component of ITE programmes also exhibited substantial variations between universities in terms of duration, organisation, the quality and content of learning experiences and the form and nature of assessment’.

There have been a range of responses to the findings of the CHE review and the ITERP study, including a policy response through the publication of the revised *Policy on Minimum Requirements for Teacher Education Qualifications* (Department of Higher Education and Training 2015) in 2015, which set minimum specifications and requirements for the TP/WIL component of the ITE programme, and a number of national dialogues on TP/WIL involving multiple stakeholders.

A further promising development is the establishment of a national collaborative process to develop a *National Protocol for the Collaborative Implementation of Teaching Practice in Initial Teacher Education*. The protocol aims to put a supportive ecosystem in place for TP/WIL by clarifying the nature and expectations of TP/WIL, the roles that the range of stakeholders must play to enable its effective implementation and the resource infrastructure that is needed to support its quality delivery.

It is well understood that a research-informed approach to TP/WIL is a necessary condition for improving its quality, and the timely publication of this book is welcomed and will undoubtedly make a significant contribution to the national efforts in this regard, including through informing the development of the national protocol.

The journey of becoming a professional teacher: Policy directives and current practices

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■ Abstract

Leading scholars in the field of teacher education have referred to the school experience and WIL of student teachers as the ‘elephant in the room’. Excellent pre-service teacher education programmes are often plagued by practical school experiences that do not match the high standards set in the theoretical component. Often, there is a ‘theory–practice divide’, which is

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unfortunate, as the school experience is, after all, where the ‘rubber hits the road’, and where student teachers have to put theory into practice. This chapter focusses on policy directives and current practices (such as mentoring, reflection and related diversity matters) in pre-service teacher education in South Africa. As the first chapter, it provides the stepping stone and the necessary context on which the other empirical chapters of the book will build on.

Keywords: Pre-service teacher education; Work-integrated learning; Minimum requirements for teacher education qualifications; Mentoring; Diversity.

■ Introduction

Since 1994, the higher education landscape has changed extensively in South Africa. Several of the public higher education institutions (HEIs) merged and the establishment of new universities has led to 26 public universities, which offer traditional, professional and career-focussed qualifications. Many of the career-focussed and professional programmes are presented by HEIs by means of a cooperative strategy with employers, which imply WIL component as a key and compulsory part of the qualification.

A WIL programme is complex by nature and requires expertise in developing a situation-specific programme in accordance with relevant policy directives and by taking into account diverse contextual factors. This chapter focusses on some prominent WIL themes to provide an overview of essential components that should be incorporated in pre-service teacher education programmes, and specifically in the ‘school experience’ component.

The chapter starts with a broad concept clarification section that describes some core elements of a WIL programme, which is followed by a focus on related policy directives. Policies provide the parameters for the designing and implementation of educational programmes as part of the basic and higher education

sectors, and careful attention to these policies is of paramount importance. Learning as an integral part of WIL is analysed and discussed in support of an improved understanding of the concept. Higher education institutions are the service providers of WIL programmes in education and for this reason, the engagement of universities in these programmes are briefly outlined. Programme-related elements such as mentoring, reflection and the advantages of effective WIL programmes are discussed, and the chapter concludes with a brief focus on dealing with diversity in relation to the implementation of a WIL programme. The aim of the chapter was to provide a sound introductory base as background information about the professional development of teachers in WIL programmes as part of their professional ‘journey’ in education.

■ **Concept description of work-integrated learning**

There is a universal interest in curricular and pedagogical reform to equip student teachers from diverse backgrounds for the needs and requirements of the 21st century and to promote accountable citizenship (CHE 2001). The changes in the higher education landscape, the competitiveness between HEIs, the call to widen access to higher education and the challenge to bridge the gap between theory and practice led to, amongst other aspects, a revived focus on teaching and learning practices that should be responsive to the current trends and demands in the world of work.

The South African education system is plagued by relentless inequality, unacceptable high learner dropout rates and problematic teaching quality (SACE 2018). An imperative for ITE programmes is to assure profession-specific competency and employability in the teaching profession. Service providers of teacher education programmes are duty-bound to assure that students who graduate as beginner teachers are sufficiently equipped to deal with the challenging demands related to the

teaching profession (CHE 2011). Global perspectives on the preparation of graduates for a particular profession in the world of work is of particular relevance to education, as WIL forms an integral and key part of initial teacher training programmes. Lederman and Lederman (2015:670) described this WIL of student teachers as the 'elephant in the room'. These authors noted that '...the capstone experience in any teacher education programme is the student teaching practicum...(a)fter all, this is where the rubber hits the road'. However, many teacher educators will agree that this WIL component is sometimes inadequate in supporting the student teacher to develop an own footing and voice as a teacher.

Different exponents use different expressions to describe the WIL component of a qualification. References that are common include, amongst others, cooperative education, experiential learning, work-based learning, practice-based learning and in an education context – TP. This is essentially a reference to a holistic approach in the provision of opportunities to apply theoretical knowledge in a specific field of practice (Van Niekerk 2018). According to Van Niekerk (2018), WIL indicates a specific skill set that is learnt and developed in the workplace and is directly related to the academic teaching at an HEI. Work-integrated learning can thus be seen as a form of education that assimilates periods of formal and academic study with periods of real work exposure in relation to a specific career-focussed programme or specialised field of study. The emphasis on the integrated part of WIL is highlighted in particular because it is the integrative aspect with academic study that distinguishes WIL from mere workplace learning. Hence, WIL lends meaning to a specific and idiosyncratic educational approach that assimilates academic (theory) and workplace practices in such a manner that all parties involved benefit from participation in a WIL programme.

Based on the preceding introductory remarks, the concept of WIL can be described as an overarching or umbrella term that indicates curricular, pedagogic, supervised and assessment practices that are applicable to a range of practice-based careers,

professions and other formative disciplines that integrate formal academic learning and specific workplace concerns such as education, engineering, medicine, law and architecture. Work-integrated learning primarily involves the enhancement of student learning and workplace experience and includes a variety of innovative curricular, pedagogical and assessment forms to assure workplace readiness, employability and ultimately social responsibility. In the context of the education profession, WIL has specific reference to experiential, cooperative or school-based learning that represents a key interface between student teachers and the demands of the education profession (Jackson 2017).

Work-integrated learning in education is about the principle that a structured, supervised and assessed learning should be evident in a particular school environment in order to be appropriate for a professional qualification in education. Work-integrated learning opportunities offer credit-bearing learning outcomes as an integral part of the qualification for student teachers and can be seen as a more powerful learning experience than learning in a classroom setting (Van Niekerk 2018). In a holistic sense, all WIL activities are directed towards the need to integrate the theoretical knowledge acquired from formal academic study with school and practice-based forms of learning. Overall, WIL, in general terms, is the blending of academic work with the world of work, with inherent benefits to the student teachers, partner schools and service providers (HEIs), while all interactions should be relevant as required by the specific qualification (Vlok 2018).

Learning approaches to WIL include, amongst others, Self-directed Learning (SDL), action-learning, problem-based learning, experiential learning, inquiry learning, project-based learning, service learning, team-based learning, simulated learning, apprenticeships and practicum placements that enable students to apply their disciplinary knowledge in a supervised and nurtured school setting (CHE 2011). An understanding of the uniqueness and the worth of the workplace as a learning environment has prompted the HEIs to increasingly emphasise

on WIL as an integral part of teaching and learning with the potential to make an interactive and contextualised learning experience possible for student teachers. Work-integrated learning encompasses educational actions that assimilate relevant theories with its application in the workplace. The application in practice, and the subsequent assimilation of theory and practice, should provide for a constructive and positive learning experience. Learning activities should be planned, organised and operationalised in order for the learning outcomes to be transferable and applicable (Dorasamy 2018). Differences do occur in the use of discipline-specific terminology, descriptions and learning approaches, but a common understanding of WIL is that it enables student teachers to link theoretical knowledge gained through formal academic study with practice-based knowledge and skills obtained through exposure in an authentic practice context (Dorasamy 2018). Work-integrated learning is based on classroom- and school-based forms of learning that incorporates academic (theoretical) study and classroom practices with the intention to guide student teachers to reflect critically on their experiences and to improve their conceptual understanding and skills (CHE 2011).

Student teachers gain valuable exposure and experience in a school setting to make sense of their intended career in education through opportunities to observe, learn, reflect and interact with seasoned and professional educators. The importance of WIL for the professional development of students is widely accepted, and some of the advantages of participating in a WIL programme are the following (CHE 2011; Jackson 2017):

- Academic advances, such as an enhanced knowledge base, the promotion of interdisciplinary and critical thinking, and a support for lifelong learning.
- Personal qualities, such as improved interpersonal competencies, team work and leadership development.
- Career gains, such as career path clarity and being able to take ownership of career planning, awareness-raising of

personal strengths and weaknesses, developing a professional identity and the development of professional work values and ethics.

- An increase in overall competence, which includes the development of specialised and professional knowledge and skills.

Work-integrated learning is not intended to be the complete answer for all the challenges experienced in the TP, and it certainly cannot transform the education system on its own. However, taking the mentioned advantages into account, an effective WIL programme can certainly add significant value to the readiness of student teachers who are entering the education profession as well-rounded beginner teacher educators. Work-integrated learning in education is a 'golden' opportunity as a core part of ITE programmes for student teachers to familiarise with the praxis of teaching and learning.

■ Policy guidelines for work-integrated learning programmes

A narrow focus on merely skills acquisition, which is mostly based on evidence as demonstrable outcomes, without explaining how theory should bolster these skills, is inappropriate for promoting effective learning. Self-directed learning is a *sine qua non* in such skill acquisition. Knowles (1975) described self-directed learning as:

[A] process by which individuals take the initiative, with or without the assistance of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies and evaluating outcomes. (p. 18)

Otherwise, a merely skills-based approach may end up producing 'technicians' who can function effectively in comparable contexts but will be seriously challenged in situations of context change. A basic principle in the offering of WIL programmes is to comply

at all times with legal and policy directives. The following policy directives in relation to WIL are briefly outlined.

■ **The Constitution of the Republic of South Africa (Act 108/1996)**

The Constitution of the Republic of South Africa (Act, 108/1996) (South Africa, 1996a) is the highest law in South Africa and sets the standard for all the other laws of the country. The Constitution is central for the regulation of all aspects of societal life to protect the basic human rights of every individual, irrespective of diverse contexts and circumstances. The Preamble of the Constitution (Act, 108/1996) (South Africa, 1996a) explicitly declares that South Africa belongs to all the people of the country and envisions a united nation with the acknowledgement of diversity among the South African population. The ideal of unity is based on social justice, democratic values and fundamental human rights. Chapter 2 of the Constitution deals with the Bill of Rights that describes the basic human rights of all the people of South Africa. Work-integrated learning programmes in education not only need to account for diverse school contexts but also need to take human diversity into account.¹ Clear indicators from the Bill of Human Rights are highlighted as a basis to deal effectively with human diversity as inclusive practitioners in any WIL programme. These constitutional values with specific reference to deal with human diversity are:

- **Education, Section 29(1)** – Every individual in South Africa has the right to basic and further education. (Refer to the Sustainable Development Goals discussed in the introduction in Ch. 8.)
- **Culture, Section 31(1)** – All members of society have the right to maintain and enjoy their respective cultures.

1. This aspect is further elucidated in the 'Work-integrated learning and diversity awareness' section.

- **Equality, Section 9(3)** – Unfair discrimination is prohibited on the grounds of any aspect of diversity.
- **Expression, Section 16(2c)** – The right to freedom of expression does not include the advocacy of hatred based on aspects of human diversity that constitutes incitement or harm to the dignity of individuals.
- **Dignity, Section 10** – The inherent dignity of all is to be respected and protected in accordance with the acknowledgement of human diversity.
- **Interpretation, Section 39(1)** – The interpretation of any other South African legislation should be in strict accordance with the purpose, objectives and spirit of the Bill of Rights.

The listed constitutional values are of specific significance for all who have an interest in education. These foundational values are of paramount importance for ITE programmes with respect to content across the curriculum and WIL programmes. The manifestation of diversity in schools is recognised in the Bill of Rights, with the implication that all forms of human diversity should be dealt with in accordance with the fundamental human rights of the Constitution. Human dignity is valued and protected, while unfair discrimination based on diversity is in direct contradiction with the Constitution. Role players participating in WIL programmes should be informed and continuously be reminded about the importance of the Constitutional values to deal effectively with diversity encounters during the course of WIL programmes.

■ The policy on The Minimum Requirements for Teacher Education Qualifications

The national policy on *the Minimum Requirements for Teacher Education Qualifications* (DHET 2015) provides clear directives for the inclusion of specific types of knowledge to form the basis of a qualified teacher's professional competency. The principle underlying these types of knowledge is the inclusion of all of

these knowledge types in a holistic and integrated manner so as to apply knowledge types and related competencies as a professional practitioner with an emphasis on *what* to learn and *how* to learn. Each type of knowledge implies the mastering of a particular set of professional skills, and the learning approach is thus a mixture of theory and practice (DHET 2015).

The Policy for the Minimum Requirements for Teacher Education Qualifications (DHET 2015) distinguishes between five types of learning for the acquisition, integration and usage of knowledge for the purpose of TP. In brief, these are:

- *Disciplinary learning* refers to subject matter knowledge and includes studying education and its foundations as well as specific specialised subject content relevant to academic disciplines with professional ethics as a cross-cutting theme.
- *Pedagogical learning* is viewed as general pedagogical knowledge, which includes the study of the foundations, practices and methodologies of teaching, which refers to knowledge about related conceptions, methods and rulings of a specific discipline to ensure constructive learning opportunities for diverse learners and contexts.
- *Practical learning* is of specific value in relation to WIL and entails 'learning from practice and learning in practice' (DHET 2015:10). Learning from practice refers to studying using applicable means to examine different practices in a variety of teaching contexts in order to develop a sound and relevant theoretical basis for learning in practice. Learning in practice refers to practical teaching in genuine as well as in replicated classroom situations. Practical learning is a crucial and key component for the professional development as a competent and skillful teacher.
- *Fundamental learning* is viewed, in the context of the South African education system, as the learning of a second official language, the effective application of Information and Communication Technologies and the acquisition of academic literacies in higher education contexts.

- *Situational learning* involves an insight into diverse learning situations, contexts and milieus of education, which includes knowledge of the existing policy, and political and organisational contexts. All learning should involve learning in context, but situational learning refers specifically to ‘learning about context’ (DHET 2015:13). This approach to learning about context involves an understanding of the diverse nature of the South African society, the nuanced ways to address the diverse challenges faced by learners and communities and an insight into dealing with the issues of diversity, the promotion of inclusivity and environmental sustainability.

The value of this typology of learning is to distinguish between the various forms of learning in support of a common understanding of the components of a multi-faceted phenomenon that constitutes the knowledge base of a professional teacher. A pigeon-hole view or a one-dimensional approach to learning should be avoided because these types of learning are integrated as a holistic knowledge mix and should not be seen as stand-alone or isolated parts.

Over and above the required knowledge mix requirements and the expected professional teaching standards, clear directives are applicable for HEIs involved in teacher education with a compulsory WIL component to comply with. The policy document on the Minimum Requirements for Teacher Education Qualifications (DHET 2018) makes it clear that WIL programmes should include a compulsory learning-in-practice component that takes place for the minimum required periods within a school and classroom setting. This school-based requirement necessitates the development of mutually beneficial partnerships between the service providers and the schools, districts and provincial departments of education. These partnerships between the service providers and the mentioned key role players in education are often overlooked with unfavourable consequences in the implementation of an effective WIL programme. South Africa is further characterised by a vast diversity of school

contexts, and WIL programmes are expected to accommodate all types of schools on the condition that schools are purposefully selected to support the type of learning intended. It is noteworthy that functional schools are viewed in the policy document as schools 'which constantly strive that their learners achieve their full potential, despite challenging conditions and contexts that may exist' (DHET 2015:19). Of further importance is that functional schools should recognise the role they need to fulfil in the development of student teachers during WIL.

A mandatory requirement for the learning-in-practice (school-based) component of WIL is that it should be structured, supervised, formally assessed and, as credit-bearing modules, integrated into the full duration of the qualification. Appraising and reflecting on the school-based (*in situ*) experience by means of a structured learning programme and assessment practices are emphasised as essential elements of a work-integrated programme design, and it is critical for student teachers to question and make sense of what they experienced and learnt across a range of diverse school contexts (Jackson 2017). It is also of significance to make note of a clear ruling in the policy for minimum requirements for teacher education qualifications that: 'It is the responsibility of the institution offering the qualification to formally arrange WIL opportunities for students, in line with the requirement of the qualification...' (DHET 2018:14). This responsibility cannot be delegated or sidestepped in any way – service providers need to comply strictly with the policy and take full responsibility for the administration and logistics so as to establish an effective system for organising partnership schools, student placements and assuring quality supervision and assessment during the limited duration of the WIL programme. The requirements of supervision and assessment present some of the most serious challenges for service providers of ITE programmes, because of intricate administration systems and logistics related to the placement of students in schools and the subsequent challenge of enabling a proper mentoring system, and ensuring personal visits by academics and supervisors for

discipline-specific supervision at all schools participating in the WIL programme.

Assessment standards to assure a uniform quality between practising teachers and academics is a challenge, and the appointment of mentors for student teachers for the duration of their WIL programme is also a challenge. A dedicated and well-staffed WIL office or centre with extensive support structures is invaluable in ensuring an effective and quality WIL programme.

■ **The South African Council for Education professional teaching standards**

The SACE developed a list of 10 professional teaching standards applicable to all teachers in the South African education system to promote professional TPs and to ensure a strong professional teaching culture (SACE 2018). Committed, knowledgeable and skillful teachers are amongst South Africa's greatest assets and their way of teaching has a major influence on the view and learning of teacher students (SACE 2018).

In accordance with its mandate, SACE developed in collaboration with a wide range of stakeholders in education a set of professional teaching standards to describe clearly what is expected of teachers in relation to their ethical and professional teaching practices. The overall purpose of the professional teaching standards, which are interlinked with the professional practice, is to describe in broad terms what a teacher, as a professional educator, must know and be able to do for the assurance of quality teaching and learning to all learners in the diverse South African school contexts. The following supporting aims of the professional teaching standards are also applicable (SACE 2018:6):

- promote a common understanding in the education profession to augment the quality of learning for all learners

- strengthen the professional identity in support of status and public standing of the education profession
- ensure a uniform vision for all teachers for their professional development and to enhance their teaching practice
- assist teachers to fulfil their professional responsibilities and roles (inclusive of pre-service student teachers)
- set national standards for service providers (HEIs) to align their training programmes for all trainees to meet the expected standards
- provide a broad, national framework for teacher training and continuous professional development (CPD) programmes
- facilitate the evaluation, reflection and development of individual as well as groups of teachers
- guide teachers to enhance their professional competency and understanding as they gain experience.

It is noteworthy that the SACE Professional Teaching Standards are explicitly applicable to all pre-service and in-service teachers. Service providers of ITE programmes have to take note of these important professional teaching standards for inclusion and integration into their curricula and specifically WIL programmes. It can be accepted that the professional teaching standards also fulfil a key component of the induction process for teachers that includes the pre-service stage of ITE programmes. The knowledge mix of any ITE qualification should enable teacher graduates to meet these SACE professional standards at the beginner teacher level.

The 10 SACE Professional Teaching Standards are briefly listed as a clear indication of the profession's requirements (DHET 2018:64; SACE 2018:9-12):

1. **Ethical teaching is based on a commitment to the learning and well-being of all children** – Teachers have trust in the potential of all learners to achieve both inside and outside the classroom setting. Teachers have the well-being of learners at heart and understand and are responsive to the challenges that confront learners and their families.

2. **Teachers collaborate with experts in support of teaching, learning and professional development** – Teachers adhere to a professional code of conduct in such a way that respect is earned and the dignity of the profession is protected. Professional collaboration with staff, parents, caregivers, relevant professionals and the community is required. Teachers are also responsible for continuous personal, academic and professional growth and supporting the induction and mentoring of colleagues as required.
3. **Teachers support social justice and the redress of inequalities within their education institutions and society** – Teachers support all learners to ensure inclusivity and access to all learning opportunities, while teachers are also responsible to identify and challenge practices and policies that exclude, discriminate or marginalise learners.
4. **Teaching requires well-managed and safe learning environments are created and maintained within reason** – Teachers are present in their classrooms and make the most of teaching during their official teaching time. Teachers also ensure disciplined routines by setting fair and consistently applied rules in support of respectful behaviour in the classroom and the school environment.
5. **Teaching is fundamentally connected to teachers' understanding of the subject(s) they teach** – Teaching is underpinned by an understanding of subject(s) as bodies of knowledge in which concepts are interlinked, how learners gain and present information, and how subject knowledge relates and applies to real-world situations.
6. **Teachers make thoughtful choices about their teaching that lead to learning goals for all learners** – Teachers are knowledgeable of how learners develop and learn, and adopt their teaching and learning methodology accordingly. Evidence-based research and an understanding of theoretical concepts should inform the choices teachers make, and they have to account for the design, presentation and assessment of teaching to all relevant stakeholders in education. Teachers should also, as reflective practitioners, improve their teaching based on the learning experiences that they created by means of reflection.

7. **Teachers understand that language plays an important role in teaching and learning** – Teachers acknowledge that all learners need to master foundational skills in language and numeracy, and an awareness of the strong interrelationship between language and numeracy should be emphasised. Learning opportunities should be created for learners to develop their vocabulary, the mastering of the Language of Learning and Teaching and to improve reading and writing skills. Other languages should be utilised where necessary to enhance learners’ understanding of important concepts and theories.
8. **Teachers are able to plan coherent sequences of learning experiences** – The national curriculum guides teachers to identify what learners are required to know and do and plan accordingly to assure coherent units of lessons with meaningful learning and assessment activities. The national curriculum and subject knowledge also direct teachers’ understanding of how key ideas, concepts and skills are built up across the different years of learning.
9. **Teachers understand how their teaching methodologies are effectively applied** – Teachers present subject knowledge, devise tasks and create learning opportunities in ways appropriate to the development level of learners. Appropriate and situation-specific resources should be identified or developed to enhance learning, and involve learners by motivating them to explore and learn more.
10. **Teaching involves monitoring and assessing learning** – Constructive feedback is an integral part of assessment tasks to provide learning opportunities for learners to understand what they have learnt and how the knowledge can be applied. Accurate and comprehensive records of assessment are required as a tracking mechanism for learner achievement and for reporting purposes to stakeholders on the progress of learners.

Each of the Professional Teaching Standards represent a particular aspect of ethical and professional practice, but these Standards were developed as interrelated and dependent on each other (SACE 2018). The extent to which a teacher demonstrates

competency and the internalisation of the expectations and requirements of a particular profession, such as the SACE Professional Teaching Standards, can be considered as an indication of such a teacher's professional identity (Jackson 2017).

■ **The National Education Policy Act (Act no. 27 of 1996)**

The *National Education Policy Act* (Act, 27/1996) (South Africa, 1996b) provides general directives for the governance and management of the national education system and is a key policy document to account for during the development and implementation of a WIL programme in schools. The principles that underpin the national policy for education highlight the advancement and protection of the fundamental rights of all learners and teachers against unfair discrimination. *The National Education Policy Act* (South Africa, 1996b) prescribes specific roles and competencies for teachers that have to be accounted for in a WIL programme. Relevant aspects of these roles and competencies are:

- As learning mediators, teachers have to create a learning environment in which they are able to reflect on the effectiveness of the learning process. Teachers should be able to make appropriate adaptations to teaching strategies according to policy guidelines.
- Policy guidelines direct teachers in their roles as interpreters and designers of learning programmes and guide them in utilising appropriate learning resources to cater to the specific needs caused by diversity.
- The teacher as educational leader and manager has to set guidelines to promote a school and classroom climate that is conducive for quality teaching and learning.
- Policy guidelines are in support of the pastoral role of teachers to understand and to take charge of the learning experiences and processes.

- Teachers, in their role as assessors, should be able to adjust assessment practices within policy guidelines to address the diverse needs of learners in the teaching-learning situation.

The leadership of schools should be guided by this key policy document to ensure a reliable school policy on WIL and clear descriptions of the roles teachers have to fulfil before, during and after the WIL period.

■ **The *South African Schools Act* (Act no. 84 of 1996)**

The *South African Schools Act* (Act, 84/1996) (South Africa, 1996c) fulfils the need for clear policy guidelines in relation to the redress of past injustices in education provision; the assurance of quality education for all learners by laying the foundation for the development of all learners' talents and capabilities; advance the democratic transformation of society; combat forms of unfair discrimination; contribute to the eradication of poverty; protect and advance diverse cultures and languages; uphold the rights of all learners, parents and teachers; and promote the responsibility of the organisation, governance and funding of schools in close partnership with the State. *The South African Schools Act* (South Africa, 1996c) provides crucial directives for the operationalisation of the overall school programme and any involvement with respect to a WIL programme needs to account carefully for the directives of the policy document.

■ **The *South African Council of Educators Act* (Act no. 31 of 2000)**

One of the main objectives of the *South African Council of Educators Act* (South Africa 2000, Act, 31/2000) was to set, maintain and protect the ethical and professional standards for educators (s. 2[c]). The *SACE Code of Professional Ethics* (SACE 2000) provides clear concept clarifications and directives for

educator conduct in relation to the learners, parents, the community, colleagues, the profession, the employer and the council. It is imperative that anybody involved in a WIL programme in schools should be aware of the policy directives for the conduct of teachers in a variety of relationships with relevant stakeholders in education.

The mentioned policies described in the previous paragraphs are not a comprehensive collection of applicable acts and policies but serve the purpose of an indication of relevant and applicable policy documents to form a sound basis for WIL programmes based on solid policy grounds. With the covering of general policy guidelines for WIL programmes, this chapter proceeds with a brief description of a rationale for WIL.

■ A rationale for work-integrated learning

The rationale of WIL is regarded by Van Niekerk (2018) as a collective effort by partner schools and universities as service providers of teacher education qualifications to ensure career-specific and full-rounded learning through the application of theoretical and academic learning with real-life practice of teaching and learning in selected schools. The value of WIL is not only about an emphasis on achieving a set of required skill outcomes but also about personal and professional development and the experience acquired from exposure to real-world situations in a variety of school contexts. Learning in practice provides student teachers with an understanding of the exigencies required from a professional qualified teacher. A further worth of WIL is that it enables student teachers to experience the expected connection between theory and practice, and this may result in an increased interest in both partners (schools and HEIs) involved in teacher education programmes. The WIL experience enables student teachers to grow in professional competency, practical and cognitive skills, self-confidence, as well as personal and career-related understanding. Active participation in a WIL

programme provides a wealth of learning opportunities for student teachers to enhance their professionalism, self-efficacy, self-belief and to apply their problem-solving skills in practice. In addition, WIL allows student teachers to observe and ponder on their actions and experiences, gain an insight into related concepts and to make sense of diverse perspectives (Van Niekerk 2018).

■ The learning part of work-integrated learning

Various learning opportunities may be encountered by student teachers in formal and informal circumstances. Knowledge acquired by means of formal learning in education is usually accepted as theories of universal validity, while knowledge acquired by means of informal learning as part of day-to-day interaction provides a sound foundation to act in a professional and competent manner in different contexts (Dorasamy & Rampersad 2018). Formal academic learning at an HEI should be assimilated with knowledge and skills gained in informal learning settings. Mutuality between formal and informal learning is expected to synthesise diverse learning experiences in education and other contexts (Dorasamy 2018). Learning experiences should flow from engaged learning with the learner at the centre of the learning process and requires cognitive skills to analyse these learning experiences by reflecting, evaluating and reconstructing to come to a deep understanding and make meaning of these experiences (Dorasamy 2018). A learning experience is not meant to be a one-direction experience but should be the achievement of knowledge and skills in authentic settings where students are active and legitimate participants. Knowledge is deeply situated and contextual, and HEIs need to keep up with continuous and sometimes radical changes in education by preparing students to adapt to diverse settings and contexts.

The learning experience is a complex act and extends beyond a particular academic cognitive skill that can be acquired by

participating in designed and structured learning programmes. Constructive learning is associated with the integration of theoretical and practical knowledge. Merging theoretical knowledge, knowledge from practice, as well as with knowledge from relevant professional engagement may lead to the acquisition of a new kind of knowledge that is neither theoretical nor practical but encompasses a comprehensive and holistic understanding that transcends any one-dimensional knowledge base. In cases where different forms of knowledge are linked, more in-depth knowledge may transpire through such synthesis, which is referred to as praxis (Lave & Wenger 1991).

Praxis links various competencies in specific professional roles, which is viewed as something in-between abstract knowledge (to know) and real applications (to do) (Dorasamy 2018:5). It can also be viewed as a synthesis between theoretical knowledge and practical knowledge. It is sensible to assume that real-world experiences stem from active participation in workplace practices. In this sense, WIL combines content knowledge and disciplinary theory with real-world work experiences gained during off-campus work placements. The so-called soft skills, such as respect, ethics, communication, time management and understanding of workplace culture, are usually obtained by means of off-campus learning (Dorasamy & Rampersad 2018; Eames & Bell 2005). In this vein, Rampersad (2018) highlighted the following soft skills: professionalism or work ethics; communication; teamwork and collaboration skills; critical thinking; self-discipline (SDL) dealing with diversity and adaptability to unfamiliar settings.

Learning in practice is supported and facilitated through guidance (mentoring and modelling), instruction, participation and scaffolding. A prerequisite for practice learning is the availability of a structured WIL programme that promotes learning and development as a contextual and supervised activity, focussing on the assessment of predetermined and accredited learning outcomes. Learning is, amongst other views, regarded

as a social process that engages students in a community of practice or professional learning community in support of on-campus learning (Eames & Bell 2005).

According to Weisz and Smith (2005), a necessity for deep-level learning is the conceptualisation of what is learnt and the ability to apply what was learnt in different contexts. Deep-level learning happens when life experiences are assimilated into a student teacher's current body of knowledge and being indicative of an understanding, and connections are made to previous learning experiences. An important imperative is conscience and continuous reflection on how actions are executed; how concepts are defined and understood; how professional principles shape decision-making; and how individual practice is influenced by social norms and customs. Integration extends beyond the simple merging of theory with practice. Integration enables students to construct concepts and ideas from a variety of sources into a meaningful and holistic whole. Integrated knowledge is vital for intellectual consolidation and skills development (McNamara et al. 2012).

It is worth mentioning again that WIL extends beyond placements in workplace settings to earn some programme credits. Integration is central to the experience, which requires guidance and support to students in mastering the skill to reflect on and to probe their learning and experiences as part of a process of lifelong learning. Work-integrated learning also means that students are not only gaining appropriate knowledge and related competencies but are also guided to different approaches of reflection and professional development (Dorasamy 2018:8).

■ **Assessment as an integral part of work-integrated learning**

It is essential that assessment should be in line with discipline-specific outcomes related to a specific programme, be at the required Higher Education Qualification Framework level, and should also be in accordance with the particular WIL focus.

The teaching and learning activities, whether in a school-based setting or lecture room, should have equipped the student teachers for the assessment tasks (South Africa, CHE 2011). Formative assessment (assessment for learning) is sometimes viewed as an integral part of teaching and learning, unlike summative assessment, the purpose of which is to measure a student's academic performance at the end of a specific course (CHE 2011). The concept of assessment refers in this sense to the process that determines whether or not a student succeeds in a particular course of programme. Therefore, it is of paramount importance for lecturers as university teachers to ensure that the assessment processes and tools are a true representation of successful learning.

Balkaran (2018:147) and the CHE (South Africa, CHE 2011:41-42) present the following key principles that serve as a guide for WIL assessment:

- **Appropriate** - Suitable WIL tasks involve examples of school-based activities that are related and appropriate in relation to the purpose and outcomes of the WIL programme
- **Authentic** - Assessment aims to prepare student teachers for the kind of knowledge and practices required for relevant and the latest school-based practices. A variety of simulation initiatives, role plays and classroom activities can be utilised to simulate a real school situation
- **Fair** - The assessment process and tools should be realistic and account for students and the circumstances they are exposed to. The assessment process and tools should furthermore be as free as possible from any bias, should be based on clear criteria and information about what exactly is expected of students and it should be accessible to all students
- **Accuracy** - Assessment should be in accordance with the expected outcomes of the module/programme/curriculum
- **Consistent** - Activities, tasks and tools should be piloted and controlled to ensure consistency. Assessment should be executed on well-defined and documented procedures and

based on unambiguous assessment criteria. When assessing complex tasks, it is desirable to involve more than one assessor

- **Clarity** – The medium of instruction through which assessment is conducted must be clear and well understood by the student. This includes timelines, marking rubrics, etc.
- **Diversity** – How is the challenge of different abilities addressed in assessment to accommodate for different learning abilities?
- **Feedback** – Feedback to students should be timely and clear, especially in cases of continuous assessment in support of the learning process
- **Transparency** – Students should be given clear instructions about the nature and extent of assessment and marks allocation. Opportunities should be created for students for queries and to put an appeal process in place
- **Formative and summative** – Complex tasks often require a methodical understanding, which may include elements of skill-based practices. Therefore, students should be able to utilise opportunities as part of a formative feedback to acquire deep-level knowledge and experience prior to summative (final) assessment
- **Valid** – An evidence-based approach for activities and tasks supports the achievement of module and programme outcomes, while such an evidence-based approach may confirm that assessment procedures, methods and tools are appropriate and fitting.

Work-integrated learning assessment also shapes the understanding and attitudes of student teachers, academics and teachers in the partnership schools. It is therefore imperative that teacher educators are clear on what they expect with assignments, and how assessments are aligned with the module and programme outcomes. Assessment that lacks quality and standard will indisputably compromise the entire WIL experience. Furthermore, the teacher educator, supervisor or mentor would not be in a position to determine if a student teacher has truly succeeded in the WIL module or course.

■ University engagement

Higher education institutions are realising the importance of developing not only the practical skills of students but also the generic skills in WIL programmes. Fredenburg, Brimble and Cameron (2011) viewed generic skills as those skills that have across-the-board applications in a variety of disciplines or contexts (Dorasamy 2018:9), such as communication skills and information literacy. Strong and pure disciplinary knowledge does not necessarily guarantee employment because employers prefer more and more applicants with additional and generic skills, also referred to as soft skills. This kind of skills do not become outdated and can be applicable in diverse contexts and even careers.

Bates, Bates and Bates (2007:126) developed some guidelines for HEIs to ensure a functional and constructive WIL programme. These guidelines are:

- Work-integrated learning activities should be structured and supported throughout the programme to enable student teachers to progress from simple to more complex and possibly more autonomous experiences.
- Involve students in meaningful and progressive tasks.
- Linkages to module and programme outcomes should be clear, while assessment should be in line with the institution's assessment policy.
- Authentic engagement with comprehensive school practices and the school community is strongly promoted.
- The programme should be in accordance with the development and application of graduate attributes and professional requirements.
- Planning, preparation, supervision, reflection and feedback for all stakeholders and partners should be prioritised.
- A variety of WIL activities should be incorporated and integrated into the totality of the programme.

- Relevant policies, regulations, legislative and professional accreditation requirements, intellectual property, ethics and confidentiality issues should be complied with.

Challenges in the offering of WIL programmes include, amongst other challenges, the fact that WIL programmes take place in settings that are not under the authority of academic staff or even the university. This situation leads to many challenges, as circumstances are not always conducive to optimal learning and assessment. Schools are subjected to constant change and challenging situations often crop up in which student teachers are confronted with contexts outside prescripts and examples from textbooks (Balkaran 2018). School management changes often and some school managers and leaders are not in full support of the WIL process in collaboration with the HEIs. The consequence is that students bear the brunt of these changes and the lack of support. Placement of students in remote, rural schools create unique challenges with respect to accommodation for students and accessibility for site visits by teacher educators, and this may become a very costly programme for service HEIs. Exploitation of student teachers happens in some cases where the students are used as substitutes for teachers who are not at school or are forced to take over teaching responsibility to allow the regular teacher to do other necessary work in the school. This misuse of student teachers as teachers results in their learning process being compromised. Student teachers are easily intimidated or coerced not to report this to their supervisors or mentors.

Work-integrated learning exposes students to real-world experiences, including the risks of workplace harassment as well as crimes that reach unacceptably high levels in communities all over the country. Higher education institutions should take precautions to account for these risks to safeguard their students' participation in the WIL programme.

Sometimes, school principals offer student teachers, during their WIL programme, a temporary or even permanent teaching

position, especially if the student teacher teaches a scarce-skills subject or if the student teacher performs exceptionally well. Many student teachers accept these offers and, as a consequence, do not complete the remaining modules and ultimately do not complete the course. It is only at a later stage when these students realise the necessity of their teaching qualification that they decide to complete their studies. Usually, the programme curriculum changes in the interim, which results in serious challenges to complete an unfinished qualification. Such interruptions of incomplete studies should not be allowed, and school principals should fulfil their role as mentors and caretakers of student teachers at their schools. Students in such cases lose the effect of their study momentum and often perform poorly when resuming their studies.

■ Mentoring in work-integrated learning

The quality of guidance and supervision is an essential determinant of the quality of a WIL programme. Therefore, staff advancement in core supervision skills like mentoring and performance evaluation for WIL supervisors is of utmost importance (Dorasamy 2018). Training and orientation of supervisors at both school and university levels are vital to integrate academic and school-based learning and experiences. In the absence of competent and engaged supervision, WIL can be viewed as merely work experience. Dorasamy (2018:16-17) listed the following key roles for academic and school-based supervisors in WIL programmes:

■ The role of the academic supervisor

The role of the academic supervisor (Dorasamy 2018:16) includes:

- planning and designing the learning experience
- orientating and preparing the student for the WIL programme

- setting of learning objectives by setting lines of communication between students, schools and academics
- supporting students to gain SDL skills and strategies
- identifying and assisting to resolve conflicts
- assessing students' performance in schools
- monitoring school-based performance
- guiding students to develop their personal growth goals
- assessing learning against outcomes.

The key roles for the academic supervisor are clearly identifiable in a planning and preparation phase that sets the groundwork for the implementation phase. The cycle is completed by reflection and the evaluation of outcomes and objective achievement to feed again into the next planning phase.

■ The role of the school-based supervisor (teacher educator)

The role of the school-based supervisor (Dorasamy 2018:17) includes:

- orientating the student teacher into the school programme
- setting clear WIL objectives for the student teacher
- supporting in achieving learning objectives
- monitoring the student teacher's teaching and learning performance
- identifying specific skill deficiencies
- ensuring continuous communication with student and academic supervisor
- assisting in organising relevant learning opportunities
- assessing in collaboration with the academic supervisor.

The above-listed key role descriptions are indicative of a progressive process that commences with the most important part of an introduction to the school programme. A well-planned and thorough orientation to the school programme is crucial for a positive learning experience and to minimise the so-called

‘practice shock’. These roles are underpinned by continuous communication with the student teacher to provide constructive feedback in a supportive manner. A particular role of importance is the link with the academic adviser to ensure a truly integrated learning experience. High-quality guidance and supervision are required to maximise the learning opportunities for student teachers during the WIL programme. Therefore, identifying the best ways to engage, integrate and guide the diverse experiences of students in school settings is pivotal for achieving the learning goals of WIL.

The key roles of academic supervisors and teacher educators bring into play the notion of mentorship, because they are ‘by default’ role models for student teachers under their care. Mentorship is viewed when a more senior person (the mentor), in terms of competency and experience, is committed to provide guidance and emotional support to a more junior person (the mentee or protégé) in a professional working relationship that will last over a period of time, which is typified by significant commitment by both role players (Department of Education 2008:15). If the opportunity presents itself, the mentor utilises all opportunities for influence, both formal and informal, to promote and support the career of the mentee. Mentoring boils down to a relationship between people with an intention of transferring knowledge, skills, values and encouraging personal growth (Department of Education 2008). In essence, mentoring is about bringing about change by providing a stable source of support during the process. Structured mentoring programmes are widely used in organisations for guided support to employees at different stages and for different needs of their working lives. Mentoring is often used to facilitate induction, orientation and during the acquisition of new skills and problem-solving tasks (Department of Education 2008:19). Mentoring is in support of capacity-building within an organisation by ensuring constructive opportunities for contextual learning. Mentors can be of particular value to mentees who have to deal with challenges as part of a demanding work-life,

especially in an era of unprecedented change (Department of Education 2008).

It is worthwhile to take note of the Department of Basic Education's manual for school managers and the management of mentoring programmes in schools (Department of Education 2008) in which the following benefits for mentees, mentors and the teaching profession are listed. The key elements of a successful mentoring programme are also provided. These benefits and key elements are outlined for the purpose of this chapter through the lens of a WIL perspective.

■ **Benefits of mentoring for the mentee**

The benefits of mentoring for the mentee (Department of Education 2008:22) include:

- gaining and honing of knowledge, skills and values
- having an avenue and support to address matters of concern
- supporting induction to the teaching profession
- getting consolation, support, empathy and constructive feedback
- encouraging psycho-social development
- getting opportunities to share achievements and failures
- developing a personal and professional ethic
- getting to observe experienced teachers at work
- maximising developmental potential and application of talents
- having the opportunity to reflect and getting feedback on performance
- having the possibility of broader socialisation and friendships
- receiving non-threatening guidance
- experiencing work satisfaction
- feeling at ease and less isolated within a community of practitioners
- having professional growth possibilities
- meeting other beginning teachers/students

- growing to become more independent, self-reliant, self-confident and eventually experiencing self-actualisation
- having a trusted person to talk to
- having the support to be more creative.

No list of benefits for the mentee can be complete, and it can at best be a representation of the more obvious benefits. As a collective, these benefits are indicative of the impact and worth of having someone 'to look up to' for an introduction to the education profession.

■ Benefits of mentoring for the mentor

The benefits of mentoring for the mentor (Department of Education 2008:22) include:

- an opportunity to re-evaluate own TP
- enhanced work satisfaction
- improvement of teaching and appraisal skills
- personal growth and development
- keeping informed about the mindsets and challenges of novice teachers
- development of leadership potential
- personal career development
- development of professional relationships (even friendships) with mentees
- personal satisfaction in seeing mentees succeed in what they are doing
- enhanced enthusiasm, motivation and more energy for teaching
- sharing of personal experience, ideas and expertise to the benefit of someone else who needs it.

When benefits in relation to a mentoring programme are considered, one tends to think narrowly on the benefits related to the mentee. There are however clear benefits for the mentor as well, as involvement with a mentee implies *de facto* a professional

relationship that has many and profound humane benefits for the mentor. These benefits can only be realised in a constructive and successful mentoring programme. A concise description of what a successful mentoring programme entails is possible, but the following list of key elements provides an overview of a successful mentoring programme.

■ **Key elements of a successful mentoring programme**

Key elements of a successful mentoring programme (Department of Education 2008:23) include:

- organisational readiness in schools
- a clear mentoring purpose
- voluntary involvement by both mentors and mentees
- fittingly matched mentors and mentees
- clear expectations for mentors and mentees
- mentors should be trained in reflective skills
- a milieu that fosters learning
- the needs and expectations of both mentors and mentees are met
- a quality relationship between mentor and mentee
- interpersonal (people) skills of the mentor
- mentoring should be an integral part of the school programme
- demonstrated support by management for the mentoring programme
- training for mentors with a focus on reflective and experiential techniques
- a transparent recognition and reward system for mentors and mentees
- effective support mechanisms and opportunities
- clear confidentiality guidelines and agreements
- mentor accessibility.

An outstanding characteristic of any successful mentoring programme is to guide, support and lead the mentee to

independence and SDL through mainly three stages, that is, the building (initial) stage, the maintaining (supporting) stage and the existing (final) stage (Department of Education 2008). The mentor-mentee relationship is not meant to be infinite, but the purpose and essence of the relationship is to lead the mentee to be a self-directed, matured and competent professional. Strategies that may be of value in this regard can be to encourage mentees to take decisions and to find answers for themselves; turn questions back to the mentee; let mentees keep a reflective journal of their experiences and learning to promote self-directedness; let mentees set targets for themselves; widening the gap between meetings with the mentee and show respect for the views of the mentees (Department of Education 2008:29).

The descriptions about the roles, responsibilities and benefits of mentoring as part of a WIL programme, or in relation to any other programme for that matter, is clearly a value-added exercise and an 'investment' in the development of people and the growth of organisations.

■ Reflection

The complex and all-encompassing work of a teacher may become inundated with very demanding teaching and learning roles and responsibilities that may lead to teachers who do not take time to reflect on their own practice. Teachers are required to be reflective practitioners for the purpose of improving their competency as part of their CPD and as part of a lifelong learning approach. A reflective approach is in the same vein relevant to student teachers during their participation in WIL. Reflection is based on pertinent questions to reflect on during the WIL period and may include, amongst others: *How relevant are lessons presented within the context? How is learning changed by what is being done? What is the impact of teaching? What is the key to ensure that constructive learning takes place? What can improve? What lessons have been learnt?* Reflection practices should be

structured and recorded in a reflective journal as proof of deep-level engagement to enhance an understanding and insight of specific practices, approaches and contexts.

Schon (1983) distinguished between ‘reflection-in-action’ and ‘reflection-on-action’, while Thompson and Thompson (2008) added a third type of reflection, namely, ‘reflection for action’. This concept differentiation is also supported by Coll et al. (2009), who highlighted the worth of reflection before implementation or action. There are three versions of reflection that students need to do before action; contemplating about what is being done while in the classroom and school settings; and finally, pondering about the completed WIL experience to relate to the knowledge and insights gained from the experience. Briefing or orientation in advance is crucial to ensure that all those involved exactly know what is expected of them in terms of roles and actions. Effective reflection practices alert students to the subject content and school culture, which are not possible through a simple talk and chalk approach. The involvement of student teachers in authentic workplace settings and reflective activities expose them to a holistic learning experience.

Reflection advances both professional and personal growth, and adds to the acquisition of higher-order cognitive skills like critical thinking, thereby enabling personal and professional development (McNamara et al. 2012).

■ **Benefits of an effective work-integrated learning programme**

Work-integrated learning programmes have clear benefits in relation to the student teachers, the HEIs and education authorities. It should be borne in mind that multiple stakeholder benefits rely on an integrated approach based on needs, purpose, roles, commitment, responsibilities and clear agreements amongst all parties. Benefits will be jeopardised if integration is

ineffective or counterproductive. Dorasamy (2018) described the following reciprocal benefits that will accrue to the student teachers, employer (education authorities) and higher education (universities) if the curriculum is aligned to real-world relevance, experiences and practices. The reciprocal benefits are described in the context of a WIL programme for student teachers.

■ Student teachers

Student teachers should be empowered to integrate academic and theoretical knowledge with best practices and their work during WIL placements at schools. The WIL experience provides students with the opportunity to enhance base-level knowledge and skills gained in academic programmes through interaction with supervisors and peers at the school and university. Group interaction in a WIL programme facilitates constructive learning from critical people like school managers and leaders on whom students can piggyback. Student teachers are directly exposed to the aftermaths of their decisions and actions during their participation in the WIL programme. It is through WIL that school practice and its effects can be interrogated and explored in ways not solely possible in an academic lecture venue. Aspects like professionalism and work ethics are best learnt in an authentic workplace setting. Some benefits that are also relevant in this case include enhanced disciplined thinking, accepting responsibility for learning, improved learning, learning how to learn, analytical thinking, improved performance in the classroom, improved problem-solving, increased commitment to education goals and maybe an improved ability to finance their education. These benefits assist students to settle into the school setting more confidently as well as to progress more in their careers. Exposure to teaching experiences in schools provides student teachers with richer information to better align their teaching competency with their career goals (Dorasamy 2018:23-24).

■ Employer (education authorities)

The acquisition of fundamental theories at university enables students to gain deep-level insights into the existing practices and processes while acquiring practical and teaching skills in an authentic school environment. Student teachers have many opportunities to apply their theoretical knowledge to improve on existing and outdated teaching and learning practices. Being supervised and exposed to a variety of processes and experiences in authentic and diverse contexts has the potential to motivate student teachers to reflect on the *why*, *what* and *how* of their teaching actions. Involvement in WIL programmes may initiate interactive involvement by education authorities at various levels to reflect on the efficacy and effectiveness of the existing WIL processes. Education authorities are in a position to create a pool of graduates for recruitment purposes and to liaise positively with universities for focussed projects (Dorasamy 2018:24–25).

■ Higher Education (universities)

The educational worth of a WIL programme for universities is situated in the opportunity to produce beginner teachers with strong intellectual, practical and ethical capabilities required of competent professional teachers in education. Universities can make a significant contribution in the following areas related to WIL, which are normally operational and practical in nature: producing a pool of competent beginner teachers; developing professionalism in education and improving social inclusion; re-establishing and re-strengthening the synergy between university training and the teaching profession; improving the access, participation and success for student teachers to be employed; and producing university-educated graduates with specialist knowledge and professional capabilities to address skill shortages in the South African education system (Dorasamy 2018:25, 26).

Work-integrated learning reinforces the link between the HEI, partnership schools and the education authorities. Through these

extended relationships with the mentioned stakeholders, HEIs can considerably influence the quality of learning experiences for student teachers. Experiences obtained during the WIL period can have a significant impact on the attainment of university goals such as improved academic retention rates, progression rates and graduate employability. Effective WIL programmes can be a strong influential factor for prospective students to choose to study at particular universities. Higher education institutions can strengthen their curricula, based on the specific needs of the profession, because academic staff have access to contemporary teaching practices and new developments in education. Active involvement in WIL programmes may be a catalyst for academic staff to undertake research in their area of specialisation to improve the knowledge base and practice of teaching. Academics as supervisors can develop professionally through the guidance (coaching and mentoring) of student teachers.

Work-integrated learning supports student teachers' transition from being dependent learners within the higher education system into autonomous practitioners as professionally recognised teachers. Students are provided with various opportunities and skills to link academic or theoretical knowledge acquired in an academic milieu with the realities of teaching in modern-day and diverse school contexts. As indicated, multiple stakeholder benefits are dependent on an integrated stakeholder approach based on shared purpose, clear roles and responsibilities, and effective relationships.

■ Work-integrated learning and diversity awareness

Work-integrated learning programmes take place in school settings, and those involved should be aware that they are part of the 'bigger picture' where human diversity is a reality of life. The reality of diversity is especially a contentious matter in South Africa and the education profession has a particular role to

promote unity in diversity. Chapter 5 provides valuable and empirical information about the lived experiences and awareness of diversity among student teachers.

The school as an education institution plays an important role in any transformation process of national interest, such as the promotion of national unity. It is normally expected that schools should respond to important societal issues such as illiteracy, violence, poverty, human immunodeficiency virus/acquired immune deficiency syndrome and diversity (Baker 1994). Education and schooling aim to bring about significant and positive changes in the lives of learners who are key for the future in terms of a free and democratic society (Banks et al. 2001).

The reality of diversity in schools poses both an opportunity and a challenge for student teachers involved in WIL programmes. School-based and academic supervisors should be proactive to equip student teachers with specific knowledge and skills to be part of the school community in promoting unity and not be counterproductive in this regard because of ignorance.

Dealing effectively with diversity does not come easy for all people. Therefore, some guiding principles are proposed to orientate and prepare student teachers to deal effectively with complex and sensitive diversity matters in schools (Van Vuuren 2009).

■ **Guiding principles for student teachers to deal effectively with diversity in schools as part of their involvement in work-integrated learning programmes**

□ **Introspection and reflecting about personal perceptions on diversity**

As part of their reflection before engagement in a WIL programme, student teachers should be encouraged to conduct a deep-level introspection to get to an understanding of or to confront their

perceptions about ethnic, cultural, gender and other stereotypes. Student teachers should be aware of their prejudices and perceptual limitations about fellow people and should be able to appreciate the richness of diversity in the hearts and minds of all who they will encounter during the WIL programme. An advanced level of maturity is achieved when an individual realises that differences should be valued and that it may add to one's understanding of reality.

□ A balanced approach in recognising diversity

Student teachers should acknowledge all manifestations of diversity (e.g. race, gender, religion and many more) without allowing the reinforcement of personal or traditional biases and stereotypes. It would have specific advantages if student teachers are part of diverse WIL groups. Opportunities will be available to personally experience the richness of diverse personalities, views, customs, values and cultures which might lead to a realisation of how to deal with diversity in an education environment.

□ Standards for professional conduct

School-based and academic staff should set clear standards for professional conduct during the WIL programme at schools. Guidelines in relation to matters of diversity are especially of importance as South Africa is characterised by intense diversity at many levels. Student teachers need to conform to the school rules and culture and therefore need guidance on how to deal with diversity in schools.

□ Continuous support

Support to student teachers in the WIL programme is not limited to school-based and academic supervisors, but members of the school management should be actively involved in guiding and supporting student teachers in the school. Student teachers who through their lessons, decisions and actions demonstrate an

appreciation of diversity should receive acknowledgement in creative and acceptable ways.

□ **Integrate diversity into work-integrated learning programme**

Diversity awareness initiatives should include student teachers as proactive measures to minimise the risk of diversity issues that may escalate to crisis dimensions, which may have detrimental effects for the school and university. Diversity orientation sessions should be arranged to allow student teachers to participate in group discussions with representatives from diverse groups. These diversity capacity-building initiatives should be designed to change attitudes, for instance, activities in which students learn to realise what it is like to feel different or excluded.

□ **Creating a shared vision**

A diversity awareness campaign for student teachers should include alignment with the goals of a WIL programme and agreement on a shared vision for basic principles to deal effectively with diversity during school visits. It is not recommended to deny the occurrence of diversity in a colour-blind manner as an attempt not to be prejudiced. The reality of diversity should be dealt with head on. Student teachers will not be able to deal effectively with issues of diversity in schools unless diversity is acknowledged, accepted and appreciated. Communication channels in case of need should be put in place to deal speedily with any diversity challenge before it could escalate to crisis proportions.

■ **Conclusion**

The training of teachers and their professional development is a continuous 'journey' that extends from initial teacher training (pre-service) into the practice of the education profession as part of a CPD programme for practising teachers. The professional

development component of initial teacher training programmes is to a large extent addressed in the WIL part of teacher training programmes offered by HEIs. This chapter focussed on concept descriptions, the formulation of a rationale for WIL in education, mentor-related themes and a brief focus on matters related to dealing with diversity in WIL programmes. The WIL component of ITE programmes constitutes the true professional part and 'cornerstone' of the qualification, without which a professional teacher qualification is nothing more than another academic qualification.

TeachLive™: Learning from practice in a mixed-reality teaching environment

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■ Abstract

Preparing student teachers for the multi-faceted role of becoming a classroom teacher is complex and challenging. Practice should be at the core of teacher training. TeachLivE™ is a sophisticated virtual simulation that has emerged as a supplement to traditional TP in schools. Teacher educators can create scenarios in TeachLivE™, allowing student teachers to practice target skills in increasingly challenging situations. In the case study presented in this chapter, 10 second-year Bachelor of Education (BE) student teachers taught a group guided reading lesson in the TeachLivE™ simulator. One student teacher was followed from her second through her third year as she taught group guided reading lessons in the simulator as well as in a real classroom during her TP. The results indicated that the student teacher was able to improve on her group guided reading lesson presentation, specifically with regard to the core elements of the group guided reading lesson as well as her cognitive questioning and learner engagement in the TeachLivE™ simulator, and she was also able to transfer these skills to her group guided reading lesson presentations during TP.

Keywords: Group guided reading; TeachLivE™ simulator; Pre-service teacher education; Avatars; Cognitive rigour matrix; Simulation methods.

■ Introduction

In most of the developing world, children are attending school without adequately learning to read (UNESCO 2014). In South Africa, a striking 78% of learners still cannot read with meaning even after four years of schooling (Mullins et al. 2017). The South African curriculum is well-developed and aligned with international evidence on how to teach reading. The Curriculum and Assessment Policy Statement (CAPS) for the Foundation Phase is very specific with regard to reading and divides the requirements for reading into, amongst other aspects, group guided reading.

With this technique, a small group of learners, ideally sorted by ability, read the same text under the direction of the teacher. The focus is on getting learners to individually practice reading while enabling the teacher to provide more targeted feedback (Ciuffetelli 2018). According to the curriculum, this feedback is supposed to be provided on a daily basis (Department of Basic Education 2011). The teacher plans the lessons to include a range of word-attack strategies that children will learn to apply when meeting challenges in texts. The 'text talk' between teacher and children (and between children) is central to this approach. Each group session should be between 10 min and 15 min long, with two groups reading with the teacher every day (approximately half an hour per day in total) (Department of Basic Education 2011:11). However, in South Africa, a significant gap exists between the existing practice and what is prescribed in the curriculum (Kruizinga & Nathanson 2010). Although CAPS specifies the reading approaches required in the Foundation and Intermediate Phases, many teachers have not been trained to use these approaches and often are overwhelmed by the task while lacking the knowledge and skills to teach reading using the reading strategies outlined in the curriculum. Pretorius et al. (2016:19) stated, 'It is not surprising that teachers struggle with these approaches since, as a norm, teacher development institutions have not built these approaches into their curricula'.

There is great potential to accelerate the learning of learners by improving the quality of teaching, but changing ingrained teaching practices presents a significant challenge. Researchers have found that teachers play a critical role in shaping the learning trajectory of learners (Clotfelter, Ladd & Vigdor 2010; Staiger & Rockoff 2010). The classroom preparedness of student teachers transitioning to their first professional appointments as beginning teachers continues to draw debate, review and recommendations (Council for Higher Education 2010; Darling-Hammond 2016; Ell et al. 2019).

Researchers, both nationally and internationally, are calling for ITE closely linked to practice (Darling-Hammond et al. 2017;

Nel 2018; Zeichner 2012). This view is clearly expressed by the National Council for Accreditation of Teacher Education (2010:11) that the challenges of preparing teachers for 21st century classrooms require turning teacher education ‘upside down’, so that practice becomes the base for learning to teach. Researchers suggest aligning preparation more closely to practice can have a significant impact on teachers’ learning (Boyd et al. 2009; Brouwer & Korthagen 2005).

Teacher educators around the world have undertaken a variety of efforts to make teacher education more ‘practice-based’ (cf. British Educational Research Association 2014; Forzani 2014; Gravett & Ramsaroop 2015). Yet, as many teacher educators have argued, becoming more closely connected to practice should not be restricted to school sites or the practicum (Ball & Cohen 1999; Britzman 2003; Kennedy 1999; Zeichner 2010). Ball and Cohen (1999) argued for a conception of centring professional learning in practice beyond learning on-site during TP at schools. From their perspective, coursework and university-based experiences also are critical arenas for such linkages. As a result, universities are exploring alternative approaches to support traditional practicums in their quest to better prepare their student teachers (Bahr & Mellor 2016; Nel & Marais 2019). Mixed-reality simulations are approaches teacher educators can use to give student teachers practice teaching in virtual, or more controlled, environments before they begin to teach learners in the classroom (Dawson & Lignugaris/Kraft 2017).

In this case study, the aim was fourfold. Firstly, to determine to what extent student teachers were able to implement a group guided reading lesson according to its major components; secondly, to determine the level of questioning posed by the student teachers based on Hess’ Cognitive Rigour Matrix (Hess et al. 2009); thirdly, to determine whether a student teacher could enhance his or her teaching of group guided reading, develop the rigour of cognitive questioning and learner engagement skills during a number of practice sessions in the TeachLivE™ simulator (cf. ‘Sampling’); and fourthly, to determine

to what extent these skills could be transferred by the student teacher during TP at a partnership school.

■ **Mixed-reality simulated classrooms and training student teachers**

Training student teachers for the diverse classrooms they encounter within the South African context is complex and requires contextualised preparation on core practices, such as group guided reading, in a supportive environment (Matsko & Hammerness 2013). According to Ball and Forzani (2009), practice should be at the core of teacher training. Student teachers should be exposed to a range of settings in which they can practice their skills; this includes virtual environments and school-based settings (Lampert 2006).

Teaching in mixed-reality classroom simulators, such as TeachLive™, enables student teachers to learn to use the knowledge gained during coursework in action and to make ‘on the fly’ decisions that in-service teachers perform daily. Simulations are carefully planned experiences where student teachers get the opportunity to repeatedly practice specifically identified skills in a safe virtual classroom environment before teaching learners in a real classroom setting (Regalla et al. 2016). Mixed-reality classroom simulations offer student teachers the opportunity to discuss, share experiences and reflect with their peers while also receiving coaching from teacher educators (Hixon & So 2009; Knight, Pedersen & Peters 2004). When paired with correction, feedback and reflection, simulations become effective tools. Simulations allow teacher educators to monitor and support their student teachers’ practice attempts and to provide actionable feedback immediately and to link theory (coursework) to practice; aspects that are not usually addressed during TP in schools (Darling-Hammond 2009; Chini, Straub & Thomas 2016; Zeichner 2010).

According to McDonald, Kazemi and Kavanagh (2013), effective ITE programmes that focus on providing practice-based learning

opportunities of core TPs include a learning cycle with four key components, namely, representations of practice, approximations of practice, enactment of practice and investigation of practice. Simulations in initial teacher preparation programmes are examples of approximations of practice in that they provide student teachers with opportunities to practice skills, such as group guided reading, in controlled conditions and under the supervision of the teacher educator (Grossman et al. 2009; Grossman, Hammerness & McDonald 2009).

Traditional teaching practice provided through placement in partnership schools often places student teachers in the role of the passive observer with little access to the dynamic decisions their mentor teachers make and this seldom enhances the learning of core practices (Walker & Dotger 2012). Initial teacher education programmes often have little control over the effectiveness and quality of the experiences that student teachers are exposed to while placed in diverse partnership schools (Shaughnessy & Boerst 2018). Thus, ensuring all student teachers have equitable opportunities for skills practice during their TP is difficult. Simulations are considered as possible authentic practice-based additions to learning from practice initiatives such as video analysis, micro-teaching and case-based analysis that many teacher education institutions are considering in order to provide their student teachers with authentic practice opportunities before entering real classroom settings (Bautista & Boone 2015; Cil & Dotger 2017).

■ Research methodology

This qualitative case study initially involved studying 10 second-year BEd students, and then only one participant was studied sequentially over three semesters to develop a broad appreciation of the phenomenon of teaching a core reading literacy practice, namely, group guided reading in a mixed-reality simulator in an ITE programme (Stake 1995). This case study included three semesters of interviews and observational data for the participant

compiled into the researchers' case report (Miles, Huberman & Saldaña 2014). We were explicit in procedures and created an audit trail. The case report was shared with the participant for member checking and with the larger research team.

■ Sampling

Sampling involves the selection of a portion of the finite population being studied. Non-probability sampling does not attempt to select a random sample from the population of interest. Rather, subjective methods are used to decide which elements are included in the sample (Battaglia 2008). Generalisations that are obtained from non-probability sampling should be filtered carefully.

The research was conducted in a BEd programme with specialisation in the Foundation Phase at a university in the North-West Province. We leveraged convenience sampling while being strategic and purposive because the participants fit aspects of participant and site selection advocated by Miles et al. (2014): research setting (school locations, accessibility), potential participant(s) (met criteria, willingness to participate, accessible for interviews and observations), events (participants teaching in the TeachLivE™ mixed-reality simulator, discussing group guided reading, teaching and learning) and research process (participation from second through third year).

Initially, 10 randomly selected second-year BEd participants were offered the opportunity to be the first student teachers at the university and also on the African continent to participate in the TeachLivE™ mixed-reality simulator housed in the University of Central Florida (UCF) Center for Research in Education Simulation Technology (CREST). The participants were asked to present a 15 min group guided reading lesson, using *The Snowy Day* by Ezra Jack Keats as text for five Grade 3 avatars.

One student teacher was randomly selected to continue participating in the study. Her sessions in the simulator were

video recorded, and she was observed and formatively assessed while she was on TP in her second year during the first semester as well as during the first semester in her third year. The mentor teacher at the school where the student teacher was placed also participated in the study.

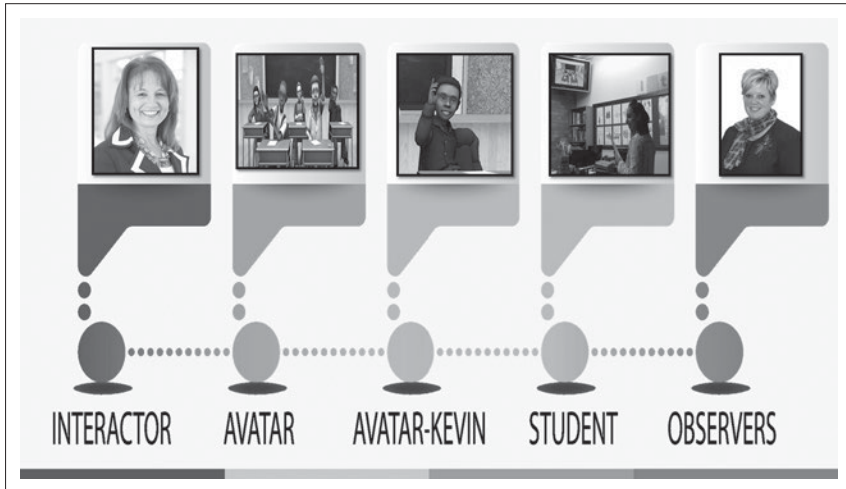
■ **The TeachLivE™ mixed-reality classroom simulator**

In a TeachLivE™ simulator, student teachers enter a virtual classroom projected on a white board or a large television monitor. Behind the avatars is an interactor who ensures the avatars appear, speak and interact like humans in real-time within the cultural context of the setting (Dieker et al. 2015). In simulation technologies, human in the loop refers to a human interactor working behind the scenes to enable the synchronous voice and body responses. A human in the loop learning environment consists of four components – interactor, avatars, student teacher and observer(s) (e.g. teacher educator) connected via computer and Internet access (cf. Figure 2.1). Purposefully trained interactors (improvisation actors and puppeteers) operate and control the human in the loop functionality, allowing real-time dialogic engagement to occur (Nagendran et al. 2014). Interactors receive extensive training (40+ h) in the simulation; they get to know the personalities and backgrounds of the avatars as well as the scenario planned for the simulation by the teacher educator (Dieker et al. 2015, 2014). The scenarios can be performed with strict fidelity of behaviours and practices or the interactor can ad-lib the scenario to respond to the effective or ineffective behaviours exhibited by the student teacher. Dieker et al. (2015:12) described TeachLivE™ as ‘sandbox technology’ in which student teachers are equipped with just enough tools to allow for targeted skills practice. Each avatar is personalised in form, voice and persona. The interactor offers a range of responses catering from compliance-level interaction to disruptive (i.e. five levels of behaviour). The interactor also manipulates the movement of the

five avatars (e.g. Kevin, CJ, Maria, Sean and Ed) using an interactive gaming controller blended with animated pre-programmed movements, so that the movements the student teachers sees on the screen show movement of the heads and upper bodies and arms, use gestures and make eye contact much like as expected in the 'real' classroom. The majority of avatar learner responses are produced in real-time, although the interactor can automatically trigger some pre-recorded behaviours (Straub et al. 2014), such as learners' laughing, excessive pen clicking or cell phone ringing. The Microsoft Kinect™ tracks the teachers' body poses and allows for natural movement of proximity amongst and between the virtual avatars.

TeachLive™ offers a safe, low-risk learning environment for student teachers to practice and rehearse core teaching practices. TeachLive™ offers an opportunity for point-of-need and real-time reflective practice (Dieker et al. 2014). The student teacher presents a group guided reading lesson and practices specific elements of his or her teaching, for example, introducing a text, cognitive questioning and learner engagement as identified by the teacher educator. The interaction in the classroom simulator is video recorded for self-reflection and training purposes. The pause classroom and restart classroom functionality of mixed-reality simulations lend themselves to targeted skill practice for student teachers (Dieker et al. 2014). In the mixed-reality classroom, a teacher educator can at any time pause the classroom in order to provide actionable feedback to the student teacher who may be experiencing a particular difficulty or if the teacher educator requires the student teacher to redo a particular aspect, such as a questioning technique. This allows the student teacher the opportunity to receive instant feedback and he or she can go straight back into the classroom and implement the suggested change again.

The mixed-reality environment allows participants the opportunity to learn without placing 'real' students or peers at risk during the learning process while engaging in *virtual rehearsal* of a targeted skill or domain. The virtual rehearsal



Source: This diagram was specifically designed for *Becoming a Teacher: Research on the Work-Integrated Learning of Student Teachers*, by Elma Marais, who is also one of the authors. This is a designed graphic, representing a simulator. The interactor is represented by Lisa Dieker, the student in the photograph is Jonet Perreira, and the observer is Carisma Nel. All provided permission for publishing their photos.

FIGURE 2.1: Participants in the TeachLivE™ simulator.

allows a teacher candidate to practice until he or she masters a task or a challenge. The simulated environment is meant to evoke both personalised learning and an authentic experience, known in the simulation world as the suspension of disbelief. This suspension occurs by providing a physical environment resembling a ‘real’ classroom, yet users are in a mixed-reality setting simulating targeted skills at a microcosm level. Furthermore, the TeachLivE™ simulator provides unique benefits in that unlike in a real classroom, teachers can go through a review cycle known in the simulation literature as Action Review Cycle (ARC). Figure 2.2 provides an image of the typical ARC used in teacher preparation. The cycle starts with the teacher educator determining what task or challenge they want the student teacher to perform. Next, the simulation team creates a plan for use by the student teacher, and presents the task to the candidate. The candidate sets a goal he or she is trying to achieve (setting the Before Action Review [BAR]) aligned to

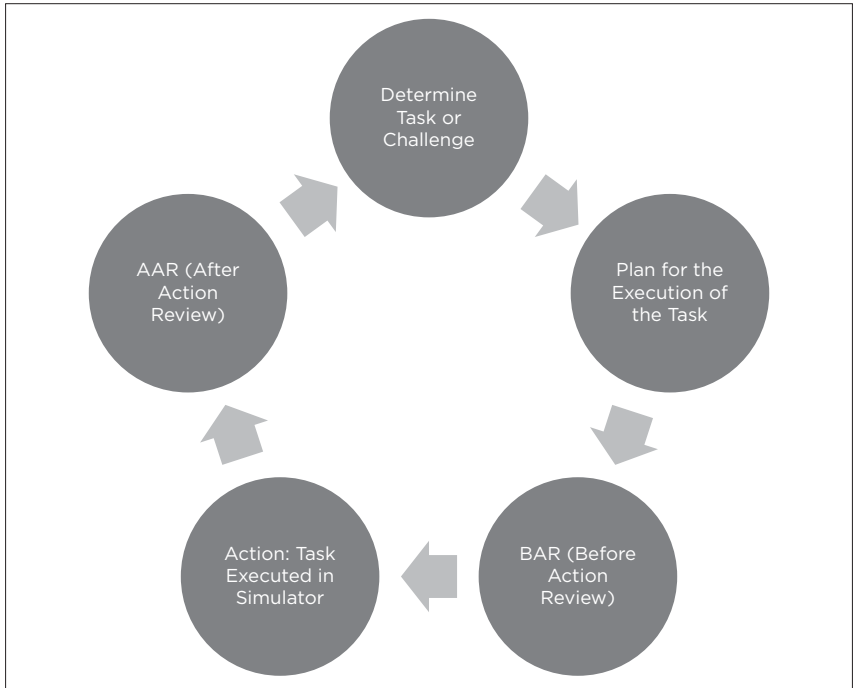


FIGURE 2.2: After-action review process for simulation.

the targeted action or task in the simulated experience. Following the simulated experience, the teacher candidate goes through what is known in education as reflection, but in the world of simulation, it is called After-Action-Reviews (AAR). This ARC can last typically no longer than 10 min but can be rapid and last just a few minutes if a teacher candidate's performance is misaligned with the BAR. In earlier research studies by Straub et al. (2014), they learnt that the AAR process is essential for skill transfer back to the 'real' classroom setting.

■ Operational components of TeachLive™

The operational components of the mixed-reality simulation, as utilised in this study, are shown in Figure 2.3.

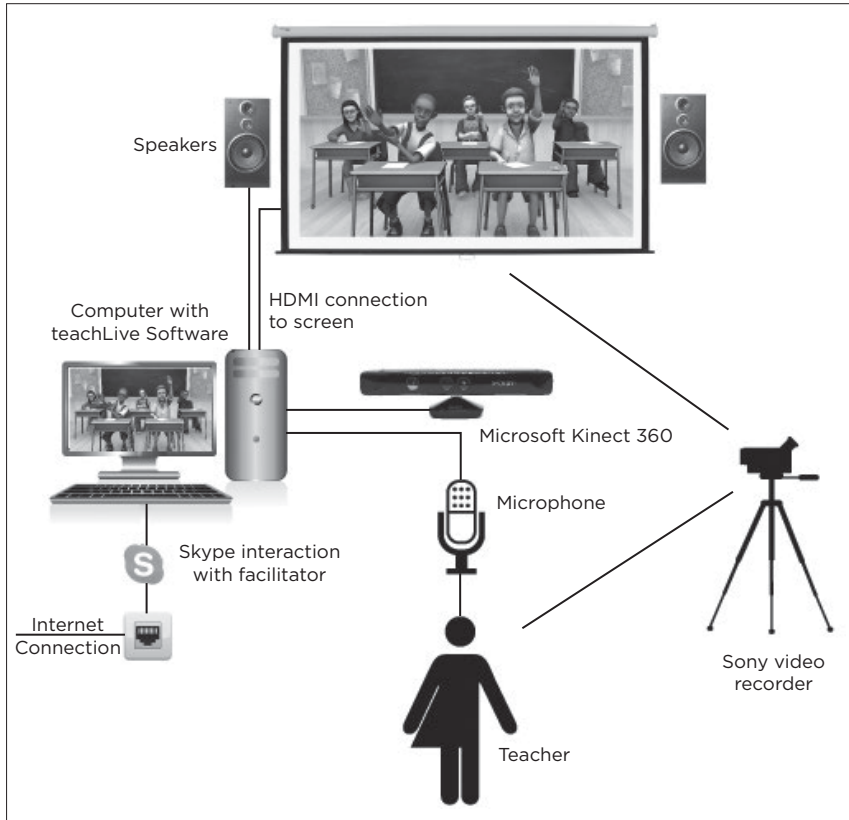


FIGURE 2.3: Operational components for TeachLivE™.

The TeachLivE™ simulator requires an active and fast Internet connection, as it runs live with the interactor at the UCF in the United States of America. The computer also needs a good processor and Random Access Memory, as these hardware components may influence the fluent video and audio delivery required for the classroom to run smoothly. TeachLivE™ software is loaded on a computer dedicated to the mixed-reality simulator at the North-West University. The TeachLivE™ interactor connects with the North-West University facilitator via Skype. This connection occurs to ensure that all technical aspects are

working; for example, that the video is coming through and the sound is effective. Once both the facilitator and interactor are satisfied that everything is functioning properly, the student teacher enters the simulated classroom.

The classroom is shown on the computer screen and projected onto a larger screen via a data projector so that the student teacher has a larger view of the classroom. In order for the student teacher to hear what the avatar learners are saying and for him or her to interact with the avatars, large speakers are also connected to the computer, so that the student teacher can clearly hear all sounds within the classroom. A Microsoft Kinect 360 and an external Samson microphone are connected to the computer to transmit the student teacher's voice, movement and interaction with the avatars to the TeachLivE™ interactor, who can see and hear the student teacher. The Microsoft Kinect 360 tracks the movement of the student teacher; as the student teacher moves towards or away from an avatar's desk, the visual display on the screen changes to represent the proximity of the student teacher to the avatar learner. The Microsoft Kinect 360 includes a webcam so that the TeachLivE™ interactor can see what the student teacher is doing, showing or asking, and adapts the avatars' interactions accordingly. In order to facilitate the AAR process, each session within the classroom is recorded on a stand-alone Sony video camera. The camera is placed at the back of the student teachers so as to not disturb them while they are teaching but also to record their teaching as well as the entire interaction in the classroom with the avatars. The video camera records each session in MP4 format, which allows for after-action review by the student teacher together with the teacher educator.

■ Data collection methods and procedure

In the second semester of 2018, a group of 10 second-year student teachers were provided the opportunity to present a 15-min group guided reading lesson (Department of Basic Education 2011) in the TeachLivE™ simulator. The sessions were video recorded with the permission of the student teachers and the

UCF CREST. During these initial sessions, no coaching from the teacher educator took place. After participating in the mixed-reality classroom, the teacher educator held an AAR session with each of the student teachers where the aim was to discuss the student teachers’ presentation of their group guided reading lessons. The teacher educator made use of a group guided reading rubric to provide formative feedback to the student teachers on their performance.

One student teacher volunteered to participate in a three-semester-long observation of her teaching of group guided reading lessons in the TeachLivE™ simulator as well as her teaching of group guided reading during her TP placement at a partnership school. During TP in the second semester of the second year, the student teachers are required to co-teach with their mentor teacher or on their own for three consecutive days. The student teacher who volunteered to participate in the study for a three-semester-long period was placed in a school close to the university. During her TP period, she was given the opportunity to present a number of group guided reading lessons as part of her TP module requirements. Upon completion of her TP period in the second semester of her second year, the teacher educator, also the project leader, interviewed the student teacher’s mentor teacher in order to determine what her perception was of the student teacher’s presentation of group guided reading lessons.

As part of the developmental growth plan for the student teacher, she received formative feedback on the core practices related to the presentation of her group guided reading lessons she needed to work on (cf. Box 2.1). This included the rigour of

Box 2.1: Professional growth plan.

Strengths	Areas of growth
Action plan	
Student teacher signature	
Teacher educator signature	

cognitive questioning and enhanced learner engagement during group guided reading lessons.

In the first semester of the student teacher's third year, she was provided the opportunity to practice the skills identified as part of her professional growth plan (BAR), namely, the introduction of texts, the rigour of cognitive questioning and the enhancement of learner engagement in the TeachLivE™ simulator. Each session lasted approximately 5 min – 10 min, and the sessions were 'paused' by the teacher educator to provide coaching to the student teacher and to allow rapid processing of the ARC. The student teacher handled four consecutive sessions in the simulator. During these sessions, the student teacher selected the text, *Sara's Invitation* by Annette Smith, to teach her group guided reading lessons. These sessions were video recorded for AAR purposes. The teacher educator made use of the same rubric as used in the initial sessions as well as the Cognitive Rigour Matrix developed by Hess et al. (2009) to record the rigour of the cognitive questioning of the student teacher while she was in the simulator. The Matrix aligns the work of Webb and Bloom so that the verbs associated with each imply their complexity. The Matrix is used to assess the strength and rigour of the questions that the student teachers ask in the classroom. A tally sheet was used to record the number of questions posed at each level.

In the second semester of the student teacher's third year when she went out for her TP, she was once again placed in the same partnership school with the same mentor teacher, where she was observed and formatively assessed by the mentor teacher as well as the teacher educator on her presentation of group guided reading lessons. The student teacher introduced the same text, used initially with the avatars, namely, *The Snowy Day*, to a selected group of Grade 3 learners. The teacher educator and the mentor teacher made use of the same group guided reading rubric used in the simulator to formatively assess and provide feedback to the student teacher.

■ Data analysis

The qualitative analysis process was approached as a circular process and not as a fixed linear action. The content analysis approach implied that the various steps of analysis were regarded as procedural guidelines and not as rigid steps (De Vos et al. 2005). With the preceding in mind, the qualitative data analysis of this research (video recordings in the simulator, interviews with the student teacher(s), interview with the mentor teacher and classroom observations during TP) was conducted according to a qualitative content analysis process as recommended by Henning, Van Rensburg and Smith (2004:104-109) and De Vos et al. (2005:334). The qualitative content analysis involved the following procedures, namely, recording of data by means of note taking and audio recording of responses, video recording of lessons in the simulator, the analysis of the rubrics used, transcribing verbatim the responses from the interviews, reading the entire transcribed text and field notes to obtain an overall impression of the content and context. Ethical clearance was obtained from the North-West University (NWU) for the project (NWU-00344-17-A2). In addition, permission was obtained from the UCF to video record the lessons in the simulator in order to use it for training purposes for the student teachers. Codes were assigned to specific units or segments of related meaning identified within the field notes and transcripts (Henning et al. 2004).

■ Findings and discussion

Observations in the TeachLivE™ simulator as well as an analysis of the video recordings of the student teachers' ($N = 10$) group guided reading lesson presentations indicated that they were not familiar with the components of a group guided reading lesson. The student teachers tended to dominate the entire lesson, reading the entire story to the avatars and only asking one or two procedural questions related to their paying attention. When the

avatar learners were given the opportunity to read, in spite of the fluency errors they made when unattended, the feedback provided was mainly 'good' and 'well done'. Nine of the student teachers obtained a score of one (does not meet expectations) on the rubric and one student teacher obtained a score of two (approaching expectations). The AAR sessions indicated all student teachers were concerned about their performance:

'Ma'm, this is the first time that we have been given the opportunity to practice teaching any of the skills we should be using in the schools.'
(Student teacher, undisclosed gender, date unknown)

'I have no idea how to teach group guided reading. I know the learners must be similar in their reading skills or on the same level or something.'
(Student teacher, undisclosed gender, date unknown)

'I knew I had to concentrate on their comprehension.'
(Student teacher, undisclosed gender, date unknown)

'Teaching in the simulator is so real; I had to think on my feet; it's like in a real classroom.'
(Student teacher, undisclosed gender, date unknown)

The results indicated that the majority of questions posed by the student teachers are low in cognitive level requiring only remembering and understanding. The time the student teachers gave the avatar learners to answer a question was very short, sometimes 1 s and usually only one learner at a time was given the opportunity to respond. There was seldom, if ever, multiple learner engagement around responses to a posed question. The after-action review indicated that the student teachers appeared to be familiar with the necessity of posing high-level cognitive questions in order to enhance learner comprehension, but the results from this study showed that there seems to be a disconnect between what student teachers think they do and their actual practice with regard to posing effective questions as a strategy for active learner engagement and comprehension, specifically during group guided reading.

In total, the 10 student teachers spent 150 min in the simulator. During this time, a total number of 305 questions were asked,

approximately two questions per minute. An analysis of the questions indicated that 35% of the questions were procedural and related to behavioural aspects, similar to the findings of Massey et al. (2008):

‘Maria, are you sleeping?’ (Student teacher, undisclosed gender, date unknown)

‘Shaun, what are you doing?’ (Student teacher, undisclosed gender, date unknown)

‘Who said that?’ (Student teacher, undisclosed gender, date unknown)

In addition, approximately 60% of the questions were formulated at a Remember/Depth of Knowledge level 1 on the Cognitive Rigour Matrix, while approximately 5% of the questions were at an Understanding/Depth of Knowledge level 1 and 2. The learner responses were very often one or two words or at the most one sentence long:

Student teacher: ‘Sean, what season do you think it is?’ [The title of the book was *The Snowy Day*]

Sean: ‘Duh! Winter.’

Student teacher: ‘What do you think happened when he put the snowball in his pocket?’

Kevin: ‘It melted.’

Student teacher: ‘What did the little boy do when he woke up?’

Maria: ‘He looked outside the window.’

Student teacher: ‘Why was Chloe so excited?’

Kevin: ‘She has been invited to Sara Forbes’ party.’ (Student teacher, undisclosed gender, date unknown)

The interview with the mentor teacher indicated that she was also of the opinion that the student teacher placed in her classroom was not sure how to teach group guided reading. She scored the student teacher a one on the rubric. Additional comments made by the mentor teacher included:

‘It is clear that the student teacher has never taught a group guided reading lesson before – she was dominating the whole lesson and

never corrected or provided the learners with any strategies to approach or improve their reading. She just went on.'

'My student tends to use a lot of very low-level questions.'

'She asks obvious questions such as: Do you think rock is hard?'

'The learners are not really engaged. One learner even said, "Really!" when he was asked whether it is hot in summer.' (Teacher educator, undisclosed gender, date unknown)

Based on the initial analysis of the video recordings of the 10 student teachers, the AAR as well as the interview with the mentor teacher, the teacher educator and the research team decided to give one student teacher the opportunity to practice the core skills that had been identified as lacking with regard to the teaching of group guided reading in the TeachLivE™ simulator. The focus was only on the introduction of the group guided reading text and the formulation of the student teacher's ability to create cognitive questions at various levels of rigour.

The student teacher selected the text, *Sara's Invitation*, to teach to her Grade 3 class of avatars. In her first session in the simulator, the student teacher asked only Remember/Depth of Knowledge level 1 and Understand/Depth of Knowledge Level 1 questions. Remember/Depth of Knowledge level 1 questions are designed in order for children to be able to retrieve knowledge from long-term memory or to access information that is readily available. They are asked to find, identify or recall basic facts in texts, read words with fluency and accuracy, or define terms:

'Who is the author of this text?'

'Who is Chloe's special friend?' (Student teacher, undisclosed gender, date unknown)

In Understand/Depth of Knowledge level 1 questions, learners are asked to identify or describe literary elements such as characters, setting and sequence; select appropriate words by meaning; or answer even though the definition is clearly evident or present in the text. Consistently, learners will be asked to answer the basic questions of who, what, when, where and how.

Learners are, therefore, still being asked to recall and reproduce; higher cognitive level questioning is not evident:

‘Can you tell how the illustrations fit the title?’

‘What do you think the text will be about?’ (Student teacher, undisclosed gender, date unknown)

In the second and third sessions in the simulator, the student teacher started to include Understand/Depth of Knowledge level 2 questions as well as Apply/Depth of Knowledge level 1 questions:

‘How did Chloe feel when she heard it was going to be a barbecue party?’

‘What is the difference between wear and where?’

‘Explain why Chloe’s mother spoke to her gently when she said she couldn’t have a new dress?’ (Student teacher, undisclosed gender, date unknown)

In her final session in the simulator, the student teacher made use of a good mix of questions:

‘What is another word for moped? [R/DOK1]’

‘Why was Chloe upset? [U/DOK1]’

‘Why was Chloe’s mom smiling after she answered the phone? [U/DOK2]’

‘How do you know that Chloe was very excited? [AY/DOK2]’

‘Explain why Chloe grinned mischievously when she said she wouldn’t need the fabulous new dress after all? [AY/DOK3]’

‘Did you think it was fair of Chloe to say that there was never enough money in the house? [E/DOK3]’. (Student teacher, undisclosed gender, date unknown)

Findings from this study indicate that the student teacher was able to improve her cognitive questioning skills as well as increase learner engagement in the process. The opportunity to pause the classroom and receive coaching as well as just-in-time feedback ensured that the student teacher could immediately implement the skills and experience the changed effect it had on the learners.

During the student teachers' placement for TP in the second semester of her third year, after participating in the TeachLivE™ simulator, the mentor teacher as well as the teacher educator scored the student teacher a three on the rubric (meets expectations). The student improved on her overall presentation of the group guided reading lesson, and the cognitive questioning and learner engagement was at a much higher level than her initial presentation in her second year. The results, although involving only one student teacher, show promise in that she was able to transfer the skills she practised in the simulator to a real classroom during her TP placement at a partnership school.

■ Conclusion

Teaching is a complex job. It requires knowledge acquisition and application of practices in highly demanding and challenging contexts. To reach a level of automaticity such that the practice can be implemented with fidelity takes consistent practice with feedback, reflection, coaching and more practice. This cannot be accomplished without rethinking ITE programmes, specifically the university coursework and TP requirements. Finding suitable opportunities to practice teaching can be problematic in ITE programmes. Simulations are meant to be used in conjunction with traditional school-based placements (TP) in order to supplement and support student teachers' practice-based opportunities (Bautista & Boone 2015).

The TeachLivE™ mixed-reality simulator holds promise to help student teachers translate theory (coursework) into practice, which is necessary if South African teachers are to ensure that all 10-year-olds read for meaning as stated within Mr Ramaphosa's State of the Nation Address on 21 June 2019. The current study advances the field of reading literacy by exploring ways to train student teachers in ITE programmes to enact core reading practices such as group guided reading.

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The value of work-integrated learning for professional teacher development programmes in open distance learning

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■ Abstract

Work-integrated learning programmes in HEIs are regarded as a global necessity. Sufficient support structures are needed to raise the awareness and level of professional development of these

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programmes in education. Such structures are needed to narrow the gap between the university's theory and the student teachers' practice in the school classroom. In this chapter, a review of the literature is offered on the value of WIL for professional teacher development programmes, particularly in relation to its scarcity in open distance learning contexts. Teacher education institutions experience various challenges in terms of WIL, as many student teachers obtain their pre-service teacher qualifications through distance education. The focus of this chapter is to move beyond the various logistical and contextual factors that these institutions might experience, and transcend the expectations and understandings of the reader to a more individualised and holistic nuance needed in professional development programmes. As such, this literature review is conceptualised in terms of the implicit, perceptual and meta-representational value of WIL to facilitate metacognitive awareness. It is believed, based on the propositions in the philosophical analysis as discussion, that the challenges that accompany WIL in open distance learning settings can be overcome if the role of metacognitive awareness takes on a stronger position in WIL programmes. In particular, aspects of metacognitive awareness, professional development and open distance learning are reflected upon as critical concepts related to WIL. The chapter provides a detailed discussion on the values associated with WIL and concludes with recommendations for overcoming the research scarcity in the field.

Keywords: Work-integrated learning; Open distance learning; Metacognitive awareness; Self-directed learning; Philosophy of value.

■ Introduction and problem statement

Work-integrated learning or 'work-based learning' (Atkinson 2016) refers to those activities that combine educational studies in a discipline with its application in the workplace (Cooper, Orrell & Bowden 2010). Work-integrated learning has a long and rich

history within HEIs worldwide, with the overall goal in its affordances for placement programmes, practicums and various forms of cooperative education. It is for this reason that WIL seems prevalent in preparatory programmes for professional teacher development. There is, however, an alarming paradigm shift threatening the delivery of quality education at the tertiary level that underpins the subject of WIL. This paradigm shift has to do with what Jagals and Van der Walt (2018) explained as the metacognitive ideology – a movement away from deep learning. To support this claim, consider Table 3.1 as a case in point to illustrate the present state of the literature. An academic word-search was conducted on the Google Scholar online search engine by typing the following set of keywords in the search engine’s search function: ‘WIL’, ‘professional development’ and ‘metacognition’. The results were then limited further by including the keyword ‘education’ in the search. Table 3.1 reports the Google search results of *hits*.

Table 3.1 shows that when filtering the search results further to the field of ‘education’, the results went down to 261 hits (Google Scholar 2019) and narrowed down to only five results, at the time of writing this chapter, when adding the keyword ‘open distance learning’ into the set. The limited search results in Table 3.1 demonstrate the scarcity of research on WIL for professional teacher development programmes, particularly concerning metacognition in open distance learning contexts.

TABLE 3.1: Google search results on the state of the literature.

Details of the search results	Number of search hits
Number of search results excluding patents and citations	255
Number of search results including patents and excluding citations	245
Number of search results including patents and including citations	266
Number of search results including patents and including citations, with the inclusion of ‘education’	261
Number of search results including patents and including citations, with the inclusion of ‘open distance learning’	5

Source: As captured from the Google Scholar online search (Google Scholar 2019).

Why were these particular keywords noteworthy in the search? A recent publication by Jagals (2018) suggested that metacognition in education has become an overlooked yet valuable component in the learning process. Jagals and Van der Walt (2018) explained that whereas metacognitive ideology promotes deep learning and critical thinking, the CAPS curriculum and teacher education programmes often overlook the value of metacognitive development, and preparing learners for their future careers. The metacognitive ideology responds to a mass ignorance of the value metacognition could have for education. The focus of the South African curriculum is moving away from fostering metacognitive thinking, as Jagals (2018) reported, and this is worrisome, as the focus is shifting from the individual towards the public interest, and this is often in conflict with the individual's values. It is, therefore, no wonder that authors such as Van Wyk (2018) and Chong (2018) pleaded for a serious and challenging transformation in higher education.

A further problem that underpins ignorance of the value of WIL programmes, it seems, has to do with HEIs' emphasis on logistical problems such as placements of student teachers, assigning mentors and anticipated experiences. There are often reports on insufficient research and literature to depict how WIL relates to professional development and how it facilitates the necessary skills to learn and model important aspects such as planning, monitoring and evaluation – forms of metacognitive skills (Flavell 1979). Amongst this scarcity in literature, other prevalent factors also reign. This suggests that literature is also needed to not only propel the issues of logistics but also to understand and explore the rationale behind these issues, that is, what drives the emphasis on logistical matters.

Whatever the growing list of challenges, WIL remains a cornerstone subject to align theory and practice in curricular designs and learning activities. The main question then that drives this chapter's theoretical overview is: what is the value of WIL for Professional Teacher Development Programmes in Open Distance Learning?

■ Literature review

Over the last two decades, there has been a rising need to establish and raise awareness of the value of WIL, especially as the field of higher education continues to expand. The ideal proclaimed by this movement is to activate the adequate and quality preparation of teachers in teacher education programmes. Similarly, during this expansion, there is also great concern regarding the value of the modus (full-time, contact, distance and part-time) and the language of teaching and learning (i.e. Afrikaans, English and Setswana) in undergraduate programmes. A recent international study conducted by Zegwaard et al. (2019), for instance, on teacher professional development shows the emphasis of professional training programmes that follow through on such concepts as ‘authentic teaching’, ‘place-based education’, ‘problem-based learning’ and ‘project-based learning’, to name but four. Following these trends, Zegwaard et al. (2019) seemed concerned about the rising number of student teachers, and the resultant rising demand for staffing and resources at various international HEIs, and its implications for WIL. According to the NWU Profile report for 2017/2018 (NWU 2018:11), more than 25 000 students out of a total of 27 000 students enrolled at the NWU’s Unit for Open Distance Learning are students enrolled at the Faculty of Education. The growing number of open distance learning students, however, place tremendous pressure on course instructors: ‘As institutions grapple with how to provide quality support to greater numbers of students, it is likely that learning communities offering peer support will become much more critical’ (NWU 2018:3).

These statistics mirror those issues reported almost a decade ago by Du Plessis (2010):

[O]ne of the biggest problems for distance education ... is overcoming transactional distance ... selection of schools, placement of students, training of mentors and mentoring ... and assessment of students’ competence and feedback to the university. (p. 207)

Although published nearly 10 years ago, this outcry still seems relevant today. A recent study by Arko-Achemfuor (2017) on

distance learning in South Africa showed that students struggle to access support facilities at the university level and that they are doomed for failure. A report by Letseka and Karel (2015) indicated that 72% of UNISA's undergraduate students enrolled in a four-year degree (e.g. bachelors in education degrees) will never graduate.

■ **The historic and modern concept of open distance learning**

One of the earliest instructional efforts to open distance learning was marketed in 1728 by Caleb Philips (Owoeye 2009). According to Owoeye (2009), Philips looked for students interested in learning through weekly lessons sent via postal mail. From this traditional teaching approach emerged the first distance education course. This course was offered by Isaac Pitman, founder of Pitman's shorthand writing course (Harte 2000). Teaching was conducted through mailed texts rewritten as transcriptions into shorthand on the back of postcards and returned with corrections. With this premise, the University of London was the first to provide distance learning qualifications through a so-called External Programme during 1858 (Harte 2000). The University of London was later established as an examining body for the University of London colleges (such institutions as the University College & King's College). Through the development of this form of distance education, the department awarded office power for examinations to a separate entity, laying the groundwork for a programme within the university, responsible for the administration and examinations towards awarding a qualification. The actual teaching experience was taking place at another institution. This movement provided access to higher education to students from less affluent backgrounds and seemed especially welcome in countries such as South Africa (Van Wyk 2018). In 1920, the University of South Africa was accepted as an examining and certification body, and started to present distance education tuition in 1946.

■ Advancement in open distance learning technologies

With the progression in Internet technology, many current forms of distance learning have been enabled, including access to open and free educational resources as well as facilities such as e-Learning platforms and Massive Open Online Courses, otherwise called MOOCs (Vardi 2012). Based on their respective differences in functionalities, these technologies can be arranged according to two means of educational distribution, namely, synchronous learning and asynchronous learning (Ogbonna, Ibezim & Obi 2019). Briefly, synchronous learning (in real-time) refers to the interchange of ideas and information, and is facilitated through various ways of cooperative and collaborative networking. Asynchronous learning (not in real-time) refers to a self-paced learning process whereby the student engages in the sharing of information and ideas without relying on others for the learning to take place.

Synchronous educational technologies include radio, television, direct instruction with broadcasted programming, whole-class and whole-school broadcasting as well as the availability of national and international stations to provide and access (sometimes more informal) self-enriching educational opportunities (Okereke 2018). A recent form of synchronous learning present in university classrooms involves the use of robotic telepresence (Daley & Murphy 2019). Daley and Murphy (2019) reported on an exploratory study where robotic telepresence such as computer software allows the student teacher to translate words spoken by a teacher in one language into another. Other examples include recordings of presented classes to be played back at a later stage to analyse and interpret learning experiences (Friedman & Cabral 2018) along with reflective prompts. These robotic presences can also be accessed on an online medium (such as Skype or Adobe Connect) through which a student teacher will have a robotic presence in the classroom (via a computer, laptop or tablet as a digital presence).

Yet, the student will be at a different location, accessing the device through an Internet connection on another device.

Although there were accounts of resistance to incorporate asynchronous learning, as reported by Jaffee (1998), recent sources suggest that keeping reflective journals online, and accessing and updating them over time can ameliorate the quality of learning experiences (Liu 2019). Asynchronous communities are inclined to share three general qualities, namely, each community requires an active facilitator to monitor, conduct and encourage discourse. Establishing such a communal community is important in education, requires a lot of time and involves paying attention to those areas of 'reading, assessing, reinforcing' and inspiring interaction and learning. This nature of the student within an asynchronous online learning environment requires active involvement and requires students to take responsibility for their learning. Strengths of asynchronous learning include the freedom it provides student teachers to have online access to tutorial and other course-related materials whenever and wherever they opt for it (Traxler, Gavrin & Lindell 2018). Furthermore, employment or curricula may be an important obstacle in participating in distance education through asynchronous learning in college. However, such a view will be squashed once coached about knowledge for teaching in these environments. Another advantage of asynchronous learning (and, because the technology develops, several synchronous learning atmospheres) involves the placement of all learning experiences within this environment. As curriculum designers, there remains a strong focus on establishing the needed information, strategies and all media required to deliver content.

■ **Scholarship on work-integrated learning**

Work-integrated learning is a structured approach to unite classroom-based education with the practical work journey (Haddara & Skanes 2007). Such a WIL experience typically provides academic credit for student teachers to gain structured and practical academic or theory-related experiences through

practice in the workplace. Recently, WIL has been regarded as a focus on the new importance of assisting student teachers to make the school-to-work transition, be it school-university-to-school. Work-integrated learning is considered synonymous with such ideas as 'alongside internships', 'service learning' and 'practical or clinical placements'. The pioneer in the field, Herman Schneider (1872-1939), who had experience as an educator, concluded that traditional learning spaces or classrooms were insufficient for technical students (Smollins 1999), and so argued that a form of learning is required to integrate with the workplace. For pre-service teachers, a WIL programme combines education from an academic study at a university with practical experience at schools as a teacher in training in primary and secondary education fields. A characteristic of such programmes is that they lead to a bachelor's degree in Education with a focus on educating skilled and trained professional teachers.

Work-integrated learning is a general component of professional teacher development programmes in South Africa and has been integrated into university educational courses as a part of the final grade for their qualification. The South African Department of Higher Education (Department of Higher Education and Training [DHET]) produced a revised policy on the minimum requirements for teacher education qualifications (DHET 2015). The policy describes the guidelines related to WIL structures as those elements of learning from practice (e.g. observing and reflecting on lessons taught by others) and learning in practice (e.g. preparing, teaching and reflecting on lessons presented by oneself). Practical learning is therefore considered an important part of the development of tacit knowledge, an essential component of learning to teach. According to the DHET (2015), WIL results in competent learning and represents the acquisition, integration and application of different types of knowledge. A range of integrated and applied knowledge is applicable, including specialised learning in a particular discipline, pedagogical learning, practical learning, fundamental learning and situational learning.

■ Work-integrated learning models

According to DHET (2015):

In a full-time contact program, students should spend a minimum of 20 weeks and a maximum of 32 weeks in formally supervised and assessed school-based practices over the four-year duration of the degree. In any given year, a maximum of 12 such weeks could be spent in schools, and at least three of these should be consecutive. In part-time or distance mode programmes, students may be physically in schools for longer periods – for example, if they are employed as unqualified or under-qualified teachers. However, the same amount of supervised and assessed school-based practice is required. (p. 23)

Wait and Govender (2019) provided evaluation criteria to assess the strengths, weaknesses, future opportunities and possible threats identified in WIL programmes. They argue that current WIL projects in South Africa are classroom-based, rather than work and practice-oriented. An evaluation of these projects is therefore not standardised, and there is no accepted model for WIL projects in South Africa to report on. In one model-example, student teachers alternate a semester of class time at a university or college with an equal amount of time acting as a teacher during a scheduled WIL period in the same semester. This is repeated each semester for the duration of the programme in order to obtain both theory-based and practice-based knowledge of education. A second example involves the so-called sandwich model where student teachers experience teaching and learning in three layers. Firstly, these student teachers work at a school for a set amount of time, generally between three and six months. During this time, they complete tasks to increase learning through online courses or complete reflective activities and assignments. These activities serve as a second layer. The student teachers then, in a third layer, bring what they learn from these activities back into the classroom.

There remains, however, a number of factors that prevent these student teachers from completing the WIL programmes successfully. Lee, Choi and Kim (2013:604-614) identified

70 dropout factors that they arranged according to three categories:

1. *student factors* that include academic background, relevant experience, skills and psychological attributes such as grit, resilience and a growth-oriented mindset
2. *environmental factors* such as work commitments, family responsibilities and a need for a supportive environment
3. *course factors* that include course design, teaching presence and instructional support, and interactions between the teaching presence and the student, and the students amongst themselves.

The scarcity of literature on these models in particular related to open distance learning programmes, as illustrated in the introduction of this chapter, however, suggest a need to determine how these factors are taken into consideration in the present WIL models that are implemented in order to guide and support student teachers at HEIs. In all cases, professional development and deep reflection are evident in the WIL models. However, for students, costs and time to degree completion may be deterrents to participating successfully in WIL programmes. In order for an open distance learning student to succeed, SDL is of the utmost importance. Also, school-to-work and service learning have been promoted as ways to link theory and practice through meaningful experiential learning experiences. Smith-Tolken and McKay (2019), for instance, outlined the similarities between school-to-work and service learning. Although school-to-work, service learning and co-op education have unique goals, every one of these factors also apply to WIL in that they:

1. are based on the philosophy of energetic and meaningful learning
2. view college students as co-constructive newbies and producers of understanding
3. use such academic strategies as contextual learning and problem-based learning.

■ Metacognitive awareness in work-integrated learning

Metacognition is generally interpreted as ‘cognition about cognition’, ‘thinking about thinking’ (Flavell 1979), ‘knowing about knowing’, ‘becoming aware of one’s awareness’ (Efklides 2009) and ‘higher-order thinking skills’ (Jagals 2018). The term ‘metacognition’ has its origins in the root of the word ‘meta’, meaning ‘beyond’, or ‘on top of’. Over the past five decades of research, metacognition has taken on different defining characteristics, especially in the early years after its inception in the pioneering work of Flavell (1979).

In the context of WIL, a student teacher will be considered metacognitively aware if they notice that they struggle with learning or teaching x more than y , or if they realise that they should double-check z before taking it as factual knowledge. This knowing of the self involves the term *metacognitive knowledge* and refers to knowledge about what (declarative), when (conditional) and how (procedural) teaching–learning strategies can be used.

The recent work by Joksimovic et al. (2019) showed that metacognitive awareness during WIL promotes reflective states of consciousness. The study, in particular, builds on the premise that metacognitive knowledge is awareness about one’s own cognitive processes and the understanding of managing or regulating those processes to maximise the quality of the learning experience.

■ Metacognitive knowledge

Having an increased awareness of one’s personal overall performance as a teacher can serve as an additional quality measure of WIL experience (Dunlosky Serra & Baker 2007). This awareness endorses a relationship between one’s capacity to be aware of one’s personal attributes (e.g. strengths and weaknesses

regarding pedagogical content knowledge) and the affective attributes (i.e. motivation, attitude and beliefs) of the individual. The literature on metacognition generally reports on three types of metacognitive knowledge: declarative, procedural and conditional.

Declarative knowledge refers to content knowledge, that is, knowledge regarding one's own understanding and capabilities. A student who evaluates his or her own knowledge of a particular subject in a class might become aware of specific parts of the work that is easier or more difficult to understand. The student then develops the conditional knowledge on the level of either themselves as personal knowledge, knowledge about the task itself or of the strategies needed to complete the task. It is notable that not all metacognitive knowledge is accurate. Studies have shown that students often misjudge their effort in understanding the process of evaluating themselves (Holschuh 2019).

Procedural knowledge focusses on how one perceives the task of teaching and determines what content to teach, what duration of time will be necessary, what kind of assessment opportunities should be followed and what strategies would be appropriate (Jagals & Van der Walt 2018). In addition, understanding the procedures, such as various strategies and methodologies for teaching, offers an individual the opportunity to evaluate the aim of the teaching and learning, and to determine what particular challenges impact the overall experience.

Conditional knowledge refers to the knowledge one has about particular circumstances in which one's personal functionality for using metacognitive strategies can be applied. Students develop and increase an understanding of the strategies they use when learning and teaching. Efklides (2011) referred to this awareness as the process of memory-monitoring and self-regulation. In practice, these capacities are used to adjust one's own cognition and to maximise one's possible to think, learn as well as be able to compare ethical/moral rules.

In experimental psychology, an influential difference in metacognition was proposed by Nelson and Narens (1994) to distinguish between monitoring (i.e. judgements about one's cognition) and evaluation (i.e. using those judgements to guide future thinking). Dunlosky et al. (2007) explained this distinction in a review of meta-memory literature and focussed on how findings from this field can be applied to other areas of educational research.

■ **Metacognitive awareness**

Brinck and Liljenfors (2013) offered a theoretical perspective on metacognition. They explained that metacognitive awareness develops across three stages, or metacognitive tiers, including (1) implicit experimental awareness, (2) perceptual awareness and (3) meta-representational awareness.

□ **Tier I: Implicit awareness**

Work-integrated learning programmes are known to require such skills as planning, monitoring and evaluating (Flavell 1979). Once the student teacher becomes aware of these skills, this new knowledge becomes self-associated with the affective experiences of teaching (Efklides 2009). Efklides (2011) suggested that classroom environments assist in developing various sources of motivation and that these experiences of thinking in practice impact on the awareness of other personal attributes such as intentions, beliefs and attitudes (Pratt & Collins 2000). Herein lies the idea that, through experience with self-reflection, awareness is facilitated regarding the intention of teaching and learning, beliefs about self, task and strategies (i.e. what strategy will best suit to teaching topic A, and attitudes regarding a particular topic, approach or pedagogy).

□ **Tier II: Perceptual awareness**

The tier of perceptual awareness involves the facilitation of metacognitive awareness of meta-affective thinking (Efklides 2011). In such cases, a student teacher might ask why do I have this particular belief about teaching? Or why do I think this strategy is

applicable? Perceptual awareness denotes the perception of having metacognitive awareness in addition to awareness of affect. As affect is an extraordinary powerful internal representation of the deep and vulnerable emotional engagement between the teacher and his or her calling as an educator, this level of awareness shapes the perception through which teaching and learning experiences are interpreted and made sense of by the individual.

□ Tier III: Meta-representational awareness

Proust (2013) viewed meta-representation as any representation that refers to both the content of teaching (i.e. the subject, curriculum and relevant pedagogy) as well as the affect directed at that content. Meta-representational awareness can be regarded as a third or the highest form of awareness, as it overlaps affect and metacognition, and enables the student to experience meta-affective thinking, that is, what experiences guide my emotions related to the content that I teach?

Together, the three tiers of metacognitive awareness can produce a deep and personal value to the teaching and learning experiences and inform the development of a theoretical orientation towards understanding the value of WIL for professional teacher development programmes in open distance learning.

■ Conceptual-theoretical framework

The overarching conceptual-theoretical framework (Figure 3.1) of the research question – *what is the value of work-integrated learning for Professional Teacher Development Programmes in Open Distance Learning*, is underpinned by several theoretical considerations. The theories of metacognition, social cognitive learning and SDL all seem dominant as theoretical frameworks which are present in the search results illustrated in Table 3.1 of the introduction. These particular theories are proposed to formulate an integrative conceptual-theoretical framework for the purpose of exploring the value of WIL in open distance learning settings. Firstly, metacognition is introduced by Nelson and Narens (1994) and can take the form of a theory, whereas

Flavell's (1979) introduction referred to the concept of metacognition and the process that enables metacognitive experiences. According to the theory of metacognition, students and teachers develop and model their capacity to plan, monitor and evaluate teaching and learning experiences either individually or in a social setting (Efklides 2011; Flavell 1979; Van Wyk 2018).

With reference to metacognitive awareness, the value of WIL is regarded in terms of an individual value system constructed by the student teacher being 'self'-exploratory. As such, these regulatory skills (i.e. plan, monitor and evaluate) reflect upon developing an awareness of the personal self-knowledge. Other examples of this metacognitive knowledge then include such knowledge as awareness of strengths, weaknesses in terms of the task and strategy knowledge.

The second theory, socio-cognitive theory, forms part of the constructivist theory by Bandura (1986). According to this theory, student teachers learn through social interaction, either in a physical social setting or through an online networked community through collaboration (Van Wyk 2018), and as such students become co-constructors of new knowledge.

Finally, the theory of SDL proposes the promotion of students' metacognition competencies. The term 'SDL' has its roots in the Greek word *αὐτός* ('self') and *διδασκτικός* ('teaching'). The related term *autodidacticism* defines any form of learning through a philosophy of self-education. Various terms are used to describe self-education, including heutagogy and self-determined learning. In the heutagogy paradigm, a learner should be at the centre of his or her own learning. Self-directed learning is sometimes a complement of postmodern education. Students who are self-directed would be more motivated to do extracurricular work. These students often develop for themselves a system to search for and/or create new knowledge, skills and values. When a self-directed learner feels as if he or she has mastered self-education, they often instruct others as their aid is valued. Generally, a self-directed learner is one who chooses the content he or she will

study, his or her studying material and analyses this decision over time. A self-directed learner may or may not have any form of formal education, yet studies on SDL complement an alternative to formal education, as is often the case in the affordances of indigenous knowledge holders for mainstream science (Chilisa 2019). Successful SDL requires self-discipline and a capacity to self-reflect. Some research suggests that being able to regulate one's own learning is something that must be modelled to students.

Reflecting on the acquired knowledge according to the three proposed tiers by Brinck and Liljenfors (2013) ultimately introduces reflection as a form of scaffolding, as described by Vygotsky (1978), and results in learning about learning.

The conceptual-theoretical framework (Figure 3.1) shows how the various key concepts can support professional development towards promoting and understanding SDL. In order to abstract

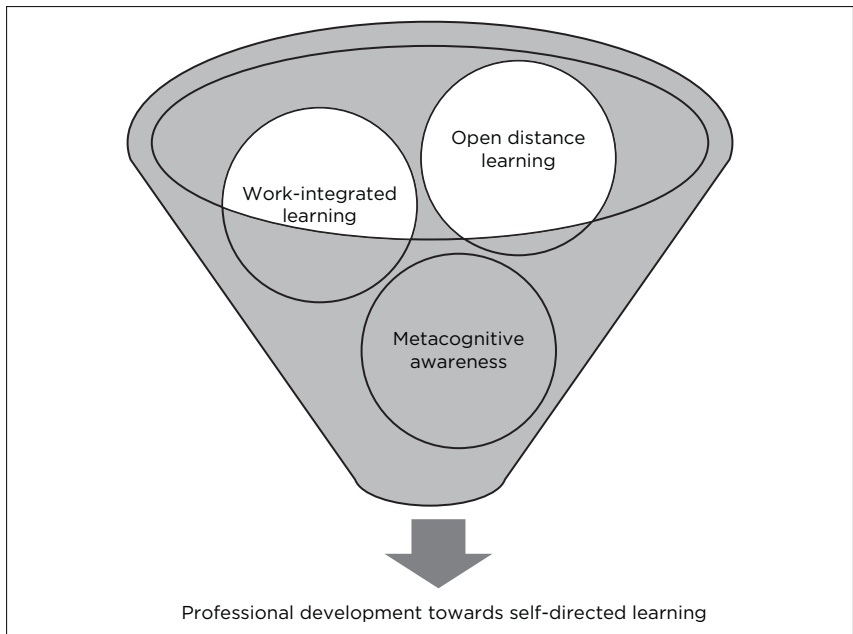


FIGURE 3.1: An integrative conceptual-theoretical framework for the value of WIL.

the value of WIL from this framework, a philosophical analysis follows by means of (1) a concept analysis of 'value' and (2) arguing that the facilitation of metacognitive awareness promotes SDL.

■ **Philosophical analysis of the conceptual-theoretical framework**

All student teachers can express their awareness of value through implicit, perceptual or meta-representational tiers of metacognitive awareness. Exemplifying this awareness is the theory of value, as explained in the early work of Shaver and Strong (1982). In light of Brinck and Liljenfors's (2013) types of metacognitive awareness (i.e. implicit, perceptual and meta-representation), three tiers of analysis can be established. In practice, this implicates a way in which one can generate and/or evaluate research on WIL, with reference to their local scientific merit as well as position the research idea (be it 'value') in the broader body of scholarship.

■ **A philosophical concept analysis of value**

Shaver and Strong (1982) presented a rationale for concern regarding the meaning of 'value' in education. Shaver and Strong (1982) explained that student teachers typically develop a normal, reasonable and rational basis for their own values, which drive them towards a career choice in education. Synonyms that students often use to describe, explain and interpret what value means to them include standards, norms, morals, principles, ethics and ideals. These are all valuable characteristics that are involved in shaping the nature and being of an educator. In a sense, there is no image they are trying to project or cultivate – there is only something real, or valuable, in what they aspire to do as future educators. It is for this reason that professional teacher development programmes should aim to cultivate this sense of value, even (and perhaps) more so in challenging contexts such as the case in open distance learning.

In sociology, 'value' is often understood in terms of economic and financial benefits. This dates back to the early publication on the philosophy of value by Simmel (1900). However, in an axiological analysis by Ellaway et al. (2019), value is understood in terms of the core of the value, that is, the individual's fundamental value system.

In the classic work of Rokeach (1975), mention is made of the substantive value of education, which can be understood as a more intrinsic and personal perspective to develop the self. Rokeach (1975) explained that we often teach student teachers the necessary skills and knowledge for their own sake for the purpose of self-realisation and self-actualisation. This, Rokeach believes will enable them to better understand themselves and the world they live in.

Determining the value of WIL will involve various approaches that examine how, why and to what degree universities value both teaching and learning, and whether the object or subject being valued is a concept, model, theory, characteristic, process or something else. Within philosophy of value, issues regarding the ethics and axiology of education can be explored. Classical examples of some of the sociological traditions that consider the question of values are institutionalism, historical materialism, behaviourism, pragmatic-oriented theories, postmodern philosophy and the recent post-truth movement.

One way to explore the value of WIL is to transcend the self in education (as a teacher or student) from a graduate authority or subject figure (as student teacher) in a societal economic sense to a more socio-ecologically fully aware (lifelong) learner who is capable of service. In this way, Jagals (2018) explained that a teacher needs to become self and other(ly) aware - that is, they should grasp a deep and meaningful reflection on their own knowledge. They must strive towards a knowledge of themselves as students in their field and foster knowledge of others as knowledge of their peers, colleagues and learners. This form of self-knowledge is associated with what Efklides (2011) called

metacognitive self-awareness. The challenge, however, lies in facilitating this awareness in open distance learning contexts to the extent of the professional development of the teacher.

■ **Philosophical analysis of the self-concept in learning**

The notion of thinking about someone else's thinking is called social metacognition, and it incorporates thoughts and recognitions that identify with their social comprehension. Furthermore, social metacognition can help in making a decision about the comprehension of others, for example, making a decision about the recognitions and enthusiastic conditions of others. Jagals (2015) referred to this phenomenon as the construction of metacognitive networks. In this view, Halgin, Gopalakrishnan and Borgatti (2014) define a network as a set of actors that are linked together because of the type of relationship that exists between them. The actors could exist as nodes in the network, whereas the links that connect the nodes act as ties that join and associate one node with another. In terms of metacognition, this argument seems to be supported by research conducted by Pasquali, Timmermans and Cleeremans (2010) on metacognitive networks. Conceptually, links between metacognitive thinking processes can represent networks that exist on an individual or social level.

■ **Discussion: Considerations for the value of work-integrated learning**

The present chapter philosophically analysed a conceptual-theoretical framework on the value of WIL for the professional development of teachers. A lack of sufficient literature shows a need exists for scholarly research in open distance learning settings. The following discussion is based on the analysis above as aligned against three tiers of metacognitive awareness that can be facilitated as forms of the value of WIL (Khooshabeh &

Lucas 2018). In light of the literature review, there are various challenges (empirically, contextually, logistically, epistemologically and methodologically) that hinder development in the field. Yet, there is optimism about the future of WIL. Constructing and integrating the value of WIL in the context of professional development programmes for teachers is considered a rarity in the literature, particularly in open distance learning settings. One proposition that this chapter considers is the application of metacognitive awareness in constructing a theory of value for WIL to narrow this gap.

■ Reflections on metacognitive awareness

Based on the literature review presented in this chapter, three overarching values have been theoretically established and serve here as possible propositions to encourage research in the field and the promotion of understanding the need for a value-driven approach. The tiers of metacognitive awareness, which form the core of this chapter's argument in the literature review, assisted, through theoretical dissemination, in establishing three categories of value, namely, implicit, perceptual and meta-representational.

The first proposition revealed in the analysis is that WIL serves as a tool to facilitate implicit metacognitive awareness. A student teacher must first get practical knowledge and experience in order to develop an implicit awareness of the task and the art of teaching. Work-integrated learning as a professional development programme situates the student in this position and provides opportunities to facilitate his or her implicit awareness. On the second tier, implicit metacognitive awareness refers to the awareness of the requirements as per the situation (Khooshabeh & Lucas 2018). A student teacher must first get practical knowledge and experience in order to develop an implicit awareness of the task and art of teaching. Work-integrated learning places the student in this practical position, which provides opportunities to facilitate their implicit awareness.

The second proposition suggests that WIL serves as a tool to facilitate perceptual metacognitive awareness. Metacognitive thinking functions when the individual's knowledge and affect relate to, and cater for, these perceived teaching and learning needs. In doing so, it is possible that the problem solvers can identify the conditions of the experience that they perceive can help them to move from negative affect (e.g. I tend to get frustrated; I feel that I did not practice) to positive affect (e.g. I am good at ...; I feel excited when ...; I actively engage in tasks that...).

The third proposition puts forward the idea that WIL serves as a methodological tool to facilitate meta-representational, metacognitive awareness. The relationship between affect, metacognition and meta-affect suggests that reflection is associated with the different types of metacognition as identified by Brinck and Liljenfors (2013). By consciously paying attention to these experiences, before, during and after learning, the student teacher can promote a positive attitude towards teaching and then become aware of the affective, metacognitive and meta-affective experience, as perceived. This stands in relation to the attitudes formed about teaching and learning in general and therefore ties the perceived affective experience with beliefs and attitudes about WIL. To support this claim, Proust (2013) explained that attitudes directed at experiences structure a meta-representation through which the individual evaluates his or her beliefs, predicts how this belief is experienced and builds a mental image of the experience in the mind. These meta-representations of WIL can then inform, direct and justify future teaching and learning experiences, particularly for the professional teacher development programmes in open distance learning.

■ Conclusion and the way forward

The increasing number of student enrolments in undergraduate programmes of education, issues with student placements at schools during WIL, and the internal logistics and administration along with the cultural and background profile of the individual

student – all regard WIL as a subject that deserves paramount attention. In line with the DHET's requirements (DHET 2015), WIL programmes should offer rigorous practical empowerment for student teachers. Prescriptions in terms of time dedicated to WIL as part of undergraduate training programmes of student teachers are considered, yet a lack of research on the value of WIL for professional development in teacher training programmes seems overlooked for open distance learning amidst the scarcity of published research on the topic.

There remains a variety of peripheral issues regarding WIL, such as whether assessment projects promote best instructional practices, what the benefits are for student's lifelong learning, how appropriate SDL models can be developed and figuring out what the affordances are for teaching, administration and the management of logistical issues. These issues seem to be both a national and international concern. In addition, the gap in the current literature on WIL shows the lack of an effective evaluation framework, specifically for open distance learning to assess curricula and facilitate programme management.

It is recommended that WIL programmes concentrate on facilitating awareness of the value of the programmes to enrich the professional development experiences of students as teachers in training. A challenge still remains with respect to how students' metacognitive awareness of the value of WIL can assist the scholarly and the educational community in promoting and understanding their professional development. Yet, this limitation, in part, stems from the lack of existing frameworks to illustrate how metacognitive awareness is facilitated, and what role metacognitive awareness plays in WIL programmes. It is suggested that a search be carried out to establish a broader and updated definition of WIL, as well as to conceptualise acceptable models for integrating work and learning in open distance learning. What is needed is a variety of work-based learning activities, WIL seminars to help students make connections between theory and practice, and to understand

the subjects they study as part of their curricula, a structure within which to reinforce employability skills and philosophical frameworks to examine larger issues about work, community and self. Metacognition needs to explicitly form part of the WIL programme, even more so for distance students who may need different forms of support throughout the curriculum motivations.

Work-integrated learning and teaching schools: The University of Johannesburg teaching school experience

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■ Abstract

In this chapter, we report on a study that employed a generic qualitative research design to explore how learning *in* and *from* practice, in a curriculum designed to achieve congruence between coursework and fieldwork, relates to student teachers' learning at other schools they attend for WIL. When the University of Johannesburg (UJ), Faculty of Education established a 'teaching school' (TS) in 2010, the staff had no existing model based on which to plan. We worked from the idea that student teachers' practicum in the TS could work in tandem with their WIL at other schools, in order to promote learning *in* and *from* practice, *for* practice. A shared vision of the kind of teacher we wished to produce was key, both within the programme itself and in terms of how coursework and practical experience/fieldwork were brought together. The central organising principle of child study not only brought cohesion to the programme but was also dependent on strong partnerships with expert teachers in the two settings who could operate as good mentors. Although such a vision is achievable at a TS, we found that building a relationship of equivalence demands a great deal of commitment and the willingness to compromise by both parties. This kind of relationship building was not possible at the WIL schools. However, we were motivated by the opportunity to combine practice in both TS and WIL schools for enabling student teachers to learn *in* and *from* practice at the TS to provide a solid foundation for learning during WIL at other schools. The data point to considerable congruence between student teachers learning in the TS and in coursework, but student teachers learning at WIL are more often a source of tension. We reasoned that if they have a vision of what good teaching is about from their experience at the TS, it would provide them with a benchmark of what to aspire for when placed in schools where this was absent.

Keywords: Teaching schools; Work-integrated learning; Theory; Practice; Mentor teacher; School-university partnership.

■ Introduction and background

There have been numerous calls from policy makers and researchers for coherence between coursework and fieldwork in teacher education (Darling-Hammond et al. 2017; DBE & DHET 2011). The so-called theory-practice divide is a long-standing dilemma in teacher education but little is known about 'how programmes in different countries accomplish this or address this substantial problem of learning to teach' (Hammerness & Klette 2015:5). The literature, worldwide, suggests that one of the ways to better prepare student teachers for the teaching profession is to strengthen the practicum component of teacher education programmes (Darling-Hammond 2014; Feiman-Nemser 2001; Furlong et al. 2008).

In responding to these criticisms, some countries make use of special types of schools to strengthen the integration of coursework and fieldwork. For example, in the United States of America (USA), many institutions involved in teacher education have joined forces with local school districts to create Professional Development Schools (PDSs) aimed at connecting the clinical curriculum and the didactic curriculum to provide quality education for pre-service teachers (Craig 2002; Neapolitan & Levine 2011). In the Netherlands, some universities place student teachers in specific schools called training schools or *opleidingsscholen*, described as having additional resources to support the coaching of student teachers (Hammerness, Van Tartwijk & Snoek 2012). In Finland, practice teaching in teacher education takes place in specially designated teacher training schools where student teachers observe and teach lessons (Kansanen 2003, 2014; Sahlberg 2012) under the guidance of supervising teachers who use guided reflection to transform practical knowledge into professional knowledge (Lavonen 2016).

In South Africa, the Integrated Strategic Planning Framework for Teacher Education and Development, which guides the collective undertakings of the Department of Basic Education

(DBE), the DHET and Teacher Education Institutions (TEI) to address teacher education (Green, Adendorff, & Mathebula 2014), proposed the establishment of Professional Practice Schools and TSs to strengthen the practicum component of teacher education programmes (DBE & DHET 2011:17). Although TSs did not exist at the time of this proposal, the Faculty of Education at the University of Johannesburg, in partnership with the Gauteng Department of Education, founded a public school in Soweto in 2010 to serve as a teacher education site at its Soweto campus (Gravett, Petersen & Petker 2014). The UJ school was conceptualised as a combination of the laboratory school idea and the teacher training school idea drawn from the Finnish model (Gravett et al. 2014). The objectives of establishing the school were, *inter alia*, to serve the educational needs of young children; to 'develop a practice learning site for the education of teachers of young children'; and to enable 'longitudinal child development studies and research on children's performance in the school curriculum' (Gravett et al. 2014:108). The central organising principle of child study is foregrounded in both coursework and at the school with student teachers observing learners closely over the period of their degree, paying close attention to how they learn and develop, what they struggle with and what influences their learning.

In addition to learning *in* and *from* practice at the UJ TS, student teachers also complete WIL at other schools. In this chapter, using a generic qualitative research design, we explore how these two forms of practical learning in a curriculum designed to achieve congruence between coursework and fieldwork relate to student teachers learning at other schools they attend for WIL.

■ Design principles of a practicum model

In creating a practicum model to bring together coursework with two forms of practical learning in the teacher education programme, we explored the teacher education literature to

extract design principles. One of the key principles was that there should be a shared vision about what good teaching and learning entail that is infused in both coursework and field experiences (Zeichner & Conchlin 2008:272). We understood that this would be possible to manage at the TS but not necessarily so at the other schools where student teachers completed their practicum. There are many scholars who agree that placement schools for WIL need to echo the vision of the teacher education programme (Banks et al. 2005; Darling-Hammond & Baratz-Snowden 2005). For example, Banks et al. (2005:273) argued that pre-service teachers need to be placed with expert teachers who are 'knowledgeable, skillful, and committed to all their students', as it is very difficult to imagine what good teaching looks like when placed in schools with teachers who demonstrate the opposite of what is learnt in coursework. Although experience in the classroom is important, student teachers need the guidance of a mentor teacher who can demonstrate how to organise 'productive learning activities and respond to both predictable and unexpected problems that arise in classrooms' (LePage et al. 2005:353). Selecting schools that echo the programme vision so that student teachers gain valuable learning experiences of how the school functions, what schools do when they are committed to teaching all students and the need for continuous self-reflection for improvement (Banks et al. 2005) is therefore important.

The second design principle is coherence between what student teachers learn in coursework and fieldwork. Here, the lessons outlined by Darling-Hammond (2006b) from an in-depth study of seven successful programmes in the USA informed our work. The seven programmes studied student teachers acquiring an in-depth knowledge and understanding of children, how they think and reason and how they develop over time cognitively, socially, emotionally, morally and physically (Darling-Hammond 2006b). By synchronising coursework with classroom observations, student teachers gain valuable first-hand knowledge of how children learn by observing individual learners in and outside the

classroom, paying attention to recording specific details such as the learners' strengths, needs, interests and experiences (Darling-Hammond 2006b). A second element was that the coursework addressing the knowledge base needed to teach was closely linked to other courses within the programme and with fieldwork (Darling-Hammond 2006a), thus ensuring that student teachers' experiences of learning to teach in both coursework and fieldwork take place seamlessly. We were keenly aware that this would also present a challenge for us; our relationship with the TS enabled us to have some influence over these aspects but this was not guaranteed at the other schools.

■ Coordinating learning experiences in coursework and the practicum

The intention when designing the primary school teacher education programme on the Soweto campus was for student teachers' practicum in the TS to work in tandem with their WIL at other schools. As per the Minimum Requirements for Teacher Education Qualifications (MRTEQ), practical learning, which comprises learning *from* and *in* practice, is identified as an important condition for the development of tacit knowledge (DoE 2015:10). Learning from practice includes the study of practice, using discursive resources to analyse different practices across a variety of contexts, drawing from case studies, video records, lesson observations, etc., in order to theorise practice and form a basis for learning in practice. Learning in practice involves teaching in authentic and simulated classroom environments.

The specific aims of the practicum to integrate learning *in* and *from* practice at the UJ TS and WIL schools were derived from the literature, with the expert input of teacher educators who were involved in designing the practicum. In the design process, the team worked on clarifying the purpose of the practicum in the teacher education programme and how the envisaged

practicum in the TS and WIL schools should be different, but complementary. The team was clear that they were not aiming to simply train teachers in the technical mastery of skills and general pedagogical principles (Stephens, Egil Tønnessen & Kyriacou 2004) – the practicum would thus need to reflect the multifaceted and multidimensional role of the teacher graduates they envisaged. We were intent on producing teachers who are critical thinking practitioners – the practicum needed to help student teachers engage in critical reflections about their own learning, and the development of pedagogic content knowledge and of children’s learning (Stephens et al. 2004). The practicum model thus needed to reflect its aims.

The team’s initial thinking and planning were bolstered at a later stage by Dewey’s two models of practice experiences, namely, the apprenticeship model and the laboratory model. In the apprenticeship model, student teachers are afforded the opportunity to practice with the skills and techniques of instruction (Dewey 1904), more like training but with little attention to the ‘whys and hows of teaching’ and dealing ‘with the unexpected’ in classroom teaching (Ulvik & Smith 2011:521). On the other hand, in the laboratory environment (Dewey 1904), critical inquiry and experimentation are emphasised so that mentoring involves developing ‘habits of personal inquiry and reflection about teaching and the context in which it occurs’ (Krull 2005:145). Another conceptual frame we drew on is Collins, Brown and Holum’s (1991) model of cognitive apprenticeship versus a traditional apprenticeship in the practice environment. We use the Collins et al. (1991) stages of modelling, scaffolding, fading and coaching to contrast the learning process in the two models, making the argument that the stages are dependent upon the expert showing:

[7]he apprentice how to do a task, watch(es)ing as the apprentice practices portions of the task, and then turn(s)ing over more and more responsibility until the apprentice is proficient enough to accomplish the task. (p. 2)

We problematise learning to teach in the traditional apprenticeship model by arguing that the thinking of both the expert and student is not made visible and can be linked to training in discrete skills or competencies. However, in the cognitive apprenticeship model, there is a strong emphasis on making thinking visible, situating tasks in authentic contexts and articulating common elements in diverse situations or tasks to enable transfer of learning to new situations (Collins et al. 1991:3). We are of the view that the cognitive apprenticeship model together with Dewey's ideas about the laboratory model of practice would be useful in promoting learning *in* and *from* practice in the TS and allow us to plan optimally *for* practice in their WIL at other schools (WIL schools). We now explain how we saw these ideas operationalised in our teacher education programme.

The role of the UJ TS is conceptualised as a teaching laboratory (DBE & DHET 2011) for student teachers in which they can move seamlessly between the university classroom and the school setting, observe children's learning and development closely for a period of four years, practice micro-teaching in a peer group and see the enactment of their university coursework. This enables student teachers to experience congruence between coursework and fieldwork (Gravett, Petersen & Ramsaroop 2019). From the onset, the teacher education programme was designed to enable student teachers to develop first-hand knowledge of how children learn by observing individual learners in and outside the classroom, paying attention to recording specific details such as the learners' strengths, needs, interests and experiences. In this laboratory setting, they also have additional experiential learning opportunities such as service learning (Gravett et al. 2014).

At WIL schools, student teachers in first, second and third year spend shorter periods of time learning from practice (e.g. observing and reflecting on lessons taught by others), as well as learning in practice (e.g. preparing, teaching and reflecting on

lessons presented by themselves) (DHET 2015) before moving into these schools for an extended period in the last year of their programme. We reason that the TS provides a solid foundation for student teachers to learn *in* and *from* practice in a setting where we have reasonable influence on the factors that impact their learning (e.g. teacher pedagogy and school culture) before they move into the WIL settings.

Figure 4.1 provides a holistic picture of the design features of the practicum to promote learning *in* and *from* practice, *for* practice.

These design features inform student teachers' learning *in* and *from* practice in multiple ways. Firstly, learning from practice in coursework requires student teachers to take an inquiry-oriented

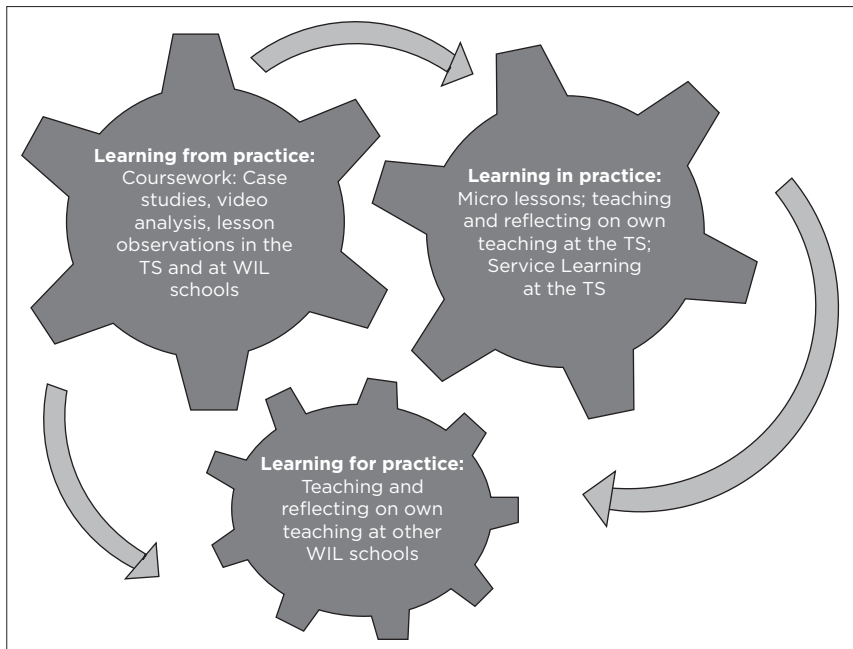


FIGURE 4.1: Making sense of the spaces of practical learning in becoming a teacher.

approach to analysing and reflecting on aspects such as lesson planning, the development of pedagogic content knowledge, assessment, use of case studies, video analysis or artefacts from classrooms. At the same time, student teachers learn from practice at the TS, observing how aspects explored in coursework is unfolding in the classroom. Practically, this means that student teachers' timetables are arranged such that they spend a few hours observing classes/learners (and sometimes teaching) in the morning at the TS and return to coursework for the rest of the day, thus moving between fieldwork and coursework on the same day. The observations at the TS are also carefully structured to align with the central organising framework of how children learn and develop. Thus, in the first year of study, every student teacher is coupled with a learner in Grade R from the school. As the student teachers progress into year 2, 3 and 4 of their study, they continue to observe the same child (alone and in interactions with other children) as they move from Grade R to Grade 3 in the foundation phase, thus observing their growth and development over the four years. A similar process is followed in the Intermediate phase, with student teachers in this phase following the same learner from Grade 4 in their first year of study to Grade 7 in their fourth year of study. The central organising framework of child study is addressed primarily in sequentially arranged and developed content in one of the student teachers' majors (Education Studies). This focus is then picked up in the methodology modules, where there is a focus on bringing together the content and pedagogy to teach in ways that will address learners' diverse needs and abilities in the classroom. The idea is that student teachers' learning at the school and in coursework is made real and relevant, an important consideration given that universities are blamed for not preparing student teachers adequately for the realities of the classroom (Gordon 2007; Grossman, Hammerness & McDonald 2009). This design feature relies heavily on two components. One is the mentor teachers' ability to link student teachers' observations in their classrooms to what they were learning in coursework. Another is

teacher educators' willingness to respond appropriately to student teachers' questions during lectures about what they observed in the classroom. It is therefore imperative that mentor teachers at the school and teacher educators share a common understanding of what the programme entails, and the kind of teacher that the programme envisages producing. It is also dependent on strong partnerships with teachers in the TS who are able to operate as good mentors.

The TS also provides an ideal environment for student teachers to learn in practice by experimenting with different pedagogies in a safe space, under the guidance of teacher educators and mentor teachers. In this regard, student teachers' pedagogical learning through experimentation is carefully scaffolded and supported through a methodical process of lesson planning, teaching and reflection, with differentiation for each year of study.

On the other hand, for WIL at other schools, from years 2 to 4, student teachers are expected to observe and teach lessons, under the guidance of the mentor teacher at a selection of schools. Teaching involvement is developmental, starting from limited teaching in year 2 to teaching a series of lessons in year 4, combined with reflective tasks aimed at bringing together coursework learning and practice. The collaboration with these schools is not as close as the partnership the university has with the TS owing to the large number of schools involved, some of which are in rural areas and/or in other parts of the country.

The combination of the close teacher education and school relationship in the TS and the more removed relationship between the teacher education programme and the WIL schools enables us to leverage the learning from the one (TS) in preparation for the situation in the other (WIL). We are of the view that student teachers learning at the TS, that is, 'extensive, carefully supervised clinical work ... tightly linked to coursework', will develop teachers who will be better prepared to teach (Darling-Hammond, Chung & Frelow 2002:293) and will enable transfer of their learnings

into different contexts that they will find themselves in. In our view, this enables us to prepare student teachers optimally ‘for the schools that are’ and ‘the schools that should be’ (Horn & Campbell 2015:151).

■ Research methodology

This research can be described as a generic qualitative study (Merriam 2009:23) as we were interested in understanding how student teachers’ learning *in* and *from* practice, in a curriculum designed to achieve congruence between coursework and fieldwork, relates to their learning at other schools they attend for WIL. Mentoring is of course key to their learnings, which leads us to the second aim, of exploring what student teachers are learning through mentoring and how they make sense of their mentoring experiences at the TS and at other WIL schools. Drawing on Merriam (2009), the study was interested in how student teachers interpret their experiences and what meaning they attribute to their experiences. Purposive sampling was used as the study included data from all final-year student teachers in the 2018 ($n = 143$) and 2019 ($n = 175$) cohorts. Data were collected using open-ended questionnaires and student reflections, following the UJ Faculty of Education guidelines for ethics approval.

Data were analysed using a process of inductive thematic analysis (Henning, Van Rensburg & Smit 2004). Codes were assigned to different segments or units of meaning, and these were then combined to form first provisional coding categories, before being reduced into finalised categories. For example, the following statements, ‘I learnt to study the nature of learners and the classrooms they are in’ and ‘understanding learner behaviour, needs, strengths’ were grouped under the umbrella category of learning about children. Once this process was complete, the researchers could begin identifying recurring themes that cut across the categories (Henning et al. 2004).

The researchers worked towards validity and dependability through the triangulation of data (Patton 1999). We looked for consistencies as well as different perspectives from the data generated in the two methods of data collection, as well as between the two cohorts of student teachers.

■ Findings

From the data analysis process, three findings were elicited. The first theme contrasts the type of student teacher learning based on the quality of mentoring in the TS versus the WIL school placement. In this respect, it seems that in the WIL school, mentoring emphasises the development of a technical mastery approach while TS mentoring promotes the development of an inquiry approach. The second theme explores how learning spaces work together to develop inquiry-oriented student teachers with the teacher education curriculum serving as the coalescing element for learning *in* and *from* practice. The last theme addresses how careful consideration of the key elements that are able to bring together a coordinated curriculum with the integration of practice episodes in a TS can prepare student teachers for the world of reality they will face in schools.

■ Learning from mentoring that straddles technical mastery and inquiry

The data point to student teachers having very different experiences of mentoring at the TS and at WIL schools. At the TS, mentoring seems to align broadly with Collins et al.'s (1991) cognitive apprenticeship model of mentoring while at WIL schools, the emphasis appears to be on the mastery of technical skills, similar to that of the traditional apprenticeship model.

At the TS, mentor teachers do place emphasis on both the *how* and the *why* of practice. They are also linking what student

teachers are learning in coursework to their classroom observations to make learning real and relevant. This pertains to teachers making their thinking visible to student teachers on their own practice, as highlighted in the following student teacher reflections:

‘The teachers were so keen to share their teaching strategies and the reasons why they think those strategies work for them but also for the learners’. (Student teacher, undisclosed gender, date unknown)

‘The teacher provides feedback on why he taught the lesson in that way’. (Student teacher, undisclosed gender, date unknown)

‘The teacher connects the classroom practice with what we are taught in the lectures’. (Student teacher, undisclosed gender, date unknown)

At WIL, student teachers are learning by observing mentor teachers demonstrating how to teach in the classroom, similar to the traditional apprenticeship model, as described by Collins et al. (1991). However, the *why* of teachers practice is silent in the data as the teachers’ thinking is not visible to the student teachers. Much of the learning takes place by watching the teacher ‘at work’ (Collins et al. 1991:2), as captured by the following student teachers’ experiences:

‘I gained a lot from observing her teaching and how to work with learners who are regarded as “slow learners”’. (Student teacher, undisclosed gender, date unknown)

‘Her methodologies are the best. She has lovely techniques of approaching a lesson’. (Student teacher, undisclosed gender, date unknown)

‘She uses the learners’ strengths and weaknesses to construct lessons and often goes back to content that learners have not mastered yet’. (Student teacher, undisclosed gender, date unknown)

In the mentoring of student teachers’ planning and teaching in the TS, the *how* and *why* of practice is evident in student teacher responses, best captured in the following excerpts:

‘They (teachers) always critique the lessons presented and give valid reasons. They go step by step. They start by commenting on the

introduction, then the body lastly the conclusion, then talk about the teaching aids. They do not just say the lesson was nice. They pay attention when you present a lesson'. (Student teacher, undisclosed gender, date unknown)

'She taught me that I should always reflect on my lessons so that I can change where I went wrong and also use learners' assessment feedback in order to direct lessons'. (Student teacher, undisclosed gender, date unknown)

'The mentor teacher was able to provide feedback before and after a lesson was presented, she would have reasons for why she said something and how we can make it better'. (Student teacher, undisclosed gender, date unknown)

From these examples, student teachers describe their mentor teachers at the TS as supportive collaborators who challenge them to reflect. We regard these as important learnings, as mentor teachers explain the *whys and hows* of teaching and prepare student teachers to deal with the unexpected (Ulvik & Smith 2011). The nature of the feedback also emphasises inquiry into what it means to be a learner and a teacher in the classroom (Stephens et al. 2004).

In contrast, at the WIL schools, the focus on student teachers' planning and teaching seems to be largely leaning towards a traditional apprenticeship model, with emphasis on the 'how' of teaching:

'He gives me good tips'. (Student teacher, undisclosed gender, date unknown)

'She usually reflected on my lessons after school and discussed on what I can improve on'. (Student teacher, undisclosed gender, date unknown)

'The teacher helped with providing resources'. (Student teacher, undisclosed gender, date unknown)

'She suggests strategies that will make the teaching process much easier'. (Student teacher, undisclosed gender, date unknown)

'She always gives complements to me after the presentation of my lessons'. (Student teacher, undisclosed gender, date unknown)

‘She guided me in terms of what resources and teaching strategies I should use when teaching content’. (Student teacher, undisclosed gender, date unknown)

The emphasis seems to be on knowing how, or ‘techne’ (Eisner 2002). The quality of feedback provided from WIL teacher mentors resonates with what Clarke, Triggs and Nielsen (2014:175) described as ‘narrow, particularistic, and technical’, as student teachers are not encouraged to rethink and reflect. We are of the view that these mentor teachers’ conversations with student teachers need to move beyond simply reiterating what was observed in the lesson, suggestions to improve visible performance (Edwards & Protheroe 2003) or providing general encouragement (Edwards & Ogden 1998). To be valuable for deep student teacher learning, mentoring conversations need to assist them to understand the teachers’ tacit knowledge and to interpret classrooms with the focus on learners and their learning (Edwards & Protheroe 2003:230).

Nevertheless, student teachers did learn from observation of the WIL mentor teacher at work. However, there were a good number of student teachers who either had little or no engagement with the WIL mentor teacher or were paired with mentor teachers who did not model what it means to be a professional. Thus, there was great variance in the quality of mentoring provided at WIL schools, with student teacher placement becoming ‘luck-of-the-draw’. We find ample evidence of this in the data:

‘To them (WIL mentor teacher) I was merely a babysitter to fill in for absent teachers. I had to be in different classes from day-to-day filling in for an absent teacher. This dampened my spirits because the people I had to learn from were unavailable to teach me’. (Student teacher, undisclosed gender, date unknown)

‘Of the 10 mentor teachers I had in the 4 years at WIL, only three were great teachers whose passion for the profession showed in their work ethic from the planning to the delivery of lessons. The other teachers were the opposite. They often came late to class, taught straight from the textbook and hardly moved around in the class’. (Student teacher, undisclosed gender, date unknown)

Unfortunately, ensuring quality placements in all WIL schools in South Africa is problematic (see Gravett & Jiyane 2019; Robinson 2015). According to Spaul (2013), at least 75% of schools in the public system are described as dysfunctional, characterised by high levels of teacher absenteeism and late coming (Mashaba & Maile 2019) and as a result, most teachers do not cover the prescribed curriculum content and learners are not learning. This assertion is backed up by South Africa's poor performance in international benchmarking tests such as Progress in International Reading Literacy Study (PIRLS) over the periods 2006–2016 (Howie et al. 2017) and Southern Africa Consortium for Monitoring Educational Quality (SAQMEC) 2007 data (Taylor & Taylor 2013).

■ Learning spaces working together to develop inquiry-oriented student teachers

The data suggest that student teacher learning in coursework and at the TS prepared them to some extent to teach in the 'real world'. The overarching framework of child study that was used to bring coherence to the programme not only assisted in student teachers having a deeper understanding of children at the TS but they were able to apply their learnings in the different schools they were placed in for WIL. There were various examples in support of this view, best exemplified by the following reflections from student teachers, which demonstrate that they made sense of their learnings from coursework, at the TS and in WIL:

In coursework: 'Education studies is one of the modules that stood out for me. Their theories made it possible for me to understand learners better. What I learnt is that to understand learners, I need to look beyond the surface and look deeper into the core of how they develop'. (Student teacher, undisclosed gender, date unknown)

In coursework: 'I learnt to study the nature of learners and the classrooms they are in. The assignments in coursework helped us to

pay attention to learners, their learning styles, how they behave with other learners'. (Student teacher, undisclosed gender, date unknown)

In the TS: 'Observations assisted me in understanding the theory part that we learn in lectures into practice. We were assigned a child from first-year that we had to observe. That alone helped me in understanding learner behaviour, needs, strengths and weaknesses, and also understanding the stages that children develop under'. (Student teacher, undisclosed gender, date unknown)

At WIL: 'In her classroom, you could see that she knew her learners well enough to identify who struggled with particular skills'. (Student teacher, undisclosed gender, date unknown)

At WIL: 'Learners differed across schools according to their social and cultural backgrounds. Each year I found myself having to adapt accordingly, so that I could interact with learners appropriately. The schools were in different settings but the common things I learnt (from coursework) that all schools had learners with different personalities, different backgrounds'. (Student teacher, undisclosed gender, date unknown)

Other parts of the teacher education programme, also centred around child study, such as the methods, courses and the practicum set-up in the TS, are also described by student teachers as useful, and in the case of the practicum serve as a basis of learning that can be taken into other contexts:

'Teaching methodology expanded my knowledge by teaching me how to plan my lessons and reflect on my lessons after I have taught to become better. It expanded my way of thinking that teaching is simply chalk and talk to asking effective questions to help me in understanding my learner's prior knowledge, to do my research before teaching my topic, to use suitable teaching aids that enhance learning and to be a reflective practitioner'. (Student teacher, undisclosed gender, date unknown)

'In my practicals at FUJS ... the class teacher ... I liked how she saw her learners as active participants in their learning.I adopted some of her teaching styles when I went out to WIL schools. In my teaching, the learners were very inquisitive and asked questions. This is where I learnt how important it is to be a researcher and know the content that you are teaching'. (Student teacher, undisclosed gender, date unknown)

‘The classroom management skills that we were taught came in handy especially in the schools I was doing my practicum as there were more than 50 learners in class, which they all demanded my time and attention. It is not easy to do that in an overcrowded classroom but because we were taught how to handle an overcrowded classroom, it wasn’t as difficult’. (Student teacher, undisclosed gender, date unknown)

From this, we surmise that learning in the TS, coursework and at other schools could work in tandem to promote learning *in* and *from* practice, *for* practice. The combined experiences enable student teachers to abstract knowledge so that they are able to ‘acquire knowledge in a dual form, both tied to the contexts of its uses and independent of any particular context’ (Collins et al. 1991:16). We are in agreement with Collins et al. (1991) that when learnings acquired from a specific context are unravelled, student teachers will be able to transfer their learnings to new problems and to different settings that they may encounter in the future.

The data also point to student teachers developing a reflective inquiry stance into their own teaching when coursework learning is integrated with the practicum at both the TS and at WIL schools. For example, the following excerpt is from a student teacher reflecting on her teaching and on what learners were learning by asking the following critical questions:

‘What lesson are they going home [*sic*] after I have taught them? If I was in their position, would I have appreciated to be taught that way by myself? I can engage more with learners in my reflection so that I can tell where I went wrong. Being critical when doing lessons, not teach to cover the curriculum but give learners a lesson they probably will not forget’. (Student teacher, undisclosed gender, date unknown)

This level of reflective thoughtfulness ‘encourages resistance to the implementation of ineffective schooling practices, and hold the promise of nurturing the intellectual development and professional growth of teacher candidates’ (Schulz 2005:164). The combined experiences from coursework, learning at the TS and at WIL also enabled student teachers to think more deeply

about the kind of teacher they aspire to be and the kind of schools they would hope to teach in, best exemplified by the following reflections on their learning at WIL schools:

‘During the 4 years of my study, I was able to go to four different WIL schools. All schools do not function in the same way therefore we got to experience different schools. This gave us an opportunity to see where and in what schools we want to see ourselves in’. (Student teacher, undisclosed gender, date unknown)

‘The observations prepared me for work. What kind of a teacher would I be if I had to arrive to work late? What message am I sending to the learners?’ (Student teacher, undisclosed gender, date unknown)

■ Preparation for the world of reality

The data show that student teachers describe their first encounters at the TS as one of *amazement* as the far majority of them have never experienced being in a school that functions effectively and efficiently. Student teachers also report how it changed their preconceived notions of what teaching was about, as exemplified by the following reflections:

‘Being at the TS changed my view of the teaching profession. I was seeing good dedicated teachers, with proper planning of lessons and resources. That made me realise that teaching was not easy. It was a surprise to me to see the difference between my teachers (from school) and the teachers at UJ TS’. (Student teacher, undisclosed gender, date unknown)

‘The UJ TS changed my perception of what it is to be a 21st century teacher. The TS was introduced as part of the coursework in which we were expected to observe the teachers and learners. I was amazed with the engagement with learners during learning, changed my whole perception of primary school, where we were treated as empty vessels’. (Student teacher, undisclosed gender, date unknown)

‘Seeing a Grade 4 teacher at the TS making connections to what was learned in the earlier grade, seeing a school as organised as the TS, was overwhelming because I was new to such and often wondered

what my childhood would have been like had I had this experience'.
(Student teacher, undisclosed gender, date unknown)

We are very aware that student teachers would have internalised a range of teaching and learning experiences, acquired from their 'apprentice of observation' (Lortie 1975) through the number of years spent at schools as a learner. These forms of prior knowledge and preconceptions about teaching can positively or negatively shape the way student teachers think about teaching (Darling-Hammond 2006a; Feiman-Nemser 2008; Stofflett & Stoddart 1994; Wubbels 1992).

We are also wary of the difficulties in correcting misconceptions about teaching derived from one's apprentice of observation if student teachers continue to go out to schools for WIL which are similar to schools they experienced as learners. As reported by one student teacher who reflected on the positive experience of being at the functioning TS by indicating that 'UJ was selling us dreams' (Student teacher, undisclosed gender, date unknown) in contrast with his experiences of WIL which he indicated took him into the reality of teaching in the public school system: 'WIL is a way of getting us out of that comfort zone' (Student teacher, undisclosed gender, date unknown). To us, these are important learnings as we are of the view that we should be preparing our student teachers for the schools that are and for the schools that should be (Gravett et al. 2019). We reason that if they have a vision of what good teaching is about from their experiences at the TS, that this would provide them with some kind of baseline or benchmark of what to aspire to when placed in schools where this is absent.

Moreover, there were many student teachers who reported that their first experiences in schools which were not functioning or where they were not supported, left them disillusioned about whether or not to continue with teaching as a profession. Rots et al. (2007) make the argument that a student's first teaching

experience impacts on the retention rates of novice teachers entering the profession.

■ Discussion

The data point to considerable congruence between student teachers' learning in the TS and in coursework. However, student teachers' experiences at other schools they go to for WIL is more often a source of tension and conflict, leaving some student teachers feeling disillusioned with teaching as a profession. We are of the view that we should be preparing student teachers for the schools that are and the schools that should be.

There are scholars who are of the view that the practicum should take place alongside mentor teachers who serve as good role models (Beck & Kosnik 2002). Others argue that it is better to place student teachers in schools with poor conditions for practice (Haberman 1995), as student teachers will learn how to teach under challenging conditions (Cherry 2015). They argue that teachers should learn to teach in schools that provide challenging conditions for practice. In our view, student teachers should be learning to teach in schools that are innovative and supportive of student teacher learning, and while we are in agreement with Dewey (1938) who forwarded the view that experience in schools is important, we do not agree that all experience is equally educative. Here Dewey's (1938) notes on experience and education are worth mentioning:

The belief that all genuine education comes about through experience does not mean that all experiences are genuinely or equally educative. Experience and education cannot be directly equated to each other. For some experiences are miseducative. Any experience is miseducative that has the effect of arresting or distorting the growth of further experience. (p. 25)

We too are concerned that teaching in schools that are overwhelmingly challenging reinforces student teachers' 'apprentice of observation' (Lortie 1975) acquired from attending

12 years of poor schooling, but we are also concerned that it may reinforce a pedagogy of oppression or an ‘apprenticeship of oppression’ (Gallego 2001:314). In an apprenticeship of oppression, student teachers’ focus is likely to be on survival rather than on their own learning and development. In addition, student teachers’ learning experiences in WIL could be promoting a pedagogy of oppression because some mentor teachers are not willing to think out of the box, to critically reflect on their own practices, or are simply not good role models to student teachers. Placed with such teachers for extended periods may deprive student teachers from being challenged to think more deeply about what they encounter, and about their own practices, which may serve to reinforce their existing beliefs and prejudices about what good teaching entails. The data confirm such misconceptions when student teachers enter the programme. They for instance say that ‘teaching is easy’ and ‘I would not have to work very hard as a teacher as I was teaching younger children’ (Student teacher, undisclosed gender, date unknown). If WIL is limited to learning skillful techniques, student teachers may be under the impression that teaching is actually easy, involving the execution of habitual practices that require very little thinking (Tabachnick, Popkewitz & Zeichner 1979–1980). The danger here is that student teachers may be initiated into thinking that teaching is an uncomplicated, technical task requiring little effort, and that their initial training has equipped them adequately for their duties as teachers (Lanier & Little 1986).

Another consequence of the ‘apprenticeship of oppression’ from poor practice experiences in schools is that student teachers enter a relationship of power. If the relationships between student teachers and mentors are not collaborative and/or encouraging of reflective, critical thinking, a student teacher may find herself/himself as a subordinate in what is meant to be a consultative learning space with an expert mentor. This places the student teacher in a very difficult position to ask questions about the why that underlies practice, or to challenge or disagree with the

mentor teacher. We agree with Binnaford and Hanson (1995) that conflict and difference is a threat and has the power to silence student teachers. Alternatively, the student may also view the teacher as an 'ideal' to be emulated, and begin to unquestioningly model the mentor teacher (Root 1994), even if the teacher's practices do not exemplify best practice.

Our experience of working with the model of a TS in combination with a range of schools for WIL, and the data we have generated with two cohorts of student teachers, leads us to make the claim that if teacher education programmes are able to build a firm foundation of practice that actually develops the habits and minds of a critical thinking teacher in an environment like the TS, this may mitigate against poor practical teaching experiences in WIL schools. Furthermore, if a firm foundation is created for student teachers very early in their teacher education programme in order to cultivate critically reflexive thinking, it may go a long way towards building teacher agency in WIL environments where they are unlikely to encounter it. To us, this is the real value of a laboratory environment. When student teachers then enter an apprenticeship environment, they have already acquired a base of competencies that will enable them to develop as change agents. We argue that if student teachers have a strong base of a cognitive apprenticeship in the TS, they may actually be more insistent on being part of a cognitive apprenticeship for mentoring in other contexts wherein they can question a mentor teacher's tacit knowledge, assumptions about teaching and learning, and reflect more deeply on their own development as professionals.

In this way, cultivating critically reflexive teaching can effect changes in the dynamics within schools and can indirectly address social justice in the school system. Ultimately, as Petersen (2007) has argued, it can move student teachers from the position of operating mainly as consumers of knowledge and instead establish them as pedagogical thinkers, knowledge

consumers and knowledge producers in conjunction with others (Dewey 1924; Krzywacki, Lavonen & Juuti 2015; Moore 1990) and prompt student teachers to become ‘active agents in constructing new kinds of knowledge and relationships’ (Hayes & Cuban 1997:78).

A key question that emerged during this work is how do we leverage student teachers’ learnings from congruency on the one hand at the TS and conflict experienced at WIL schools? Ward, Nolen and Horn’s (2011) concept of ‘productive friction’ could prove useful in understanding how the learnings from coursework and at the TS could relate to student teacher learning in WIL. These scholars define productive friction in student teaching as ‘dissonance experienced by teacher candidates when two or more social worlds conflict, which initiates positive change in their use of high leverage practices to improve student learning and understanding’ (Ward et al. 2011:2). When different worlds collide, boundaries are created, which can be a source of learning (Wenger 2000) if student teachers are able to reconcile the norms and values from the different worlds (Ward et al 2011) to reflect on their own and others’ practices (Ebby 2000). Similarly, Engeström (2001:137) also explained that contradictions can be used as opportunities and ‘sources of change and development’. In this way, productive friction and innovation can be developed around common problems (Ward et al. 2011:2).

■ Conclusion

In this chapter, we explored how student teachers’ learning *in* and *from* practice in a curriculum designed to achieve congruence between coursework and fieldwork relates to their learning at other schools they attend for WIL. We conclude that it is possible to develop inquiry-oriented student teachers when there is congruence between student teacher learning in coursework and

at the TS. The central organising principle of child study not only brought cohesion to the programme but was also dependent on strong partnerships with expert teachers in the two settings who could operate as good mentors. Such congruence relied on a shared vision between teachers at the TS and teacher educators teaching in the programme. Although such a vision at a TS is achievable, we found that building this kind of relationship was not possible at the WIL schools. From the findings, we are of the view that WIL should be introduced after a firm foundation of practice is developed at the TS, which actually develops the habits and minds of a critical thinking teacher. We believe that student teachers learning *from* and *in* practice in a coherent curriculum that purposefully integrates coursework with a TS will develop skills such as critical thinking, communication, creativity and collaboration, important in preparing student teachers for the schools that are, the schools that should be, as well as schools of the future (Gravett 2019).

The first-year student teacher as a self-directed learner

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■ Abstract

First-year BEd students enter their teacher professional development programmes with 12 or more years of classroom experience as learners. Several research studies have shown that

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a large percentage of South African classrooms are characterised by transmission-mode teaching and learning, and that the performance-driven schooling system often does not promote SDL among learners. The danger exists that student teachers will adopt pedagogical orientations that will mimic the way they were taught when they were in school – a phenomenon that Lortie (1975) described as the ‘apprenticeship of observation’. In a complex 21st century, where knowledge quickly becomes obsolete in the light of new developments, it is important that teachers should promote SDL among school learners. Higher education institutions have a responsibility to structure their pre-service teacher education programmes in a way that will enhance SDL. The first-year student teacher excursion of the NWU is an intervention, with the aim of sensitising student teachers to their roles as teachers, and to assist them in the development of their identities as future teachers. The excursion programme is designed to create cognitive dissonance in the student teachers, which serves as a catalyst to question their own emerging identities as teachers, their assumptions, attitudes and dispositions, which all influence the student teachers’ journeys of becoming self-directed teachers. Part of this teacher identity is to foster SDL. In this chapter, the authors provide an overview of the self-directedness of 1346 first-year student teachers, from a group of 1700 students, who participated in the excursion, and who provided consent to participate in the research, held in 2019. This mixed methods research study utilised the Self-Directed Learning Instrument (SDLI) (Cheng et al. 2010) questionnaire to obtain quantitative data on the students’ perceptions of their own SDL. The data showed that student teachers scored themselves very high in most of the categories in the SDLI questionnaire. However, the qualitative data, obtained through focus group interviews, the studying of artefacts and teacher educator observations yielded a less positive description of student teachers’ SDL. Third-generation cultural–historical activity theory (CHAT) is used, to contrast two interdependent activity systems, in an attempt to get to a better understanding

of the research findings. The excursion as an activity system is interrogated from two different perspectives: the views of teacher educators (as one activity system) are juxtaposed with the student teachers' experiences of the excursion (the second activity system). It is worth noting that student teachers participate in the excursion a month after university classes have started, and they hold very naïve views of the teaching profession, which were shaped by their own schooling careers. The insights that CHAT as research lens provides are translated towards the end of the chapter into recommendations for HEIs to better support the professional development of student teachers as self-directed learners.

Keywords: Excursion; Self-directed learning; Student teacher identity; Becoming a teacher; Cultural-historical activity theory.

■ Introduction: Becoming a teacher in a complex 21st century

Higher education institutions need to ask critical questions about their role in graduating new teachers who could adequately prepare learners for a complex 21st century, and the fourth industrial revolution. Student teachers should be supported in their own SDL, so that they can also enhance SDL in their own learners as teachers one day. The question arises whether student teachers enter their four-year teacher education programme as self-directed learners, and whether their own schooling careers have adequately prepared them for their journeys of becoming teachers.

Research literature shows that most South African schools are characterised by teaching and learning practices that can best be described as transmission-mode ('chalk and talk') approaches. Ramnarain and Schuster (2014) showed that systemic pressures influence teachers' pedagogical orientations, for example, parents and principals expecting teachers to 'teach to the test', in order to ensure good examination results. Such an examination-

driven education system is not conducive for enhancing SDL skills in students. De Beer, Petersen and Dunbar-Krige (2011) showed that first-year student teachers often enter their degree courses having had bad teacher role models as school learners, and furthermore having naïve understandings of the complexity of the teaching profession, and teacher identities. Lortie (1975) spoke of the apprenticeship of observation, referring to the fact that student teachers often adopt the didactical orientations and practices of the teachers they themselves had as school learners. Borg (2004) stated that the danger of such apprenticeship of observation in an educational context is:

[T]hat whereas people entering other professions are more likely to be aware of the limitations of their knowledge, student teachers may fail to realise that the aspects of teaching which they perceived as students represented only a partial view of the teacher's job. (p. 274)

The danger therefore exists that the cycle of transmission-mode teaching is perpetuated, at the expense of inquiry- and SDL.

■ The value of educational excursions and its place in the formal curriculum

For an excursion to be effective in augmenting SDL, a *sine qua non* is that an HEI's teaching and learning philosophy should be underpinned by SDL as one of its pillars. Furthermore, such an excursion should be embedded within a larger teaching and learning programme. In 2019, the NWU initiated a Professional Orientation Programme (POP), providing first-year student teachers more nuanced understandings of the complexity of the teaching profession, before they go out for WIL. The three-day excursion formed part of this three-week long POP. Student teachers could, after the excursion, reflect on their experiences during the POP programme. An excursion should not be a 'stand-alone' activity. Taljaard (2018:235) provided a compelling argument that such educational excursions should be 'an integral part and practical expansion of the formal classroom curriculum'. This would provide student teachers the opportunity to interrogate

events during the excursion (as ‘learning from practice’) using the theoretical lenses discussed in the formal classroom. Such integration of the excursion with the formal university curriculum could bridge the so-called ‘theory—practice divide’. Several studies (e.g. Darling-Hammond 2006; Kessels & Korthagen 1996; eds. Kinsella & Pitman 2012) show that teacher education is often experienced by student teachers as being too theoretical, or not sufficiently practice focussed. The excursion provides a laboratory where student teachers can learn in what Schön (1987) called a ‘low-risk setting for novice learning’. The excursion becomes a laboratory, where student teachers can learn, experiment and interrogate practices with theoretical lenses, but in a ‘safe’ space, without the risk of damage as in the case of school practicums, school experience or WIL, where children are involved. The excursion provides a supportive community of practice, where student teachers and teacher educators can jointly explore the complexities of the teaching profession and focus on the affordances of being a self-directed learner.

We concur with De Beer et al. (2011) that placing student teachers in an excursion environment holds affordances for their professional development. A well-structured excursion should be characterised by authentic learning opportunities, characterised by uncertainty and discomfort. During the excursion, student teachers are provided the opportunity to reflect on their own biases and naïve understandings. De Beer and Henning (2011:2) described the learning process during an excursion as stretching student teachers’ social and pedagogical boundaries in the ‘way that the activity theorist Engeström uses the term, requiring students to shift their understanding of social issues by means of play’. Typically, 300–400 student teachers would participate in any given excursion. In 2019, six such excursions were held, and 1700 students in total participated, of whom 1346 gave informed consent to participate in the data collection. In such a large group of students, with diverse cultural, religious and world views, conflict and tension would be unavoidable, and this could be a catalyst for learning. The Vygotskyan scholar Veresov (2009)

spoke of ‘dramatical collisions’, and this, we argue, could facilitate student learning.

Rohlf (2015) showed that excursions hold affordances that cannot easily be created in the classroom. Apart from the realisation of advanced critical learning, excursions could also result in ‘long-term impact’, and ‘a field trip will remain with students long after the course has been completed, particularly compared to a conventional in-seat class meeting’ (Rohlf 2015:522). During the excursion for first-year student teachers, the programme centres around engaging pedagogies such as problem-based and cooperative learning, and utilising a pedagogy of play to enhance the affective domain. One of the aims was to show student teachers what the limitations are of ‘chalk and talk’ teaching approaches, and for them to set learning goals for themselves to become better facilitators of learning.

An important advantage of an excursion is its role in developing affective outcomes (Taljaard 2018). Krathwohl’s (1964) taxonomy for the affective domain includes various levels, namely, receiving, responding, valuing, organising and characterising. Affective development starts with receiving stimuli and responding to it; in other words, by becoming aware. Later on in this chapter, we will show why this is important in terms of the enhancement of SDL.

Another trademark of the excursion is the emphasis on developing student teachers’ reflective skills. Effective teachers should be reflective practitioners, and pre-service teacher education should develop this skill. Taljaard (2018) stated that reflection:

[L]ooks inward at our thoughts and thought processes, and outward at the situation in which we find ourselves; when we consider the interaction of the internal and external, our reflection orients us for further thought and action. Reflection is this meta-thinking in which we consider the relationship between our thought and action in a particular context ... We pause to reflect because some issues arise which demand that we stop and take stock or consider before we act. (p. 82)

Tillema (2000) commented on:

[7]he lack of sophistication in the perspectives on teaching which a student teacher has as a learner ... (w)hen confronted with the task of reflection, student teachers often feel unable to reconcile their own beliefs with what is experienced during their practice teaching. (p. 576)

During the first-year student excursion, strong focus is placed on reflection. For example, student teachers engage in a learning-from-practice activity during the excursion, where they focus on case studies and reflect on various and complex scenarios that play out in the ‘coalface of teaching and learning’ in the classroom (refer to Ch. 7).

Apart from the advantages of excursions listed above, De Beer et al. (2011:9) also listed the following gains of excursions:

- it provides a conducive learning environment for personal and professional development
- it fosters better student–lecturer relationships
- student teachers learn how to negotiate rules of interaction in culturally diverse groupings
- student teachers develop sensitivity for cultural diversity
- student teachers are exposed to different semiotic tools for teaching and learning
- the excursion assists them in planning and visualising a professional trajectory.

■ The gap that this chapter addresses: Developing self-directed learning during excursions

Whereas research literature highlights several advantages of excursions, as indicated above, the gap that this chapter addresses is to look at the affordances of excursions to promote SDL. By acquiring SDL skills themselves, student teachers

might be better equipped to also enhance SDL in their learners one day, and thereby prepare a young generation for a complex 21st Century. During the excursion, an awareness of the role of SDL is emphasised. It is hoped that student teachers would start valuing SDL and eventually make the enhancement of SDL part of their teaching- and learning philosophies. The taxonomy of the affective domain of Krathwohl (1964) has reference here. The excursion aims to create awareness of the importance of SDL in student teachers, and this should be further promulgated in the 4 years of the BEd programme. We therefore need to state upfront that we do not claim that an excursion can be a 'miracle fix', and enhancing SDL should be a strategic goal for the entire four-year degree programme, not only of the excursion.

■ Self-directed learning

In this research, we subscribe to self-directed learning (SDL) as described by Knowles (1975), namely, as the:

[P]rocess in which individuals take the initiative, with or without the assistance of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating outcomes. (p. 19)

Student teachers during the excursion engage in learning activities in which they realise that they have learning needs, and a central premise of the excursion is to assist students in their development as self-directed learners. However, it would be naïve to think that a three-day excursion can undo the practices that students experienced during 12 or more years of schooling. We hope that the excursion at least creates an awareness of the affordance of SDL in student teachers, to refer back to Krathwohl's taxonomy of the affective domain. Later on in this chapter, in the result section, four domains of SDL are highlighted, namely, learning motivation, planning and implementation, self-monitoring and interpersonal communication.

When designing such excursions, we noted the insights of Hiemstra and Brockett (2012), who, with their Person-Process-Context (PPC) model of self-directed learning, provided a wider perspective on SDL, as being more than just a personal attribute. Guglielmino (1978) described a self-directed learner as:

[O]ne who exhibits initiative, independence, and persistence in learning; one who accepts responsibility for his or her own learning and views problems as challenges, not obstacles; one who is capable of self-discipline and has a high degree of curiosity; one who has a strong desire to learn or change and is self-confident; one who is able to use basic study skills, organise his or her time and set an appropriate pace for learning, and to develop a plan for completing work; one who enjoys learning and has a tendency to be goal-oriented. (p. 73)

These are important attributes to develop during the excursion. However, Hiemstra and Brockett (2012) were alert to the importance of the process as well. During the excursion, student teachers engage in learning activities that have the potential to enhance SDL, for example, problem-based and cooperative learning. During the NWU excursion, student teachers are confronted with a challenge of planning and constructing solar stoves, build out of cheap, recyclable materials. Also, of utmost importance is context. The excursion should provide a learning context and an environment that will enhance SDL. To create such a context, it is important that the student teachers assume the role or identity of a teacher and not simply a student in education. For example, in the case study session, student teachers are asked to dramatise the cases. This is a form of embodied cognition, where the students 'become' teachers.

■ Research questions

The main research question that guided the research reported on in this chapter is: to what extent can SDL be enhanced during a three-day first-year BEd professional development excursion? To answer this question, we have three sub-questions that will be answered in this research:

1. What are the affordances of the three-day first-year BEd professional development excursion for enhancing SDL?
2. What evidence of SDL exists among the first-year BEd students attending the three-day professional development excursion?
3. What recommendations can be made to enhance SDL among first-year BEd students attending the three-day professional development excursion?

■ Methodology

■ Research paradigm

We used a pragmatic paradigm to conduct this research. Our aim in this research was to obtain knowledge from various sources to answer the problem stated in this research. According to Lodico, Spaulding and Voegtle (2010:16–17), pragmatism is used in educational settings to study problems using any method that can accurately solve the research problem and improve education. It is a paradigm, which helps researchers to understand what works (Lodico et al. 2019:17). According to Creswell and Creswell (2018:10–11), researchers in a pragmatic paradigm ‘are free to choose the methods, techniques and procedures of research that best meet their needs and purposes’ to solve the research question. It is thus applicable to use mixed methods in this paradigm.

■ Research design

A convergent parallel quan-QUAL mixed method research design (Creswell & Creswell 2018:15) was used with CHAT as a lens to analyse the data. Mixed methods provide a ‘more complete understanding of a research problem’ (Creswell 2014:4), where qualitative data can indicate participants’ perceptions, thoughts and feelings (Sutton & Austin 2015:226), and quantitative data can provide numeric information from a measuring instrument (Creswell & Creswell 2018:14). The emphasis of this mixed methods research is on the integration of data obtained from

questionnaires and from focus group (FG) interviews, open-ended questions and artefacts to obtain a more nuanced understanding of students' SDL disposition after a first-year BED student excursion. In this chapter, we attempt to provide a 'thick description' (Geertz 1973) of first-year student teachers' SDL, based on quantitative and qualitative data.

■ Cultural-historical activity theory

The theoretical underpinning of CHAT is social constructivism, and the work of Lev Vygotsky (1978). Activity theorists, such as Leont'ev and Luria, and more recently Engeström (1987), further built on Vygotsky's insights, and this work resulted in CHAT. Cultural—historical activity theory is a flexible research lens that provides insight into activity systems, such as an educational excursion. Cole (1988) and Engeström (2001) developed third-generation CHAT, in which 'networks of interactive systems deal with tensions and contradictions that encourage collective learning through change' (Nussbaumer 2011:39). In this chapter, we utilise third-generation CHAT on an interpersonal level, and we juxtapose two activity systems, namely, the teacher educators' views on the first-year student excursion as the first activity system, with the student teachers' experience of the excursion as the second activity system. There are three ways of utilising CHAT, namely, on a personal level, on an interpersonal level (as in this case) and on an institutional plane (Rogoff 1995). Contrasting these two activity systems (on an interpersonal plane) could enable us to understand 'dialogue, multiple perspectives, and networks of interacting activity systems' (Engeström 2001:133). It is important to note that the students participating in the excursion were still school learners a few months ago, and they bring with them 12 or more years of experiences and perceptions. Cultural—historical activity theory as a research lens can provide insights into the 'tensions' that develop in such activity systems. This research lens focusses on the excursion as an activity system, with SDL being the 'object', and the student teacher the 'subject'

in the activity system. The subject utilises ‘tools’ to facilitate the realisation of the object, and the excursion curriculum engages student teachers in learning activities embedded in problem-based learning, cooperative learning, pedagogies of play, in order for them to, as self-directed learners, set learning goals for themselves in terms of their own professional development. ‘Rules’ refer to aspects such as the MRTEQ (2015), with which the excursion is aligned, and the NWU Faculty Integrated Teaching and Learning Plan 2018–2023 (Mentz et al. 2018). The latter places a high premium on SDL: ‘The Faculty aims to deliver self-directed graduates that are equipped to contribute within diverse contexts and be able to embrace the opportunities provided by 21st century technology’ (Mentz et al. 2018:20). The ‘community’ comprises all the stakeholders, such as the student body, student leadership, teacher educators and university management. The ‘division of labour’ refers to the different roles expected of a teacher, which need to be scaffolded during the excursion, for example, the student teacher as a critical reflective practitioner, facilitator of learning, inclusive practitioner and self-directed learner.

■ **Measuring instruments and data-gathering instruments**

In this study, the quantitative data were obtained from the SDLI of Cheng et al. (2010:1154). This 20 item, five-point Likert scale instrument was developed to measure the SDL abilities of nursing students, and it consists of four domains, namely, learning motivation, planning and implementing, self-monitoring and interpersonal communication. Students need to rate themselves by answering the 20 questions ranging from 1 = ‘strongly disagree’ to 5 = ‘strongly agree’. Although the SDLI was developed for nursing students, it was used by various researchers (Bosch 2017:152; Krugell 2019), in different educational contexts, with reported moderate to good reliability coefficients (Cronbach’s *a* values) for all domains. (In Krugell’s study, the Cronbach *a* values

for the four domains were 0.53, 0.80, 0.74 and 0.55, respectively, with the average being 0.59). A mean score for each student as well as a mean score for the whole group can be determined, indicating their views on their SDL abilities.

Qualitative data were obtained from the following open-ended question to all participants: 'what were your lived experiences of the three-day professional development excursion?'. Furthermore, FG interviews were conducted with selected participants. Four FG interviews were conducted, and in total 32 student teachers participated in the interviews, on average eight participants per FG interview. Questions posed to participants in the FG interviews were:

1. What were your experiences of the excursion?
2. Did the excursion change your views about the teaching profession? Why?
3. What is your 'take home message'? What did you personally learn during this excursion?
4. Was there any stage during the excursion where you felt slightly uncomfortable (out of your comfort zone), or did you feel that you were 'stretched' in your learning?
5. Based on your experiences in the past 3 days on the excursion, what professional goals did you set for yourself? Which areas of professional learning did you identify for yourself, in order to become a 'super teacher'?

There were also opportunities to ask follow-up questions if the researchers needed to clarify some of the answers. The students were also requested to compile a reflection activity in the form of a newspaper. To guide them in the compilation of the newspaper, the following assignment was posed to them:

'This is a reflection activity where you in your small groups will focus on the excursion programme, and how the different learning activities assisted you in your development as super teachers. In your newspaper, highlight the outstanding learning events'. (Activity explanation in the NWU excursion learning guide).

This was a cooperative learning assignment, and the student teachers all had to assume different roles, for example, an editor of the newspaper, taking responsibility for the overall quality of the newspaper; journalists who had to write articles on different excursion activities and a layout artist, who had to take responsibility for the artwork and page design.

Observations were made by two of the researchers involved in this study and participating in the excursion. We also draw on the insights from these researcher diaries.

■ Population, sampling and participants

The population of this research was first-year BEd students of the NWU who attended a first-year excursion during the first month of their first enrolment in 2019. All students who provided consent to willingly participate in the research ($n = 1346$) form part of the study population (in total, 1700 students participated in the excursion itself). For the qualitative FG interviews, 32 students from the study population were randomly selected to participate in four different FG interviews.

■ Data analysis

Quantitative data were analysed by the Statistical consultant services of NWU, first determining the reliability of the questionnaire and specifically the reliability of the four domains of the questionnaire. To answer the research question, we rely on descriptive statistics. Means, scores and standard deviations were determined per domain as well as for the total study population.

The qualitative data analyses took place as follows: The FG interviews and open-ended question posed to students were transcribed. The newspaper articles (artefacts) were scrutinised for any data indicating any relation to SDL. If a newspaper article seemed to be useful, it was photographed and later transcribed.

Saldaña's (2009) process of coding was used. The transcriptions of all three data sources (interviews, artefacts and open-ended questionnaires) were coded and categorised, from which a number of themes emerged (Saldaña 2009). In the paragraphs that follow, these themes will be described in the light of the conceptual and theoretical frameworks already discussed in this chapter.

■ Ethical considerations

Ethical approval for this research was obtained from *Edu-Rec*, the ethics committee of the Faculty of Education. Further permission to obtain data for research purposes from NWU students was granted by the NWU Gatekeeper (the Registrar). Student teachers were informed about the research by an independent person not involved in this research, and only data from students willing to participate, and who completed informed consent forms, were used in this study. Students were also informed that they have the option to withdraw from participation without providing any reasons and without being disadvantaged in any way. (Students could participate in the excursion activities, irrespective of whether they opted to be participants in the research). All responses and data obtained from students will be confidential information and reported anonymously. Data will be archived safely for a period of 7 years.

■ Results

■ Quantitative results

The reliability of the SDLI was first determined by calculating the Cronbach's α coefficients for each domain of the questionnaire. The value of the Cronbach α coefficients for the four domains, namely, learning motivation, planning and implementing, self-monitoring and interpersonal communication were, respectively, 0.61, 0.75, 0.70 and 0.43. Although not possessing high reliability,

the first three domains are acceptable as those of low to moderate reliability (Field 2009; Maree & Pietersen 2010:146). Owing to the fact that the Cronbach α coefficient for the interpersonal communication domain is too low, further analysis on this domain will not be possible. We will thus proceed to report on the four questions in the interpersonal communication domain separately.

Box 5.1 indicates the mean scores and the standard deviation for each of the 20 questions of the SDLI. All the mean scores are relatively high, with only the following five questions having a mean score below 4:

- I am good at arranging and controlling my learning time ($\bar{x} = 3.67$)
- I know how to find resources for my learning ($\bar{x} = 3.88$)
- I can monitor my learning process ($\bar{x} = 3.97$)
- I can evaluate on my own my learning outcomes ($\bar{x} = 3.96$)
- I am able to express messages effectively in oral presentations ($\bar{x} = 3.90$).

Although the scores for the above-mentioned questions are lower than the rest of the questions, it can still be classified as at least a *moderate* SDL. The lower response on these questions might be an indication that students are still not used to monitoring their own learning process, evaluating their own learning outcomes, finding their own resources for learning or controlling their own learning time. During the 12 years in school, these SDL characteristics were not actively fostered as discussed in the introduction of this chapter. Students were overly dependent on teachers to manage their learning.

The results of questions 17–20 (Box 5.1) cannot be categorised into the interpersonal communication domain, as it turned out not to be reliable as a domain. Three of the four questions in this domain have high mean scores, indicating that students do not experience problems to interact and communicate with each other. The fact that students' mean score on the effectiveness in expressing messages in oral presentations is the only question in

Box 5.1: Descriptive statistics: Mean and standard deviation of the 20 questions of the SDLI.

	Question	Mean (x̄)	Standard deviation (SD)
Learning motivation	Q1: I know what I need to learn	4.35	0.74
	Q2: Regardless of the results or effectiveness of my learning, I still like learning	4.40	0.74
	Q3: I strongly hope to constantly improve and excel in my learning	4.81	0.45
	Q4: My successes and failures inspire me to continue learning	4.63	0.62
	Q5: I enjoy finding answers to questions	4.35	0.74
	Q6: I will not give up learning because I face some difficulties	4.62	0.62
Planning and implementing	Q7: I can proactively establish my learning goal	4.09	0.71
	Q8: I know what learning strategies are appropriate for me in reaching my learning goals	4.08	0.80
	Q9: I set the priorities of my learning	4.21	0.77
	Q10: Whether in the classroom or on my own, I am able to follow my own plan of learning	4.06	0.82
	Q11: I am good at arranging and controlling my learning time	3.67	0.91
	Q12: I know how to find resources for my learning	3.88	0.81
Self-monitoring	Q13: I can connect new knowledge with my own personal experiences	4.22	0.76
	Q14: I understand the strengths and weakness of my learning	4.26	0.80
	Q15: I can monitor my learning progress	3.97	0.79
	Q16: I can evaluate my own learning outcomes	3.96	0.81
	Q17: My interaction with others helps me plan for further learning	4.19	0.85
	Q18: I would like to learn the language and culture of those whom I frequently interact with	4.43	0.82
	Q19: I am able to express messages effectively in oral presentations	3.90	0.91
	Q20: I am able to communicate messages effectively in writing	4.38	0.75

Source: Authors' own design, based on the SDLI instrument of Cheng et al. (2010:1157).

this domain below a mean score of 4 might also be an indication of the fact that active learning strategies where they could practice these skills were not frequently implemented during their school careers. Nevertheless, students indicated that they

do not have problems in interacting with others in the learning environment and do think that they can communicate fairly effectively.

Table 5.1 indicates the mean scores and standard deviations for the first three domains which was reliable in this context, as well as the total SDL score. Cheng et al. (2010:1155) defined learning motivation as ‘the inner drive of the learner as well as external stimuli that drive the desire to learn and to take responsibility for one’s learning’, planning and implementing as ‘the ability to independently set learning objectives, and to use appropriate learning strategies and resources in order to effectively achieve learning goals’, self-monitoring as ‘the ability to evaluate one’s learning process and outcomes, and to make progress’ and lastly, interpersonal communication as ‘the ability of learners to interact with others to promote their own learning’.

From the results, it is evident that students’ overall mean score as measured by the SDLI was $\bar{x} = 4.22$ (SD = 0.38), which indicated a high SDL ability. The mean scores for learning motivation are extremely high ($\bar{x} = 4.52$; SD = 0.38), with mean scores for the other two domains, planning and implementation ($\bar{x} = 4.00$; SD = 0.53) and self-monitoring ($\bar{x} = 4.10$; SD = 0.57) also higher than expected when taking into account the fact that those students were not used to monitor their own learning or planning and implementing their own learning. Generally speaking, teachers performed the planning, implementing and monitoring role during their 12 years of schooling.

TABLE 5.1: Descriptive statistics: Reliable domains of the SDLI and total SDL mean score.

Description	N	Minimum score	Maximum score	Mean (\bar{x})	Standard deviation (SD)
Learning motivation	1345	2.33	5.00	4.52	0.38
Planning and implementation	1344	2.00	5.00	4.00	0.53
Self-monitoring	1344	2.00	5.00	4.10	0.57
SDL total	1345	2.45	5.00	4.22	0.38

SDLI, self-directed learning instrument.

Overall, students rated themselves fairly high in terms of their own perception of their SDL ability.

■ Qualitative data and findings

Next, we analysed the qualitative data obtained from the semi-structured FG interviews, artefacts (ART) (reflective newspapers) and an open-ended questionnaire (QS). Applying Saldaña's (2009) coding process to analyse the different qualitative data sources resulted in a number of themes that emerged. In the paragraphs that follow, these eight themes will be described in the light of the conceptual and theoretical frameworks already discussed in this chapter. Some of the themes are directly linked to the enhancement of SDL, whereas the links might not be immediately clear to the reader in other themes. We shall attempt to show why these eight themes are all important in terms of student teachers' SDL.

□ Theme 1: Student teachers have a disposition towards valuing diversity and a realisation that they have to be inclusive teachers (practitioners)

Data obtained from the reflective newspapers (artefacts), the FG interviews and open-ended questionnaire are indicative that most of the participating first-year BEd student teachers demonstrate a disposition towards valuing diversity. The following quotes support this finding. The code behind the quotation indicates whether it was derived from the FG interview, the student teacher newspapers (ART) or the open-ended questionnaire (QS):

'We have learned [*from the cultural evening*] that you have to be self-aware. Work out your own beliefs, values and personal biases when working with people, and building relationships with them helps to have some perspectives on and understand their cultures'. (ART) (Teacher educator, undisclosed gender, date unknown)

Also:

'I think this excursion was an amazing way to get to know yourself, other people and their cultures. Before this excursion, I used to think that the other cultures were not nice. I was wrong. I now understand them better. They are really nice with such great hearts. I loved the excursion because it put me out of my comfort zone and forced me to grow'. (QS) (Teacher educator, undisclosed gender, date unknown)

'The highlight of the excursion was definitely the remarkable culture evening. Students from the three NWU campuses had to, in their different cultural groups, present a music or dance item that portrayed something of their culture - their joys, sadness and festivities. We learned how every culture is unique, but how all cultures all have something in common - it is proudly South African! It sensitised us that we as future teachers should treat all cultures with respect. Ubuntu!'. (ART, translated from Afrikaans by the researchers) (Teacher educator, undisclosed gender, date unknown)

Valuing diversity also sensitised the student teachers towards their journeys of becoming inclusive teachers one day, which is evident when one of the student teachers said:

'The realisation that this (the haves and have-nots in the same classroom) happens in a lot of communities, hit me hard and made me think of how we as teachers have an obligation to try and change the lives of children and make them realise that their generation is the one that should solve and improve the current world problems'. (FG) (Teacher educator, undisclosed gender, date unknown)

Another student commented that:

'I feel like now we as teachers must teach our learners regardless of your age or gender, that we are all equal, there is no such thing as men are superior to women'. (FG) (Teacher educator, undisclosed gender, date unknown)

The importance of unity was recognised by many of the student teachers:

'We all know how to unite as a team and this is very important because we can use the feeling of unity in the classroom with our students, so no one feels excluded or left out'. (ART) (Teacher educator, undisclosed gender, date unknown)

Thus, in terms of Krathwohl's taxonomy of the affective domain, it is clear that the excursion contributed to make the student teachers aware about cultural diversity and inclusivity issues that they will encounter one day when they are about to teach in practice. In terms of SDL, the data sadly show that the participating student teachers, although aware about diversity and inclusivity demands, do not possess the ability to convert their eagerness to implement inclusivity and teaching for diversity one day as teachers into professional developmental goals. This conclusion is based on the fact that none of the qualitative data sources revealed any evidence that student teachers formulated their own developmental (learning) goals with regard to diversity and inclusivity matters, in spite of specifically being asked to do so during the FG interviews.

□ Theme 2: Some evidence exists that student teachers were aware of their own learning needs, but student teachers expected the pre-service programme to address these needs

In the previous theme, we indicated that it seems as if student teachers did not have the ability to formulate their own learning goals with regard to diversity and inclusivity. However, based on the qualitative data, it appears as if some of the student teachers had at least a sense of their own learning needs (and plan strategies) with regard to classroom practice. Some of the views of the students include:

'From the movie we learned that a teacher should always have strategies to overcome the challenges they encounter in the classroom'. (ART) (Teacher educator, undisclosed gender, date unknown)

The above statement indicates a clear awareness of the role of the teacher as a self-directed learner to develop strategies to overcome practical problems:

‘I’m going to face a lot of challenges in the classroom, so I would have to find ways to handle this challenge’ (FG) (Teacher educator, undisclosed gender, date unknown)

‘It has been an informative and conductive experience. I always look for ways to learn how I will conduct my classroom, which activities I can integrate in the lessons’. (QS) (Teacher educator, undisclosed gender, date unknown)

Yet another student teacher said:

‘One of the roles of the teacher is being a lifelong learner. That we as the teachers, we must keep on studying that we don’t give outdated information to our learners. So it is more important for us as teachers to keep on studying’. (FG) (Teacher educator, undisclosed gender, date unknown)

This finding can be related to Question 8 of the SDLI, ‘I know what learning strategies are appropriate for me in reaching my learning goals’ (which had a mean score of 4.08). Although we can conclude that some of the student teachers could identify their own leaning needs, or even suggest strategies for learning, there is no evidence in the qualitative data to support any internal drive in the student teachers themselves to address these learning goals as part of their own professional development. Student teachers seem to have the expectations that the teacher professional development programme itself should assist them in realising these learning goals, as evident in the following quotation: ‘I realised that I have a lot to learn about more learner-centred approaches, and I look forward to learn more about this in my courses’ (FG) (Teacher educator, undisclosed gender, date unknown). The responsibility for such development, for many student teachers, lies with the teacher educator, and not with them. This external mode of control demonstrates a lack of SDL. The quantitative data described earlier is not supported by this qualitative data. The score for Question 10 in the Cheng questionnaire, ‘I am able to follow my own plan of learning’ was high (4.06), although the quantitative data seem to indicate much reliance on the teacher educator.

It is interesting to note from the data that student teachers did recognise the value of cognitive dissonance in their own learning:

‘I feel privileged to have been given the opportunity to participate. I was put out of my comfort zone, there were times I was scared but I overcame some of those obstacles’. (Teacher educator, undisclosed gender, date unknown)

The fact that student teachers were challenged in terms of their own beliefs, and that they were provided with alternative viewpoints, provided an opportunity to identify personal learning goals (awareness, in terms of the Krathwohl taxonomy). However, in terms of the ‘responding’ category in Krathwohl’s taxonomy, it seems as if many student teachers were demonstrating a consumerist stance, of being scaffolded by the BEd programme in achieving those learning goals.

□ Theme 3: Student teachers become more aware of the value of engaging pedagogies and a pedagogy of play

As described earlier, all the activities were approached from a pedagogy of play and engaging pedagogies such as problem-based learning and cooperative learning perspectives. Based on the data collected from the different data sources (newspapers, interviews and open-ended questionnaire), it seems that many student teachers embraced the use of engaging pedagogies during the teaching-learning activities, and that they could realise the value of introducing engaging pedagogies in the classroom. One student teacher mentioned, ‘As teachers we need to have different strategies as we are going to meet different learners with different attitudes’ (ART; Teacher educator, undisclosed gender, date unknown). In the typical South African classroom, where teacher-centred methods (‘chalk and talk’) are predominantly used by teachers, this remark is of value because it is an indication that the student teacher developed a better understanding of and appreciation for learner-centred approaches:

‘I was inspired by the teacher who won the award for best teacher in 2015 and as a teacher you should not use the method of chalk-and-talk, but you should come with innovative activities so that the learners will also be able to engage’. (QS) (Teacher educator, undisclosed gender, date unknown)

Another reality in many schools is a lack of resources. The activity where student teachers used everyday cheap materials (*shoestring* approaches) to build sun stoves, confronted them with such reality and forced them to think of alternatives given the lack of suitable/available resources to support their teaching:

‘It [*creating sun stoves*] helped us to realise that we can use recyclable materials to create resources that can help us to teach the learners. Example, say you are teaching Mathematics, and your learners need to count, you really do not have to buy counters [*the student was referring to an abacus*], they can use bottle lids as counters’. (ART) (Teacher educator, undisclosed gender, date unknown)

Some of the student teachers gave a clear indication that they will introduce such frugal (*shoestring*) approaches as future teachers:

‘The excursion experience was very productive as I got to learn new methods/ ways of conveying a lesson to my learners. The ideas were very effective as it was real-life problems/scenarios that we deal with in our everyday lives. I learned new ways of handling such matters, should I ever encounter those situations in my working experience’. (QS) (Teacher educator, undisclosed gender, date unknown)

Another student teacher said:

‘For me the highlight was the games that we played. As a foundation phase teacher, I really enjoyed the games because I feel that I can introduce such games to the learners and then from thereon win their trust and then make them feel free, make them feel that they can talk to me and make them feel they can see me as their parent at school not just as their teacher or as their super teacher but then see me as also a parent’. (FG) (Teacher educator, undisclosed gender, date unknown)

The finding that student teachers see the potential value of alternative teaching-learning methods is reassuring because it may indicate that the 12 years or more at school, where ‘chalk

and talk' approaches were cemented for many students, may be changed by innovative approaches in pre-service teacher education. The malicious cycle, which Lortie (1975) referred to as the 'apprenticeship of observation', might be challenged and changed after all. Sensitising these student teachers about the value that engaging pedagogies hold for teaching, may result in them using it one day and in the process create teaching and learning experiences where their future learners' self-directedness in learning could be cultivated.

At least some of the students indicated that they need to learn more about such engaging pedagogies – a clear indication of SDL. One of the students commented:

'I loved the playful activities on this camp. It made me realise that I am on a steep learning curve, as I did not know any of these methods before the camp. I will have to go and read more about it in the library'. (FG) (Teacher educator, undisclosed gender, date unknown)

□ Theme 4: A strong realisation developed amongst student teachers of the benefits of group work for their own professional development and for their future classrooms

The CAPS aims to produce learners who are 'able to work effectively as individuals and with others as members of a team' (Republic of South Africa 2011:5). All activities during the excursion were done in a cooperative learning environment, which forced the student teachers to engage and work together in groups. All groups comprised five members each and were diversely constituted with regard to gender, race, home language and the campus they came from.

Our experience, based on other research working with student teachers in a more formal lecture room setting, showed that most student teachers prefer to not work cooperatively (Petersen & Mentz 2016). It is therefore very encouraging to notice that the student teachers predominantly felt positive about working in groups. This was evident in a large number of comments made

by the participants. Some of these comments include: 'The most important lesson learned out of the teamwork was respect. This includes listening to all opinions, and working together'. (ART) (Teacher educator, undisclosed gender, date unknown)

Another student teacher said:

'We have learned to work in different groups with various individuals who have different personalities and characters, but despite that we managed to create a good working relation, and got to work together as a team in a healthy atmosphere'. (ART) (Teacher educator, undisclosed gender, date unknown)

One of the student teachers stated:

'Learning from my fellow students was powerful. Learning from different perspectives made me realise that no man is an island, and for one in order to achieve good things in life you have to work together with other people from different areas, and there was absolutely nothing that made me feel bad on the excursion'. (QS) (Teacher educator, undisclosed gender, date unknown)

In one comment made by a student, in which she reflected rather negatively on the activities itself, she did value working cooperatively:

'I don't think the things we learned on the excursion was very helpful, except that we had to do everything in teams because that helped us to respect others and also learn how to work in a team'. (Teacher educator, undisclosed gender, date unknown)

All the activities done during the excursion were based on real-life experiences (learning from practice). The comment made by the last student teacher, that she thinks that the knowledge and skills they learnt were not helpful, is probably an indication of the mindset of this particular student teacher, namely, that she thinks that everything can be taught and learnt by a 'chalk and talk' approach in a lecture room. In the open-ended questionnaire, one student teacher commented that, 'all the information could have been spread on excursions' (QS) (Teacher educator, undisclosed gender, date unknown), probably meaning that a written text on the excursion, without student teachers having to

physically engage in excursion activities, would have sufficed. This is the result of a school education system that places a high premium on the dissemination of facts. In this context, the necessity of this excursion, where student teachers are confronted with real-life experiences from practice, and to sensitise them, becomes more essential.

Good communication skills are also regarded as one of the soft skills that employees need to possess in order to function optimally and successfully in the 21st century workplace. Based on the data obtained from the open-ended questionnaire and interviews, it seems that the use of cooperative learning to scaffold the activities did sensitise the participating student teachers about the value of good communication and listening skills. Comments made by the student teachers supporting this finding include: 'I obtained communication skills and improved my team work abilities' (QS) (Student teacher, undisclosed gender, date unknown), and another one stated 'I think my experiences during the excursion showed me the importance of interacting with people and to listening to other people's opinions' (FG) (Teacher educator, undisclosed gender, date unknown). In order for any cooperative learning (CL) lesson (in contact mode of delivery) to be successful, good face-to-face interaction is needed, where students listen to each other and respect each other's viewpoints. This type of cooperation within a group will assist them to attain their shared goal.

The student teachers experienced that if they work together towards a common goal, it is less difficult to achieve the goal and that it also made the learning process more enjoyable. One of the groups, in their newspaper, stated:

'Something as small as making a sun stove managed to get us as a group of teachers working together and finding solutions to a problem'. (ART, freely translated from Afrikaans by the researchers) (Teacher educator, undisclosed gender, date unknown)

Other student teachers' comments include:

'It is really a great thing to work as a team because I feel like you can accomplish more in a team than by yourself' (FG); and, 'What I also enjoyed is the ability to work or be integrated with different cultures and work together to get the same goal and that there is no difference between us, we are one, and together we can achieve more'. (QS) (Teacher educator, undisclosed gender, date unknown)

A large number of student teachers indicated that they valued to work with 'others', and in the context of the excursion, 'others' may include different racial groups, coming from a different campus, different religions or sexual orientations. This strong belief in working with others is in line with the high score of 4.19 of Q17 of the SDLI ('my interaction with others helps me plan for further learning').

Many student teachers see the potential value that CL holds for their own teaching-learning one day:

'I think like we as student teachers are encouraged as a team it is going to benefit them (referring to his future learners). I have to encourage my learners to work as a team, so that they can enjoy the same benefits as that which I experienced during the excursion'. (FG) (Teacher educator, undisclosed gender, date unknown)

Another student teacher reflected that:

'I learned interesting methods to use in the classroom as a teacher'. 'I have learned a lot about myself for one. An example is with the AIDS (Acquired Immune Deficiency Syndrome) activity. I was quick to judge my friend for having two pink glasses¹ and at the end of the day I was a carrier also. I realised that I have to work on my judging behaviour. I have gotten so much insight of how a good and bad teacher must be. I had the idea in my head of how I think I will be but to see the outcome and realise that things doesn't always work

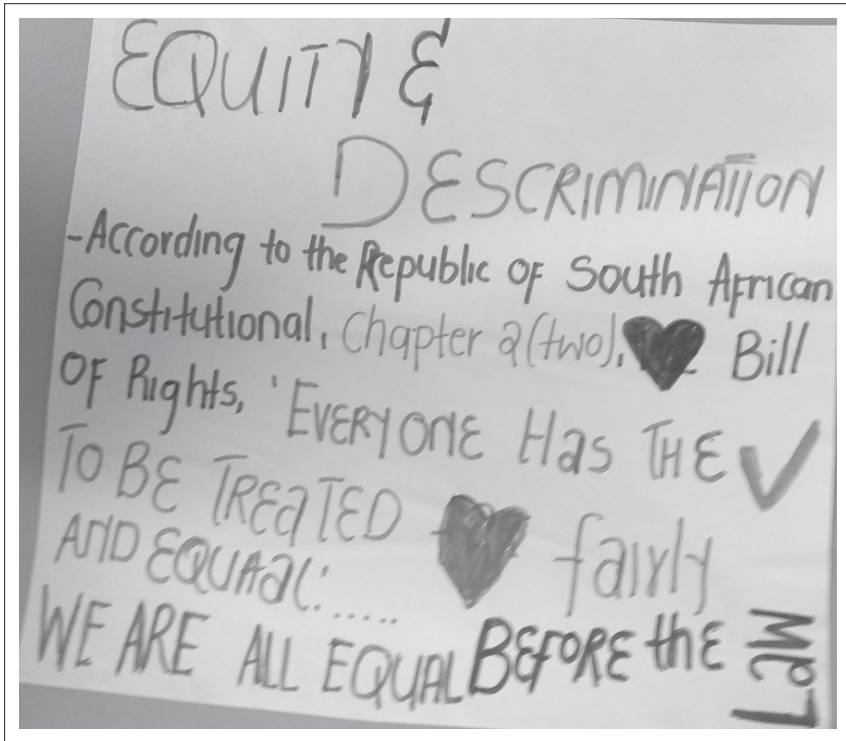
1. This is an activity on how quickly acquired immune deficiency syndrome spreads, making use of colour reactions (the indicator 'phenolphthalein' colours a base solution pink). The following short YouTube videos produce context: <https://www.youtube.com/watch?v=GC4aZPEjAZI>; and <https://www.youtube.com/watch?v=Kkp0UHUF8-w>

out the way you think/you want it to work'. (ART) (Teacher educator, undisclosed gender, date unknown)

In South African classrooms, which are mostly characterised by teacher-centred approaches, it is encouraging to see that an excursion like this may bring about a paradigm shift, at least in some of these student teachers, in using more engaging pedagogies like CL. Based on the findings discussed in this theme, where students believed that group work can be of value for effective teaching-learning, we can comfortably argue that the qualitative and quantitative findings support each other.

□ Theme 5: Little evidence exists that the student teachers possess the ability to do deep reflection

A self-directed learner possesses good metacognitive skills and has the ability to monitor and reflect continuously on the work at hand in order to reach the learning goals. In the main reflective assessment activity, the students were expected to compile a newspaper, consisting of articles in which they reflected on the three-day excursion, and how it contributed to their own professional development as teachers. After reading the different articles in the 315 newspapers of the 2019 excursions (the 1700 students who participated in the excursion worked in groups of five on the newspapers, and of the 340 newspapers, we could only use 315 newspapers, as not all group members of the other 25 newspapers signed ethical consent letters that their artefacts may be used), the overall impression is that student teachers showed very little evidence of good and deep reflective practices. Where students did try to articulate their reflections in the newspapers, it was very superficial. The data (artefacts and interviews) showed that most of the student teachers do not have the necessary skills to provide deep reflections (refer to the photographs in Figure 5.1). The following few direct quotes in newspaper articles are indicative of our finding in this regard:



Source: Photograph taken by Josef de Beer, on 26 April 2019, at YFC Camp, Magaliesberg, used with permission from Josef de Beer and signed consent from all students.

FIGURE 5.1: Some of the student newspaper articles that provide insight into the lack of critical reflection by student teachers.

'We reflected on all the things we learned and did on the excursion' (ART) (Teacher educator, undisclosed gender, date unknown)

'There are a lot of things I learned and importantly discovered about myself in the past two days'; 'This activity taught me that education can make a big difference in our country, it can bring change'. (FG) (Teacher educator, undisclosed gender, date unknown)

We expected that student teachers should elaborate more on the 'things' and 'it' that they referred to. In many of the newspaper articles, the student teachers just gave a summary of the activity itself without writing anything about the rationale of the activity

and the implications it may hold for them, and for their learning as self-directed teachers. Examples include: ‘Each cultural group was given a chance to portray their culture’ (ART) (Teacher educator, undisclosed gender, date unknown). Another comment includes, ‘It was a well-planned event (cultural evening) with a lot of enthusiasm and laughter’ (ART) (Teacher educator, undisclosed gender, date unknown). We were hoping that student teachers would reflect on their roles as inclusive practitioners, who will teach in culturally diverse classrooms one day, and how the excursion activities sensitised them towards this role. Another excerpt from an article read:

‘We engaged on a reflective activity as group members. Our task on the third day was to reflect on all the activities that we did as per day of the excursion. We had to present our reflectives on a newspaper. As a group “catalysts” we designed a newspaper and reflected all the teacher development activities that we engaged on in this WIL excursion camp’. (ART) (Teacher educator, undisclosed gender, date unknown)

The above is a typical example of how ‘reflections’ merely included a description of the task of hand, without any consideration of what the implications of activities are for professional development.

This theme, highlighting the lack of reflective skills, is not surprising, given that most of these first-year student teachers came from school backgrounds where they were taught to the test (spoon-feeding) in order to obtain good marks. These types of direct teaching methods usually also do not contribute to school learners’ development of their own self-directedness in learning, or in reflective practice. Because of the focus on teacher-centred approaches in most South African schools, most of the participating student teachers’ higher-order thinking skills like problem-solving, creative thinking and reflection were not fostered. However, the average mean score of the third domain on the SDLI, self-monitoring, is 4.1. Such a high score is an indication that the participants do possess good self-monitoring skills, of which reflection is one. The discrepancy between the

findings of the qualitative and quantitative data may be associated with the fact that these first-year student teachers were the better performers in the Grade 12 final examination. We argue that these student teachers may perceive themselves as possessing good self-monitoring skills, yet very little evidence of this is provided in the qualitative data.

□ Theme 6: Cultivating higher-order cognitive skills

Student teachers believe that their higher-order cognitive skills, such as to be innovative, critical and creative, and problem-solving, were developed during their active involvement in carrying out the activities during the three-day excursion. In the previous theme, we did mention that, although the student teachers believed that their higher-order thinking skills were developed, deep reflection is not necessarily one of those skills. However, we can assume that their problem-solving skills were nurtured as the activities during the excursion were scaffolded around a problem for which the group members had to cooperatively find a solution. Some of the reflections in the articles in the student teacher newspapers include:

‘We had to be creative all the time and share our different knowledge and point of views to finally get a solution to our problems’; ‘The WIL excursion taught us to be creative, think out of the box’; ‘...to open up our minds...’; ‘To be creative and resourceful’. (ART) (Teacher educator, undisclosed gender, date unknown)

Some student teachers believed that their creativity and ability to think out of the box skills were developed, associating it directly with the specific activities. The following examples are evident of this finding:

- In one of the activities, the group members had to build a sun stove, using everyday materials. A student commented as follows on this activity: ‘The benefit of us building a sun stove was to be creative and think of solutions that we have to use when we teach in schools that has less resources. The whole

idea of building a sun stove was to open up our minds as future teachers to think of ways that we might encounter when teaching in schools and to come up with productive solutions'. (QS) (Teacher educator, undisclosed gender, date unknown)

- One of the newspaper inserts reads, 'The shoestring teaching activity taught us that as a teacher you have to be innovative and creative.... To teach learners to be collaborative, cooperative and considerate' (ART). (Teacher educator, undisclosed gender, date unknown)
- In the icebreaker activity, the student teachers had to build a gadget, using different materials, to prevent an uncooked egg from breaking when falling from a 2 m height. One of the newspaper articles summarised it as such: 'We were given two balloons, an elastic band, a short rope and an egg. We had to find creative ways to protect the egg from breaking'. (Teacher educator, undisclosed gender, date unknown)

Guglielmino (1978:73) described a self-directed learner, amongst others, as a person 'who accepts responsibility for his or her own learning and views problems as challenges, not obstacles; one who has a high degree of curiosity'; one who develops a plan for completing work; one who enjoys learning. Based on the findings of this theme, and the data that support it, we trust that the engagement of the student teachers in the excursion activities did, to some extent, contribute to fostering these SDL abilities, mentioned by Guglielmino, at least amongst some of the participating student teachers, or at least sensitise them about these SDL abilities.

□ **Theme 7: Student teachers' attitudes and dispositions towards the excursion (and on becoming a teacher)**

The excursion has a number of objectives such as exposing the student teachers to diversity and inclusivity issues, exposing them to different and more engaging teaching-learning methods, letting them reflect on their own identities as future teachers, developing their SDL skills, etc. After immersing ourselves in the

different data sources (artefacts, interviews, facilitator observations), we came to the conclusion that most of the participating student teachers experienced the excursion to be overwhelmingly positive and constructive, and that they had in general a positive disposition about their fellow students. They also experienced a sense of belonging as students from the same university:

‘When becoming a teacher one must remember to keep your childlike excitement. Your attitude will ultimately determine your journey’ (ART). Another article in the newspaper sited, ‘I really enjoyed the camp! I made new friends, learned interesting methods to use in the classroom as a teacher, learned of different cultures and I believe I found my identity as a teacher and influencer. I am motivated and inspired’. (ART) (Teacher educator, undisclosed gender, date unknown)

Some of the student teachers were honest about their feelings before and after the excursion, for example:

‘Coming in before the excursion, I was scared of failing as a teacher but today I am going home with confidence because I got tips on how to become a super teacher’. (QS) Teacher educator, undisclosed gender, date unknown)

In the FG interview, a student mentioned:

‘My take home message is this: as a super teacher I need to be productive and proactive because ... one day I also have this desire that I what to be nominated as one of the good teachers in the country (referring to the guest speaker who is an award winning teacher)’. (FG) (Teacher educator, undisclosed gender, date unknown)

Because the excursion was compulsory for all the first-year BEd. student teachers, we would have been naïve if we assumed that all of the students attended the excursion, had positive feelings or experiences. This finding is evident in examples of two comments made by student teachers in the open-ended question:

‘Nice excursion but felt like a waste of time and money. All the information could have been spread on excursions. It felt rushed and forced. My roommates complained about everything, including the rooms. Please make sure that the facilities are in good condition

because we sat in darkness the first night and the shower could not close which caused a meaningless loss in water. Thus, I strongly feel that if the department wanted to spend money there are better ways to do it than this excursion. Although there are a lot of negative feelings the food, people and some activities were quite nice'. (QS) (Teacher educator, undisclosed gender, date unknown)

We had an interesting experience after one of the excursions, where a disgruntled parent (of one of the student teachers) wrote a letter to senior management of the university. An excerpt from the letter (translated from Afrikaans) states:

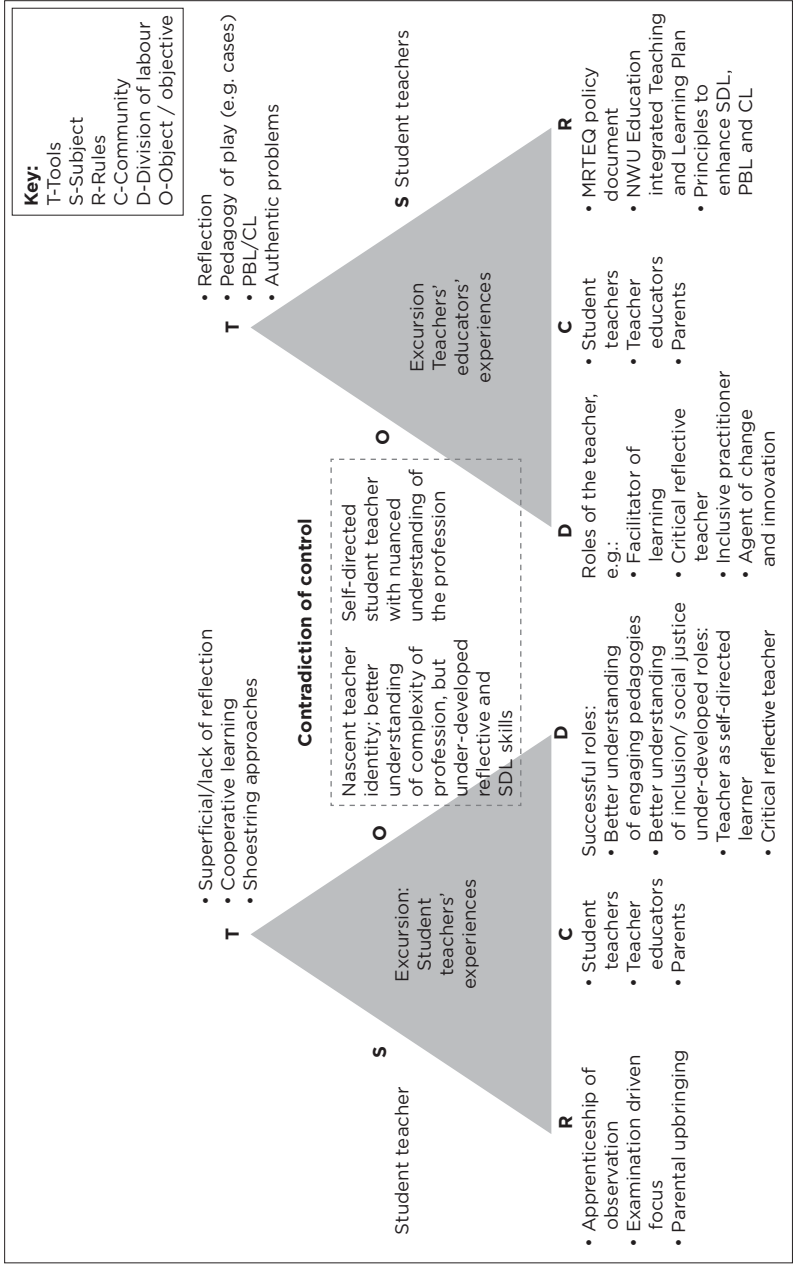
'The excursion is a definite attempt of the NWU to integrate students from the different campuses as one student body, and in the process it infringes on the human rights of students, namely, their freedom of association. I object to the political tone of the excursion'. (Teacher educator, undisclosed gender, date unknown)

Later in Figure 5.2, we will provide a CHAT gaze on the excursion. It is important to note that student teachers come to the excursion with beliefs shaped by their parents during childhood, and these dynamics must be taken into consideration when doing research on excursions.

Good self-directed learners have a disposition towards intrinsic self-motivation in order to take ownership of his or her own learning. It seems thus, based on the findings, that excursions may have some role to play in fostering intrinsic motivational abilities to the participants.

□ Theme 8: Student teachers' views on the complexity of teaching

One of the objectives of the excursion was to expose student teachers to various dimensions pertaining to teaching in order for them to develop more nuanced understandings of the complexities of the teaching profession. At the start of each excursion, the facilitators frequently asked the following two questions to the student teachers. (1) 'Suppose you are a first-year medical student and a superintendent of a local hospital



asks you to perform an operation now, what will your response be'? Based on a show of hands, none of the student teachers present (in all six excursions) gave an indication that they would be prepared to do so. (2) 'You are currently first-year BEd students. Suppose the principal of a neighbouring school asks you to go teach now at their school, what will your response be'? Based on a show of hands most (about three-fourth) of the student teachers present gave an indication that they would be prepared to do so (researcher observations). This reaction of the student teachers may be an indication of having naïve understandings of the complexity of the teaching profession (and also the 'apprenticeship of observation', as student teachers are familiar with teaching, as they all spent 12+ years in school).

The following excerpt from an article in one of the group's newspaper states, 'We have learned in this teaching profession, there is a lot more than just what we perceive as teaching' (ART) (Student teacher, undisclosed gender, date unknown). One of the student teachers, who participated in an FG interview, grew up in a house where both of his parents were teachers. It is quite significant that someone who thought he knew what teaching entails made the following comment:

'So, I always knew that it's more than just a job but I kind of just saw it, I never really felt it. But since I came on this excursion ... and just the majority of things that was said here at the excursion, it taught me that, it kind of gave me insight into what to expect. It kind of put me into a position for me to think how I would have reacted in certain situations and I can now honestly say that this excursion taught me to feel what my parents feel in the classroom. Well, a small bit of it, I'm pretty sure that it is a whole different experience when it happens to you'. (FG) (Teacher educator, undisclosed gender, date unknown)

Another student teacher realised the complexity of the different roles a good teacher should fulfil, and commented:

'Also the excursion experience showed me that as a teacher you are not just a teacher you are a role model, a parent, police and a community builder, so you must be a good example so that you can inspire many learners someday'. (QS) (Teacher educator, undisclosed gender, date unknown)

During one of the FG interviews, one of the student teachers made this comment about the insights he gained about the teaching profession during the excursion:

‘At first my thinking was only that I was going to prepare my stuff and go to class and teach learners. I now know that I will become parent, the fact is that I will be holding a seed in my hand, ... and the truth will be that I’m holding a forest in my hand. So, that seed will grow into a tree, which will produce more seeds. And eventually a forest. So, I got an opportunity to explore to see, I have to go and use my super-power to make sure that the cream of the world becomes a fruitful one’. (FG) (Teacher educator, undisclosed gender, date unknown)

Based on the data, it becomes evident that the excursion provides many student teachers with more nuanced understandings of the complexity of the teaching profession. Shulman (2004:504) once stated that classroom teaching is ‘perhaps the most complex, most challenging, and most demanding and frightening activity our species has ever invented’.

As facilitators of the excursion, we are not naïve to believe that student teachers’ exposure to excursions like these will result in them grasping the full intensity of how Shulman described the teaching profession, but we do believe that the excursion would sensitise them towards the complexity of the teaching profession. This cognitive dissonance should hopefully also assist them to, as self-directed learners, set individual learning goals for themselves.

■ Discussion and conclusion

This chapter attempted to answer the research question, ‘to what extent can SDL be enhanced during a three-day first-year BEd professional development excursion?’ The quantitative data showed an overall mean score as measured by the SDLI of 4.22, which indicates a high self-directed learning ability. However, the qualitative data were not supportive (with some exceptions) of this quantitative finding. The qualitative data showed that some of the student teachers relied on the BEd programme/teacher educators to scaffold their learning, instead of them as

self-directed learners identifying their own learning goals. This external mode of control probably stems from a performance-driven school education system. A self-directed learner possesses good metacognitive skills, which include critical and deep reflection. It was clear from the newspapers produced that most student teachers had underdeveloped reflective skills.

In Figure 5.2, we juxtapose two activity systems – the student teachers' experiences of the excursion in the left-hand activity system, and the teacher educators' expectations on the right.

The right-hand side activity system visually represents how 'tools', such as engaging pedagogies, solving authentic problems and critical reflection during the excursion programme and attempt to scaffold the learning of the 'subject' (the student teacher), in order to become a truly self-directed student teacher with a nuanced understanding of the profession (the 'object' in the activity system). 'Rules' that govern the activity include the MRTEQ policy document, the Faculty of Education's Integrated Teaching and Learning Plan and the basic principles that could enhance SDL. The 'community' comprises the student teachers, the teacher educators and the parents (although the latter are not participating in the excursion, their influence on their children should be acknowledged). The 'division of labour' refers to the different roles of the future teacher, which will guide the learning and scaffolding during the excursion. For example, student teachers need to be guided in their learning to become effective facilitators of learning, critical reflective practitioners, teachers who will be inclusive, and who will promote social justice, and agents of change and innovation.

The activity system on the left depicts the views and experiences of the student teacher (the 'subject') of the excursion. They engage in problem-based learning (PBL) and CL activities (the 'tools'), which they enjoy. They do not perform well in critical reflection, and this negatively impacts on their development as self-directed learners (the 'object' of the activity system). Important 'rules' to consider is the naïve perceptions and

stereotypes that student teachers bring with them into their teacher education programmes, which might negatively impact on their learning. Also, for some of the student teachers, the focus should be (in their view) on being prepared for the examination, and they doubt the value of a pedagogy of play. A few of them therefore felt that 'lecture notes' would have been more useful than physically engaging in the excursion. It also became clear that parental influence should be considered in understanding student teachers' views. Under 'division of labour', the excursion programme is rather successful in providing student teachers with more nuanced understandings of and appreciation for engaging pedagogies. This is particularly true of CL. The excursion also provides student teachers with a fundamental awareness of inclusivity and social justice. The excursion is less successful in providing a vehicle for becoming more reflective practitioners, and the lack of critical reflection might impede the student teachers' development as self-directed learners.

Figure 5.2 identifies certain 'tensions' that might obstruct the enhancement of SDL. These include, amongst others, the poor reflection skills of student teachers, and the external locus of control, where some student teachers are overly dependent on the teacher educator for his or her own learning, instead of setting own individualised learning goals.

In summary, the data show that the first-year student teacher excursion holds potential for enhancing SDL. Our data show that the excursion can be a catalyst for the nascent identity of student teachers.

Longitudinal research should be done over an extended time frame, and students' SDL should be mapped as they progress with their BEd studies (over a period of 4 years). We concur with Mentz (2016), based on her longitudinal study over a period of 4 years (2013–2016), that programmes that build on a conceptual framework for the enhancement of SDL are successful in

improving students' SDL. The NWU Faculty of Education is in the process of redesigning the excursion so that there is better alignment with the four-year BEd programme. Such alignment might assist the student teacher in his or her professional journey as a self-directed learner.

Self-directed learning in teacher education: Lessons from Finland

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■ Abstract

Research literature consistently acknowledges that the quality of teachers is the biggest factor that impacts on the quality of teaching and learning. Given the dismal performance of South African learners in international benchmark tests, it is clear that focussing on quality pre-service and in-service teacher education should be a national priority. Finland is widely recognised for

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maintaining a standard of excellence in terms of school education. In this chapter, the focus is on Finnish pre-service teacher education and what possible lessons it might hold for teacher education in South Africa. This empirical research analysed the qualitative data obtained from personal interviews with 11 Finnish participants in May 2019: five teacher educators, three mentor teachers and three student teachers. The research question that guided the research was: what are the lessons that South African HEIs involved in teacher education can learn from Finland in terms of developing SDL skills amongst pre-service teachers? The qualitative data were analysed using Atlas ti 8 software. Cultural-historical activity theory (CHAT) was utilised as a research lens in this chapter to provide an insight into school education in two countries which both have seen major educational transformation since 1994. We conclude by identifying possible lessons that could be learnt from Finland in a South African context.

Keywords: Pre-service teacher education; Finnish education; Self-directed learning; Mentor teachers; Teacher educators; Cultural-historical activity theory.

■ Introduction

South Africa is home to the Square Kilometre Array (SKA) telescope – the largest and the most sophisticated radio telescope ever built (South African Radio Astronomy Observatory 2019). The image resolution quality of the SKA telescope will be 50 times better than the Hubble Space Telescope. The SKA telescope is an international project, with scientists from several countries participating – including South African researchers. With this technology, South Africa is competing with the most technologically advanced countries in the world. Juxtaposed with this most advanced science and technology, which South Africa proudly hosts, is the dismal performance of South African school students in science subjects (especially Physical Sciences), as highlighted

in several international benchmark tests. In the Trends in International Mathematics and Science Study (TIMSS) (National Advisory Council on Innovation 2019) in 2015, South African learners performed poorly, and questions were raised about the DBE's decision to lower the Grade 12 pass rate for mathematics to a mere 20%. South Africa performed the worst out of the 39 countries that participated in the TIMSS in 2015 (Reddy et al. 2015). African countries such as Botswana and Egypt performed better than South Africa. (However, we need to highlight that there are vast differences between state and independent schools in TIMSS performance.) In order for South Africa to be competitive globally in a complex 21st century, we need a new generation of creative and well-skilled scientists, and this places a great deal of emphasis on the importance of good science education at the school level. The McKinsey study (Barber & Mourshed 2007) emphasised that no education system can surpass the quality of its teachers. For South Africa to be competitive globally in terms of science education, research should be done on how teacher education – both pre-service and in-service – could be improved.

In contrast to South Africa, education in Finland is nowadays seen as the gold standard in education. Finland scores very highly in the Programme for International Student Assessment (PISA) (Nauman n.d.). Their top performance in PISA has sparked a number of comparative studies (Takayama, Waldow & Sung 2013), where researchers are looking for best practices that could be transferred to other countries. In this chapter, we would like to reflect on pre-service teacher education in Finland and what lessons Finland holds for South Africa. However, we need to state upfront that South Africa and Finland differ greatly in context and that Finnish solutions cannot simply be exported to South Africa. Firstly, the South African context is much more complex and diverse in terms of culture and language, as well as in terms of the spectrum of the schools' socio-economic status. For instance, in terms of South African schools' performance in the TIMSS study, there is a big difference between state schools, where learners do not have to pay any fees, and independent

schools with very high fees, with the latter showing better results. However, we would like to show in this chapter that there are aspects of pre-service teacher education in Finland that could address some of the perennial problems facing teacher education in South Africa.

A specific focus in this research is SDL. Education should aim to promote SDL so that the next generation is able to be competitive in a complex 21st century. Teacher education should therefore be focussed on developing teachers' knowledge and skills to foster SDL (Collins 2009:620). In this chapter, we shall look at how such SDL came about in Finland, and what lessons it holds for South Africa.

The aim of this research was to determine what insights South African HEIs involved in teacher education can gain from Finland in terms of developing SDL skills among pre-service teachers.

The following objectives guided this research:

1. to determine how teacher training programmes in Finland enhance SDL among student teachers
2. to determine Finnish teacher educators' views about the development of SDL among student teachers
3. to determine what the roles of mentor teachers in Finland are in developing SDL among student teachers during their teaching practice/work (integrated learning)
4. to determine Finnish student teachers' views on the importance of SDL as part of their education.

Derived from the aims, the following primary research question guided this research:

What are the lessons that South African HEIs involved in teacher education can learn from Finland in terms of developing SDL skills among pre-service teachers?

The following sub-research questions guided our research:

1. How do teacher education programmes in Finland enhance SDL among student teachers?

2. What are Finnish teacher educators' views about the development of SDL among student teachers?
3. What are the roles of mentor teachers in Finland in developing SDL among student teachers during TP (WIL)?
4. How do Finnish student teachers' view the importance of SDL as part of their training?

In the 'Theoretical and conceptual framework' section, this research will be elaborated paying special attention to pre-service teacher education and SDL within a social constructivist paradigm.

■ Theoretical and conceptual framework

Social constructivism constitutes the theoretical framework. The conceptual framework draws on the constructs of SDL and pre-service teacher education.

■ Social constructivism and self-determination theory as a theoretical framework

Social constructivism and self-determination were used as a theoretical framework in this research. We focussed on how student teachers' learning could be scaffolded across the zone of proximal development (ZPD) (Vygotsky 1978), in Warford's (2011) parlance. We acknowledge the fact that knowledge is socially constructed in collaboration with others (Vygotsky 1978). The self-determination theory (SDT) (Ryan & Deci 2000) is based on a human being's psychological need for autonomy, competence and relatedness, which is closely linked to motivation and how the interaction with the social environment takes place (Legault 2017). Our conceptual framework includes SDL, which builds on the SDT of Ryan and Deci (2000) and social constructivism.

■ Self-directed learning as a conceptual framework

We concur with Knowles' (1975) definition of SDL, namely, as the:

[P]rocess in which individuals take the initiative, with or without the assistance of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating outcomes. (p. 19)

Garrison (1997:18) proposed a comprehensive model for SDL, including three intimately connected dimensions, namely, self-management, self-monitoring and motivation. A self-directed learner needs to have the desire (intrinsic motivation) to construct meaning and develop understanding. According to Garrison (1997:29), 'authentic self-directed learning becomes self-reinforcing and intrinsically motivating'. Within the social constructivist perspective, Garrison (1997:19) viewed SDL from a collaborative constructivist perspective of learning where individuals take the responsibility for constructing meaning while participating with others.

Student teachers need to be scaffolded in their professional development as self-directed learners, from their actual to their potential professional development. In this scaffolding, the student teacher, as a self-directed learner, should play the leading role, together with their peers, within a collaborative learning environment, including the teacher educator at the teacher training institution (the university) and the mentor teacher at the school. This is the so-called 'third space' to which Ramsaroop and Gravett (2017) refer. However, student teachers are often not self-directed, coming from a school system where the responsibility of their learning was in the hands of the teacher (Du Toit-Brits 2019). They are not used to collaborating with others in a social learning environment and see learning as an individual action (Booyesen 2015:8-9). Furthermore, the mentor teachers in South African schools often do not scaffold student teachers' learning well (De Beer & Ankiewicz 2017), as they

maintain old teaching–learning practices without encouraging the student teachers to experiment with new strategies learnt during their training.

The importance of fostering SDL among student teachers has been highlighted by several researchers (Collins 2009: 615–620; Tan & Koh Hwee Ling 2015). With the rapid expansion of knowledge, student teachers need to take the responsibility for their own learning for life. They cannot rely on knowledge obtained during their training but should constantly learn and relearn to keep up with the latest research in the field (Committee on Science and Mathematics Teacher Preparation 2001).

■ Pre-service teacher education in South Africa

A comprehensive body of literature indicates that teacher education programmes are often not effective in adequately preparing teachers for the demands of the profession (Darling-Hammond & Baratz-Snowden 2005; Ramsaroop & Gravett 2017). Flores and Day (2006:189) were of the opinion that teacher education programmes do not prepare student teachers well for ‘life in schools and classrooms’. These authors are of the opinion that teacher education programmes are often too theoretical, with not sufficient integration between theory and practice. Of particular concern is the practical teaching (also called school experience or WIL) of student teachers. School experiences serve as a learning opportunity to bridge the gap between theory and practice. Lederman and Lederman (2015) referred to the school experience of student teachers as the ‘elephant in the room’, as many teacher education programmes fail when it comes to providing student teachers with rich experiences that could address the so-called ‘theory–practice divide’ (Darling-Hammond 2006). The above is an international problem, which holds good of the South African context as well. Research shows that, very often, South African teachers are unwilling to mentor student teachers (Mutemeri & Chetty 2011; Ramsaroop & Gravett 2017).

Furthermore, Mutemeri and Chetty have shown that the partnerships between TEI and schools in South Africa are often fragile. A meaningful school experience or practice teaching places a high demand on effective mentoring of the student teachers by experienced teachers at the school, supported by the teacher educator.

We will first elaborate on teacher education in South Africa, with specific reference to student motivation, selection and identity, as well as the knowledge base required of them and the support provided to them. The liaison (or lack thereof) between South African universities and schools, as well as the lack of respect towards teachers and the compliance nature of the South African school system, will also be elaborated upon.

■ **What motivates South African student teachers to choose the profession?**

Deacon (2012) showed that, whereas intrinsic and altruistic reasons motivate students in more developed countries, such as Australia, France and the Netherlands, to choose teaching as a career, for example, experiencing a calling to be a teacher, in less developed countries, such as Cameroon and Jamaica, and also in South Africa, extrinsic factors play a big role in the choice of a future career. Such extrinsic reasons include salary and job security (Deacon 2012). Chuene Lubben and Newson (1999:25), in a study of South African mathematics student teachers, found that most of the participants were extrinsically motivated in their career choice, and that half of them indicated that they did not plan to teach for long.

■ **Selection of student teachers and controlled entrance to the profession**

The DHET (2011:6) has identified the poor selection process of student teachers as a weakness, and they have directed universities to do better 'professional screening of applicants

prior to admission'. Deacon (2016:3) mentioned that established professions such as law and medicine have their own internal selection criteria for prospective lawyers and doctors. This however is not the case with teaching. The fact that many other professions have strict control over entrance into the profession may result in students who were unsuccessful with other applications registering for teaching.

■ **Emerging teacher identity among South African student teachers**

Student teachers enter their pre-service teacher training with a proto- or pre-professional identity (Deacon 2012). However, this is mostly based on what they have observed from their teachers while they were school pupils. Lortie (1975) referred to this as the apprenticeship of observation. This results in many student teachers entering the teaching profession with very naïve views of the teaching profession (De Beer, Petersen & Dunbar-Krige 2011). Ashby et al. (2008:14) stated that 'young people's long "apprenticeship of observation" during their schooling may have a greater influence on them than their subsequent formal preparation to be professional teachers'. This, linked with the inherent weaknesses of many BEd programmes in the country (CHE 2010), results in neophyte teachers entering the profession with underdeveloped teacher identities.

■ **Knowledge base of South African student teachers**

The Department of Education (2007:4-5) acknowledges the fact that many teachers have an underdeveloped knowledge of how they should teach curriculum content. Morrow (2007:85) concurred, and stated, that there often exists '[a] lack of an adequate understanding of the content being taught'. Deacon (2012:21) asserted that 'the subject knowledge base of the majority of South African Grade 6 mathematics teachers is simply

inadequate to provide learners with a principled understanding of the discipline'. Rusznyak (2011:S107) has found that student teachers often 'focus their efforts on planning fun-filled activities for the lessons they teach', but that these lessons are often 'marred by inaccurate, disjointed or incoherent content knowledge'. Botha and Reddy (2011:266) showed again that 'pre-service teachers do not comply with all the knowledge domains and pedagogical content knowledge (PCK) that enable a teacher to teach well'. Deacon (2012) pointed out that TEI often do not prepare student teachers adequately. This is owing to internal institutional problems such as an 'incapacity to meet minimum standards of internal coherence, alignment with purpose, and intellectual credibility in terms of the relationship between theoretical, practical and experiential knowledge' (Deacon 2012:25). According to Deacon, teacher education programmes are especially poor when it comes to practice teaching and work-based learning.

■ **Support and mentoring of student teachers in South African schools**

Deacon (2012) was of the opinion that the assessment role of school teacher mentors often overshadows other roles (such as encouraging the student teacher or assisting them in their reflective practice). Ashby et al. (2008:28) concurred, and stated, that this 'impede[s] the development of the student teacher's learning'. Nkambule and Mukeredzi (2017:4) showed that during the school experience, student teachers are often frustrated by the lack of support from or availability of the mentor teachers. Student teachers often experience reluctance from the mentor teachers to support them. According to Nkambule and Mukeredzi (2017:4), many of the mentor teachers are unwilling to be observed by the student teachers while they present lessons, and this negatively impacts pre-service student teachers' professional development. Nkambule and Mukeredzi's research also showed that there was a lack of interaction between

the student teacher and the mentor teacher in planning and reflecting on lessons (Nkambule & Mukeredzi 2017:4).

■ Lack of liaison between South African universities and schools

Agbo (2003) and Botha and Reddy (2011) lamented the fact that, in general, good learning communities between schools and teacher training institutions, and between teacher educators and mentor teachers in schools, have not been established. This leads to pre-service teachers being ‘mostly content-driven and that they struggle to translate theory into practice’ (Botha & Reddy 2011:263). Botha and Reddy’s research has also shown that mentor teachers feel that ‘pre-service teachers need more training in the administering and use of assessment’ (Botha & Reddy 2011:265), a task that they themselves are burdened with daily, yet do not always consider the holistic development of the student teachers. Special practice schools where student teachers can benefit from highly trained and experienced teachers mentoring have not been implemented in South Africa as yet, although the DHET has requested the UJ to conduct research on the establishment of TSs in South Africa (Ramsaroop & Gravett 2017; see Ch. 4).

The Funda UJabule School in Soweto became the first TS in South Africa, and Ramsaroop and Gravett (2017:2) described it as a ‘third space’ where the combination of school mentor teachers and teacher educators (from the university) provide student teachers with a unique learning opportunity. Gravett and Ramsaroop (2017:6) found that ‘a teaching school enables the coordination of coursework learning and school-based practicum learning’. Darling-Hammond (2006:41) had identified, as one of the major characteristics of powerful teacher education programmes, this ‘integration of coursework and practicum through a common, clear vision of good teaching that permeates all coursework and clinical experiences’. The lack of this aspect

is probably the Achilles heel in South African pre-service teacher education.

■ **Breakdown of discipline in some South African schools, and lack of respect for teachers**

Student teachers are often traumatised by the lack of discipline in schools and the lack of respect for teachers among learners (Nkambule & Mukeredzi 2017). Student teachers, after school experience, often comment on poor leadership in schools. Nkambule and Mukeredzi (2017:6) quoted a student teacher who said, ‘...leadership seems to be in ICU in my school, everyone does what they want and the principal does not seem to reprimand teachers and learners...’ The question should be asked as to whether TEI adequately prepare student teachers for the complexities that they will face in schools, especially in rural schools. Balfour, Mitchell and Moletsane (2008:107) therefore argued that South Africa should ‘reconceptualise teacher education through the lens of a generative theory of rurality’.

■ **Compliance nature of South African school education**

In contrast to the situation in Finland, where teachers have a large degree of autonomy as subject experts, the South African school education system can probably be best described as a culture of compliance, to a very prescriptive curriculum (Loukomies, Petersen & Lavonen 2018). The DBE describes a national curriculum (the CAPS) that teachers need to adhere to, and furthermore, teaching plans (lesson plans) and teaching schedules (the so-called ‘pace setters’) are provided to teachers to follow. Loukomies et al. (2018:8) observed that ‘[t]he assessment and evaluation structures in South Africa require that students [teachers] must learn to be “obedient” teachers, while the Finnish students learn to be autonomous teachers’.

■ Pre-service teacher education in Finland

An interesting parallel can be drawn between Finland and South Africa. The year 1994 is of significance for both countries. Sahlberg (2011) wrote that:

[7]he National Curriculum Reform of 1994 is often regarded as the major educational reform in Finland. The main vehicle of change was the active role of municipalities and schools in curriculum design and implementation of related changes. Schools were encouraged to collaborate with other schools and also to network with parents and third-sector associations. (p. 11)

In South Africa, the year 1994 highlighted a new political dispensation, which also resulted in a new school curriculum that could lead to transformation. However, unlike Finland, which is accredited with the successful transformation of its school system, the South African school sector faces serious perennial problems. In spite of various versions of a new curriculum, the performance of South African learners remains a cause for concern. It might therefore be useful to focus on the Finnish school system, to see what lessons it holds for South Africa.

Finland has introduced special practice schools (called TSs) where student teachers benefit from the expertise of highly qualified and experienced teachers who serve as mentor teachers (Kansanen 2003). These TSs function similarly to academic hospitals that are linked to faculties of medicine, where medical students get the opportunity to gain practical experience in authentic contexts.

■ What motivates Finnish student teachers to choose the profession?

The status of the teaching profession and the relatively good salaries are some of the driving forces for students to study education. Finnish teachers (at all grade levels) are highly respected (Nauman n.d.). The Finns regard teaching as a noble

and prestigious profession: ‘among young Finns, teaching is consistently rated as the most admired profession, leading ratings of medical doctors, architects, and lawyers’ (Sahlberg 2011:18). Student teachers are also drawn to the profession owing to the fact that they, as subject experts, can work relatively independently, and their creativity is given a free rein. Laukkanen (2006:10) emphasises that ‘Finnish teachers enjoy significant autonomy in organising their work’.

■ **Selection of student teachers and controlled entrance to the profession**

In Finland, strict criteria are used to select students for teacher training. The best students are selected using a rigorous selection process. Care is taken not to accept more teachers than are needed. Sahlberg (2010) explained that the selection process consists of two phases. In phase 1, possible candidates are shortlisted based on matriculation examination results. In phase 2, candidates write an examination on assigned books and then engage in an ‘observed clinical activity replicating school situations’ (Sahlberg 2010:2). Lastly, the top candidates are interviewed and asked about their reasons for choosing teaching as a career. On average, one in every 10 applicants is accepted into pre-service teacher education programmes (Sahlberg 2010).

■ **Emerging teacher identity among Finnish student teachers**

Riksaasen, Crosswell and Beutel (2015) stated that:

[E]arly child experiences, early teacher role models, previous teaching experiences and significant others (such as parents, work colleagues and friends) as well as prior workplace experiences contribute to professional identity formation. (p. 2077)

Finnish student teachers enter their teacher education programmes with the advantage of having had mostly inspiring teacher role models (all teachers need master’s degrees in Finland), unlike

many of their South African counterparts. Stenberg et al. (2014) gave the following account of how student teachers' developed their identities at the start of their studies:

[M]any of the student teachers positioned themselves as educators at the beginning of their teacher education: more than a third of their practical theories concerned values or the pedagogical interaction between teacher and student. (p. 214)

Finnish student teachers thus seem to enter their degree studies with nascent teacher identities.

■ Knowledge base of Finnish student teachers

Riksaasen et al. (2015) have shown that the majority of student teachers indicated that they wanted to become teachers because of 'their strong interest in their subject'. Given the demanding selection process, it is safe to assume that student teachers enter their degree studies with a solid knowledge base.

■ Support and mentoring of student teachers in Finnish schools

Student teachers benefit from excellent mentoring by appointed mentor teachers, notably in the TSs. Loukomies et al. (2018:4) stated that 'after each lesson the students and mentor teachers reflect on the lesson, with a university lecturer only present from time to time'.

■ Liaison between Finnish universities and schools

Excellent liaison between TEI and schools exists in Finland. Laukkanen (2006:6) linked the Finnish education success story to the fact that 'school administrators really do cooperate with teachers and their union and associations'.

■ Discipline in Finnish schools and respect for teachers

The literature is clear on the fact that, in Finland, education has been respected throughout its history (Laukkanen 2006). Riksaasen et al. (2015:2083) stated that there exists a strict upbringing in Finland, which ‘means that parental rules and expectations are open for discussion and negotiation’. Students learn in their homes to respect teachers, and therefore Finnish classrooms are characterised by good discipline and respect. Finnish teachers enjoy adequate support from school leaders and communities (Lavonen 2018).

■ The nature of Finnish school education

Finnish teachers enjoy a great deal of autonomy and, unlike the rigid school curriculum (CAPS) in South Africa that expects compliance to pace setters and prescribed content, teachers in Finland can largely make their own curriculum decisions and decide upon suitable pedagogies. Nauman (n.d.:1) states that ‘[i]n Finland, school is a place for learning and growing, not for obsessively getting points or gold stars’. Far less emphasis is placed on summative assessment, unlike the test and performance nature of school education in South Africa. However, Finnish teachers emphasise student self-evaluation (Nauman n.d.). Teachers are highly motivated, and job satisfaction among Finnish teachers is 91% (Nauman n.d.).

■ Methodology

In this qualitative research study, we utilised third-generation CHAT (Engeström 1987, 2001) as a research lens, specifically to interpret the data obtained and to shed light on the research questions set for this research.

Eleven participants were recruited for this study, namely, five teacher educators from the University of Helsinki, three mentor teachers at the TS in Helsinki associated with the education faculty (the Viikki school) and three student teachers affiliated to

the University of Helsinki. We used purposive sampling, as the objective of a study of this nature dictates that information-rich participants should be selected (Creswell & Plano Clark 2011). We needed knowledgeable people with experience in pre-service teacher education in Finland. Our criteria for teacher educators were staff with at least 3 years' experience as teacher educators, for mentor teachers at least 3 years' experience of providing mentorship to student teachers and for student teachers being enrolled in pre-service teacher education at the University of Helsinki. An independent senior researcher from the University of Helsinki was involved in the recruitment of the teacher educators, mentor teachers and student teachers in the field of science, technology and mathematics, and to obtain informed consent from all participants.

Personal interviews were conducted with these participants, and we utilised different interview protocols for the teacher educators, the mentor teachers and the student teachers. These instruments were analysed by experts in Finland and South Africa to ensure construct validity and, based on their feedback, the instruments were refined for use. The questions were formulated to capture the lived experiences of the different participants on SDL in pre-service teacher education. The individual interviews lasted 45 min–60 min and were recorded electronically. All participants were fluent in English, and therefore no translation was needed. Data were transcribed and then analysed using Atlas.ti 8, according to the three stages identified by Strauss and Corbin (1998) and Blair (2015), namely:

1. The responses were open coded and codes derived from the text were applied. In other words, conceptually similar phrases or answers were coded using Atlas.ti.
2. Axial coding followed next, and conceptually similar answers were coded, and relationships between the open codes were identified, grouping similar codes together into code groups.
3. Selective coding was the final stage of data analysis, where further organisation takes place to identify an 'analytic gestalt' (Blair 2015:18), or the core 'themes' that emerge from the three interdependent data sets (or, in CHAT language, 'activity systems').

Then, the data were further analysed using CHAT as a lens. Mentz and De Beer (2017) described CHAT as a barometer of tension. Cultural-historical activity theory was firstly used on an interpersonal plane (Rogoff 1995), where the three activity systems (student teachers, teacher educators and mentor teachers) were juxtaposed. This enabled us to determine whether there is alignment in the objects of the three activity systems, or a 'contradiction of control' (McNeil 2013). Next, we used CHAT on an institutional plane (Rogoff 1995) by juxtaposing Finnish teacher education to South African teacher education, in order to determine what lessons could be learnt from best practices in the Finnish system.

This research was approved by the Ethics Committee of the Faculty of Education and was classified as minimal risk. Permission was obtained from the University of Helsinki as well as from the relevant school principal. The following aspects were explained to the participants in both written and oral format during the recruitment and before participants signed informed consent forms:

- There are no right or wrong answers but simply personal opinions.
- Their participation in the study is voluntary, and they are welcome to withdraw from the study without any consequences.
- They will not be identified, as pseudonyms will be used in all publications.
- They are welcome to ask questions if anything is unclear.

■ Results

When analysing our data using third-generation CHAT on an interpersonal plane, we identified three activity systems, namely, the student teacher, teacher educator and the student mentor teacher. We are first going to explain the results of each activity system separately and then indicate the alignments and tensions between the different activity systems in order to reach the shared object, namely, student teachers who are self-directed learners (illustrated in Figure 6.1).

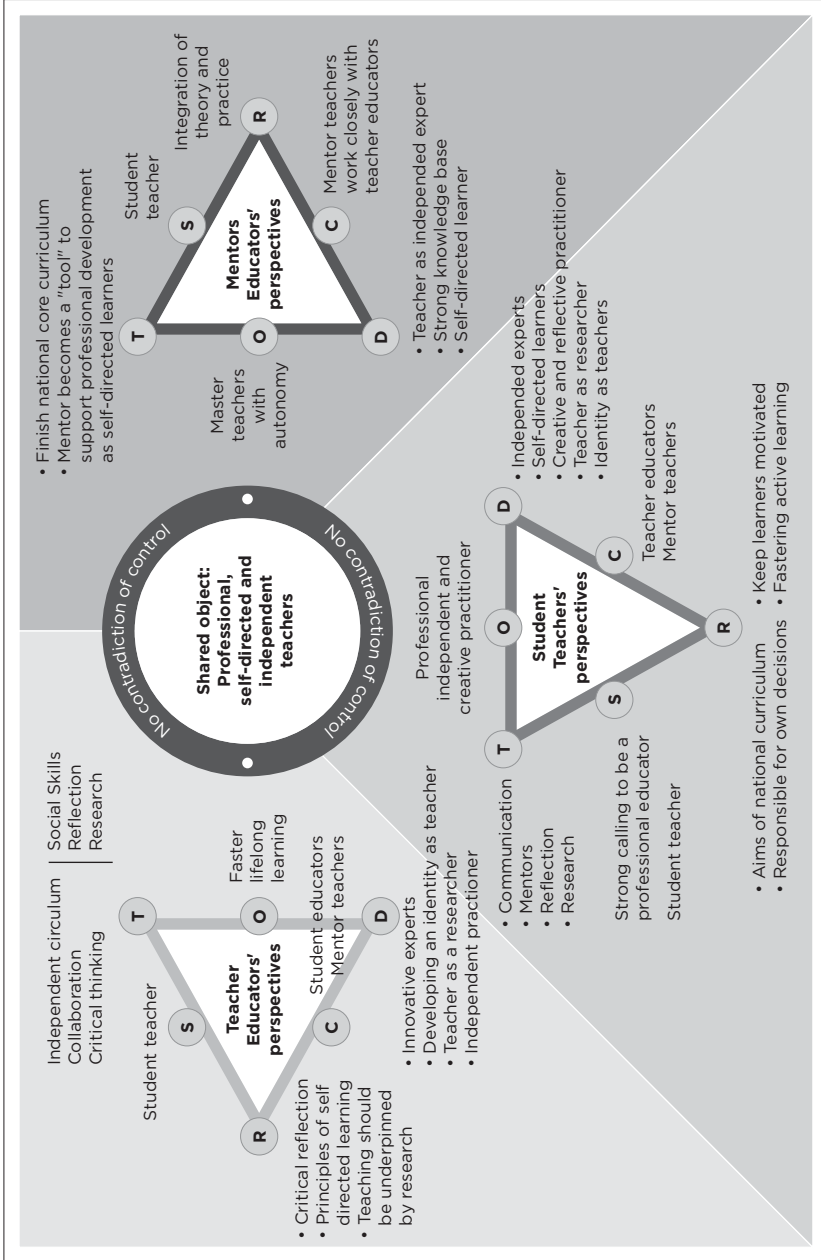


FIGURE 6.1: Comparing three activity systems, namely, the perspectives of teacher educators, mentor teachers and student teachers on pre-service teacher education in Finland.

■ Results from interviews with Finnish student teachers with regard to the objective of fostering self-directed learning

As part of the division of labour within the student teacher activity system, the student teachers see themselves as independent experts with the sole responsibility for their own learning. Typical of a self-directed learner, they also identify a number of characteristics that demonstrate their love for learning:

‘Um you mean like teachers continually studying and learning, I think it is a must. In my opinion you have to do that you have to always learn. I have learned at university, I will learn in the job as well’. (Student teacher, undisclosed gender, 06 May 2019)

‘I can do anything because I am a learner, I just like to learn but when it comes to teaching, I just love to see people learn, so it doesn’t make a difference if I learn or if you learn I will have the same like the same good feeling inside my head’. (Student teacher, undisclosed gender, 06 May 2019)

They have a strong calling to be a professional educator who will be a creative practitioner, sharing their expertise, instilling an attitude for learning, modelling their values and communicating effectively with all stakeholders (learners, mentor teachers, parents and teacher educators):

‘There’s nothing certain actually so you can’t teach something that is going to be for the next 20 or 30 years ... can’t be certain of anything but I like the human way of teaching and humanity is very important to me. So I don’t want to be the teacher who is like I don’t know where the world is going and how is going to work, I want to be on the edge. I just have to realise it, I can’t stop learning’. (Student teacher, undisclosed gender, 07 May 2019)

‘We have good teachers because it is a profession that demand for people who are capable of doing their own choices and willing to do it in a profession that pulls these people who are very capable like mentally and like uh intelligent people who can do their own like decisions in the classroom’. (Student teacher, undisclosed gender, 07 May 2019)

Student teachers indicated that the feedback from mentor teachers serves as a tool for their professional development and preparation as a teacher. They reflect upon the feedback and in doing so, strive to improve their current practices. In the interviews with these student teachers, it was clearly visible that they understand the value of reflection as a tool to become self-directed in their own learning and practices:

‘We still have to write a report or something like a reflection, like what did go well and what didn’t work, so usually we don’t get that much formal feedback, we usually just talk together and think together’. (Student teacher, undisclosed gender, date unknown)

‘I think I have only the tools for reflecting on my own teaching’. (Student teacher, undisclosed gender, 06 May 2019)

‘I have to develop myself as a teacher much much more and reflect why I think as I think and why do I act as I act and what do I want to teach and what do I really want to teach. Do I teach, please respect your fellow students in the classroom or how to make a cake, which one is more important to me’. (Student teacher, undisclosed gender, 06 May 2019)

The student teachers mentioned several rules to which they strive to adhere. They realise that they are responsible for making their own decisions and choices in terms of what to teach as long as they reach the aims set out in the National Curriculum. Although the National Curriculum statements are not prescriptive, the teachers have the sole responsibility for maintaining a high academic standard, keeping learners motivated and creating a love for learning:

‘[*The Finnish National Curriculum*] provides a lot of independence to the teacher’.

‘The teachers’ job in Finland isI know that I can take my own decisions. I have much responsibilities ... basically I can do whatever I want. No one will come ask me or no one will judge my decisions except perhaps the parents and in that case I have to be able to show them the National state curriculum. I like it as I am independent and I am a creative person so I can just be creative if I teach and so you know there is no restrictions. I can just teach whatever I think is needed for the children to grow as human beings’. (Student teacher, undisclosed gender, 07 May 2019)

They took up the challenge to be at the cutting edge of the innovative use of technology and to stay at the forefront of new developments in teaching and learning. They acknowledge the fact that their practice should be based on rigorous research and are willing to perform their own research to better their practices. All of these aspects attest to a highly motivated student teacher:

'[Continuous professional development is important] because of the technology, because in the schools we get a lot of new technology... the applications to use and all sort of things. So, I don't want to be the teacher who is like I don't know where the world is going and how it's going to work, I want to be on the edge in some ways'. (Student teacher, undisclosed gender, 06 May 2019)

These student teachers still have a limited view of the community and only mentioned higher education and the teacher educators responsible for their academic support (the mentor teachers at the school are responsible for supporting them during their TP).

The fact that these student teachers are highly motivated and almost all of them explicitly mentioned their love for learning and their willingness to develop themselves attests to the fact that they are self-directed learners. It is therefore clear that there is no contradiction of control between the envisioned object and the realised object in this activity system.

■ **Results from interviews with Finnish student mentor teachers with regard to the object of fostering self-directed learning**

As part of the tools mentor teachers identified to assist them in their mentoring, they mentioned the Finnish national core curriculum as well as more specific school curricula, which include different 21st century skills. They also acknowledged the autonomy of the teachers to select their own textbooks, lesson plans and learning material, and would therefore not impose their ideas on student teachers:

‘Yes, well we have the national core curriculum and then we have a bit more specified school curriculums. For example, Helsinki municipality has the curriculum but we also of course follow the national curriculum and we have transfer of competencies in there and that is kind of the Finnish version of all this 21st century skills. So we kind of follow on the official ideas of what is needed in the future’. (Student teacher, undisclosed gender, 08 May 2019)

‘We have quite a big freedom to plan our teaching and the autonomy is quite deep, I have to say that. So I can plan the lessons and of course we have curriculum we have to follow curriculum, but I can plan the lessons and the courses as I write and we can select what kind of textbook we take or what kind of learning materials/teaching materials we can then use’. (Student teacher, undisclosed gender, 07 May 2019)

Typically self-directed, they do not see their mentoring role as that of teaching student teachers and showing them what to do; instead, they see their role as one of supporting student teachers to develop themselves and to discover the connection between theory and practice:

‘What I mentioned to my student teachers – you are never ready, you haven’t finalised your studies. It continues all the time. You have to find a way to develop yourself all the time. You have to develop yourself’. (Student teacher, undisclosed gender, 08 May 2019)

‘[M]y role is to support them and also to create bridges between theory and practice, student teachers they cannot breach theory into their work but I can be in the mentor feedback position’. (Student teacher, undisclosed gender, 09 May 2019)

Mentor teachers do not need to assist student teachers in terms of subject content knowledge. They are of the opinion that one of their important tools in terms of their mentoring is the fact that those student teachers are well trained in the subject they need to teach because they need to have a master’s degree in their subject and not in education:

‘I think that’s when talk about our knowledge base. So, they have quite strong knowledge base.’

‘The first thing is that our teachers – they have a master’s degree. That is one point and if we think about subject teachers (that’s like me) then my background is also like that I have a very strong science

education behind – not only education but also science. That’s one thing. I can be a scientist also. That degree is enough for that also. I know what many who has teacher education background, but they work in the industry because they have science backgrounds. I think that’s why they talk about our knowledge base. So, they have quite strong knowledge base’. (Mentor teacher, undisclosed gender, 08 May 2019)

‘They have a master’s degree in science not in education. You have to have it in the subject area. You have to complete your master’s thesis and you can make it so that it is in education in subject area it’s possible but you have to have master’s and deeper studies in your own subjects’. (Mentor teacher, undisclosed gender, 08 May 2019)

■ **Results from interviews with Finnish teacher educators with regard to the objective of fostering self-directed learning**

Teacher educators all agree that their aim with the training of student teachers is to foster lifelong learning and support the development of 21st century skills. They want their students to be equipped with the necessary social skills to collaborate and to be innovative experts who can evaluate critically and justify their own decisions throughout their careers. They encourage students to take responsibility for their own professional development. They furthermore acknowledge the fact that in the rapidly changing world, information is becoming obsolete and that the memorisation of facts is not their core aim during the student teachers’ training:

‘But this is our aim in education as I mentioned there is three aims or three personal characteristics of basic competence: collaboration, generating new ideas and the competence and willingness for lifelong learning, that is inside the programme’. (Teacher educator, undisclosed gender, 06 May 2019)

‘I don’t want to give them recipes for teaching. I want to educate independent experts who can justify and also problematise their own choices of course and you need more than recipes. You need some foundations in your thinking’. (Teacher educator, undisclosed gender, 07 May 2019)

‘The main idea is what is also in our national core curriculum that guides the basic education needs to teach them to be critical thinkers and all these kinds of things we actually have to prepare them for ... the change that they need to be able to think on their own and, we don’t just teach them certain things that are like permanent topics, we need to take into consideration that the world is changing and we don’t know what is actually relevant information in 10 years’. (Teacher educator, undisclosed gender, 07 May 2019)

Teacher educators actively try to enhance SDL among their students by supporting them to set their own goals and providing opportunities for them to reflect and to evaluate if they have achieved their goals. The following are important characteristics of a self-directed learner:

‘I have to make sure they remember their own objectives, their own aims that they have set for their practice’.

‘So, under my guidance (before they go to the practice) they think about their own identities and as teachers, they think about what they have learned in our pedagogical and didactical courses and then they set up to like five to 10 goals for themselves that they would really like to focus on in their teaching. They might be very practical ones: “I would like to focus on how I use my voice when I teach” or whatever. And so, when I go there and see one of their lessons and we talk afterwards, we kind of like go through those aims. It is just like for them to check that they are moving in the right direction’. (Teacher educator, undisclosed gender, 08 May 2019)

Another tool mentioned by teacher educators when looking at the training of student teachers is research. During the training of student teachers, a strong emphasis is placed on research. Student teachers have to be equipped with the necessary skills to constantly improve their practices and therefore all their actions should be based on solid research. The teacher educators also base their own teacher education programmes on research:

‘This research orientation that we aimed at is what the teachers, all student teachers adopt when they are here studying, it helps them in acquiring those academic skills being critical and being able to understand, read and seek information and also transform it to adopt that into their own work’. (Teacher educator, undisclosed gender, 06 May 2019)

‘We have research-based teacher education ... we look for the research on teaching and learning and engagement and this is what we are doing and this is what influence the programme’. (Teacher educator, undisclosed gender, 06 May 2019)

‘In our programme we take into account the research on teacher education, ... all the content are coming from research’. (Teacher educator, undisclosed gender, 06 May 2019)

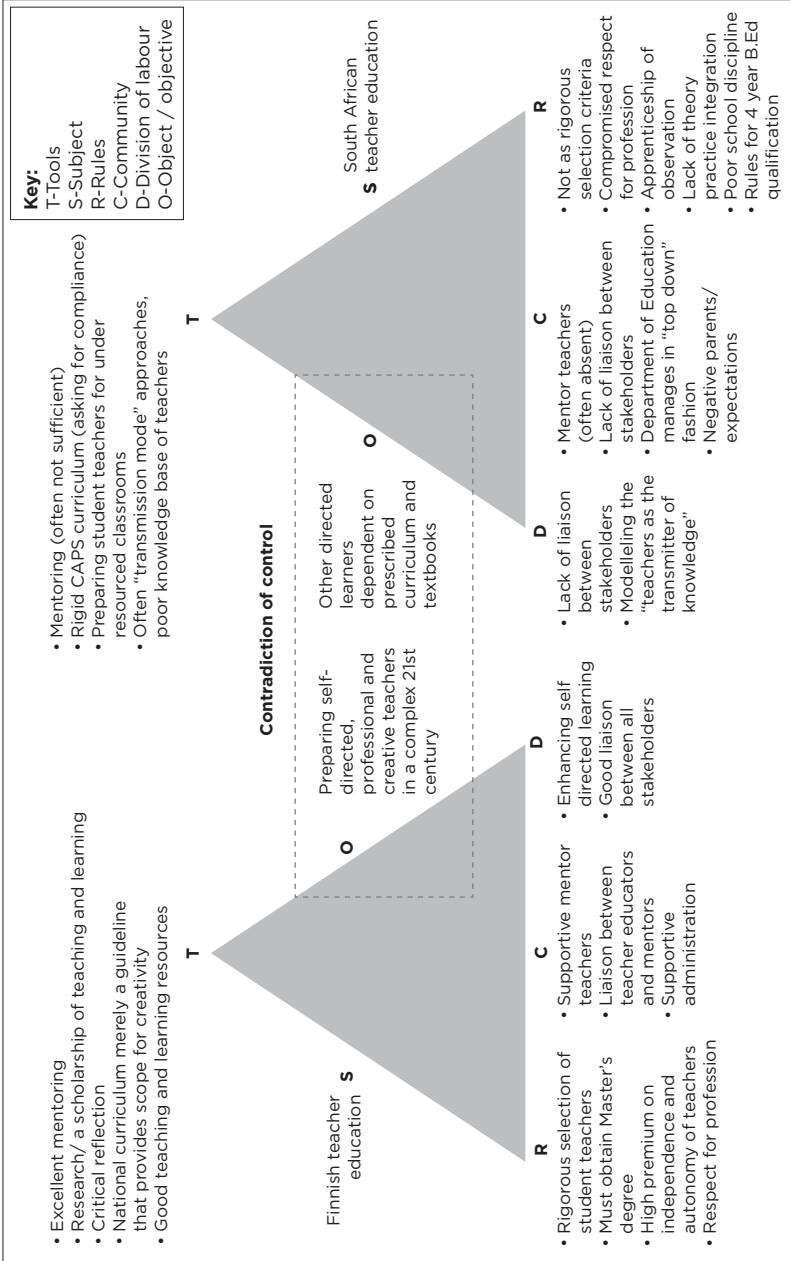
‘Our neighbouring programmes are influencing our thinking and the continuous feedback from our students. It is important to collect the feedback from our students, analyse them but also the (feedback from our) city and society around the university. I very often meet the people of the city of Helsinki and the director of education. So we are listening to them and get feedback and learn how to make things perfect, so not only the research but also the strategies and feedback are important while we are planning our programmes’. (Teacher educator, undisclosed gender, 08 May 2019)

From the above extracts and from the interviews with teacher educators, it is evident that they support SDL, and there is no contradiction of control between the community, division of labour, tools or rules. All work together to create trained teachers who are self-directed lifelong learners, and no visible tensions between the three activity systems were observed.

■ Discussion

■ Looking at pre-service teacher education in Finland and South Africa through a cultural-historical activity theory lens

In this section, we use CHAT on an institutional level (Mentz & De Beer 2017; Rogoff 1995). We compare pre-service teacher education (the ‘subject’ in the activity) between Finland and South Africa (as two different activity systems) in an attempt to identify possible lessons that South Africa could learn from the Finnish education system. In doing so, we attempt to address some of the problems facing South African education (refer to Figure 6.2). However, having said this, we would like to state upfront that, given the complexity of the South African context,



it would not be possible to simply import Finnish solutions to complex South African problems. However, some of the Finnish best practices might, albeit in an adapted form, enhance teaching and learning in South Africa. Evidence for this stems from the Finnish engagement in the first South African TS, the Funda UJabule school in Soweto. Loukomies et al. (2018) stated that:

[/]n terms of the transfer of a Nordic educational innovation to the Global South ... it is evident from the data that the South Africans have learnt from the Finnish model, but that this, in turn, has informed areas of improvement for the original model. (p. 11)

■ Differences in context between Finland and South Africa

South Africa culturally diverse, as demonstrated by the 11 official languages. In practice, this means that the majority of learners have to learn difficult subject concepts in a second or third language, and not in their mother tongue. In contrast, 95% of Finnish learners speak Finnish and enjoy the advantage of mother-tongue education (De Beer & Ankiwicz 2017). However, researchers such as Nauman (n.d.) state that one should be careful of labelling Finland as ‘monocultural’, as there are several minority groups in Finland, such as the Sami and Roma people. Language is a major problem in South Africa. The Douglas George Murray Trust (DGMT) Report (2018:7) stated that 78% of Grade 4 learners in South Africa do not understand what they have read in either their home language or in English. Recently, considerable numbers of Estonian, Russian and Somalian emigrants moved to Finland (Nauman), so the growing diversity in Finland is also beginning to pose challenges. Interestingly, in an article in *The Washington Post* (Heim 2016), with the provocative heading ‘Finland’s schools were once the envy of the world. Now, they’re slipping’, it is shown how Finland’s scores started to drop in the 2012 PISA test, and how Finland’s scores further dropped significantly in all three categories in PISA 2015 (11 points in science, five points in reading and 10 points in mathematics). One cannot help but wonder if the challenges posed by larger student diversity and issues relating to

the language of instruction have a role to play in this decline. However, in spite of this concerning trend, Finland remains a success story from which other countries might learn.

Another big difference between Finland and South Africa is the image of and respect for the teaching profession in the two countries. Our data show that there is a lot of respect for the teaching profession in Finland. In contrast, the DGMT Report (2018:14) made it clear that '(s)ociety's respect for the profession in South Africa has diminished, and has diminished badly'. Whereas Finland has well-resourced schools, many South African schools are under-resourced. The DGMT Report (2018) claimed that only 29% of South African schools have libraries, 41% have computer facilities and 18% of schools have science laboratories. In Finland, teachers receive competitive salaries, whereas South African teachers 'tend to be paid more like ordinary (and usually public) employees than specialised (often private) practitioners, [this] has a bearing on their professional identity' (Deacon 2012).

Figure 6.2 compares two activity systems, namely, pre-service teacher education firstly in Finland and secondly in South Africa. Whereas there are a few contradictions or tensions in the Finnish pre-service teacher education activity system that negatively impact on the achievement of the objective (preparing self-directed professional and creative teachers who can facilitate learning in a complex 21st century), many such tensions characterise the South African activity system. In South Africa, mentoring during school experience opportunities (see 'tools' in Figure 6.2) often leaves much to be desired, and this negatively impacts on the objective (preparing self-directed, professional and creative teachers). Under rules, it is mentioned that the selection process of candidates for BEd degrees, compared to that of Finland, is not rigorous enough, which means that the standard set for pre-service teacher education in South Africa is lower than in Finland. Unlike the supportive community in Finland, where teaching is a much respected profession, South African parents and learners often do not show the necessary respect for teachers. Also, the autocratic, top-down management approach of the South African

Department of Education is in sharp contrast to the Finnish model of cooperation, which respects teachers' autonomy and creativity. These are but a few of the tensions that negatively impact pre-service teacher education in South Africa.

To some extent, South Africa needs to find home-grown solutions to the myriad of perennial problems it faces. However, we believe that Finland could assist South African education to move forward.

■ Conclusion

Laukkanen (2006) commented on what other countries could learn from the Finnish success story, and stated that:

[P]rofessional teachers should have space for innovation, because they should try to find new ways to improve learning. Teachers should not be seen as being technicians whose work is to implement strictly dictated syllabi, but rather professionals who know how to improve learning for all. (p. 15)

This is perhaps one of the difficult problems that South Africa faces. In Finland, where all teachers hold master's degrees, the system has confidence in the knowledge base, expertise and professionalism of its teachers. In South Africa, the almost overregulation and top-down approach probably stems from the fact that the National Department of Education is not convinced that all teachers can be trusted to work in such autonomous innovation spaces. Ironically, it is the best teachers that leave the South African education system, owing to the bureaucratic climate that dictates school education.

Lessons that Finland holds for South African pre-service teacher education are, amongst others, the following.

■ Good liaison between schools (teaching schools) and faculties of education

A trademark of pre-service teacher education at the University of Helsinki is its partnerships with TSs. These TSs have much in common with John Dewey's original laboratory school that

was established at the University of Chicago in 1896. In relation to Dewey's laboratory school, Knoll (2016:1) stated that, 'in accordance with his functional psychology and Froebel's concept of self-activity and self-creation, he regarded curiosity, action, and experience as basic conditions of learning'. The fostering of such learning should also characterise TSs.

Close liaisons exist between the mentor teachers at the TSs and the teacher educators at the Faculty of Education. In our research, it was evident that mentor teachers at the TS took their mentoring roles seriously, and student teachers reported on how the mentor teachers assisted them in their professional development. Mentor teachers were knowledgeable on the teaching and learning philosophy that underpins teacher education at the University of Helsinki (Ch. 4 provides an in-depth focus on TSs, so we shall not belabour it here).

Lavonen (2018:9) also pointed out that, during practice teaching, 'the students are supported to transform practitioner (practical) knowledge into professional knowledge through reflective activities and guided discussions in small groups'. The question arises whether the same level of reflection and CL characterises the WIL experience of South African student teachers. Good liaison between HEIs and schools during the school experience of student teachers could result in more meaningful learning experiences.

■ A strong focus on research in pre-service teacher education

A teacher in Finland is also a researcher, and pre-service teacher education in Finland prepares student teachers for this role. In the words of Lavonen (2018):

[A]n essential characteristic of primary and secondary teacher education in Finland is an emphasis on research. From the point of view of this orientation, student teachers learn to both *consume* and *produce* educational knowledge within their pedagogical studies. Student teachers consume knowledge based on educational research when they combine theory and experience or interpret situations

during their practice teaching. Student teachers acquire a capacity to produce educational knowledge during their courses in research methodology and while conducting their educational research projects (bachelor's, pedagogical and master's dissertations). The knowledge and skills they learn during these thesis projects support lifelong learning practices. (p. 9)

There should be a much stronger emphasis on research in South African teacher education.

■ **Better selection processes of prospective student teachers**

The Finnish education system is characterised by a rigorous process that only allows for 10% of applicants being accepted into the teacher education programme. Deacon (2012:24) stated that there is 'insufficient professional screening of applicants prior to admission' in South Africa. South African universities should agree upon admission requirements for teacher education programmes in order not to lower the standards of the teaching profession further.

■ **Fostering self-directed learning**

Self-directed learning underpins teacher education in Finland. Nauman (n.d.:7) made it clear that Finnish teachers 'are trusted to do their jobs without intrusive oversight, trusted to be self-regulating'. However, in Deacon's (2016:22) description of some of the teacher education programmes in South Africa, occurrences of such 're-teaching', 'well drilled', 'dependent on their lecturers' and 'blaming their own deficiencies on their circumstances' provide evidence of practices that do not support SDL. Lavonen (2018) critiqued Shulman's (1987) model of teachers' professional knowledge and claimed that the competence for lifelong learning is missing from the defined knowledge base. Laukkanen (2006:9) concurred and stated that 'teachers must have a good basis for lifelong learning within their profession'. Self-directed learning should therefore characterise both pre-service and in-service teacher education in South Africa.

The affordances of case-based teaching that draws on drama in pre-service teacher education

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■ Abstract

This chapter explores the affordances of case-based teaching within an excursion programme, providing student teachers with a more nuanced understandings of the teaching profession. A central problem identified in pre-service teacher education literature is the so-called ‘theory–practice divide’. Several researchers claim that pre-service teacher education is often too theoretical and not sufficiently practice focussed. The educational excursion for first-year student teachers, which is the focus of this chapter, provides ‘learning from practice’ learning opportunities. As part of the excursion programme, student teachers engage in case-based learning. A case can be seen as an event or experience in which a problem emerges, where a teacher needs to consider different possible solutions or courses of action. Cases also hold affordances to address Lortie’s (1975) construct of the ‘apprenticeship of observation’, which is also discussed in this chapter. Student teachers often enter their pre-service teacher education programme with naïve understandings of the teaching profession, developed during their school years, through observing their teachers (who were often not good role models). Cases written by seasoned teachers were given to student teachers, and, in groups of 10, they had to write screenplays based on the provided cases, do the casting and dramatise the cases. After each of the dramatised cases, a discussion took place, and theoretical lenses were used to interrogate the decisions of the protagonist. The role of the cases and the critical reflection in changing the naïve understandings of student teachers is explored in this chapter, and qualitative research in this regard is disseminated. Furthermore, the role of SDL in counteracting the ‘apprenticeship of observation’ is also explored.

Keywords: Case-based teaching; Educational drama; Apprenticeship of observation; Reflection; Pre-service teacher education; Excursions.

■ Introduction: The so-called ‘theory-practice divide’ and the affordances of excursions and case-based teaching in pre-service teacher education

South African school education is in a crisis, and this is evident from South Africa’s poor performance in benchmarks tests such as the TIMSS (Reddy et al. 2015). It is widely acknowledged that teachers hold the key to quality education – the McKinsey study (Barber & Mourshed 2007) makes it clear that no education system can surpass the quality of its teachers. For this reason, pre-service teacher education should be a national priority. Unlike Finland (see Ch. 6), where student teachers start their training with mostly having had positive school experiences as learners, many South African student teachers come from dysfunctional schools, which might have fuelled their naïve understandings of the teaching profession (De Beer, Petersen & Dunbar-Krige 2012).

Research literature alerts to the so-called ‘theory-practice divide’. Authors such as Darling-Hammond (2006), Gravett, Henning and Eiselen (2011), and Lampert (2010) lament the fact that pre-service teacher education programmes are often too theoretical, and that novice teachers often experience a ‘practice shock’ when they start teaching. Kessels and Korthagen (1996:2) referred to the ‘gap between our words and the students’ experiences that we cannot bridge’. The question should be asked as to how theory and practice could be better integrated in pre-service teacher education. ‘Learning in practice’ and ‘learning from practice’ are therefore important pillars in pre-service teacher education. Whereas student teachers’ school experience or WL constitutes learning in practice, the excursion, which is the vehicle used in this qualitative research, provides a ‘learning from practice’ opportunity to student teachers. In 2016, the NWU started to engage first-year student teachers in

educational excursions, in an attempt to bridge the ‘theory-practice divide’. The rationale for this excursion is provided in ‘Excursions as a ‘safe space’ for learning’ section. The specific focus of this chapter is students’ experiences of engaging with dramatised case studies, as will be described in the ‘Case-based teaching’ and ‘Dramatising cases’ sections.

■ Theoretical framework: Social constructivism

The excursion programme builds on social constructivism, as the focus is on scaffolding student teachers’ learning across the Vygotsky’s (1978) ‘ZPD’. Dramatising a case aligns with the social constructivist paradigm (Edmiston 2013), with a possible outcome of facilitating a greater social understanding, based on the engagement in challenging situations/dilemmas in practice (Lee et al. 2014; Terwel et al. 2009). Warford’s (2011:254) stages in scaffolding learning across the ‘zone of proximal teacher

TABLE 7.1: The design of the ‘dramatisation of case studies’ activity based on Warford’s (2011:254) stages in scaffolding learning across the ‘ZPTD’.

ZPTD stage	How it is structured within the excursion activity
Self-assistance stage	Warford states the importance of prompting to determine what student teachers’ prior experiences about a phenomenon is. After given the case studies, student teachers have to write their own screenplays and in these screenplays, they tap in on previous experiences
Expert-other assistance	In the dramatisations/role plays, the students construct knowledge collectively. After each dramatisation, time is allocated to a group discussion, where student teachers can interrogate practice by making use of theoretical lenses. The teacher educators can highlight naïve understandings or misconceptions and can scaffold learning
Internalisation	Student teachers had to reflect on these cases and had to include a reflection in their student newspapers on the last day of the excursion
Recursion	This is described by Warford (2011:255) as the ‘theory into practice’ stage, and as such was not part of the excursion curriculum

Source: How the authors have structured the activity, based on Warford (2011). ZPTD, zone of proximal teacher development.

development' (ZPTD) guided us in designing the dramatisation of case studies activity, as can be seen in Table 7.1.

■ Vicarious learning

Learning through dramatised case studies can be seen as a form of vicarious learning. Vicarious learning via peer participation has gathered acknowledgement as a prevalent practice in student teacher training (McMahon, Barrett & O'Neill 2007:499–511). Roberts (2010:13–16) showed that an increasing body of literature asserts that students learn vicariously from the experiences of other people. Through a debriefing meeting, individual students may share his or her narratives and experiences with the group, while the other students have the chance to listen considerably and reflect on what they have heard, consequently the students are provided the opportunity to learn and think together (Roberts 2010:13–16). Cox et al. (1999:431–458) contended that students ought to be familiar with the others' dialogue by recognising that their experiences are worth listening to and therefore valuable material from which to learn. Student teachers faced various experiences and challenges in school, and this became part of their reality and naïve views on the teaching profession (Roberts 2010:13–16). As Roberts (2010:13–16) claimed, experiences are disseminated via reflection on practice and connecting these experiences in discourse to other students, as was the case in the debriefing session. The excursion is also imbedded within the field of experiential learning, which is discussed next.

■ Experiential learning

Experiential learning is the practice of learning from personal and environmental experiences (Breunig 2009; Kolb 2014; Kolb in Merriam, Caffarella & Baumgartner 2012; McCarthy & McCarthy 2006; Svingby & Nilsson 2011). Experiential learning is different from rote or didactic learning, in which the student plays a moderately inactive function. It is related to other forms of active

learning, such as action-learning, adventure learning, free choice learning, CL and service learning (Beard 2010; Itin 1999).

Kolb (2014) noted that the student must possess four skills to obtain genuine knowledge from an interactive activity:

- Participants should be willing to participate in the activity.
- The student will be willing to focus on the encounter.
- In order to incorporate the fresh insights learnt from the activity, the student should have developed decision-making and problem-solving capabilities in the classroom (Kolb 2014).
- The student must possess and utilise analytical skills to conceptualise the experience.

■ **The conceptual framework: Excursions, case-based teaching, dramatising cases, the apprenticeship of observation and critical reflection**

In this section, we will clarify the various constructs that constitute the conceptual framework.

■ **Excursions as a ‘safe space’ for learning**

Earlier we have alerted to the fact that student teachers often enter their pre-service teacher education with naïve understandings of the complexity of the teaching profession. The three-day excursion programme of the NWU has been designed to show the student teachers the complexity and the ‘messiness’ of teaching as a profession (Petersen & De Beer 2019), and also to facilitate learning related to the different roles of the teacher, for example the teacher as a facilitator of learning, critical reflective practitioner, agent promoting social justice and being an inclusive teacher. The University of Johannesburg started to

offer excursions for first-year pre-service student teachers in 2007 (Taljaard 2018). In 2016, the NWU followed. The context of the NWU should be considered, as it will provide an insight into the specific design of the excursion.

The NWU has three campuses, namely, the Mafikeng campus (with mainly black students), the Potchefstroom campus (with predominantly white students, although the racial profile is changing) and the Vaal campus (a more representative profile). De Beer et al. (2012) claimed that many student teachers start their training having had very little contact with students of different race groups. Students coming from townships often had very limited interaction with white students. In a democratic South Africa, the profile of our schools is rapidly changing, and teachers will have to deal with culturally diverse classrooms. The NWU has a responsibility to ensure that student teachers are maximally prepared to be truly inclusive teachers, who can effectively manage the diversity in the classroom. Petersen and De Beer (2019:295) indicated that, in a democratic South Africa, the 'new apartheid' is 'the socio-economic divide'. The excursion programme has been designed to address these issues of inclusion and social justice, amongst others. The excursions were designed in such a way that during each of the excursions there would be equal representation from all three NWU campuses. When students board the buses that take them to the excursion site, they enter a different epistemological space, which Henning and De Beer (2011) explained as follows:

In this isolated setting, devoid of mobile communication and other technologies, the students meet in small-group, scripted simulation game activities that include dealing with racism, human immunodeficiency virus (HIV) transmission education, as well as poverty and food security. They are also grouped outside of their spontaneous ethnic, gender and cultural peer contexts to form optimally diverse working groups with the aim of facilitating a sense of interdependence. (p. 206)

Excursions as 'learning outside the classroom experiences' (Mannion, Fenwick & Lynch 2013:792-809) hold affordances to

provide powerful learning opportunities not always possible in university lecture rooms. The reason is that the excursion provides a learning space where learners (student teachers) are out of their comfort zones, as they are confronted with alternative worldviews than their own, as well as unknown cultural customs. In the excursion as an 'activity system' (Engeström 1987), tensions can arise, which the Vygotskyan scholar Veresov (2007) described as 'dramatical collisions'. In the context of this chapter, which focusses on drama, this is very apt, as Veresov drew on theatrical language when he coined the term. The design of the excursion curriculum is meant to 'increase the epistemological discomfort in the simulations' (Henning & De Beer 2011:213) and such 'dramatical collisions'. This, we claim, holds affordances for student teachers' learning.

An important foundation underpinning this excursion is that it provides what Schön (1987) calls 'a low-risk setting for novice learning', as the excursion provides a safe 'laboratory' where student teachers can jointly learn, as it is removed from the 'coalface of teaching and learning' in the school classroom.

■ Case-based teaching

Lee Shulman (2004a:474) described a case as 'an account of an experience in which our intentions have been unexpectedly obstructed, and the surprising event has triggered the need to examine alternative courses of action'. Judith Shulman (2002:2) viewed cases as 'a way to bridge the abstract nature of principles and teaching standards to classroom practice'. She further explained that cases 'tell vivid, often moving stories, and give life to abstract principles, and are more likely to be remembered' (Shulman 2002:2). Gravett et al. (2017) have used cases effectively as a pedagogy in pre-service teacher education, and they highlight the following advantages of case-based teaching:

1. Case-based teaching facilitates engaged learning; research data show that student teachers are often more focused in class, when engaging with cases.

2. Case-based teaching enables student teachers to experience the reality of school teaching vicariously. Gravett et al. (2017:378) showed that cases can ‘put student teachers in the workplace while in the lecture hall’, the student teacher can learn from the actions and mistakes of other teachers (as protagonists in the cases).
3. Case-based teaching assists student teachers to develop more nuanced understandings and appreciation of the complex nature of teaching.
4. Case-based teaching assists student teachers to relate their course literature/theory to the dilemmas of practice; cases are therefore effective in bridging the ‘theory-practice divide’.

Apart from the above advantages, case-based teaching could also foster critical thinking and increase practical knowledge through reflection (Gallucci 2008; Levin 2002). In our context, we decided to use a different pedagogy than that of Gravett et al. (2017) and let student teachers, after reading the case studies, to engage in writing screenplays and dramatise the cases.

■ Dramatising cases

The purpose of including the activity that required student teachers to dramatise cases in the excursion curriculum was to engage student teachers in putting themselves in the shoes of other teachers, principals and learners, and to learn from practice. This means that their empathy with others had to become active/alive (Lee et al. 2014). Student teachers were provided with a number of case studies from *Being a Teacher: A Book of Cases* (Gravett, Merseth & De Beer 2013). Each of these cases portrayed a ‘classroom dilemma’, for example, a teacher who experiences problems with classroom discipline, and in the heat of the moment reverts to corporal punishment; a teacher who wants to promote acceptance of homosexuality, and then faces the wrath of a disgruntled parent; or a teacher who deals with the unwanted attention of a learner who fell in love with him or her.

Drama capitalises on human challenges and dilemmas in certain social situations, and how people respond or react to it (Verriour 1984). Drama in education provides student teachers the opportunity to ‘project their interpretations of educational issues and challenges for deeper interrogation as they experience them through embodied learning’ (Athimoolan 2018:58), and may support student teachers’ professional development with regard to their autonomy, competence, relatedness and self-directedness (Lee et al. 2014).

Drama – where actors express themselves dramatically – is a form of communication that requires ‘actors’ (in this context student teachers) to be present and active in the moment of the play (Ūstūndaġ 1997). De Beer et al. (2018:176) quoted the doyenne of drama in education and Dorothy Heathcote, who said that ‘always look for the precise dramatic pressure that will lead to a breakthrough, to a point where the students have to look at a problem in a new way’. This emphasises the affordances of drama in conceptual change. Dramatising involves actors’ communication and teamwork, as well as affective (emotion) and aesthetical aspects, physical (body movement and language) aspects, personal mental work, embodied cognition, social interactions, individual engagement, as well as reflection (Edmiston 2013; Peleg & Baram-Tsabari 2011). By engaging in the dramatic act, the student teachers as *Homo ludens*, the ‘playing human’ (Huizinga 1955), plan and present real-life dilemmas that they might experience themselves in a school in the near future (Ūstūndaġ 1997).

Presenting a case in the dramatic form is helping student teachers to think about their personal or social dilemmas, explore issues and situations, and formulate possible effective resolutions to these (O’Neill & Lambert 1989). According to Ødegaard (2003), student teachers need to reconceptualise their current metacognitive knowledge when they engage in the dramatisation of a case. Dramatising real-life dilemmas may support student teachers’ professional development with regard to their autonomy, competence and relatedness (Lee et al. 2014). Bolton

(1984) argued that reflection (during such dramatisation) affords student teachers the chance to shape, change and refine their understandings of their profession and its concepts and challenges, and calls it '*drama for understanding*'. Bolton (1984) added further that changes in understanding will come about through critical subjective reflection.

■ Apprenticeship of observation

In spite of the fact that the term 'apprenticeship of observation' is not widely recognised among the general public, what it refers to is instantaneously understood by almost all teachers (Borg 2004:274–276).

The apprenticeship of observation describes the condition in which student teachers appear in university classrooms for their training programmes, having invested thousands of hours as learners in schools perceiving and assessing professional teachers in action. This is in total opposition to apprentices' learning in other occupations, such as those of lawyers or doctors (Borg 2004:274–276).

According to Borg (2004:274), the term was coined by Lortie (1975:62), in *Schoolteacher: A Sociological Study*, and this apprenticeship, he contended, is 'mainly responsible for several of the biases that pre-service student teachers maintain about teaching'. One of the implications of this apprenticeship duration is that although individuals joining certain jobs are more likely to be conscious of the shortcomings of their experience, student teachers may struggle to realise that the teaching strategies they encountered as school learners merely represented an inadequate perception of the job of the teacher. Lortie (1975:62) stated that a student 'sees the teacher frontstage and centre like an audience viewing a play'.

He further noted that, while student teachers may see the 'frontstage' activities, such as monitoring, correcting and lecturing, they may not see the 'backstage' activities that are a critical part of a teacher's work (Lortie 1975):

Students do not obtain invitations to observe the teacher's presentation from the wings; they are not aware of the teacher's private goals and subjective considerations on classroom activities. Students seldom contribute in choosing goals, making arrangements, or post-teaching analyses. Therefore, they are not pushed to place the teacher's activities in a pedagogically focussed framework. (p. 62)

Although such teaching habits are largely under-researched, they continue as 'simple and imitative' (Lortie 1975) and have been referred to as 'teaching folkways, "that is" ready-made recipes or procedures for intervention and understanding that do not need research or examination while offering common, healthy outcomes' (Buchmann 1987:161). This model therefore gives student teachers 'safe choices' of a set of tried and tested strategies that they can return to in times of confusion or hesitation (Tomlinson 1999:533-544).

The net effect of this critical evaluation time is that teacher training programmes have a poor impact on student teachers. This partial influence and the reported tendency of inexperienced teachers to revert to their default style after they have gone through the practice will lead teachers to teach as they have observed, thereby placing a conservative pressure on the profession (Lortie 1975:62).

This opinion is well reflected in the research of four student teachers in the United States of America. Johnson's research (1994:42-44) offered an insight into the challenges that student teachers encounter when they seek to develop a teaching style (strategies/techniques) that replicates their principles (perceptions) rather than simply adapting models learnt at school during their lengthy observational apprenticeship. Although students acknowledged the drawbacks of teacher-centred methods that they encountered as school learners, they reported that they did not feel motivated to improve owing to the lack of options or lack of familiarity with a wide range of teaching-learning strategies, and that they thus felt themselves regressing to those prior strategies. A student teacher reports in her notebook as follows (Johnson 1994):

It's been really frustrating to watch myself do the old behaviours and not know how to 'fix it' at the time. I know now that I don't want to teach like this, I don't want to be this kind of teacher, but I don't have any other experiences. It's like I just fall into the trap of teaching like I was taught and I don't know how to get myself out of that model. I think I still need more role models of how to do this, but it's up to me to really strive to apply what I believe in when I'm actually teaching. (p. 44)

Lortie (1975:62) noted, 'There are ways in which being a student is like serving an apprenticeship in teaching; students have protracted face-to-face and consequential interactions with established teachers'. He also continued to balance the usage of a metaphor for apprenticeship, stating that his use of the word explicitly defines the conventional concept of apprenticeship in a profession in which the apprentice is conscious of the master's thoughts and logic when watching the master at work (Mewborn & Tyminski 2006:23-32). In a typical internship, the master instructor teaches the student while he learns to practice the trade. This interaction is absent in classroom interactions, as the learners are ignorant of the motives of their teachers and of their thoughts on their behaviour. Rather, learners are on the receiving end of what teachers do and are thus simply in a role of examining the behaviour of teachers and their effect on them as learners (Borg 2004:274-276). Learners are not in a position to be insightful and critical on what they learn, nor do they have any pretext to do so. As a consequence, learners are required to demonstrate desire, appreciation, dislike or other affective responses to a teacher or particular activities but not to determine thoughtfully the consistency of the teaching they undergo (Mewborn & Tyminski 2006:23-32).

In spite of Lortie's cautious analysis of the usage of the word 'apprenticeship', he went on to make an assertion about the cultural transmission of teaching methods (Borg 2004:274-276). He (Lortie 1975:n.p.) postulated that student teachers' methods are founded on simulation of their teachers, 'which, being generalised among individuals, becomes tradition' and 'transcends generations'. Lortie (1975:n.p.) appeared to be mindful that this

assertion was instinctive but speculative because he stated that, 'It would take complex research to confirm this analysis'. Notwithstanding Lortie's carefulness, many researchers have raised Lortie's broad view, consequently propagating the 'snark syndrome' (beliefs without a convincing empirical base). Although Lortie's statement is naturally engaging and practical (Romberg & Carpenter 1986:850-873), this model fails to deliver a suitable reason for how teaching practices get replicated.

Lortie's (1975) idea of observational apprenticeship tends to refer to the general context of education, rather than to individual instances of teaching and learning. For example, Lortie proposed that learners get general ideas on what 'positive/good' and 'bad/poor' teaching is centred on, and how different kinds of teaching strategies have affected them. Pre-service teachers also describe successful mathematics teachers as those who made mathematics fun, who connected mathematics to the natural world and who took an interest in their learners (Borg 2004:274-276). Data confirm this perception of the general environment for education, and several researches show that such views are linked to teaching and learning attitudes (Thompson 1992:127-146). Students also point to poor a teacher as someone who lacks the ability to explain ideas so that all learners grasp it, delivers boring and monotonous lectures and teaches straight from the textbook.

Lortie (1975:62) observed that because student teachers are not deliberately observing their teachers in order to establish their own potential teaching methods/strategies, what student teachers know about teaching through learning is innate and idiosyncratic rather than clear and methodical; it is focussed on different identities rather than on pedagogical concepts (Mewborn & Tyminski 2006:23-32).

According to Borg (2004:274-276), there are questions about the reliability of the Lortie model. Apprenticeship of observation has been used mainly to justify the absence of progress in teaching and to compensate for ineffective instruction. Whether the model is to be deemed useful, it will also need to explain how

effective teaching is replicated and whether the process of replication of bad teaching may be broken.

Rarely, if ever, has the concept of cultural diffusion been utilised to affirm as to why students who have meaningful experiences as school learners utilise these interactions to improve their teaching activities (Borg 2004:274–276). Nevertheless, Lortie himself offered such an explanation (Lortie 1975:62). One of Lortie's teachers recalled an elementary school teacher who was especially sensitive to her anxiety of going to a new school. In her own school, she constantly delegated another learner to be a friend to new learners and make them feel comfortable.

Several instances indicate that certain pre-service teachers are both mindful of and willing to draw on the variety of interactions they have had as learners and the unique positions that teachers have performed in these encounters. Lortie (1975:62) stated that students are certainly influenced by certain teaching practices and not by others, yet one does not want them to perceive variations in a pedagogical, informative way. According to Lortie (1975:62), some future teachers are capable of being analytical about their goals for their teaching practices in light of their prior experiences (also refer to Mewborn & Tyminski 2006:23–32).

When questioned, pre-service teachers often seemed to be able to remember clear and vivid examples, both positive and negative, of their own experience and to comment on them in a constructive way (Borg 2004:274–276). In a related context, Zeichner and Gore (1990:333) proposed that certain pre-service teachers concentrate more specifically on their own experience as students and actively try to build in their own instruction of the circumstances that were absent in their own schooling. Ross (1987:225–243) also noticed examples of teachers carrying out purposeful activities that were in sharp contrast to what they encountered as students. Ross (1987:225–243) stated that pre-service teachers are 'extremely selective' in choosing and selecting from within the examples they have learnt in order to incorporate

a variety of experiences into the type of instructor they become. Therefore, even though pre-service teachers have had adverse encounters as learners, they should use these interactions to influence their thoughts regarding teaching methods in a constructive way.

Examples of the ‘apprenticeship of observation’ from the cases dramatised during the excursion are two cases dealing with neophyte teachers struggling to maintain discipline. Many of the student teachers are of the opinion that corporal punishment is the answer, ‘as it worked when they were learners in school’ (Student teacher, undisclosed gender, date unknown).

■ Critical reflection

Reflection is a vital aspect of the experiential learning cycle that provides a context for more learning and encourages more insight and reflection (Kompf & Bond 2001; Moon 2004), and should therefore be promoted. Examples of clear, realistic questions for facilitators to include in the promotion of reflective reflection in experiential learning are, for instance:

- What did you observe...?
- Why did that happen?
- Is this likely to happen in real life? Explain your answer.
- What reasons are there for why this happened?
- How can you use that in future? (Jacobson & Ruddy 2004).

Reflection on experiences or actions provides student teachers with an opportunity to understand themselves, others, the problem at hand and possible strategies to resolve these dilemmas or tensions faced in 21st century schools and classrooms. This requires student teachers to think about and formulate alternative and innovative approaches that could tackle these dilemmas/tensions (Loughran 2002). Edmiston (2013) argued that the ‘actors’ should make sense

of these dilemmas and practice what actions to take in real-life situations using 'higher-order thinking' (and feelings) – thereby gaining conceptual understanding – through active engagement. Skills are developed simultaneously and will allow student teachers to make accurate judgements about them and transform insights into practical strategies for personal growth as a teacher.

Norman (1981:50) saw the process of student teachers creating meaning as 'making personal meaning and sense of universal, abstract, social, moral, and ethical concepts through the concrete experience of the drama'.

Reflection deepens learning, enabling the student teacher to see the bigger picture, and integrate and personalise new insights (Cornoldi 2012). Reflection is a rigorous cognitive, emotional and physical tool that is part of developing new skills, and grows capacities such as how to respond to challenges in real life, to make timely decisions, manage emotions, conduct productive relationships and cope with stress. Through reflection, one develops more self- and other awareness (metacognitive awareness of person, task and available appropriate strategies) (Flavell 1979) and ensures self-regulation of planning, monitoring and evaluation, and emotional intelligence (Muin 2011). Reflecting also allows for looking at the same issue from different perspectives and challenges our assumptions and enhances our creative and innovative views (Owen & Fletcher n.d.).

Dewey (1974:212-228) viewed reflecting as one of the most important aims of education, because it allows us to learn from our actions – whether in teaching-learning or any other social context that involves, for instance, human behaviour, emotions, values and ethics. Reflecting on what you do or what happened or what might happen in the future makes one more consciously aware of the consequences of steps/actions/behaviour considered in/for a certain situation/problem (Dewey 1974:212-228) and allows us more self-control in making wise decisions.

□ Reflection and dramatising cases

Reflection is essential for student teachers to learn about teaching and about the professional skills required by a teacher (Loughran 2002), and reflection on the dramatised cases provides opportunities for student teachers to learn from practice beyond the experiences provided by the dramatised cases (Edmiston 2013). Student teachers make sense of the dilemma in the cases through reflection, just as an audience makes sense of the case events in the performance (dramatic actions), although these events are not actually happening (Edmiston 2013). Reflection on the dramatised cases provides (Courtney 1980):

[A]ffordances of reasoning and acknowledgement (Philbin & Myers 1991); emotional content (Cebi 1985:122) in their socialization, that focuses collaboratively on making meaning of social real-life dilemmas or issues they have mutually explored. (p. 33)

According to Dewey (1933), there are four criteria for effective reflection:

1. It is a meaning-making process that deepens the understanding of experiences regarding relationships with other people and other ideas/experiences, and ensures the progress of the individual and society.
2. It is a systemic, rigorous, disciplined way of thinking, with its roots in scientific inquiry.
3. It needs to happen through interaction and teamwork with others.
4. It requires attitudes that value the personal and intellectual growth of oneself and of others.

■ Fostering self-directed learning

The excursion was conceptualised to enhance SDL. Knowles (1975) described SDL as the:

[P]rocess in which individuals take the initiative, with or without the assistance of others, in diagnosing their learning needs, formulating

learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating outcomes. (p. 18)

During the excursion programme, student teachers should identify personal learning goals for themselves. The dramatising of case activity serves as a vehicle for student teachers to set such learning goals for themselves.

■ Methodology

■ Research design

This chapter reports on generic qualitative research, in which an interpretative and pragmatic paradigm was followed.

■ Data collection

In 2019, a total of 1700 NWU student teachers, all of them enrolled for the first-year BEd programme, participated in one of the six excursions. When student teachers were asked by an independent person whether they would like to participate in the research component, 1348 of them agreed and signed ethics consent forms. Research data were collected from only those students who agreed to participate in the research.

Data were collected through FG interviews with the student teachers, by means of reflections in student newspapers that the student teachers had to compile, and researcher diaries that were kept during the presentations of the dramatised cases. Three different FG interviews, which each comprised 8-10 student teachers, were conducted, during three of the six excursions. These interviews varied in length between 35 min and 50 min. The interviews attempted to determine what student teachers' 'lived experiences' of the cases were. On the last day of the excursion, student teachers had to, in small groups, compile 'newspapers' in which they reflected on the excursion

activities, including the case studies. We also analysed these reflections.

■ Data analysis

The FG interviews were transcribed, and these interviews and the artefacts (reflections in the student newspapers) were analysed using Saldaña's (2009) coding technique. From the codes assigned, a number of themes were distilled. The researcher diaries constituted the researchers' observations during the dramatised cases, and we looked at student teachers' facial expressions, body language, the 'dilemmas' that emerged from each case/play, as well as the discussions after each play. In the 'Findings' section, we briefly discuss five of the main themes that emerged from the data.

■ Ethics

Although all students had to participate in the excursion as part of their degree programme (there was no financial burden on the students, as the Faculty paid for all transport, accommodation and meals), only students who volunteered were involved in the research component. The research was explained to them by an independent person, and they all signed consent forms. The research was approved by the Faculty of Education Research Ethics Committee, and as students of the NWU were involved, we also obtained approval from the Registrar (as gatekeeper). Students were assured that they will not be identified in publications, as pseudonyms were to be used, rather than their real names.

■ Findings

In this section, we discuss the five predominant themes that emerged from the data.

■ Theme 1: Student teachers dissected complex problems and developed more insights into the dilemmas of being a teacher in the 21st century

Gravett et al. (2017) have shown that case-based teaching holds affordances to assist student teachers in developing better understandings of the complexity of the teaching profession. Our research echoes this finding. Some of the student comments include:

‘It’s actually helpful, the activities we did right now, they’re realistic. That’s what I love about them... Especially the one where the teacher is biased and chose a favourite over a not so favourite learner, and the learner fall in love with the teacher. It’s things that happen.’ (Student teacher, undisclosed gender, date unknown)

‘When you dramatise, you acquire skills so that... When you are in a tight situation ... you know what to do. How to act. What to do. You must know in advance how to act ... as we learn from the drama that we performed here.’ (Student teacher, undisclosed gender, date unknown)

‘The solutions have been insightful.’ (Student teacher, undisclosed gender, date unknown)

‘It made it more personal because, like Prof. Josef said this morning, if you can feel, see and have emotion in it, then you will remember better/easier. So because we experienced it ourselves, you’re going to remember what happened, then we’re going to remember what has happened, how are you going to react?’ (Student teacher, undisclosed gender, date unknown)

‘I remember on the first day of the excursion, that Prof. Josef referred to a person who said that teaching is the most frightening activity that people have invented. I thought it was nonsense, but the cases have showed me what tricky situations teachers sometimes face. I now agree that we face a lot of challenges as teachers.’ (Student teacher, undisclosed gender, date unknown)

■ Theme 2: The excursion assists student teachers in gaining improved metacognitive knowledge and reflective skills

The discussions after each case study provide an opportunity for student teachers to improve their reflective skills, as evident from these student comments:

‘Questions (posed by the audience) afterwards, is where we gained a lot of knowledge.’ (Student teacher, undisclosed gender, date unknown)

We are talking about real things ...they put us in a position where we had to think out of the box, to think about what if that situation, obstacle comes by, what is the solution? What would happen to me if I am in that situation?’ (Student teacher, undisclosed gender, date unknown)

‘[7]hat when the day comes, that you will not be in shock. It will hit you, but you are going to think: I have done it, I can do it, I am prepared. I will follow the steps’. (Translated from Afrikaans to English by the researchers) (Student teacher, undisclosed gender, date unknown)

‘It was difficult at the beginning because I didn’t know how they were thinking. I had to stand back and listen to other people. If you only talk, you think you are correct... to get insight from all and think about a solution together’. (Translated from Afrikaans to English by the researchers) (Student teacher, undisclosed gender, date unknown)

‘During the discussions (after the plays) it was difficult for me to think like other people.... Open listening to others who are not thinking the same as I. Sometimes you have to be willing to just listen...’ (Student teacher, undisclosed gender, date unknown)

‘You experience it with all your senses, you heard and you act it out as well. ...Uhm ... [S]o we reflect back when you are in class, because you experienced it first-hand.’ (Student teacher, undisclosed gender, date unknown)

‘I must be honest to say that I did not know how to reflect. This was a mind-blowing experience for me’. (Student teacher, undisclosed gender, date unknown)

■ Theme 3: Dramatising cases hold opportunities for developing understanding and empathy for the task of teachers

Some of the cases performed might have been familiar to student teachers based on their own experiences as learners in school. Here, they had to however consider such ‘classroom dilemmas’ from the teacher’s perspective (and not as the familiar experiences as a learner). We started off by highlighting that they themselves will one day face similar dilemmas as teachers. Student teachers made comments such as:

‘I think this dramatising, is to put yourself in other people’s shoes. Like you literally going into another character’. (Student teacher, undisclosed gender, date unknown)

‘Some is not going to act out in your classroom for no reason; kids act based on some place they are coming from. So it’s like literally putting yourself in that person’s shoes’. (Student teacher, undisclosed gender, date unknown)

‘I realised that teachers are faced with tricky situations, and that you need a lot of wisdom to solve it. I actually felt sorry for some of the teachers I had, as these cases made me to see things from their perspective’. (Student teacher, undisclosed gender, date unknown)

■ Theme 4: Student teachers came to a better understanding and appreciation of the value of cooperative learning

Student teachers commented on the value of CL, and learning from their peers:

‘It is something good, because we can come with all our experiences... In that way with all our experiences, come something good and something strong.’ (Student teacher, undisclosed gender, date unknown)

‘Working together we came with ... different knowledge angles and with your current knowledge ... and we combined that...’ (Student teacher, undisclosed gender, date unknown)

‘Teamwork. I enjoyed working with fellow teachers’. (Student teacher, undisclosed gender, date unknown)

‘I learned that, as a teacher, you don’t isolate yourself ... other teachers will help you as well, to give you a broader solution to solve and to tackle the situation.’ (Student teacher, undisclosed gender, date unknown)

‘[W]orking with my group (the Mojojo’s) was such a wonderful experience because I realised that where I come from – Mafikeng – ja, we have that mentality that together, we can achieve more ... and then, by the time that we all went out (to read the case and practice our performance) we got into details and read it (case) and did some stuff... Yes, we teachers, we can be something, we can be extraordinary, we can be exceptional, and we can give also something out of what we are now’. (Student teacher, undisclosed gender, date unknown)

Whitelaw, De Beer and Henning (2008) have shown that the major attrition factors for newly qualified teachers to leave the profession are their experiences of working within pseudo-communities of practice, the negative impact of socio-political factors and poor relationships with colleagues on their well-being. For this reason, it is of the utmost importance to emphasise CL and the importance of communities of practice in pre-service teacher education.

■ Theme 5: Development of self-directed learning

One of the underpinning principles of the excursion is to develop SDL among student teachers. We alerted earlier to the fact that the excursion provides a learning space where students are out of their comfort zones, and where they should identify individual learning goals for themselves. Comments to this effect by the student teachers include:

‘And you know what? As a teacher it’s your responsibility – you should be aware that there are kids who will fall in love with you. Your job is

to try to prevent it and find solutions, for example, you know what, avoid one-on-one contact; at least bring another learner to avoid a one-on-one affection', and 'I will have to equip myself with such strategies, in order to survive'. (Student teacher, undisclosed gender, date unknown)

'It was an eye-opener to realise that these things actually happen in classrooms, and, ja, to get solutions. Get advice from other teachers who had been in a similar situation ...uhm... ja, get a mentor when you start at a new school who actually has more experience than you'. (Translated from Afrikaans to English by the researchers) (Student teacher, undisclosed gender, date unknown)

'I will probably work with Setswana-speaking learners, yet I cannot even greet in Setswana. I will have to work on my language skills.' (Student teacher, undisclosed gender, date unknown)

I am only used to "chalk and talk" approaches, and this excursion made me realise that I will have a steep learning curve, to learn about more engaging teaching methods'. (Student teacher, undisclosed gender, date unknown)

■ Discussion and conclusion

Like Gravett et al. (2017), we conclude that case-based teaching provides authentic learning experiences for student teachers. This happens in what Schön (1987) called a 'low-risk setting for novice learning' during the excursion. Unlike school experience (or WIL) where the mistakes made by the student teacher might negatively impact on children, mistakes or misconceptions are discussed in a safe space created by fellow students at the excursion. Case-based teaching therefore holds potential for student teachers to learn from practice and use theory to interrogate the mistakes that practising teachers made. What made the use of cases different in our research (compared to the study by Gravett et al. 2017) is that student teachers dramatised the cases. Play and drama, as a form of embodied cognition, hold affordances for the realisation of affective outcomes, and this could aid conceptual change. Pintrich, Marx and Boyle (1993) stated that we often only consider cognitive change

from a purely cognitive perspective, not taking into consideration that human emotions, worldviews and belief systems influence how conceptual change occurs (De Beer et al. 2018). Case-based teaching could therefore be a powerful pedagogy to address the so-called 'apprenticeship of observation' through learning from practice. How student teachers 'act out' the cases, provide the teacher educator with an insight into student teachers' preconceived ideas and views on educational matters. The dramatisation of cases holds affordances in terms of providing student teachers with more nuanced understandings of the affective domain, facilitates the development of their reflective skills, fosters empathy for the dilemmas teachers have to deal with in the classroom, develops an appreciation for the value of CL and promotes SDL. The dramatisation of cases also draws on a spectrum of multiple intelligences (Gardner 1973) that are often marginalised in teacher education programmes. Dramatising cases promote especially verbal-linguistic, interpersonal and body-kinaesthetic intelligences, and as student teachers generally make effort with props for their plays, even visual-spatial talents are developed.

‘WIL goes POP’: The role of a professional orientation programme in addressing the apprenticeship of observation in first-year Bachelor of Education students

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■ Abstract

Lortie's (1975) construct of the 'apprenticeship of observation' is explored in this chapter. This construct refers to pre-service teachers' images of, and beliefs about, teaching, which are formed over years of prior educational experiences as learners at school and which may exert a powerful influence on the development of professional identity and on beginner teachers' eventual practice. If these, often naïve understandings of the teaching profession, based on the superficial observation of their school teachers, are not reflected on critically and deconstructed effectively, it might cast an unfavourable shadow over their training aimed at shaping the kind of teacher needed in the dynamic context of the 21st century. An integral part of this training is the scheduled period of WIL during which student teachers get the opportunity to learn from practice. Practical teaching experience in preparation for entering the profession, however, can only be utilised meaningfully once the student teacher has gained a certain level of content and pedagogical knowledge, which should enable the student teacher trainee to critically reflect on practical teaching experiences instead of allowing these experiences to re-affirm the *apprenticeship of observation*. Because student teachers have all been immersed in their profession beforehand, other than trainees in any other profession, a concerted effort is needed on behalf of the training institution to deal with this 'pre-installed' lens through which students might critically consider not only the content and pedagogical knowledge and skills they need to acquire but also the meaning they make during WIL. In an effort to create awareness of, unpack and start deconstructing the negative effect that the *apprenticeship of observation* might have on the conceptualisation of professional identity, first-year students at the NWU underwent a POP. This programme, underpinned by a social constructivist framework, used SDL to guide student teachers in reflecting on their experiences as former school learners and their ideas of good teachers and good and bad pedagogy, and in embarking on the construction of their pre-

professional teacher identity, the latter hugely being shaped by exposure to innovative practice aligned with intensive demands on the profession in the 21st century. This chapter shares qualitative data, gathered from students attending the POP on campus before being placed at schools 3 months later, and focusses on the role and value of SDL, which drove the programme.

Keywords: Work-integrated learning; Professional orientation programme; Apprenticeship of observation; Professional identity; Pre-service teacher training.

■ Introduction

At the start of their career, beginner teachers soon realise that there are some things that could not be taught in tertiary education, but that can only be learnt in practice. Joiner and Edwards (2008) aptly state that ‘no profession wants to admit that it eats its young’, yet every teacher is able to share stories about individual struggles during the first year(s) of teaching. Traditionally, teacher education and WIL are viewed as a one-way process, where student teachers simply need to apply to the classroom what they have learnt at the university (Bruno & Dell’Aversana 2018; Ferns, Campbell & Zegwaard 2014; King & Sweitzer 2014; Mattsson, Eilertsen & Rorrison 2011; McLennon & Keating 2008; Moeketsi 2018; Orrell 2011). Advocates of ‘praxis’, however, argue that TP should be utilised for the integration of theory and practice (praxis), supported by a process of reflection (Schön 1983). Such a view requires a move from an expert or delivery model of education to one of enabling partnership. This requires a conscious effort from education students to integrate theory with practice during periods of TP striving to merge academic learning with real-world experiences and to critically reflect on and create new knowledge.

Learning to teach in such a way that will set oneself and one’s learners on the path to success in the first place as decent human beings and, secondly, in the workplace within the dynamic context of the 21st century, characterised by unimaginable

inventions brought about by the fourth industrial revolution, is nothing less than a mammoth challenge.

In a chapter with the subtitle 'Educating for an uncertain world', Schleicher (2018) writes:

The backdrop to 21st-century education is our endangered environment. Growing populations, resource depletion and climate change compel all of us to think about sustainability and the needs of the future generations. At the same time, the interaction between technology and globalisation has created new challenges and new opportunities. Digitalisation is connecting people, cities, countries and continents in ways that vastly increase our individual and collective potential. But the same forces have also made the world volatile, complex and uncertain. (p. 231)

Schleicher (2018:232) further highlights the Sustainable Development Goals, set by the global community for 2030, which describe a course of action to end poverty, protect the planet and ensure prosperity for all. He claims that today's teachers play a pivotal role in ensuring that these goals are achieved as it is in classrooms where children are prepared with the necessary knowledge and skills to be successful.

Perhaps, the only aspect of their own experiences as learners emerging from basic education that student teachers might be able to include in their armour as future teachers may be how their school teachers dealt with them as human beings; that is, the soft skills that earmarked their daily conduct as respected educators: dignity, integrity, honesty, loyalty, fairness, patience, friendliness, encouragement, perseverance, resilience, etc. The impression that former teachers made on student teachers in this regard became evident in a research project run by one Faculty of Education at the NWU in South Africa (Botha 2019).

Traditionally, student teachers at the NWU completed school-based WIL sessions from their first year. It has however become a growing concern amongst academics and management of the university that the status quo might not be best practice. In 2019, the university implemented an intervention programme for first-

year student teachers to address their concerns regarding school-based placement. Participants in this project were 200 first-year Bachelor of Education (BEd) Intermediate Phase student teachers who took part in a non-placement (WIL) programme that required them to stay on the campuses of the university for their first three-week-long WIL session instead of being placed for school-based WIL. During this time, the student teachers underwent a structured and guided POP before being placed out to schools for the next scheduled WIL session three months later. This chapter will share the rationale for and aims of this POP programme, unpack the structure and themes of the programme, and share the expectations and experiences of student teachers who took part in POP.

■ WIL goes POP: The rationale

The main reasons for the university opting for a non-placement WIL programme for first-year students in their first semester were:

- The majority of first-year students find themselves in the critical stage of transition between being learners at school a mere four months ago to being students at university for only two months; adding to the complexity of the transition is the fact that these former learners are now starting their teacher training.
- Students are from different backgrounds. Main variables include coming from dysfunctional schools in some of the worst poverty-stricken areas of the country; highly functional schools in affluent communities; homogenous classrooms in terms of race, culture, language and/or gender; and multilingual and multicultural classrooms. Any meaningful induction programme for student teachers needs to address, in one way or the other, the multilingual, multicultural, economically- and socially diverse realities of South Africa in order to effectively begin the process of socialisation as a university student as well as in the teaching profession.

- Any first-year student in the Senior and Further Education and Training (FET) phase has the option to perform WIL at the same school where he or she finished high school a mere four months ago and a mere two months after starting with teacher training. This practice has in the past resulted in students either still being treated as learners or expected to teach classes while being given far more responsibility, both emotionally and operationally, than what they are ready for.
- Students emerging from results-driven basic education have not necessarily acquired the skill of critical reflection or self-reflection and have not yet been equipped at university with the knowledge and skills to critically reflect on the negative effects of apprenticeship of observation (Lortie 1975). The risk that was identified was that of WIL reinforcing students' apprenticeship of observation.
- As mentoring and induction programmes are not mandatory in South Africa, schools may place students with any teachers that are willing to accommodate them and not necessarily with those fit to be professional mentors. In the past, the faculty had to deal with complaints in this regard from a number of students and parents.
- Work-integrated learning as envisaged by the MRTEQ ought to support the professional development of student teachers (DHET 2011). The practicum is envisaged to 'provide an authentic context within which student teachers can experience and demonstrate the integration of the competences they had developed' (DHET 2011:15). No competences would have developed 2 months into teacher training.

In alignment with the rationale for POP, the general aims were identified.

■ The aims

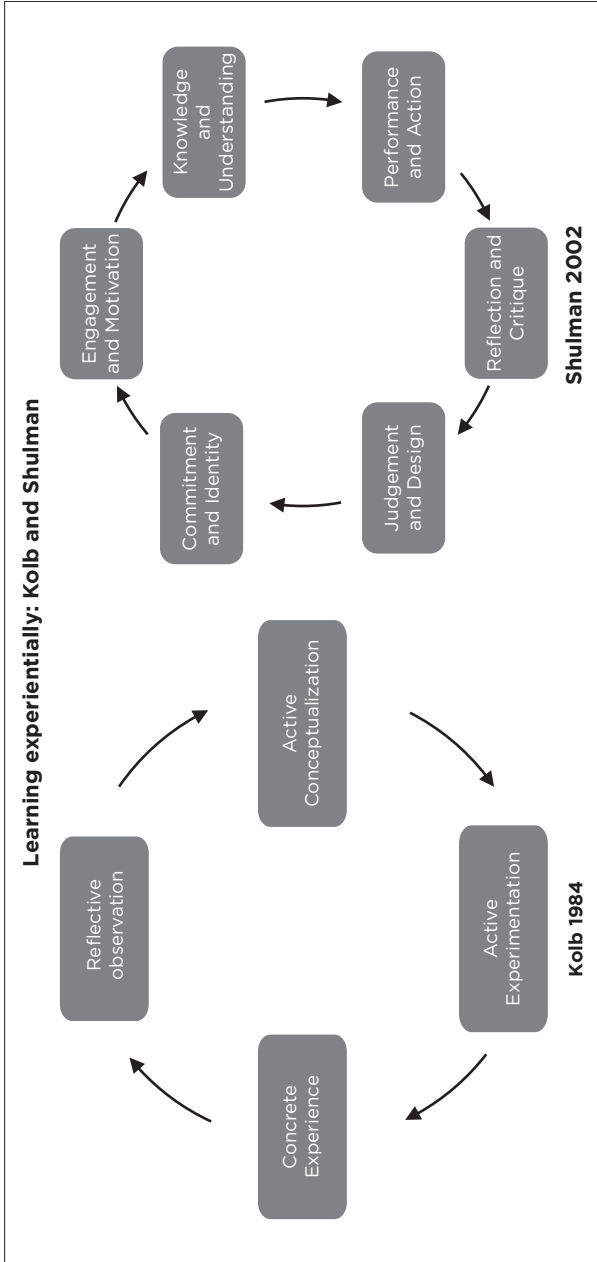
- Provide adequate induction and preparation experiences to students, the majority of whom emerged from basic education.

- Create space for dialogue, collaboration and understanding among students from diverse backgrounds in the promotion of the values of the university. The NWU wishes to embrace diversity, based on the constitutional values of human dignity, equality and freedom. It furthermore is committed to foster engaged and caring staff and students.
- Guide students in critical reflection on their personal identities and in the conceptualisation of the profession of teaching.
- Introduce students to the idea of not viewing themselves as students but as student teachers – who are in the process of developing their pre-professional identity.
- Foster an understanding of the ethical aspects of being a teacher.
- Provide structured, self- and peer learning processes to drive reflective practice.
- Address shortcomings and add value in the preparation for professional practice.
- Effectively deconstruct the apprenticeship of observation.
- Develop self-directed and collaborative learning through a range of multimodal, practical and problem-based, active learning activities.
- Model flexibility, adaptability and resilience in the presentation of the POP (this aim pertained to the presenters of the POP).

■ Pedagogical cornerstones

The intent of the POP programme included meaningful learning through engagement in a range of active learning experiences supported by specific pedagogical cornerstones. The first cornerstone on which POP was built was *experiential learning* (Swaner 2012) (Figure 8.1), as illustrated below by Kolb and Shulman.

The second pedagogical cornerstone on which the programme was built is *reflective practice*. Student teachers were requested to keep a journal in which they would record written reflection at the end of each day of attending the POP, contemplating their



Source: Swaner (2012).
FIGURE 8.1: Learning experientially.

thoughts, feelings and happenings that pertained to their experiences (Kennison & Misselwitz 2002). Reflection exercises were included in the programme to guide students' action regarding the following: active participation and engagement in critical thinking; identifying links between theory and practice; developing self-awareness and professional identity and taking ownership of this development; and active participation in the programme.

The three-week long POP was conceptualised as a non-placement *internship* programme that would effectively impact students' misconceptions about teaching as a profession and about becoming a teacher.

Kuh, O'Donnel and Reed (2013) state the following characteristics of an effective internship programme, which can also be applied to the POP programme:

- performance expectations set at appropriately high levels
- significant investment of time and effort by students over an extended period of time
- interactions with faculty and peers about substantive matters
- experiences with diversity, wherein students are exposed to and must content with people and circumstances that differ from those that they are familiar with
- frequent, timely and constructive feedback
- periodic, structured opportunities to reflect and integrate learning
- opportunities to discover relevance of learning through real-world applications
- public demonstration of competence.

■ The theoretical framework

Once the pedagogical cornerstones of the programme were in place it was important to attend to the theoretical umbrella under which the content of the programme would be designed. The

apprenticeship of observation, as defined by Lortie in 1975, proved to be a very suitable theoretical framework for POP.

■ Apprenticeship of observation

In 1975, sociologist Dan Lortie conducted a study during which he explored second-year engineering students' perceptions about their skills to build a bridge. Their answer was a solid 'no!' Subsequently, he asked second-year medical students whether they would be able to perform any complicated surgery. They stood firmly in their belief that they possessed neither the knowledge nor the skills to do so. Second-year student teachers, however, were convinced that they were ready to start teaching. In his analysis of the responses from the different groups of students, Lortie realised that the students' answers were underpinned by their experience or lack thereof: engineering students had never seen a bridge being built and medical students had never seen an operation being done; however, student teachers had witnessed teaching for at least 12 years. Consequently, they were under the impression that they would be able to teach (Botha & Rens 2019).

From this experiment, the *apprenticeship of observation* was conceptualised (Lortie 1975). The phenomenon deals with the fact that teachers' images of, and beliefs about, teaching are formed over years of prior educational experiences in family, classroom and school settings, and with the fact that these images, along with the influence of significant others including former teachers, exert a powerful influence not only on teacher training during pre-service years but also on eventual practice (Lortie 1975).

One should note, however, that other than a true apprentice who is focussed on learning the trade from a skilled master, the typical learner in the classroom simply observes the teacher and the act of teaching, much like a member of an audience who watches a play without realising what went into the production thereof. As there is no reason for the learner to analyse and

interpret the 'data' that have been collected randomly over many years, he or she may have a totally wrong idea of teaching as a profession at large, about what makes a good or bad teacher and what good or bad pedagogy entails. With specific reference to the latter, the superficial observation or random collection of data might create the impression that teaching is simple and easy, as it entails nothing more than the mechanical transfer of information by a rather likeable person (Borg 2006; Bullough 2011; Darling-Hammond 2006; Wideen, Mayer-Smith & Moon 1998).

It is disconcerting to note that such mechanical transfer of information might even be appreciated as good practice by students emerging from examination- and results-driven systems such as basic education in South Africa (Reyneke 2016), even by students who are capable of being analytical and critical of prior learning experiences (Mewborn & Tyminski 2006). In agreement with Bullough (2011, 1997) who states that whatever beginning student teachers believe about teaching and learning is of vital concern to teacher education because it forms the basis for meaning- and decision-making, Darling-Hammond (2006) cautions that Lortie's *apprenticeship of observation* and its subsequent impressions may indeed be troublesome to teacher educators who need to provide student teachers with a theoretical knowledge base while they strive to foster progressive, non-traditional perspectives. Schleicher (2018) also emphasises the pivotal importance of non-traditional perspectives in modern education, stating that modern education faces the challenge of strengthening cognitive, emotional and social resilience, and adaptability, in order to ensure sustainable living for all in the 21st century. Success in education is not about the reproduction of content knowledge, which was the aim of traditional classrooms; now, it is about 'extrapolating from what we know and applying that knowledge creatively in novel situations; it is also about thinking across the boundaries of disciplines' (Schleicher 2018:237). In essence, it boils down to what we can do with the knowledge that we search for and usually find on the Internet.

The fact remains that prospective teachers, that is, first-year Bachelor of Education (BEd) students, do not arrive as blank slates (Botha & Rens 2019). They come to tertiary institutions with strong ideas about what makes a good teacher and what good or bad pedagogy entails. These ideas become the lenses through which they critically consider the content they acquire in the BEd programme as well as the knowledge they create and meaning they make during periods of WIL.

■ **Work-integrated learning as a vehicle for change**

In light of Lortie's *apprenticeship of observation* and the above-mentioned view on knowledge creation, the question can be asked whether WIL provides yet another apprenticeship rather than add to the process of de(re)constructing the apprenticeship with which student teachers enter tertiary education. Does the design and execution of TP provide authentic opportunities for student teachers to be exposed to the full range of work demands and complexity that they will encounter as beginner teachers in an extremely dynamic global world (Botha & Rens 2019)? Are students exposed to innovative and engaging teaching aligned with 21st century outcomes, or are they repetitively inundated with 'chalk and talk', traditional, teacher-centred methodologies that focus on the memorisation and regurgitation of facts in order for learners to pass tests and high-stakes examinations?

The challenge for student teachers remains in trusting the theoretical knowledge and skills that they have acquired at university, in their content areas, regarding subject didactics and in general educational studies, and to apply these in the context of the school where they are placed for WIL. The real danger is that WIL may reinforce the negative effects of the *apprenticeship of observation* and promote a false perception among students that there is a divide between theory and practice. While students will be exposed to a range of challenges and unknowns during school placements, it is inevitable that there will be new trials and

tribulations once they start out in their careers. The question remains how to blend theory and practice during teacher training in such a way that it leads to a logical, integrated experience for the student teacher who will grow in excitement for the teaching profession while learning to deal with the realities thereof in preparation for the profession in the dynamic context of the 21st century. A starting point may be to consciously work towards the deconstruction of the *apprenticeship of observation* and to systematically construct students' professional identity.

■ De(re)constructing the apprenticeship of observation

It seems clear that both the *apprenticeship of observation* and real-life experiences during WIL influence a student teacher's way of thinking and doing. Cochran-Smith et al. (2012) note that 'a teacher's individual life experiences and past personal choices profoundly shape how teacher education is interpreted, curriculum is developed, and instruction is enacted in the classroom'.

Botha and Rens (2018) found that although this *apprenticeship of observation* remained stable throughout the 4 years of study, the influence thereof might become smaller as students' own professional identity develops. The danger, however, is that should this apprenticeship not be deconstructed through the years of teaching and WIL, it will remain unchallenged and the beginner teacher might fall back to the kind of practice that he or she experienced at school and observed as good pedagogy rather than trust and believe in what was taught and learnt at university. Such conduct will most likely be totally misaligned with teaching, which should focus on equipping learners with the critical skills demanded for living meaningfully in the 21st century.

In dealing with the negative effects of the *apprenticeship of observation*, identified by Lortie (1975), Grossman (1991:345–350) suggests that teacher educators should not only raise awareness of the existence of negative effects and their effects on teaching but also strive to 'overcorrect' negative past experiences by

‘providing extreme examples of innovative practices’. Teacher educators are thus faced with the complicated task of addressing the lenses that student teachers bring with them to training. Should this not happen effectively during theoretical training and through guided practice during WIL, students’ earlier misconceived views on teaching might just be reinforced by their school experiences as student teachers.

Figure 8.2, conceptualised by the authors of this chapter, depicts a typical model of transition in pre-service student teachers where WIL can act as a vehicle that could successfully deconstruct the *apprenticeship of observation* and guide student teachers towards the conceptualisation of a professional identity.

A student teacher transitions through various phases in the journey to become a teacher. They start as school learners and then become first-year student teachers. During their four years of pre-graduate studies, they transition from being a student teacher to considering themselves as school teachers when they

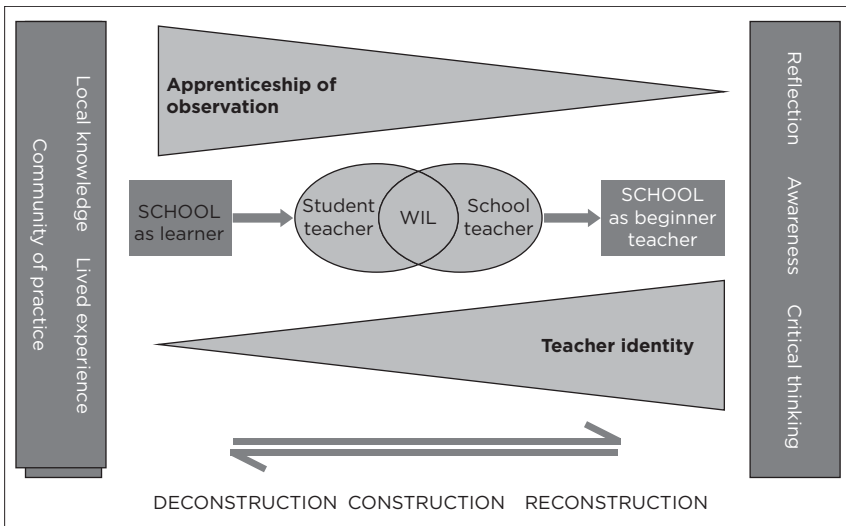


FIGURE 8.2: Model of transitions in student teachers.

are completing WIL. After WIL sessions, they have to return to university and be student teachers again. In the last transition, they graduate and become beginning teachers. As mentioned, student teachers enter this journey of transitions with a fixed *apprenticeship of observation* that will influence their perceptions, expectations and experiences of the programme they enrolled for. They also enter with a specific set of skills including the local knowledge they have gained and created as learners, and the lived experience that they bring to the journey of becoming a teacher. In addition, neophyte student teachers also consider themselves as part of an existing community of practice that supports their *apprenticeship of observation*.

Batchelor (2006, 2008) on listening to students' voices validates the local knowledge and lived experience that prospective teachers bring to their training. Broadly defined, there are three types of voices that emerge from Batchelor's research: namely, practical, which she refers to as the 'voice for acting and doing'; epistemological, which is 'a voice for knowing' and ontological, which is 'a voice for being and becoming' (Batchelor 2006:597).

Batchelor's concept of a practical voice, which is the 'voice for acting and doing', correlates with the process of deconstructing the apprenticeship and establishing a professional identity. It also includes developing a toolbox of resources that a student can use on his or her journey of becoming a teacher. These refer to all activities related to 'acting and doing'.

According to the MRTEQ document (DHET 2011), beginner teachers should, among many other graduate attributes, have the following competencies: sound subject knowledge; pedagogical knowledge of their subject; an understanding of the needs of the learners they will be teaching; the ability to communicate their subject knowledge effectively; and knowledge of the school curriculum. In addition, they are required to understand diversity in the South African context, manage a classroom, have the ability to assess learners' work and have a positive work ethic.

Batchelor's notion of epistemological voice refers to the knowledge that is acquired and created to address all the areas mentioned above (Batchelor 2006, 2008). Students should be guided to critically reflect on their world views and perceptions of the various realities in which they operate.

As mentioned, Lortie's (1975) *apprenticeship of observation* explains that pre-service teachers might have a certain fixed perception of teaching, simply based on observing their own teachers while at school. This informs their expectations of pre-service teacher training as well as what the WIL experiences will entail. Often, reality is far removed from these perceptions and can reinforce an already present theory-practice divide. Therefore, it is important that a platform is created where student teachers can deconstruct the *apprenticeship of observation* and give a voice to their academic and emotional process of becoming a teacher. This correlates with Batchelor's ontological voice (2008) that explores the process where the pre-professional and professional identities of students are strengthened.

Batchelor's voices lay the foundation for effective functioning in terms of developing a professional identity, expanding soft skills, deconstructing the *apprenticeship of observation* and working towards self-directedness in training.

The expectation is therefore that teacher training institutions optimally utilise the years of pre-service training to effectively deconstruct the *apprenticeship of observation* and guide the process of (re)construction en route to establishing professional teacher identity. Deconstructing the apprenticeship ought to become a qualitative process during which students progressively take ownership of their own growth. Periods of WIL become an integral and critical part in this process, as it is during these times that student teachers are expected to critically engage with TP in order to develop and grow academically, emotionally and professionally. Students' critical engagement should allow them to acknowledge the influence that the *apprenticeship of observation* might have on their professional conduct, and enable

them to visualise the type of teacher that they wish to be, based on the value set they select to underpin their identity. Once this picture of a perfect teacher has emerged, student teachers can be supported in SDL, that is, taking responsibility for their own learning, not only in passing examinations but also in developing a deeper understanding of what it means to develop a professional identity and reflect on what it really takes to become a super teacher, able to operate successfully in the 21st century.

■ The role of self-directed learning in teacher training

Self-directed learning in teacher education and in teachers' professional development would be a process, described by Knowles (1975), through which individuals take the initiative, with or without the assistance of others, to diagnose their own learning needs, formulate their own learning goals, identify their own resources for learning, choose and implement their own learning strategies and evaluate their learning.

With regard to the *Model of transitions in student teachers* (see Figure 8.2) that portrays the decreasing influence of *apprenticeship of observation* and the progressive growth in professional identity, SDL is proposed as a tool to assist students in successfully managing the transition and developing their own voices. The 'workshop' so to speak, in which this tool may be used effectively, is the engaged learning environment created by the university or training institution.

Swaner (2012) defines an engaged learning environment as one where students will take responsibility for their learning, ask intelligent and probing questions, think critically and creatively, appreciate complexity, hold multiple perspectives and remain proactive in the face of challenges. This also relates to the 21st century skills associated with the fourth industrial revolution.

In teacher education, opportunities should be created for student teachers to practise self-direction, not only while they

spend time in university sessions gaining theoretical knowledge but also during periods of TP where theory meets practice. It is during these real-life encounters that student teachers are challenged mainly in the following ways: to critically reflect on what they observe and experience as apprentices in their mentors' classrooms; to continuously apply acquired knowledge and skills during a process of adaptation to unique situations; and to find, manage and use information effectively when performing tasks (Francom 2010). One might add the self-directed process of learning and developing resilience to be the independent kind of teacher that the modern, dynamic context demands, not the kind that would easily fall back into the comfort of traditional teaching.

Shulman's knowledge domains, already identified in 1986, are still relevant: a student teacher needs content knowledge (the academic knowledge of the teacher as a subject specialist); PCK (the teacher's knowledge of how to teach specific content using particular explanations, analogies, models or activities); general pedagogical knowledge (a teacher's understandings of a range of teaching, assessment, classroom organisation and lesson planning strategies, as well the ability to use these strategies appropriately); and knowledge of context (the teacher's knowledge of the specific context in which teaching takes place: the curriculum, school policies, school environment and the learners' context) (Shulman 1986).

As far as content knowledge is concerned, Auto and Dorn (2013) argue that state-of-the-art knowledge and skills in a discipline will always remain important. They add that innovative and creative people mostly have specialised skills in a field of knowledge or a practice. One needs to be knowledgeable to critically engage in learning and to be driven to take responsibility for one's own lifelong learning. In initial teacher training, students need to be equipped with thorough knowledge of their specific discipline and with pedagogical knowledge that they can put into practice during the process of WIL. This will then, on a secondary level, assist in deconstructing the *apprenticeship of observation*. Once in practice, teachers ought to continuously

seek for new knowledge in and deeper understanding of their disciplines. The latter can only happen through critical engagement driven by SDL that springs from the desire to be the best and the most knowledgeable teacher one can be in a specific field in order to make the profession proud.

■ Getting practical about scaffolding to teach

If students' *apprenticeship of observation* is to be challenged in order to equip them for teaching effectively in the 21st century, they need to be confronted with extreme innovative practice (Grossman 1991). Focussed preparation for WIL and actual TP in pre-service training may be utilised to achieve such innovation. The implication is that traditional modules for TP need urgent revision. In the 'Unpacking the components of work- integrated learning' section, the components of WIL will be unpacked, with specific focus on concepts like simulated teaching to enhance micro-teaching and work towards students becoming self-directed learners. This innovative approach to the business of teaching can potentially enhance self-directness among students who will be challenged to gain exceptional levels of content- and pedagogical knowledge and skills while developing flexibility, adaptability, creativity and resilience.

■ Unpacking the components of work-integrated learning

As explained above, it is important to recognise WIL not only as an integral part of teacher training but also as the component that allows for crossing the divide between theory and practice. Should WIL be seen as a once-off, isolated event that occurs sporadically and that is removed from the academic programme, chances are that the *apprenticeship of observation* might be reaffirmed during school placements instead of being critically reflected on and effectively deconstructed to make way for the

conceptualisation and development of professional identity. An ideal outcome for WIL would be that it becomes a catalyst for student teachers' SDL, as they manage to apply their theoretical knowledge in novel ways to practice and grow their professional identity. After all, WIL is the ideal platform for learning in and from practice.

■ **Work-integrated learning: Learning from, in and for practice**

Globally tertiary teacher training institutions have added their unique flavour to WIL, conceptualising and structuring it based on certain needs, and logistic and contextual realities. There are, however, certain universal aspects included in most WIL programmes. A particular challenge that most institutions face is the alignment of WIL outcomes and expectations with those of academic modules. One way of dealing with alignment issues is to offer an integrated BEd programme where subject didactics are interwoven with subject content and where students are expected to prepare and present micro-lessons on the completion of certain units within particular modules pertaining to their major subjects. Their actions are to be supported by the knowledge and skills they acquire from generic modules that are part of the programme and that focus on pedagogy. Other solutions to the challenge of preparing students for practice include non-placement professional orientation programmes, simulated teaching laboratories and individual reflective practice.

Many institutions report a dissonance between micro-lessons and WIL experiences. They also report that students seem to embrace teaching the way they were taught, rather than employ skills and strategies that they were taught at university and practised in micro-teaching. This confirms the influence of the *apprenticeship of observation*. Aspects that students do seem to struggle within the workplace, that their *apprenticeship* apparently did not prepare them for, and perhaps because of the superficial observation of their former teachers, are dealing with challenges

like administration and classroom discipline. These struggles highlight the very real experience of a theory–practice divide.

By motivating students towards SDL, they can be empowered to address these issues themselves rather than having to depend on lecturers and university programmes to address their pressing needs. Teacher training institutions, however, have the responsibility to create awareness about such issues and provide students with tools to work towards taking full responsibility for their own learning during their training and for CPD.

■ The structure of the programme

The programme design portrays philosophical underpinning by Vygotsky's (1978) constructivist learning theory and by Bandura's (2001) socio-cognitive learning theory. Learning, in the former, links with and adopts from the socio-cultural context (Bonk & Cunningham 1998), while personal agency, with reference to SDL, is focussed on in the latter (Bandura 2001). The four main principles of the constructivist theory relevant to this study are:

1. new knowledge is constructed
2. knowledge is developed socially
3. learning is a process of making sense of reality and the world
4. learning is effective when solving meaningful and challenging problems.

These principles were evident as first-year students engaged and interacted socially with lecturers and peers in theme 1 (see below), when they interacted with the presenters and facilitators of themes 2–4 (see below) and collaborated in groups to complete a variety of informal and formal assignments for each theme, some of which focussed on meaningful and challenging real-life problems that students would be faced with during periods of school placements. Engaging students in this way created the opportunity for them to construct and develop their own knowledge and understanding regarding teaching and profession. Personal agency (Bandura 2001) was promoted by the fact that

each student kept a journal in which written reflections were entered after each session.

In agreement that the 15-day POP ought to focus on aspects other than those covered by existing modules in the academic programme, the following five major themes and sub-themes were identified:

Theme 1: Excursion (first-year education students from all three sites of the NWU attended a three-day excursion at a camping ground in the North-West Province) (refer to Ch. 5, Ch. 7 and Ch. 10):

- The transition from school to university.
- My emerging identity as a 'super teacher'.
- The socialisation of newcomers in university life and in their intended profession.
- Promotion of diversity and inclusivity in the personal and professional lives of first-year education students.

Theme 2: Self:

- Developing your professional identity.
- Who am I?
- Various forms of communication.
- Professional identity.
- Relationships.
- Stress.
- Conflict management.
- Professional and ethical behaviour.

Theme 3: Educational environment:

- Global education environment.
- Professionalism.
- South African Council of Educators (SACE) code of conduct.
- Social, cultural and economic context of South African Education.
- Education law.

Theme 4: The task of teaching:

- Fourth Industrial revolution.
- Self-directed learning.
- Multimodality and blended learning.
- Multilingualism.
- Profile of learners.
- Twenty-first century learners.

The presenters of this theme engaged the students in activities that demanded critical thinking and SDL in opposition to rote learning and regurgitation of content that the majority of them might have become used to, emerging from examination-driven basic education. As part of this theme, the students were also confronted with the realities of multimodality and multilingualism, and the profile of future learners amidst the fourth industrial revolution in the 21st century.

Theme 5: The impact of teaching:

- Learner support.
- Sustaining the natural environment.
- Human nature and nation-building.
- Community engagement.

■ Methodology

Within the framework discussed above, and built on the pedagogical cornerstones discussed earlier, the Faculty of Education at the NWU opted for and initiated non-placement WIL in 2019, subjecting these students to a 15-day POP. While school placements in teacher training are earmarked to give students the opportunity to gain practical experience and to interweave their classroom learning (theory) with practice, Jackson (2017) reports on a growing focus on non-placement WIL, which allows students to connect with the workplace in a classroom or virtual setting and which, according to (Burke et al.

2009), may include simulations, role plays and industry projects. The POP at the NWU was developed by experienced teacher educators and presented by academic and professional members of faculty on each of the university's three campuses and online.

The aim of this chapter was to report on the perceptions and experiences of 200 BEd Intermediate Phase students in such a non-placement WIL programme, with specific reference to the *apprenticeship of observation*. Ethical clearance was obtained from the ethics committee at the institution for the collection of data. Ethical principles, such as anonymity, protection and safeguarding of data, etc., were adhered to. A qualitative analysis of the reflective journals of these students who attended the POP on one site of the university was used as a data source.

Only using written reflective journals might be seen as a limitation because it was not combined with FG interviews or in-depth interviews, but it was clear that the quality of data in the reflective journals was sufficient for data saturation, as students were expected to write in their journals on a daily basis instead of only evaluating the programme, based on memory, at the end. Reflective writing also provided more detailed data on the personal experiences of students, rather than merely reporting on their experiences of the content and delivery of the programme.

Data were analysed using thematic coding. Student responses were compared and prominent themes were identified. In addition, document analysis, workbooks that the students completed on the different themes of the programme, as well as artefacts that they built as part of one of the themes were used as additional sets of supporting data.

■ Findings

After thematic analysis of the primary data source (reflective journals) as well as the supporting data sets (workbooks and artefacts produced during the programme), the following themes emerged.

■ Theme 1: Student teachers deconstructed their dominant discourses about teaching

As an orientation to the POP programme, students were asked to reflect on a few important issues before they attended the initial sessions. Bearing in mind that Lortie (1975) in his *apprenticeship of observation* clearly stated that first-year student teachers were not blank slates, the programme developers aimed to assess the conceptualisation that students had of teaching before they were exposed to the non-placement intervention.

When the first-year student teachers taking part in the POP were asked what makes a successful teacher, they mostly commented on teachers' ability to discipline a group of learners, to handle challenging classroom situations, to treat learners fairly and respectfully and to show concern and support.

Subsequently, when they were asked whether they thought they were prepared to enter the profession, albeit only during the third month of their first year of BEd studies, the majority, in their reflective journals, remarked that they indeed felt ready to teach, 'because I have seen how it is done for the past 12 years' (R3, student teacher, undisclosed gender, date unknown); 'I am able to discipline learners' (R41, student teacher, undisclosed gender, date unknown); 'I love working with children' (R23, student teacher, undisclosed gender, date unknown) and 'teaching is my passion' (R57, student teacher, undisclosed gender, date unknown).

Only three of the 200 students mentioned the importance of content knowledge or the skills to plan and/or present a successful lesson. Slightly fewer than half of the student teachers in the programme acknowledged in workbooks that 'I now think that teaching was much tougher than I thought' (R92, student teacher, undisclosed gender, date unknown) and that it was not only about 'standing in front of a class and teaching a lesson' (R55, student teacher, undisclosed gender, date unknown). Yet, among these students who acknowledged that teaching was a challenging task, there were a few boastful ones who appeared

to be rather proud of how well they thought they would cope with being left alone in the classroom, implying that, even as first-year student teachers, they could handle any tough situation. A good number of participants reported on how demanding the job was in terms of time. Many teachers spent long hours at school because of their involvement in extramural activities and when they got home they had to plan their academic lessons and assess a variety of learner tasks.

What one might refer to as first-year student teachers' 'delusions of grandeur' regarding their ability to be successful teachers is directly linked to what Lortie (1975) identified as *apprenticeship of observation*.

■ **Theme 2: Student teachers developed more nuanced views of the complexity of the teaching profession during professional orientation programme**

The greater majority of students reported that POP was inspirational and a success. Overall, themes were regarded as informative and important, especially with regard to preparing student teachers for the profession. Some student participants remarked that they learnt to behave professionally in the working environment (schools) and could relate what they had learnt during POP to the current teaching environment.

While it was an important aim of the presenters to model professional practice, some students positively commented on the lecturers' enthusiasm, energetic engagement with the content and with the students, and their resilience in effectively seeing through the programme. Students enjoyed the interactive activities, and some of them indicated that their perceptions of the make-up of a good teacher were altered during the POP. A few verbatim responses read:

'I thought going for practical through this period would be nice because I did not understand the whole purpose of POP, but now I see that I know nothing and going out to schools was not going to be

easy without all the knowledge I gained here' (R46, student teacher, undisclosed gender, date unknown).

'It was a big eye-opener about what was really going to happen to me in a school' (R33, student teacher, undisclosed gender, date unknown).

'I feel more prepared for the realities I am going to deal with during WIL' (R123, student teacher, undisclosed gender, date unknown).

'I now know that I did not know as much about teaching as a thought I did, it is a tough job!' (R29, student teacher, undisclosed gender, date unknown)

'I was reminded why I chose teaching as a career; It gave me a better idea of what good teaching really is' (R150, student teacher, undisclosed gender, date unknown).

■ **Theme 3: Student teachers experienced the programme as long and cumbersome**

It was evident from the feedback that the majority of students felt that the sessions were too long and that they struggled to stay focussed and engaged over 3 weeks. Many suggested that 2 weeks might be more effective: 'Make the sessions shorter' (R10 student teacher, undisclosed gender, date unknown); 'The sessions were too long - nobody can concentrate that long' (R117, student teacher, undisclosed gender, date unknown); 'I got tired' (R143, student teacher, undisclosed gender, date unknown).

■ **Theme 4: Students considered content in themes to be varied in the successful impact it had on their perception of teaching**

Students generally reported that they enjoyed the excursion the most. They appreciated the fact that they had the opportunity to meet peers from other campuses. They remarked on the benefits of collaboration among students from different racial, cultural and linguistic backgrounds:

'For the first time I understood the concept of diversity, I now realise that I always saw it as a negative thing, rather than a positive thing'; 'I enjoyed the activities with all the different students'; 'It was fun - we got to know each other better' (R188, student teacher, undisclosed gender, date unknown).

As far as the other themes were concerned, participant feedback indicated that first-year students favoured Theme 2, which focussed on their personal identities and raising awareness of professional identity. They generally enjoyed introducing themselves to their group members and performing activities exploring their personal identity and those that dealt with the issues of communication, different types of relationships in the lives of students, managing stress and conflict, and discussing teachers' identities, and professional and ethical behaviour.

The following student comments were made on Theme 2:

'I realised that my physical appearance is important ... it will have an influence on how learners perceive me'; 'I realised that I need to develop my professional identity from day one of my first year. I cannot leave it till I start teaching'; 'I had no idea how much stress teachers actually have, I will have to learn to cope with it' (R57, student teacher, undisclosed gender, date unknown).

Student comments on Themes 3 and 5 were mostly neutral. The least popular theme was Theme 4, which aimed at the aggressive deconstruction of students' *apprenticeship of observation* by exposing them to extreme examples of innovative practice aligned with the demands of the 21st century.

Overall, students' written feedback on this theme, as recorded in the reflective journals that they were expected to keep, mirrored their settled perceptions of teachers and teaching and varying degrees of an inability to connect with Theme 4, which dealt with the realities of the 21st century, the fourth industrial revolution and the implications for teaching. They could, for example, not understand how the innovation of self-driven cars could influence teaching and learning at the school level.

Students wrote:

'I do not understand how artificial intelligence and a car that drives itself has anything to do with children and teaching'. (R180, student teacher, undisclosed gender, date unknown)

'Themes must be evaluated to ensure that the information that is shared is relevant'. (R21, student teacher, undisclosed gender, date unknown)

■ Theme 5: First-year student teachers are not used to act as self-directed learners

Students furthermore criticised the fact that they had to direct their own learning, for example, read and analyse short articles, watch videos and critically comment on what they saw and heard. They remarked that they would be far more comfortable if the presenters would eventually simply give them the answers to write down for the activities that had to be completed in writing because that would ensure that they had the 'right' answers. As newcomers to university, these students were clearly not prepared to engage in SDL. They found it challenging to formulate, express and justify their own understanding and interpretation. A reason for this could be that it might not have been expected from learners at the school level to be independent in their studies. Common practice for teachers in examination-driven systems would be to share questions and answers with students, and to expect students to memorise the answers in order to regurgitate the same in high-stakes tests and examinations.

Linking with students' discomfort to embrace self-direction in learning and alternative pedagogies, student participants portrayed resistance to various types of innovative pedagogy aligned with the reality of the fourth industrial revolution. One of the students wrote: 'I was lost in theme 4, they should think about the way in which they present the theme' (R37, student teacher, undisclosed gender, date unknown).

■ Recommendations

The POP attempted to create awareness amongst students about the *apprenticeship of observation*. On the surface, it seems as if this was successful, but it is clear that a direct approach, through introducing this concept to students, might be even more effective than the subtle approach of the first POP. Directly inviting students to deconstruct the apprenticeship and the influence that it has on their professional identity and concept of best practice might be even more effective.

It should be noted that many tasks across the themes presented in the POP programme masked a high level of SDL moved by student collaboration. Furthermore, it was pitched on the level of creation, the highest level of cognition according to Bloom's revised taxonomy (Anderson & Krathwohl 2001), a far cry from what the majority of former high school learners might be used to. The positive to take from this is that first-year students seem able to start taking responsibility for their own learning. The challenge for teacher educators, though, is to generate meaningful and engaging learner activities in order to start students on the path of SDL.

Going forward, some aspects of the POP need to be revised. In improving on the programme as a whole, students should be guided more effectively on reflecting on their experiences as learners in classroom over many years in order to be made consciously aware of the effect of the *apprenticeship of observation*. The deconstruction of the latter should be approached more patiently in order for students not to find themselves 'lost' in some themes. Careful planning of assessment criteria for tasks should account for dealing with the *apprenticeship of observation*, the importance for self-directed, lifelong learning as part of CPD (with regard to the different knowledge domains) and the importance of soft skills in professional conduct. Content of themes and assignments should generate a deep understanding of future challenges in the profession, fostering the realisation that traditional ways of teaching will not be relevant. Better

communication between academic developers of the different themes can ensure that the programme can be shortened and condensed in order to still reach the outcomes in a more aligned and integrated way.

■ Conclusion

As illustrated in Figure 8.2, when student teachers enter into pre-service training, they embark on a journey, aimed at developing their own epistemological, ontological and practical voices (Batchelor 2006). At the start of this journey, students need to be guided in critical reflection on the *apprenticeship of observation* so as to prepare them for the creation of new knowledge and skills demanded by the profession in the dynamic context of the 21st century. The figure also portrays the parallel deconstruction of the *apprenticeship of observation* and growth in professional identity. An integral part of the journey in becoming a teacher is the students' WIL experiences where opportunities are created to apply theory to practice. If students do not go into these experiences, being fully aware of what teaching really is all about and what good pedagogy entails in the demanding era in which we live, they might fall prey to simply continuing outdated, traditional TP, which will greatly disadvantage their learners. It was the purpose of a carefully crafted POP, underpinned by a social constructivist framework, to use SDL to guide students in reflecting on their experiences as former school learners and their ideas of good teachers and good and bad pedagogy and in embarking on the construction of their pre-professional teacher identity; the latter hugely being shaped by exposure to innovative practice aligned with intensive demands on the profession in the 21st century. Curriculum specialists at this institution are convinced of the merit of this type of non-placement programme, especially for first-year student teachers, to address the *apprenticeship of observation*, to guide them into SDL and to kick start the development of their professional identity.

The role of reflection as a vehicle for self-directed learning during work-integrated learning of student teachers

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■ Abstract

This research explored the role of reflection as a vehicle to enhance SDL in the development of student teachers' professional identity. Reflection as a metacognitive process is a conscious exploration of one's own experiences. This thinking process is important, as it supports student teachers in developing the ability to augment their own comprehension of their professional identities. It is important for student teachers to have cognisance of their own strengths and weaknesses for navigation towards their own professional development.

The aim of this study was to explore the role of reflection as a vehicle for SDL in WIL. The three guiding research questions were:

1. How do student teachers perceive the development of their professional identities?
2. What is the role of reflection during WIL to enhance SDL?
3. How does reflection promote the development of professional learning goals for student teachers?

This research followed a basic qualitative design in an interpretivist paradigm. The third-generation cultural-historical activity theory (CHAT) was used as a research lens in this study. Data were collected through self-reflective notes, collages and a qualitative questionnaire completed by student teachers participating in WIL.

The data revealed that the ability of the student teachers to reflect on their own professional identities and learning goals differed from first- to final-year students. The first-year student teachers were naïve and unable to identify specific goals. On the contrary, the final-year teachers, after their WIL experience, were able to reflect more critically on their own professional identities.

Keywords: Cultural-historical activity theory; Metacognition; Professional identity; Self-directed learning; Reflection.

■ Introduction

The 21st century calls for a new approach to teaching and learning methods (Scott 2015a), to equip learners for the demands of future challenges. Wagner (2014) indicated that skills, such as critical thinking, problem-solving, adaptability, analysing information and imagination, will be of the utmost importance to function effectively in the 21st century. Work-integrated learning offers student teachers a link between theory and practice (Martin & Rees 2019), providing them with authentic and real-life experiences for their world of work (Doolan et al. 2019). Jackson (2017) emphasised that WIL acts as a platform where students can observe and interact with more knowledgeable others to make sense of the world of work.

In the South African context, some student teachers have the opportunity to be placed in classes where they receive excellent guidance from the teachers, while on the other hand, in some schools, teachers view student teachers as relief teachers and do not offer them any support (Kiggundu & Nayimuli 2009). Another problem that exists in schools is that the transmission mode or lecturing method is still evident (Scott 2015b) as the main learning experience of student teachers (Usher 2019). To counteract this problem, Jackson (2017) suggested that students should not always accept what they observe but should assess their own observations and think of other ways to enhance their understanding of the workplace. Student teachers should therefore be able to reflect critically; however, Usher (2019) cautioned that sometimes it is difficult to do so individually and suggested that schools and universities should support student teachers in the reflection process.

According to Jackson (2017), reflection is important for the realisation of SDL during the WIL period. Her research indicated that, when self-directed, students were able to reflect on their own shortcomings and set their own goals to enhance their own professional growth with or without feedback from their mentors.

Student teachers can, by observing and interacting with teachers, develop their own skills and values, thereby working towards their own professional identity (Macdonald et al. 2014).

The objective of this research was to explore the role of reflection as a vehicle for SDL in WIL to develop the professional identity of student teachers. In this chapter, we focus on how student teachers used reflection when observing other teachers teaching as well as how they used reflection as a medium to reflect on their own lessons conducted at school.

■ Literature review

In this section, reflection, metacognition, SDL and professional identity are discussed.

■ Reflection

Reflection involves metacognition, and these concepts are deeply intertwined in the discourse of teaching and learning (Kaplan et al. 2013). Therefore, it is important to keep in mind that although the two concepts are discussed separately, they are, in fact, interlinked. Ngugyen et al. (2014) compiled a comprehensive definition of reflection in their research in combining previous definitions used by scholars in the field. They focussed on the concept as well as the process. For the purpose of this chapter, the following definition is used (Ngugyen et al. 2014):

Reflection is the process of engaging the self in attentive, critical, exploratory and iterative interactions with one's thoughts and actions and their underlying conceptual frame, with a view to changing them and with a view on the change itself. (p. 1182)

According to Epstein (2008), to reflect is to achieve access to insights and views that would fade away under normal circumstances. Once we reflect, we better our position to change these insights and views. The aim of this research was to explore the ability of student teachers to develop habits of mindful

practices and reflective activities, thereby augmenting their own professional identity through SDL. Killen (2015:121) stated that 'reflection is a form of inquiry through which teachers can question their actions, the context in which they teach, and all the influences on those actions and contexts'. In this research, the purpose of reflection during WIL was for student teachers to observe teaching practices and, in the process, improve their own approaches to teaching and learning. The student teachers could then enhance their knowledge of practice by re-evaluating what they observed or did in practice (cf. Loughran 2002). PCK, as conceptualised by Shulman (1987), included reflection as the final step of critically analysing the teaching methodology that took place and the performance of the class. The other components were the comprehension of what to teach, the transformation of the subject matter to make it available to the learner and to fit the learners' characteristics through instruction using different strategies and, after that, the evaluation of the learners' understanding and the teacher's performance (Niess 2017).

As there are different perspectives of teaching, including the technicist views of teaching (favouring the reflection of the technical aspects of teaching) and the liberatory views of teaching (favouring reflection on the moral, social, political and ethical factors that influence teaching), it leads to different perspectives about reflection (Killen 2015). Three separate levels of reflections are defined by Van Manen (1995), namely, the practical, the technical and the critical levels. Firstly, practical reflection was underpinned by Schön in 1983, where teachers focus on goals and make connections between principles and practice as well as the value of their goals (Killen 2015). Secondly, technical reflection is applied when teachers are apprehensive about the technical application of educational knowledge to uphold order and attain pre-set outcomes. The application of research-based knowledge is enhanced by better-quality reflective skills. Lastly, critical reflection takes place at a level where teachers become involved with matters beyond the

classroom (Killen 2015). According to Loughran, Mulhull and Berry (2008), reflection should lead the teacher to understanding a particular situation better, and together with that, he or she comes to view the practical setting in different ways. Through this reflective action, one's capability for reflection should develop.

This research focussed on critical reflection. Van Manen (1995) explained critical reflection as 'finding oneself'. The student teacher should develop and strengthen the ability to 'stand back' and acknowledge a variety of viewpoints (Etherington 2004). The student teacher's teaching practices or those whom he or she observes are then seen through different and questioning 'lenses'. Rinaldi (2006) was of the opinion that one should thus be prepared to be exposed to ideas and views that contradict one's own.

The role of a mentor who can guide a student teacher can therefore not be emphasised enough. Because of the complex nature of critical reflection, it cannot just be assumed that a student teacher will be able to critically reflect on his or her WIL experience. It is imperative that each student teacher has an expert mentor who directs him or her to an accepted level of self-reflection, using questions, comments and suggestions to reach a meaningful level of critical reflection (Yaffe 2010). Loughran (2002) stated that the adoption of reflection as a basis for education programmes is important. Student teachers should have the opportunity to augment their critical reflection ability while training and in a safe and supportive environment.

McLeod (2018:97) defined critical reflection as a 'metacognitive (reflexive) process that assumes and requires awareness and self-examination of what people do and think'. In the process, an individual gives thought to his or her own beliefs, emotions, assumptions, thoughts and actions, which will contribute to a sense of self-awareness that leads to the development of the individual. This process can be both difficult and uncomfortable because finding oneself and becoming self-aware is no easy process.

The challenges of reflection lie in being able to consciously reflect on one's experiences. Student teachers need to develop the habit of reflection, which is not always easy owing to involuntary defences coming into play when reflection challenges their perception of their abilities (Epstein 2008). However, it is important that the student teacher should realise that knowledge, content and WIL alone are insufficient to improve self-directed growth in student teachers' competence and comprehension of their professional identity.

It is therefore essential for the student teacher to foster reflection together with psychological mindedness. Psychological mindedness entails the understanding of one's experiences and thereby bringing about changes because purposeful, directed behaviour change accumulates by such insights brought on by reflection. Fostering reflection is a vital part of SDL (Grant 2001) because the student teacher should monitor and evaluate his or her experiences and observations during WIL constantly.

It is vital to remember that the reflection process does not come naturally, and the student teacher needs to be guided. Reflection, in general, is not as successful as one would expect, as methods to reflect have been inadequately applied. According to Husu, Toom and Patrikainen (2004), dialogue is a central aspect of guided reflection; therefore, reflection should occur while interpersonal interaction takes place. It is thus important to convey that one's thoughts and ideas would lead a person to clearly understand both the strengths and the weaknesses in his or her own thinking. It is thus clear that reflection and collaboration, such as in the form of group work, go hand in hand. According to Patrikainen and Toom (2004), particular tools are needed to reflect. It is important to remember that although only three tools are mentioned in this chapter, there are other tools that can also be applied in different situations or studies.

The three tools needed to reflect are hot-cool system analysis, guided reflection and specifying critical incidents. In the hot-cool system, two types of depictions of reflection are specified: one

fundamentally emotional and quick, and the other fundamentally cognitive and slow (Husu et al. 2004). The hot system represents the fast and on-the-spot reactions of teachers in the classroom, while the cool system is a narrative knowledge about emotions, thoughts and responses emerging into an intelligible objective. These two systems 'work in concert to produce interpretations that relate their essential characteristics to each other' (Husu et al. 2004:7). Guided reflection takes place when a specific situation, such as a lesson presented, is videotaped. An interview then takes place about the lesson, where the teacher or, in this case, the student teacher defines events and gives reasons for actions that have taken place. A reflective discussion will follow to prolong the reflection. The aim is to foster the student teacher's ability to reflect. Lastly, specifying critical incidents is used in various ways. These are ordinary, everyday incidents that are defined as critical because they are important to the student teacher for the purpose of reflection and analysing the situation. According to Husu et al. (2004), three things are of importance, namely, the willing introspection done by teachers regarding their own practice, the importance of colleagues' reflection on this particular situation and the timeframe needed to properly reflect and adjust perspectives, if necessary. By applying these tools and fostering the habit of reflection, student teachers will in effect develop their SDL skills.

The essence of self-directed behaviour change is the cyclic process in which the student teacher reflects on and evaluates his or her own professional competence and identity (Grant 2001). It is also important as to how the student teacher would then react to this feedback (Clark & Fairburn 1997). According to Killen (2015), student teachers can measure expectations about teaching practices and search for proof to validate their own approaches to teaching. Critical reflection and metacognition are continuously linked as part of a process of evidence and implication, seeking to evaluate one's own strengths and weaknesses in relation to SDL and professional development.

■ Metacognition

Metacognition is a self-reflective consciousness. According to Mair (2012), to develop into a more metacognitively aware student teacher, he or she needs to self-improve from reflective practice, as one's weaknesses as well as strengths need to be identified, evaluated and adapted continuously. Flavell (1979) first introduced the word 'metacognition' (Radoslav 2011) to explain the control of the cognitive processes concerning knowledge, experience and regulation (Kurt & Kurt 2016). Metacognition is a complex process. Vohs et al. (2014) described metacognition as a process of thinking about thinking by including several mental activities. For the purpose of this chapter, metacognition is a student teacher's knowledge about his or her cognition and the competence to deliberately use this process as meaningful feedback when critically reflecting on his or her WIL experience. The student teacher uses metacognitive control, which entails the strategies used to achieve particular learning goals (McLoughlin, Lee & Chan 2006).

According to Murdoch-Eaton and Whittle (2012), metacognitive skills are thought to be important for the continuous process of learning. It is thus imperative for the student teacher's SDL and professional development to meticulously self-assess and critically reflect. According to Boud (2006), self-assessment is more than a method to improve one's own learning; it is more challenging and transformative to established teaching than what meets the eye. When self-assessment is done openly and with critical reflection, it permits student teachers to see not only themselves truthfully but also the possibilities that lie before them in an alternative way. In order to self-assess meaningfully, one needs to be able to critically reflect on one's goals.

In the context of WIL, the professional practices of knowing and doing are also intertwined. According to the practical situation of WIL, in a school, two forms of reflection can occur. The first form of reflection is reflection-in-action, which is thinking in an interactive mode while the action takes place. The second

form is reflection-on-action, which takes place after the action has been completed (Dimova 2011). Reflection is thus critical thinking of one's own experiences. In the case of WIL, it can be either on the student teacher's own actions or the actions of teachers he or she has observed.

Reflective activity is essentially constructive and leads to identification with the outcome of an action, either good or bad. The aim of this reflection on the student teacher's WIL experience was not only to further understanding but also to transform his or her experiences into a process of learning. Reflection as a metacognitive process then becomes a vehicle for enhancing SDL in the development of the student teacher's professional identity.

■ Self-directed learning

The concept of SDL has been discussed in detail in Chapter 5, but for the purpose of this chapter, SDL is seen as the characteristic of people 'who are deeply curious' and want to learn in such a way that what is learnt makes sense and contributes to a 'sense of personal agency' (Bull 2017:1). Bull (2017) argued that the ability to ask questions and seek information is a way of managing and directing one's own learning, and by deepening one's understanding by the questions that one asks oneself, some new answers may be discovered. Teachers will play a role in this endeavour but it is no longer an essential part of this learning experience. The mindset to embrace self-direction will enhance life and learning. Knowles (1975), who first defined the concept SDL in 1975, described SDL as a:

[P]rocess in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes. (p. 18)

In the cycle of SDL described by Ambrose et al. (2019), reflection is one of the steps, where students should 'reflect on their

performance and assess their strengths and weaknesses'. To reflect requires metacognitive skills, as has been discussed earlier. When students are able to use curiosity towards self-direction, it will also lead to the development of their professional identity. However, to get to that point of learning through self-direction and professional development, it is necessary to reflect critically, as it is part of the self-directive process. Thornton (2013) stated that teachers (and, in this case, student teachers as well) should have the ability to reflect systematically and critically upon their own TP in order to improve their teaching. Radoslav (2011) and Killen (2015) both agreed with Thornton.

Reflection as a metacognitive process then becomes a vehicle for enhancing SDL in the development of student teachers' professional identity. Professional development will occur when student teachers take ownership of their own learning by identifying their learning needs and goals as well as their learning resources and, in this process, evaluate their own learning process. By going through these steps, student teachers will be able to construct their own professional identity. If student teachers were to take responsibility for their own professional development, they would certainly self-assess their own learning goals (Boud 2006).

■ Professional identity

According to Flores and Day (2006:220), identity is seen as 'an ongoing and dynamic process which entails the making sense and (re)interpretation of one's own values and experiences'. This will contribute to the development of a sense of professional identity for student teachers, as they move towards self-efficacy and motivation in the teaching profession (Körkkö, Kyrö-Ämmälä & Turunen 2016; Soini et al. 2015). Teachers' professional identity is formed within multiple contexts and in relationships with others. The relationships an individual is involved in are emotionally loaded, and therefore the identity can change over time and can be constructed and deconstructed (Vidović & Domović 2019). Körkkö et al. (2016) distinguished between the

different identities of a teacher, which include the following: the *actual identity* of the teacher, reflecting the teacher; the *ideal identity*, which forms part of the hope and goals of the teacher; and the *norm identity*, which reflects the kind of teacher the individual should be.

It is clear from research having been done that the development of a professional identity and the role that reflection plays in this process are two intertwined concepts. It is through reflection that student teachers are able to construct their professional identities (Marín, Tur & Challinor 2017). Initial teacher education should be the starting point for student teachers to develop their professional identities after the school experience and the apprenticeship of observation, which was coined by Lortie in 1975. According to Ezer, Gilat and Sagee (2010), the development of the professional identity of student teachers is part of the focus of making teaching a practical, reflective occupation. It is important for prospective teachers to use reflection to grow in their own practice and develop their own professional identity as teachers. Having a WIL experience during the years of study is imperative to help student teachers to be reflective practitioners.

By using reflection, both teachers and student teachers will get to know their own professional development by asking questions such as, 'how do I improve this process of education here?' or 'how do I modify my problems, ideas and actions in light of my evaluations?' (Yaffe 2010:382).

Three models of teacher education are described by Ezer et al. (2010). The first model is focussed on the scholar as being professional in his or her teaching with the emphasis on the translation of ideas. The second model focusses on the teacher as a nurturer and the relationship between the teacher and the learner. This research aligns with the third model, namely, the reflective-adaptive model, as it aligns with the mentioned model where the teacher is reflective and able to adapt to the situation because reflection has taken place and the teacher is equipped with the necessary knowledge and skills to make professional

decisions to change his or her plan easily. The professional identity of the teacher is the focus in this model.

Research over the years about the experience of beginner teachers has shown the importance of better preparing student teachers for the reality of the teaching profession. One of the ways of doing so is by training student teachers to reflect even when they are still in training. This will also help them develop their own professional identity (Flores & Day 2006). The transitions that student teachers will be going through make reflection a necessity and help them to cope with the reality of the teaching profession, which entails a continuing analysing of their own beliefs and practices (Flores & Day 2006). By becoming a reflective professional, the student teacher will also be able to act as an agent of change by reflecting upon the difficulties of classroom practice and the ability to stand back and see different perspectives. Because student teachers are focussed on themselves in the classroom and trying only to cope and survive, the development of their professional identity in the beginning is focussed on teaching from their own perspective (Buitink 2009). Therefore, it is important to help student teachers to develop the skill to reflect on their own teaching and what they experience during WIL in order to grow as individuals and shape their professional identity. It will also serve as an opportunity for an individual to be able to adapt to the environment as he or she grows and develops as an individual. The perceptions of their own professional identity affect student teachers' efficacy and professional development as well as their ability and willingness to cope with educational change and to implement innovations in their own TP (Beijaard, Verloop & Vermunt 2000).

According to Soini et al. (2015):

[R]eflecting on one's teaching and modelling, i.e. learning through observing and following a more experienced teacher, was the strongest component of the student teacher's sense of professional agency in classroom. (p. 651)

Professional development will occur when students take ownership of their own learning and accept responsibility for

their own actions and thoughts. Taking ownership and being motivated towards one's own learning may result in being a self-directed learner (Bih Ni 2013).

It is thus clear that the theoretical lens of social constructivism is used in this chapter, as the actions between the student teachers and the lecturers, in the first place, and the interactions between the student teachers and the teachers they observe take place in a social domain, namely, the university and the school to be socially constructed. The process of reflection is the vehicle used to socially construct the interaction and growth in the student teachers.

■ Research methodology

This research focussed on the use of reflection to develop student teachers' own professional identity during the WIL period. The three questions that guided this research were:

1. How do student teachers perceive the development of their own professional identity?
2. What is the role of reflection during WIL to enhance SDL?
3. How does reflection promote the development of professional learning goals for student teachers?

■ Research design

A qualitative interpretive approach was followed to explore how student teachers used reflection when they observed teachers in the classroom. This research followed a purposeful sampling technique, which targeted first-, second-, third- and fourth-year students in the NWU, Faculty of Education. All the research is based on the reflections of the student teachers during the WIL period, whereby they had to submit a reflection journal after their WIL period.

A three-pronged approach was followed. Students in their first year attended a POP (see Ch. 8) to prepare and train them

for their first WIL experience later in the academic programme of their first year. The programme consisted of different themes to cover all the aspects of the profession they were about to enter. One of the themes was 'Development of professional identity: self-reflection, self-care, self-survival'. During the facilitation of this theme, the students were requested to compile a collage demonstrating the following: their personality; the things they really enjoy doing; major events in their life; major beliefs and values; and concerns. Afterwards, they did self-reflection on the activity and how it contributed to the development of their professional identity.

Students in their second, third and fourth years had to observe teachers in their classrooms while teaching, during the three-week WIL session in the second semester of every year. As schools have the prerogative to place student teachers with a specific teacher and within a specific subject during the WIL period, the guiding questions that the student teachers had to observe were open-ended and not restricted to a specific subject. These questions guided the student teachers to support them in their observation process. They were requested to identify the context of the topic as well as the context of the learners in the specific classroom. The student teachers had to describe the teaching and learning strategies they observed and indicate how these strategies could contribute to their own professional development. It was envisaged that they would be able to identify positive and negative trends in the teaching and learning methodology and would be able to indicate in their reflective notes as to how they would improve the lesson to enhance their own professional growth. They were requested to observe three different lessons and use the guiding questions for their reflection on each lesson.

Fourth-year student teachers, who conducted their own lessons, were assessed by either the classroom teacher or the university lecturer. These students had to reflect on three of the lessons they had presented themselves. Their reflection had to follow the DATA process for reflection, as described by Peters (1991). The DATA process of reflection includes the following

steps: After the student teachers had conducted a lesson, they had to reflect on their lesson and *describe* what positive or negative attributes had been present in their lesson. Then, they had to *analyse* these aspects to make meaning of these and think what might have contributed to the different attributes they had identified. The following step required from the student teachers to *theorise* and come up with ideas on how they could improve the negative aspects they had identified. Lastly, they had to *act* to implement the changes they had identified in their next lesson. It was further required of these students to indicate how they had addressed any misconceptions or uncertainties of learners within the lesson itself.

Data were gathered from posters the first-year student teachers had made and from the reflective journals kept on the three lessons that had been observed by the second-, third- and fourth-year student teachers. Data from reflective journals kept by the student teachers who had conducted their own lessons were also incorporated. The data were already in a transcribed form, and the posters and reflective journals were then coded and categorised and the themes were awarded to the different categories, as described in Saldaña (2013).

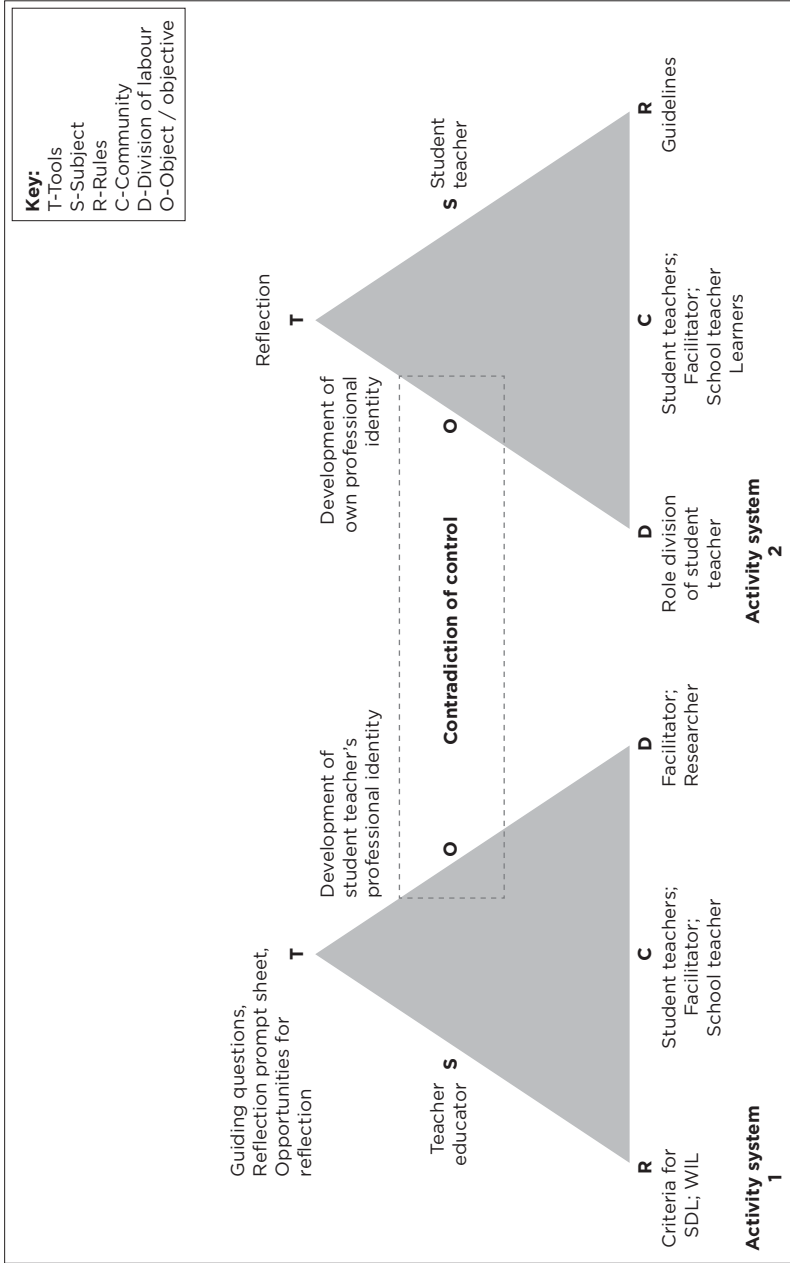
■ The third-generation cultural-historical activity theory as research lens

The third-generation cultural-historical activity theory (CHAT), as described by Engeström (1987), was used as a research lens to analyse the data, similar as in the research described by White (2019:395). Using CHAT as a research lens has the advantage of identifying possible tensions within the activity system (Engeström 2001), which point out either conflicts or innovation within the activity system as a whole. An added advantage of the use of CHAT as a research lens is that individual actions can be explained in the context of a larger activity (Hashim & Jones 2007). In this research, CHAT was used on an interpersonal plane,

as described by Mentz and De Beer (2017). The two sub-activity systems functioned as the unit of analysis.

■ **Activity system 1: Teacher educator's perspectives**

Activity system 1 focussed on the teacher educator as the subject (Figure 9.1). The first-year student teachers were introduced to the reflection process by a short discussion during the POP and by developing a poster during which they had to reflect on the type of teacher they envisaged themselves to become. Second- and third-year students received a prompt sheet containing a questionnaire they had to use as guidance to support them in the reflection process during the WIL period. Reflection forms part of the outcomes of the curriculum of the fourth-year student teachers; therefore, the process of reflection using the DATA principles was discussed in-depth in the classroom. The object of this activity system, as visualised by the teacher educator, was that the student teachers would be able to critically reflect when observing teachers in the classroom and use this reflection to shape their own professional identities. A reflective journal compiled by the student teachers of their classroom observations would inform the teacher educator to what extent the student teachers were able to use the reflection process in shaping their own professional identities. Student teachers, the teacher educator and school teachers formed the community, in that the student teachers had to observe the teachers in the classroom and could ask the teachers questions when they needed more clarification on particular processes. After the WIL period, the teacher educator also used the reflections of the students for additional support to lead discussions on the development of the student teachers' own professional identity. It was envisaged that the fourth-year students would be able to reflect on their own lessons they had conducted and by critical reflection would be able to adapt their teaching strategies accordingly, thereby developing their own professional identity. The criteria for SDL functioned as a set of rules, as student teachers are subjected to SDL as a process in their own training at



Source: Adapted from Mentz and De Beer (2017).

FIGURE 9.1: Cultural-historical activity theory on a personal plane (adapted from Mentz & De Beer 2017). Activity system 1 refers to the teacher educator's perspectives while activity system 2 refers to the student teacher's perspectives.

the university. This reflection process only occurred during the WIL period, which also acted as a rule for the activity system.

The role division of the teacher educator, in activity system 1, moved between that of a facilitator of learning for the student teachers and that of a researcher. The role of the researcher focussed on whether the student teachers were able to use reflection in shaping their own professional identities.

■ **Activity system 2: Student teachers' perspectives**

Activity system 2 focussed on the student teachers as a subject, who had to compile reflective journals by either observing teacher lessons or reflecting on their own teaching to reach the object of developing their own professional identity through the process of reflection. The first-year student teachers had to develop a poster, where they had to identify aspects that they regard as important for the development of their own professional identity. Reflection and compiling a reflective journal acted as the tools of this activity system. The community encompassed the student teachers, facilitators and school teachers as in activity system 1, and it also included the learners in the classroom. The role division of student teachers encompassed that of a reflective observer of lessons or a reflective student teacher who acted as a facilitator of learning. The roles also incorporated a student as a self-directed learner. The rules of this activity system refer to the guidelines for the critical reflection, guidelines for SDL and the guidelines for the WIL experience with which the teacher educator provided the student teachers.

The subjects of the two activity systems do not always have similar views of the object, which is described by McNeil (2013:209) as the 'contradiction of control' between the two systems. In activity system 1, the teacher educator foresaw that the student teachers would use critical thinking when they reflected on the lessons to develop their own professional

identity. If student teachers would comply with this expectation, the objectives of the two activity systems would be the same and no contradiction of control would be identified. If the student teachers on the other hand were not able to critically reflect on the lessons and use this information to develop their own professional identity, the objectives of the two activity systems would differ, and it then will indicate a contradiction of control between the two activity systems.

This research formed part of a larger research project, which received ethical clearance. The purpose of this research was explained to the students, and those who wished to participate in the research completed a written consent form, which was distributed to them by an independent researcher. All students however had to complete the assignment on reflection, as it formed part of their curriculum, but only information of those students who gave their voluntary consent were used for this research.

■ Data analysis and findings

The themes that emerged from the analysed data are discussed below, indicating the tensions that were identified in the activity system.

■ First-year student teachers showed naïve preconceived views on teaching

Tensions were evident between the subject and the object in activity system 1. It was clear that the first-year student teachers had many preconceived or idealised views on teaching, for example, that ‘teaching is more than just book knowledge, but the instilling of values’ (Student teacher, undisclosed gender, date unknown) and that ‘a good [*sic*] educated child can change the world’ (Student teacher, undisclosed gender, date unknown). The first-year student teachers felt that they had a passion to teach and wanted to make a difference in the lives of children.

One student made the remark that she ‘wants to be a good teacher that means more to children than only a prescribed curriculum’ (Student teacher, undisclosed gender, date unknown).

Some of the first-year student teachers also saw it as their calling to become a teacher, as they believed that they made the choice to become a teacher; one of them indicated ‘don’t take your calling for granted, thankfulness is an important value’, while another mentioned that she ‘wanted to change lives permanently through love and caring’.

Comments made by the first-year students did not reflect the reality of the responsibilities of a teacher but rather encompassed vague ideas, such as ‘we have a responsibility to foster a positive attitude towards all “things” in learners’ and that it is ‘an important responsibility to portray love in my class’ (Student teacher, undisclosed gender, date unknown). The first-year students portrayed a more idealistic frame of mind when they discussed the development of their own professional identity.

Some of the first-year student teachers viewed the teaching profession as overwhelming, making statements such as ‘I am afraid that I will learn in a wrong way’ and ‘Will I be able to cope with the amount of work a teacher has?’ (Student teacher, undisclosed gender, date unknown).

■ **Second-year student teachers held uninformed views of teaching and learning strategies, and often reverted to ‘chalk and talk’ approaches**

Tensions were identified between the subject and the tools in activity system 1. Some of the student teachers in their second year did not realise that the teaching and learning strategies that they were exposed to at the university were important in the classroom. Many of the second-year student teachers fell back on Lortie’s apprenticeship of observation (1975), where they reverted back to

‘chalk and talk’ approaches, which they themselves were exposed to when they were still learners at school. These student teachers were unable to distinguish between poor and good teaching practices. One student teacher reported as follows on a lesson:

‘The teacher made use of guided reading and writing. The teacher read the work and the learners copied it down in their notebooks ... It can contribute to my professional identity because it will teach me how to have patience because not all learners write or hear all the same and you will have to wait for certain learners’. (Student teacher, undisclosed gender, date unknown)

■ **Third- and fourth-year student teachers held more nuanced views of teaching and learning strategies, and showed more evidence of critical reflection**

These student teachers observed that when learners worked cooperatively in groups, the teacher made use of scaffolding activities to support the learners’ work. In this instance, a student teacher realised that the lecture method was not suitable and indicated: ‘This strategy can contribute to the development of my professional identity in terms of being the teacher that allows learners to think critically instead of spoon-feeding them with information’. Self-directed learning was evident in some classrooms, which encouraged some student teachers to promote this process in their own classrooms: ‘... the educator utilised the Self-Directed Learning strategy. In future I would also like to utilise this strategy – giving the learners room to take responsibility for their own learning ...’ (student teacher, undisclosed gender, date unknown). Although the student teachers recognised SDL, they were still unfamiliar with the concept, as SDL is not a strategy but a process, as described by Knowles (1975). Another third-year student teacher indicated that ‘[m]ost of the time it was [the] direct teaching method. Learners can lose focus or

concentration when they are not given something to work on. They were passive' (student teacher, undisclosed gender, date unknown). Inappropriate teaching strategies also shape the professional development of a student teacher, as by observing incorrect strategies, they can decide to use different strategies when they become a teacher. One of the student teachers stated:

'The teacher mainly used direct teaching. The lesson was not interactive at all and the majority of the class was passive. The questions asked by the teachers are mainly aimed at the front row of learners in the class, the rest of the learners were not involved and somewhat demotivated. This strategy was therefore ineffective and personally I would not like to incorporate these strategies in this way'. (Student teacher, undisclosed gender, date unknown)

Critical reflection allowed the student teachers to compare different teaching and learning strategies: 'By observing the teacher where they offered both, non-interactive lessons and interactive lessons, I could clearly see the difference in learners' enthusiasm and willingness to learn' (student teacher, undisclosed gender, date unknown). The fourth-year student teachers were able to use and reflect on their own learning at the university when observing a game as a teaching strategy:

'I think the game as I observed it showed a side of learning that have been vigorously taught about the past four years in the university that learners respond better to much more interactive and fun activities as compared to those with old style teacher-centred activities'. (Student teacher, undisclosed gender, date unknown)

The student teachers also observed that they had to adapt their teaching methods to suit the specific content of a lesson (which refers to PCK as described by Shulman [1987]), as indicated by this fourth-year student:

'Observing a professional while they present a lesson helps me to spot which methods are suitable for what kind of topics. All the methods do not necessarily go hand in hand with all the topics'. (Student teacher, undisclosed gender, date unknown)

Although some fourth-year student teachers were able to identify more interactive strategies when they observed lessons by teachers, they tended to fall back on the direct teaching method when they were exposed to teaching themselves: 'I was using a direct instruction and questioning method. My learners were just passive'. Another student teacher indicated:

'While I was busy teaching, what happened is I forgot most of the things that I had to teach and every time I felt like I had forgotten something I would read out of the textbook'. (Student teacher, undisclosed gender, date unknown)

When the student teacher reflected on her own lesson, she indicated: 'I did not prepare enough for that lesson ... I would have to prepare well for my lesson ... and make keynotes/cards for myself' (Student teacher, undisclosed gender, date unknown). This is in line with Loughran's (2008) description that through reflection, a teacher (in this case, a student teacher) should be able to reflect on a situation and adjust accordingly.

Some of the student teachers, true to the professional identity that they envisaged for themselves, applied a cooperative teaching strategy in the class, only to come up against obstacles, as the learners had not been exposed to cooperative strategies before:

'[W]hen I asked the learners to use the jigsaw method to explain the three types of skeletons to each other ... because the learners were constantly asking what to do if they had not used the jigsaw method before'. (Student teacher, undisclosed gender, date unknown)

Lifelong learning, as described by Murdoch-Eaton and Whittle (2012), is also important for the development of an own professional identity, as this student teacher indicated:

'In my opinion, gaining self-confidence and developing teaching ability are closely related. It is important to deepen my understanding of learning and teaching, by finding out about the latest learning and teaching theories, and trying out new teaching practices. The more I develop my teaching ability, the more confident I will become [at] learning and teaching ... this can be achieved by reading about teaching and learning, attending seminars and workshops regularly and enrolling on methodology courses ...'. (Student teacher, undisclosed gender, date unknown)

■ **Second-year student teachers were unable to identify appropriate teaching resources**

Some second-year student teachers were unable to identify suitable learning resources, as one commented: 'The teacher created a worksheet summarising the work. It is easier for the learners to learn for the exam ... The textbook is thick and [has] very long paragraphs' (student teacher, undisclosed gender, date unknown). Second-year student teachers were unable to recognise the significance of addressing important skills for the 21st century, which Wagner (2014) referred to. These student teachers rather regard teaching to the test and preparing students for the examination by summarising the content as important teaching resources for learners. This identifies a tension between the subject and the object of activity system 1 and does not foster SDL.

■ **Fourth-year student teachers recognised the importance of contextualised learning**

To contextualise learning, one teacher made use of brochures. The student teacher responded as follows on using this method:

'The use of brochures indicates that the teacher researched the topic and gathered more information that is useful to the learners. This helps me to think of ways to be resourceful and to keep the information updated constantly'. (Student teacher, undisclosed gender, date unknown)

Another student teacher reported on a content lesson that addressed financial matters. The teacher contextualised the lesson by using examples of commercialised banks where the learners had to decide which bank would be suitable for them to deposit their money. The third-year student teacher said: 'What I learned from the teacher in the lesson was to always think outside the box if possible to make the work more enjoyable and easier for the learners' (Student teacher, undisclosed gender, date unknown). One of the student teachers observed that expensive sources were not necessary to conduct a good lesson:

‘[7]he lesson does not need expensive equipment to be the best, the teacher can still use what is readily available and use it to get one of the best lessons out of things that cost close to nothing’. (Student teacher, undisclosed gender, date unknown)

The student teachers also realised that they had to adapt to the new generation to attain the learners’ interest, as one indicated:

‘We as teachers can plan our lessons in such a way that we not only provide activities and passages on paper but activities where they [*the learners*] have to search the information on the internet. Games that require pen and paper should change in such a way that it can be played on electronic devices on a daily basis because that’s how our generation’s learners learn and understand things’. (Student teacher, undisclosed gender, date unknown)

This was the student teacher’s reflection after he realised that the learners had lost interest in his class and he then changed his strategy in the classroom in order for the learners to find information on the Internet, which they enjoyed.

■ **Fourth-year student teachers identified that suitable classroom management is conducive for the learning process**

Tension within the activity system was evident between the subject and the community, where the student teachers observed the behaviour of the in-service teachers in a classroom setting. The student teachers indicated that by observing negative behaviour of teachers, their own professional identity was shaped in that they could envision how to address negative issues differently when they would be teaching themselves:

‘[/]f the teacher is derogatory if a learner answers a question incorrectly or completely ignores poor learner behaviour ... you will therefore be motivated in a professional way not to exhibit this behaviour in a classroom’. (Student teacher, undisclosed gender, date unknown)

Classroom management is an intricate process, and student teachers realised that different aspects contribute to successful management:

‘This teacher also uses positive discipline (rewarding learner/class on good behaviour) and is always prepared for her lessons. I can see that this is an effective way to manage discipline in the classroom and [I] would like to be able to establish a positive discipline in my classroom management strategies’. (Student teacher, undisclosed gender, date unknown)

Some fourth-year student teachers experienced difficulties in controlling the classroom discipline when using group work, as the learners were only used to direct teaching methods:

‘The learners had to work in a group context ... During the lesson it was difficult to keep all the learners focussed on the lesson and sometimes the class discipline was not satisfactory. The learners were exposed to another form of education. The learners are accustomed to just being taught by the teacher, only reading the information in the classroom’. (Student teacher, undisclosed gender, date unknown)

Aspects such as these resulted in the students finding it difficult to develop their own professional identity, as the teaching practices they observed differed from what they had been exposed to at the university.

■ **Student teachers, as they progressed with their degrees, became more aware of the role of observation and critical reflection**

The second-year student teachers were also uncertain about their own abilities as teachers, as indicated after observing a lesson conducted as a lecture method: ‘For someone like me who is still learning, I do not think I would have presented the lesson in a different way ...’ (Student teacher, undisclosed gender, date unknown).

The student teachers in their fourth year became conscious that they had to consider both positive and negative aspects of the lessons that they had observed, as indicated by the following remark:

‘Observing another professional is important to one’s identity in a sense that you can pick up which strategies are more effective and identify the gaps. Once the gaps that are interfering with the effective teaching and learning are identified, it makes it easy to make changes and using strategies that are more suitable and engaging the learners effectively, thus making the lesson enjoyable for everyone’. (Student teacher, undisclosed gender, date unknown)

Tension could be identified within the community. The student teachers realised that professional teachers could support them in their own development, as indicated by this comment:

‘Any teacher older than me obviously has more experience in the profession than I do. I will therefore ask for advice on how to solve problems and hear what his or her opinion is regarding other situations in order to develop my profession to the best of my ability’. (Student teacher, undisclosed gender, date unknown)

This links to the ZPD, where Vygotsky explains that the ZPD is the distance between the actual space of a person in a specific point in time and the possible development (in this case, the development of an own professional identity) through scaffolding of a more competent peer (in this case, an in-service teacher [Veresov 2009]).

The student teachers also became aware of the difficulty to teach in a multicultural classroom in the South African context, as one third-year student teacher indicated:

‘The learners are exposed to an environment where there [are] different kinds of tribes, for example, Xhosas, Zulus and Tswanas. This on its own makes teaching and learning difficult because other tribes consider themselves to be more superior to other tribes’. (Student teacher, undisclosed gender, date unknown)

The student then described how this would have an impact on his own professional development: ‘And learners should be individually known and provided with the necessary attention’.

■ Fourth-year student teachers provided evidence of critical reflection, which guided the development of their own professional identity

Tension was evident within the node of the role division. The fourth-year student teachers would embark on their new role as teacher in the upcoming year. A student teacher indicated as follows when observing a lesson:

‘This lesson made me realise that my current life role is a student, but in the eyes of the learners, I am a professional. The learners respected me as a professional and I began to think of myself as a professional. The lesson gave me clarity on how my life is changing as I am near the end of my studies’. (Student teacher, undisclosed gender, date unknown)

Some student teachers were able to reflect critically after they had conducted a lesson. They were able to identify problems within the classroom but did not always know how to address the problem:

‘While learners were busy with the worksheet, they asked too many questions to me as the teacher. They did not give themselves a lot of opportunity to think and discover for themselves ... as a result I was constantly running around the classroom trying to get to all the learners who had questions’. (Student teacher, undisclosed gender, date unknown)

The student teachers also came to the realisation that being a professional teacher encompasses a large amount of work:

‘Many students have the misperception of a teacher’s duties and preparations. By observing it yourself, the student can be made aware of it and can prepare him- or herself for those responsibilities’. (Student teacher, undisclosed gender, date unknown)

Another student teacher commented: ‘Observing other teachers is a key part of development; it improves teachers’ own self-awareness of their skills and also makes managers more effective at identifying areas for further growth’ (Student teacher, undisclosed gender, date unknown).

■ **Materialisation of contradiction of control between activity system 1 and activity system 2**

The findings indicated that fourth-year student teachers were able to reflect critically on the observed lessons and on the lessons that they conducted themselves in the classroom. The object of activity system 1 and activity system 2 was therefore similar, which does not indicate a contradiction of control between the two systems.

However, some second-year students were not able to reflect critically on the three different lessons that they had to observe. They indicated the different content of the lessons they had observed, but the feedback on the three different lessons was exactly the same. These student teachers were unable to distinguish among the different teaching and learning strategies that the teacher had used and were unable to identify good strategies in the classroom to foster their own professional identities. A second-year student teacher reported: 'Direct instruction consists of drilling and practising the work content ... these strategies will also be effective for me during the teaching and learning phase' (Student teacher, undisclosed gender, date unknown). The student teacher then continued that when learners were busy with homework or learning activities, which she called *independent learning*, she would be 'able to perform administrative tasks during the independent learning strategy' (Student teacher, undisclosed gender, date unknown), indicating that she was forgetting the role of the teacher as facilitator.

Contradictions of control were, however, evident between the two activity systems, firstly, owing to the naïve preconceived views on teaching of first-year student teachers. Secondly, second-year student teachers were not able to critically reflect on the observed lessons, and this had a negative impact on the development of the student teachers' own professional identity.

■ Conclusion

As the POP was intended to prepare the student teachers for the reality of the WIL, it was evident that the first-year student teachers were very naïve in their understanding of their own professional identity. During the POP, the students were asked to individually create posters to foster ideas that would contribute to their own professional development. The researchers are of the opinion that student teachers should instead learn together in order for them to discuss and expand on their own ideas to enhance their views on how they envisage their own professional development. This is in line with research by Aljafari (2019), where students were able to develop their own value system if they had different alternatives to choose from.

The student teachers identified the implementation of teaching and learning strategies, the implementation of suitable teaching resources and putting appropriate classroom management strategies into operation as useful strategies to develop their own professional identity. It was evident that the second-year student teachers were unable to reflect critically on the observations that they had made, and owing to Lortie's (1975) apprenticeship of observation, they linked observations of direct teaching strategies to their own experiences and regarded those as the norm of teaching.

As the second-year student teachers were unable to reflect critically when observing a teacher in the classroom, more scaffolding should be built into their learning before the students have to observe teachers in the classroom. Research done by Bature and Jibrin (2015) indicated that pre-discussions as a form of scaffolding prepare individuals before they attempt a new activity. The reason for the fourth-year student teachers being able to reflect more critically when they observed the lessons might be owing to the discussions they had had on reflection prior to the WIL period. They were also able to distinguish

between poor and good teaching practices and could voice how these practices could support them in developing their own professional identity.

This research revealed that first-year student teacher's views were very naïve when reflecting on their own professional development. Second- and third-year students were to a larger extent able to recognise the importance of reflection while fourth-year students were able to reflect more critically, which guided the development of their own professional development.

The role of work-integrated learning excursions in preparing student teachers for diverse classrooms and teaching social justice in South African classrooms

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■ Abstract

The National Development Plan reports that alongside poverty and unemployment, divided society is a primary concern facing South Africa. The foremost challenges facing teacher education today is (Cochran-Smith & Zeichner 2005):

[P]reparing teachers with the knowledge, skills, and dispositions to work successfully with an increasingly diverse student population, particularly those whose cultural, racial, language, sexual orientation, and ethnic backgrounds are different from the teachers' backgrounds. (p. 57)

It is, therefore, imperative to prepare the student teachers for an inclusive classroom that addresses issues concerning diverse populations. This chapter explores how WIL excursions can address issues of diversity outside of 'clinical' lecture halls. A specific focus is on how the excursion ensures student teachers' awareness, exposes their cultural bias and helps them to identify personal barriers to teaching for diversity.

All excursion activities followed a pedagogy of play (student teachers engaging as *Homo ludens*, the 'playing human'). The activities were scaffolded using engaging pedagogies to optimise active learning and reflection by student teachers. One activity, the 'famine abundance game', was used to help student teachers to reflect on their context and understandings of 'privilege' during the game. The PPC model of SDL was used in a unique way to contextualise the WIL excursions. This qualitative, interpretive study used questionnaires, interviews and student artefacts as data sources. Saldaña's coding technique was used to establish themes. This chapter is embedded in social constructivism, and the ZPTD was used as a theoretical framework. The findings of this study indicated that the activities did sensitise the student teachers about social justice issues prevalent in the South African classroom. Student teachers identified their own developmental needs in this regard, as SDL underpinned the excursion.

Keywords: Inclusivity; Social justice; Student teacher learning; Professional development; Work-integrated learning; Excursions;

Self-directed learning; Zone of proximal teacher development; Dramatical collisions.

■ Introduction

■ Background: Our young democracy remains an unequal society

Nelson Mandela once said (citing Marongwe & Mawer, 2015):

Education is the great engine of personal development. It is through education that the daughter of a peasant can become a doctor, that the son of a mineworker can become the head of the mine, that a child of farm workers can become the president of a great nation... (pp. 145-146)

Unfortunately, in a country rooted in division and socio-economic inequity, many South Africans may not realise the benefits of education. According to Jansen (2019):

[A] black child born to poor parents in a deeply rural area while attending a dysfunctional school on average has little to no chance of escaping a life of poverty despite the education received. (p. 360)

Spaull (2019) added that a child's race, birth area and parental wealth determine the child's educational opportunities. A much darker side of this inequality in South Africa is the socio-economic status that has led to many rural black children attending schools that are under-resourced and where many of the teachers are also under-qualified to teach (De Beer 2008). Many schools with low-quality education become a poverty trap for South African learners (Spaull 2015). It is not surprising that 'the youth unemployment rate in South Africa is staggering' (Sebotsa, De Beer and Kriek 2019:339). From the fourth quarter of 2018 to the first quarter of 2019, unemployment rose from 54.7% to 55.2% (Stats SA 2019). These statistics support our claim that most South African learners' educational outcomes are imperilled from birth. It is only by a stroke of luck that a daughter of a peasant can become a doctor or the son of a mineworker can become the head of the mine.

It is disenchanting that education is one of the many challenges contributing to South Africa's divided society (National Development Plan 2011). The World Bank report that South Africa continues to be the most unequal country in the world (Lustig 2016), with a Gini coefficient of 0.63 (Sulla & Zikhali 2018). Gini coefficient is a statistical measure used to gauge economic inequality amongst a population (Sulla & Zikhali 2018). Most South African learners are not privileged with good educational opportunities and schooling. Spatial planning in the apartheid regime was intended to divide people by race. Therefore, schools were established to educate black, white, people of mixed race and people of Indian descent differently. Petersen and De Beer (2019) are of the opinion that in spite of having abandoned the apartheid policies post-1994, the current dispensation maintains the socio-economic divide. For example, out of 200 excelling schools in South Africa, 185 schools remain former white-only schools (Spaull 2019). Most of these schools remain economically elite, well-resourced, well-staffed and geographically inaccessible. Excelling schools are located away from many townships, making access to quality schools difficult for the majority of South African learners. This divided educational system has implications for student teachers as well. Firstly, a large percentage of black student teachers come from socio-economically marginalised schools. Secondly, a minimal chance exists that a black and a white student teacher can attest to the same or similar educational experiences and outcomes. While race was the determining factor of educational opportunity during apartheid, nowadays both race and class are key determinants (Spaull 2019).

In light of the role education plays in a democratic society, teacher education in South Africa remains characterised by the lack of change. This is in spite of replacing the apartheid state with a united, non-racial, non-sexist and democratic South Africa in which the people shall enjoy equal rights (African National Congress 1991). What has been evident in the last 25 years is a challenge of equality and equity, particularly in many poorly resourced schools with poor educational outcomes. South Africa has embraced the insignia of the rainbow nation as 'a cocktail of

South African cultures' and a sign of new beginning post-1994 transformation agenda. The reality of the rainbow nation has implications for South African classrooms.

To redress the social ills and inequalities inherent in a divided educational system, the present government has instituted transformational policies that seek to have a united South Africa for all. Spurring this transformation along was the #FEESMUSTFALL campaign. Student protesters forced universities across the country to close down. University buildings were damaged as violent demonstrations continued for weeks and months. The protests expressed the level of frustration students felt towards the glacially slow pace of transformation in South African higher institutions (Heleta 2016). The transformation agenda has met challenges in transforming schools while meeting the demands of privileged citizens as well as previously disadvantaged citizens. De Beer, Petersen and Dubar-Krige (2011) noted that another challenge has been skilling teachers to work in diverse classrooms. This is primarily attributable to the two dissimilar education systems designed for the elites and the poor, respectively. Spaul and Pretorius (2019:156) referred to this educational system as 'a two-tiered bi-modal schooling system', with high-performing schools (about 20%) at one end of the achievement spectrum and low-performing schools at the other end (about 80%). It should, therefore, be a joint commitment from the government and the universities to work towards transforming education into an inclusive system for all South Africans. One of many ways to redress social inequity is through pragmatic reform, aimed at skilling student teachers to thrive in a diverse South African classroom.

■ A need to address issues of social justice and diversity in teacher education

Teaching in a diverse classroom is inevitable in the new South African dispensation. South Africa is a diverse country consisting of over 55 million citizens representing a spectrum of races and

cultures. Eleven official languages shape South African diversity with sedubedu being considered as the 12th language presently. Additionally, South Africa consists of nine provinces, and each province is dominated by particular races and ethnicities. For example, Gauteng province is considered metropolitan and the most culturally diverse province consisting of two main cities, namely, Johannesburg and Pretoria. Johannesburg consists of all the ethnic groups ('cocktail diversity') found in the country and is mainly dominated by Zulu's and Southern Sesotho's. Pretoria, on the other hand, has a similar ethnic spread, which was influenced by the demographic, spatial placing of the past regime. This forced people to live in the dormitory style and away from the central business district. Let us consider Soshanguve, for instance, the largest diverse township in South Africa.

The township was mainly inhabited by the (So)tho, (Shan)gans, N(gu)nies and the (Vhe)ndas. The demographic setting houses four different cultures, hence acro-named SoShaNguVhe. South Africa is a very diverse country with different ways of doing and ways of living. It is out of such a context that different ways of doing influence many schools differently. It is therefore imperative to prepare the student teachers for a 'rainbow nation' classroom that Nelson Rolihlahla Mandela, Desmond Mpilo Tutu and many South Africans long hoped for – thus befitting to look at South Africa through the lens of a social coalition. It is even more critical for the NWU.

■ North-West University

In 2004, the NWU was formed by the merger of Potchefstroom University for Christian Higher Education (consisting of the main campus in Potchefstroom and another campus in Vanderbijlpark in Gauteng), the former University of North-West (formerly known as the University of Bophuthatswana) in Mahikeng and the Sebokeng campus of a former mainly black university, Vista. The university educates more than 4000 student teachers coming from the two-tiered bi-modal schooling system per annum.

This chapter presents a unique stance on the transformation of South African higher education. The authors assert that the transformation of South African higher education requires sensitising student teachers to diversity. We believe this to be a pragmatic posture that transforms higher education and teacher education simultaneously. Moreover, transforming the student teacher development programme within a social justice and socio-cultural framework would be most beneficial in realising the objective of a rainbow nation, particularly in teacher education. We are of the opinion that integrating a social justice curriculum using the affective domain pedagogies during student teacher training holds affordances of shaping a social justice pedagogy. Also, 'it addresses how variation in teachers' opportunities informed their conceptions of students and their preparation' (McDonald 2005:425). Student teachers were sensitised to socially just pedagogies in the first-year WIL excursion. Work-integrated learning has been an annual programme since 2016.

■ Problem statement

Demographics of South African classrooms are changing radically. Universities have the mammoth task of assisting student teachers in working successfully in these classrooms. For the purposes of this chapter, diversity is not limited in terms of race but includes social dividers such as language, sexual orientation, gender and religion to mention but a few. Cochran-Smith and Zeichner (2015) noticed that one of the foremost challenges facing teacher education today is:

[P]reparing student teachers with the knowledge, skills, and dispositions to work successfully with an increasingly diverse pupil population, particularly those whose cultural, racial, language and ethnic backgrounds are different from the teachers' backgrounds. (p. 57)

In addition to school classrooms, university lecture halls might be similarly challenged to produce future leaders to create inclusive classrooms (Cochran-Smith & Zeichner 2015). Let us consider the NWU, for instance. The institutional set-up in the faculty of

education intensifies the situation on two levels as observed by the authors and lecturers at the respective university. On the first level, the three campuses represent a heterogeneous setup of students; for instance, Potchefstroom campus is geographically Afrikaans-speaking, and most of the Afrikaans-speaking students across the country prefer to study at this campus. In contrast, Tswana is the primary language spoken on the Mahikeng campus. Mahikeng is also home for most of NWU's black students. Vaal, the third campus, is primarily Sotho with a cocktail of different student compositions, varying from blacks, whites and people of mixed race.

The second level of institutional setup tends to be characterised mainly by groupings; for instance, many students group themselves in terms of their racial make-up during lecturing classes. Most of the Afrikaans-speaking students group themselves primarily based on their home language and race, while the black students and students of mixed race follow suit to a large extent. We contend that such a university setup is not conducive to optimally promote diverse student socialisation and alternative viewpoints. This setup is also not exposing students to the realities of the multicultural setup of South African classrooms.

Even though the university has positioned itself as a united institution, committed to functioning as a unitary, integrated multi-campus university that will enable equity, redress inequality and enable globally competitive teaching and research across all campuses by mainstreaming the same curriculum and assessment, research does indicate that in the past, student teacher education has failed to improve and prepare teachers for diversity through structural and curricular changes (McDonald 2015). Cochran-Smith (2003) further highlighted that preparation of teachers for diversity has often been mapped onto the fragmented structure of teacher education programmes with limited success. De Beer et al. (2011:2) contend that 'groupings in combination with formal nature of university classroom interactions limit and

constrain students' academic learning and their personal and professional development'. Yet, it remains the university's responsibility to prepare student teachers to become future teachers in the realities of South African classrooms.

The authors find inspiration in the words of Audre Lorde. We work towards nation-building through our commitment to social change. Lorde's words challenge us to seek a diverse, inclusive society. Lorde (2018):

Survival is not an academic skill. It is learning how to stand alone, unpopular and sometimes reviled, and how to make common cause with those others identified as outside the structures in order to define and seek a world in which we can all flourish. It is learning how to take our differences and make them strengths. For the master's tools will never dismantle the master's house ... (p. 112)

One of the many ways of turning our differences into strengths is to prepare the student teachers towards the notion of nation-building and socially just societies, and equipping them to learn and work together through pragmatic approaches, irrespective of their cultural and financial differences.

Countering our commitment to social justice is the theory-practice divide in teacher education programmes (Darling-Hammond 2006). In an interview conducted with novice teachers, it became evident that many of the teachers felt that the profession 'failed to meet their expectations of professional practice' (Harrington & Jenkins 2010:264). The chasm between theory and practise widens when it concerns issues linked to the affective domain, such as social justice education. According to Kumashiro (2004), education towards a socially just society necessitates a commitment to challenge common sense notions or assumptions about the world, teaching and learning. The authors of this chapter share similar sentiments. Many South African schools remain divided by race, religion and language. Therefore, it becomes the university's responsibility to skill student teachers to be social justice practitioners who can teach in diverse classrooms. The authors of this chapter are of the view

that this ideology of training could prevail through professional and experiential practice.

■ Research questions

■ Primary research question

How did the WIL excursion prepare student teachers to understand the need for social justice in diverse South African classrooms?

■ Secondary research questions

- How did the implementation of the engaging pedagogies during the excursion sensitise student teachers to teach social justice in diverse classrooms?
- How did the excursion facilitate student teachers' awareness of their own cultural biases?
- How did the exposure to social justice issues unsettle and assist student teachers in identifying barriers to teaching for diversity?
- How does Wardford's ZPTD incorporate SDL?

■ Excursions and self-directed learning

■ Context of work-integrated learning excursions

The NWU subscribes to the values of human dignity, equality, freedom, integrity, tolerance, respect, commitment to excellence, scholarly engagement, academic freedom and social justice. These values influence the teacher education programme housed at the university as well. In order to facilitate the development of these values, the university embarks on facilitating educational excursions for all its first-year Bachelor of Education (BEd) student teachers. The programme was designed to prepare the students for the demands of their future

diverse classrooms. The programme was supported by research that indicates that it is challenging to cultivate these values during 'clinical' lectures (De Beer, Petersen & Dunbar-Krige 2012). The excursion forms part of the WIL component, with a focus on 'learning from practice' (Refer to Chapter 8, which shows how the excursion forms part of the POP). The excursion is designed as an 'island situation', which provides an ideal opportunity to expose student teachers to people from other ethnicities, cultures, religious faiths and sexual orientations. Research has shown that such excursions hold many benefits in student teacher education: it provides a different learning environment for personal, social and professional development, and it can assist students in planning their professional trajectories (De Beer et al. 2011). Nauman (n.d.) is of the view that first-world countries such as Finland equate the success of the Finnish education system to its 'dedication to equity'. As the authors of this chapter, we are of the view that South Africa will never be competitive on a global scale without adequately addressing issues of equity through educational programmes, and the WIL excursion is seen as an ideal environment to sensitise future teachers on such issues.

The three-day excursion programme is aimed at sensitising first-year student teachers with more nuanced understandings of the complexity of the teaching profession, prepare the student teachers to be inclusive practitioners who understand issues of diversity in the classrooms and to be self-directed learners after their four years of professional development. The excursions intended instilling values such as tolerance and respect in our student teachers through activities such as sharing living facilities during the excursion. These students, as future teachers, will encounter diversity in the classrooms, and the lessons and values learnt during the excursion can prepare them better and provide better coping mechanisms. We claim that these excursions hold benefits such as providing student teachers with the opportunity for critical self-reflection on issues of inclusivity and their own biases towards diversity issues. Sensitising them about diversity

and inclusivity issues in their four-year training as tomorrow's teachers might prepare them better to deal with diverse classrooms in a complex 21st century.

The leitmotiv of the excursion was: 'How to Become a Super Teacher' – not just another teacher, but a 'Super Teacher'. All the activities and guest speakers' debates were focussed on inspiring the student teachers to contemplate how to become Super Teachers, and the disposition needed to address inclusivity, diversity and social justice matter in the classroom and society at large. Appropriate and effective teaching-learning methods were used to design the teaching-learning activities and scaffolded them in such a way to foster the values envisioned by NWU. Different active teaching-learning methods, or engaging pedagogies, were chosen to actively engage the students, challenge their stance on inclusivity issues, encourage reflection on controversial issues under discussion and to internalise by developing their disposition towards the matter under discussion. These engaging pedagogies include CL, PBL, case-based studies and dramatisation.

It is clear from the chosen pedagogies that all the activities were presented to advocate a pedagogy of play, or Huizinga's (1955) construct of *Homo ludens*, the playing human, for example, a simulated Human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS) game, cases and dramatisation, bush dialogues and the famine and abundance game. Some of the activities were presented in such a way to take students out of their comfort zones, putting them in diverse groups, where they experienced 'dramatical collisions' (emotional discomfort) (Veresov 2010), which focussed on the student's affective domain. Veresov (2010) makes it clear that:

[S]uch emotionally experienced collisions can bring radical changes to the individual's mind, and therefore can be a sort of act of development of mental functions...without internal drama, such mental changes are hardly possible. (p. 88)

The second part of the excursion is also to create 'cognitive dissonance' amongst students (Festinger 1962). Such cognitive

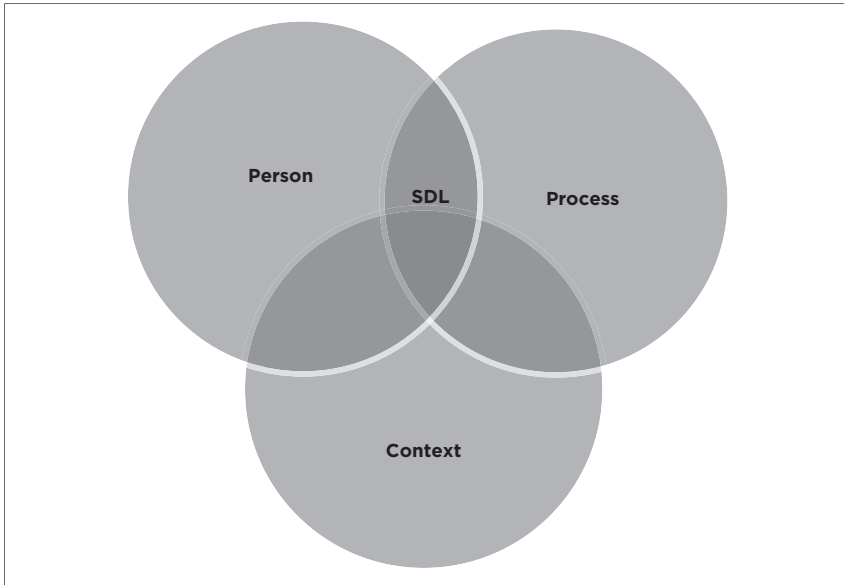
discomfort could serve as an awareness-raising tool and as a catalyst for some serious reflection. These constructs, ‘dramatic collisions’ and the ‘cognitive dissonance’, require student teachers to be self-directed learners; for instance, the student teacher should take an initiative with or without the assistance of others to be inclusive and understand this decision as a process. The student teacher during the process needs to understand that he or she will need to set learning goals in terms of being an inclusive teacher and also identify human and material resources to assist him or her in being more inclusive.

■ **Conceptualising work-integrated learning within a self-directed learning context**

Before we can define social justice and other related jargons, we based this chapter on the premises of the South African schooling system, with a particular emphasis on the history of our culturally diverse classrooms. With the slow-changing classroom towards a more diverse classroom setup, excursions hold affordances of sensitising student teachers about social justice issues. We are of the view that this will shape a nuanced lens towards preparing student teachers for the inevitable diverse classroom. To a large extent, this will require student teachers to be self-directed, as mentioned earlier in the ‘Context of work-integrated learning excursions’ section. Teaching social justice within an SDL perspective holds affordances of not only providing student teachers with skills such as taking the initiative to be an inclusive teacher and setting their professional goals in terms of being a socially just and inclusive student teacher but also to be the first excursion in South Africa to take this unique stance of incorporating such excursion activities within the theory of SDL.

In conceptualising this excursion, we adopted the description of SDL with reference to the PPC model, as suggested by Hiemstra and Brockett (2012) (see Figure 10.1).

Hiemstra and Brockett’s (2012) model was used in a unique way to contextualise the WIL excursions. For instance, when student



Source: Hiemstra and Brockett (2012).

FIGURE 10.1: The model of a PPC within the strand of SDL.

teachers boarded the buses transporting them to the excursion venue, they simultaneously entered an epistemological space (different context to the clinical lecture room) where ‘dramatical collisions’ (Veresov 2009) took place, fuelled by their own naïve ideas, biases and prejudices as student teachers. During the course of the excursion, the student teachers had to identify their own developmental needs in terms of becoming genuinely inclusive teachers whom we believe will be sensitive and skilled to promote social justice in practice. De Beer (2019) is of the strong view that context is a *sine qua non* for SDL to take place. According to Hiemstra and Brockett (2012), context is defined in terms of the environmental and socio-political climate, such as culture, power, learning climate, political milieu and race. During the excursion, many student teachers begin their university education without experiences of engaging and interacting with people of other race (De Beer et al. 2012). In

this excursion, a safe learning space is created through rules and regulations of the university. The excursion is also conceptualised to create a ‘low-risk’ context for novice learning (Schön 2010). In this context, student teachers from different cultures and backgrounds interact and engage in different interactive learning activities, which are aimed to promote ‘dramatic collisions’ (Verosov 2009) and ‘cognitive dissonance’ (Festinger 1962).

In terms of the person dimension, after the excursion, student teachers are required to be able to set their own learning goals in terms of being an inclusive and self-directed student teacher and be able to champion issues of social justice in teacher education. According to the PPC model of Hiemstra and Brockett (2012), the person dimension includes aspects such as individual creativity, critical reflection, enthusiasm, life experience, motivation and self-concept of the individual. These are the characteristics that are promoted during the excursion. The process dimension deals with approaches to enhance SDL, and in the context of the excursion, the student teachers are set to engage with experiential and playful pedagogies that focus on solving authentic problems. These engaging pedagogies include cooperative and PBL, and we claim that such pedagogies hold the potential to enhance SDL.

If we look at SDL within the social justice space as a process, it is befitting to pay a particular focus on Knowles (1975) definition:

Self-directed learning describes a process by which individuals take the initiative, with or without the assistance of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating outcomes. (p. 18)

Student teachers voluntarily participating in the WIL excursion and voluntarily filling indemnity forms are considered as the first stage of the student teacher taking the initiative towards the agenda of social justice in the South African diverse classrooms, and the development of the teacher agency towards inclusivity issues. With this agenda, the student teacher is required to

identify his or her own learning goals in contributing to an inclusive social justice classroom.

It should be set upfront that the authors subscribe to Vygotskian notion of learning. That learning is constructed socially. Even though the focus is set to inspire the student teacher on an individual basis, the activities will be informed by CL.

■ Theoretical/conceptual framework

■ Social constructivism

This chapter proceeds from a Vygotskian social constructivist theoretical framework (1978). Social constructivism acknowledges that learning takes place on social and individual levels (Vygotsky 1986). According to social constructivism, learning begins on the social level. Content is internalised through the reflection in the second stage of learning. In this chapter, we focus on the ‘lived experiences’ of a group of all first-year BED student teachers from all three campuses of the NWU (Potchefstroom, Mafikeng and Vaal campuses).

The social context for learning is the WIL excursion as informed by dramatical collisions (Versov 2009). The WIL excursion is constantly re-shaping the student teacher’s knowledge to accommodate the dynamic nature of diverse schools and classrooms (Lempert-Shepell 1995). On the second level, the student teachers experience cognitive dissonance and reflect on learning from the first stage (Festinger 1962; see the ‘Zone of proximal teacher development’ section, Table 10.1, and the ‘Engaging pedagogies’ section, Table 10.2).

■ Zone of proximal development

The construct, ‘ZPD’, was engineered by psychologist and social constructivist Lev Vygotsky (1896–1934). The ZPD symbolises the distance between the learner’s actual development (what the learner

TABLE 10.1: Scaffolding student teachers' learning across the ZPTD.

ZPTD (Warford 2011)	Samples of interventions ¹	Description and rationale
1. Self-assistance	<ul style="list-style-type: none"> • 'Famine and abundance' game addresses the context of privilege (or deprivation) • HIV-simulated game • Dramatising different case studies • Drumming • The cultural evening • Bush dialogues 	After student teachers identified their own biases, they can set learning goals for their own learning in terms of becoming an agent of social justice. This requires the student teachers to be aware of their stereotypes, and any tendency to 'other' people and understand the vast difference between the haves and the have-nots
2. Expert-other assistance ([stage 1 in ZPD] Galimore & Tharp 1990)	<ul style="list-style-type: none"> • 'Famine and abundance' game addresses the context of privilege (or deprivation) • HIV-simulated game • Dramatising different case studies • Drumming • The cultural evening • Bush dialogues 	All activities were done in groups of four, working cooperatively towards a common goal
3. Internalisation (automatisation)	<ul style="list-style-type: none"> • Reflective discussions after most activities • Newspaper writing and posters are used for reflection purposes, particularly on how to be a more inclusive teacher 	Veresov and Vygotsky concur that higher mental functions are internalised social relations (Vygotsky 1983:145-146). In the stage of internalisation, a student is required to critically reflect in terms of being a genuinely inclusive teacher that is not blurred by 'othering others'
4. Recursion (de-automatisation)	Owing to the limited data, the authors will not report in terms of this stage. This stage requires the researcher to monitor the student teachers in practice	

Source: Based on Warford (2011:254).

ZPD, zone of proximal development; HIV, human immunodeficiency syndrome.

can do without the assistance of the other) and potential development² (what the learner can achieve with guidance and encouragement from a skilled other). Proximal development denotes skills the learner is 'close' to mastering. Vygotsky (1978) defined the ZPD as:

[T]he distance between the actual developmental level as determined by independent problem-solving and the level of potential develo

2. See the following YouTube video for more context: <https://www.youtube.com/watch?v=KkpOUHUF8-w> <https://www.youtube.com/watch?v=jiMo29humSwI>

ment as determined through problem-solving under adult guidance, or in collaboration with more capable peers. (p. 89)

Vygotsky's insights are essential in shifting the present paradigm in student teacher education. The most noteworthy feature of Vygotsky's ZPD is the holistic, authentic approach to teaching and learning. Vygotsky's vision is consistent with the whole language rather than the dominant teacher-centred approaches. Teacher-centred approaches, such as IRE (teacher initiate, student respond, teacher evaluate), dictate that teachers initiate and evaluate learning while students respond. These approaches mimic chalk and talk teaching methods. Vygotsky (1986) explained:

Direct teaching of concepts [*i/s*] impossible and fruitless. A teacher who tries to do this usually accomplishes nothing but empty verbalism, parrot-like repetition of words by the child, simulating a knowledge of the corresponding concepts but actually covering a vacuum. (p. 150)

Unfortunately, the South African curriculum is characterised by transmission-mode teaching and learning with less effort towards the construction of new and meaningful knowledge (Cronje 2015; De Beer 2016). Hence, WIL excursion activities facilitate learning outside traditional and clinical environments. They also address the affective domain of student teachers.

■ Zone of proximal teacher development

Warford (2011) expanded Vygotsky's concept of ZPD to teacher education. In this chapter, we employ Warford's (2011) concept of the ZPTD, as outlined in Table 10.1. Warford described ZPTD as scaffolded through four stages. Wood, Bruner and Ross (1976:90) defined scaffolding as a process 'that enables a child or novice to solve a task or achieve a goal that would be beyond his unassisted efforts'. They note, scaffolding requires assistance from expert others to control (Wood et al. 1976):

[7]those elements of the task that are initially beyond the learner's capability, thus permitting him to concentrate upon and complete only those elements that are within his range of competence. (p. 90)

After the student teachers have identified their own biases, they set learning goals according to Knowles parlance of SDL. Student teachers are subsequently ushered across the four stages of Warford's ZPTD framework. Table 10.1 outlines WIL activities that foster these competencies.

■ Conceptual framework

■ Social justice

Social justice has become a global imperative; however, the authors argue from a South African sociohistorical perspective that is informed by South African human rights. Our consideration of social justice includes developing capacities of teachers to engage with issues of justice, irrespective of their background differences (Schneider 1997:128). The human rights approach to education focusses on rights in education as well as rights through education (Subrahmanian 2002; Unterhalter 2007). This approach to social justice connects the present educational landscape to past struggles (Christie 1991), where learners campaigned against linguistic oppression, racist curricula, corporal punishment and sexual harassment. Student organisations protested for learner-centred approaches and democratic participation in decision-making (Tikly 2011:90). Students demanded inclusive education that ensures all learners achieve positive learning outcomes. In addition, quality education must be relevant to learners, valued by their communities and consistent with national developmental goals. Education should be democratic in the sense that learning outcomes are determined through public debate and ensured through processes of accountability. During the excursion, learners participate in dialogues on issues related to social justice.

■ Dramatical collisions

Building on Vygotsky's ZPD, Veresov pondered the 'hidden dimension' of learning that closes the gap between the present understandings and potential development (Veresov 2004, 2007, 2009). Influenced by the Russian theatre, Veresov contemplated Vygotsky's claim that every function of learning 'appears on the stage twice', firstly on the social plane then the psychological plane (Vygotsky 1983:145). Focussing on the relationship between social reality and the individual, Veresov explained that social surroundings could be instructive if they bring new demands, challenges and tasks contradicting present levels of knowledge, tools and development. The contradictions or collisions incite development to meet the demands, challenges and tasks (Ostern & Heila-Ylikallio 2004:16). Veresov coined the term 'dramatical collision' to describe the relationship between social reality and the individual that drives learning towards potential. He explains that the contradiction (or drive for development) does not occur solely in the individual or exclusively in the social situation. Instead, it ensues from the relationship between the two.

Veresov's use of theatrical language is essential for understanding the learning process in relationship with social reality. Influenced by the pre-revolutionary Russian theatrical arts, Veresov followed the plot sequence that unfolds throughout the drama making a note of the type of characters that collide and eventually resolve. Veresov noted, 'dramatical collision must seem like an actual social experience, not an ideal one, real vs ideal forms' (Ostern & Helila-Ylikallio 2004:12). Similarly, particular social situations that mirror social reality are cast in the learning environment. These situations are capable of navigating multidimensional spaces, eventually reaching the internalisation stage where learning/development occurs. In dramatic play, the (social) conflict engages emotions and leads to self-reflection (internalisation). Veresov and Vygotsky concur that higher mental functions are internalised social relations (Vygotsky 1983:145-146).

■ Engaging pedagogies

The engaging pedagogies used during the excursion were scaffolded in such a manner that it forced the student teachers to be active participants throughout the activities. Student teachers were not given an opportunity to be passive recipients. This strategy was employed to ensure that the envisioned skills and values were cultivated. Scholarship on engaging pedagogies varies based on the foci, yet scholars agree that the goal is mastery of outcomes (knowledge, skills and values) and achievement. These foci include: engagement as ‘the students’ psychological investment in learning’ (Newmann 1989:34); engagement in learning is not only an end in itself but it is also a means to the end (Saeed & Zyngier 2012); engagement as implicit in active learning (Zyngier 2004:10) and engaging pedagogy ‘can be regarded as a parallel with inductive teaching and learning’ (Prince & Felder 2006). Inductive teaching–learning, according to Prince and Felder (2006), includes a number of active teaching–learning methods such as PBL, case-based learning, project-based learning and inquiry learning. Engaging pedagogies assume aspects of instructional pedagogy. Instructional pedagogy engages students through three interactive methods: explanation, class discussion and clarification (Darby 2005). In this strategy, the teacher facilitates dialogue that engages students. Darby (2005) distinguished instructional pedagogy from relational pedagogy that espouses that students’ learning is enhanced ‘when teachers were passionate in their approach to teaching, providing a supportive learning environment and made them feel comfortable’ (Darby 2005:425). Petersen, Golightly and Dudu (2019) defined engaging pedagogies as: ‘any inductive teaching–learning strategy where the learners/students are actively involved in the learning process while developing their 21st-century skills’. They provide PBL, CL and contextualised learning as examples of inductive teaching–learning strategies. WIL activities utilised a combination of engaging pedagogies, elements of instructional pedagogy and delivered through relational pedagogy. The pedagogy of play

was used as a learning strategy to engage student teachers as playing humans.

The construct, a pedagogy of play, or *Homo ludens*, the playing human, was coined by Huizinga (1955) and was employed in all the activities during the excursion. Mardell et al. (2016) reported on the views of high school teachers on the pedagogy of play. This teacher regarded the cultivation of students' playful dispositions as 'essential in order for them to become collaborative, empowered, and creative global citizens' (Mardell et al. 2016:1). The same authors add that engaging pedagogies can be a welcome ally to assist teachers in cultivating students' intellectual, social, emotional and physical abilities. In the context of the excursion, the activities were specifically chosen to develop the first-year students' social abilities. Social abilities include the student teachers' own disposition towards diversity, inclusivity and social justice issues. During a pedagogy of play, participants were engaged, relaxed and challenged (LEGO Learning Institute 2013). With regard to fostering social abilities, 'students learn to share ideas, express themselves, negotiate, and reach compromises' (Mraz, Porcelli & Tyler 2016 in Mardell et al. 2016). In a challenging atmosphere where the students worked in diverse groups, they are out of their comfort zones and have to interact with group members, irrespective of cultural and linguistic differences. One task requires group members to discuss language and determine the language of communication. Most groups chose English as the language of communication in spite of the fact that English was not the mother tongue of most of the group members.

Table 10.2 summarises the engaging activities during the excursion programme. The table also includes a description of the activity and rationale for inclusion in the excursion. All activities were deemed to develop student teachers' social development related to diversity and inclusivity. Development of SDL skills was a major component of the tasks as well. Specific SDL skills related to the activities are outlined in the last column of the table.

TABLE 10.2: Engaging activities during the excursion programme.

Learning activity	Short description of the activity	Rationale behind the activity	Contribution to student teachers' social development with regard to diversity, inclusivity and social justice	Possible development of SDL skills
The famine and abundance game	Student teachers each receive (randomly) the passport of a country, and based on the Human Development Index of the country, they also receive money, which they can use to buy food with at the 'excursion shop'. This results in students from industrialised countries buying food to their hearts' desire, and students from developing countries not being able to buy any food	This activity provides an opportunity for student teachers to reflect on the large socio-economic divide in the country, with the 'haves' and the 'have-nots'. Students coming from a background of privilege have an opportunity to (almost viscerally) experience and reflect on the life of the destitute. The discussion afterwards focusses on the agency of the teacher, and how to deal with the socio-economic divide in the classroom	To be aware of the inequalities between their future learners To be an inclusive teacher by acting in a responsible way to treat all learners equally	During the discussions, students have to <i>reflect</i> on the implications for them as future teachers To view own opinions, to justify it and to listen to the views of others and contribute towards the discussions Student teachers should realise that they have to work on their own biases and decide on possible personal developmental goals

Table 10.2 continues on the next page →

TABLE 10.2 (Continues...): Engaging activities during the excursion programme.

Learning activity	Short description of the activity	Rationale behind the activity	Contribution to student teachers' social development with regard to diversity, inclusivity and social justice	Possible development of SDL skills
HIV/AIDS activity	<p>Each student received two glasses, filled with a liquid. Ninety per cent of the students received water (they would be 'HIV negative'), whereas 10% would receive a base solution (sodium hydroxide), and the latter students would be 'HIV positive' (Petersen, De Beer & Dunbar-Krige 2011). Students are then required to exchange liquids (representing 'body fluids') with five other students. All liquids are then tested with phenolphthalein, an indicator for a base solution. (It would give a pink colour to a base solution.) Whereas only 10 % of students were 'infected' at the beginning, the majority of students were 'HIV positive' after the exchanges</p>	<p>In a country where there are many child-headed families, where parents died owing to the HIV/AIDS pandemic, it is important to make student teachers aware of the pandemic, which probably influences at least one learner in every classroom. However, the activity is also a demonstration of a pedagogy of play, and afterwards, a discussion is held on the affective affordances of such a pedagogy</p>	<p>To be an inclusive teacher by acting in a responsible way to treat all learners equally</p>	<p>During the discussions, students have to reflect on the implications for them as future teachers</p>

Table 10.2 continues on the next page →

TABLE 10.2 (Continues...): Engaging activities during the excursion programme.

Learning activity	Short description of the activity	Rationale behind the activity	Contribution to student teachers' social development with regard to diversity, inclusivity and social justice	Possible development of SDL skills
Role play of case studies (refer to Ch. 7)	Student teachers are provided with cases, which were written by seasoned teachers, and they then (in groups) have to write screenplays and dramatise these cases. These dramatised cases all portray a 'dilemma' that a teacher would face – professional boundaries, discipline issues, etc.	Gravett et al. (2016) have shown that cases provide an effective pedagogy in providing student teachers with more nuanced perspectives on the complexity of the teaching profession. This 'embodied cognition' activity also provides the teacher educator with an insight into the perceptions and preconceived ideas of the students	To make them aware that they will have to teach diverse (e.g. race, gender, etc.) classrooms If learners exhibit unacceptable behaviour, there may be underlying reasons that need to be investigated Provide good-quality education to enable learners to rise above their circumstances	During the discussions, students have to reflect on the implications for them as future teachers
Drumming	During this activity, each student teacher and all facilitators received a drum. Facilitated by experts from the front stage, all present played the drums together, based on the directives from the specialists	This is an excellent team-building activity and can lead to the breaking of barriers of race, language and other differences	Create safe spaces where student teachers from different backgrounds can work as equals If teachers in a school work together to address the social justice issues you may be more successful	Working together towards a common goal (they had to follow the lead of the facilitator) in unison

Table 10.2 continues on the next page →

TABLE 10.2 (Continues...): Engaging activities during the excursion programme.

Learning activity	Short description of the activity	Rationale behind the activity	Contribution to student teachers' social development with regard to diversity, inclusivity and social justice	Possible development of SDL skills
Cultural evening	The participating students came from different races and ethnic groups. The purpose of this activity was that student teachers from the same race and/or ethnic group should get together and produce a show portraying something culturally significant about their particular group	In English, the motto on the South African coat of arms literally is: 'diverse people unite' or Unity in Diversity. Student teachers worked in diverse groups for all the activities, except during the cultural evening. This allowed student teachers to celebrate their own culture while working in union with others	To be proud of who you are Accept that you belong to a group, and therefore respect the cultures, practices, rituals of others Contribute in understanding each other coming from diverse backgrounds	During the performances, a lot of individual reflections took place
Bush dialogues	The dialogues took place at night, around the bush fires. An expert asking probing questions about controversial issues regarding diversity and inclusivity to entice students to give their opinions, to listen to others and to agree or disagree	This activity creates a safe environment where student teachers can view their opinions ('to say their say') without fear and prejudice. They learn to listen, understand and respect each other as persons and their cultural practices	Social justice issues are uncomfortable topics that have to be addressed Accept our differences and respect each other - 'other' does not mean 'inferior'	These types of discussions take you out of your comfort zone. Students can realise that they have to work on their own biases and decide on possible personal developmental goals

Source: Petersen and De Beer (2019:297–298).

Note: The first three columns are provided verbatim except for the last three rows. HIV/AIDS, human immunodeficiency virus/acquired immunodeficiency syndrome; SDL, self-directed learning.

■ Methodology

In the paragraphs that follow, the different aspects of the empirical investigation used in this study are discussed.

■ The aim of the study

This chapter aims to investigate the affordances of the WIL excursion in sensitising student teachers to be social justice practitioners in diverse South Africa classrooms.

■ Research paradigm

An interpretive paradigm underpinned the research reported in this chapter. This chapter reports empirical research focussed on understanding the lived experiences of student teachers during a three-day educational excursion. The excursion aimed to sensitise student teachers on issues of social justice. This chapter describes their experiences. An interpretative approach ensures a functional coherence between the different domains of the research design. The purpose of the interpretive approach can be used to understand, interpret and give meaning to the project participants (Henning, Van Rensburg & Smit 2004:19); in this case, the participants are the first-year BEd student teachers who attended the excursion.

■ Research design

This research followed a generic qualitative research design to answer the research questions. According to Merriam (2009:23), qualitative research studies seek to understand '(1) how people interpret their experiences, (2) how they construct their worlds, and (3) what meaning they attribute to their experiences'. She further argued that generic qualitative studies are fundamentally social constructivist and interpretive research. The interpretive qualitative design aligns with the stated research aims and research questions.

■ Measuring instruments and data-gathering instruments

Sources for qualitative data include FG interviews, open-ended questionnaires and student artefacts that were collected (refer to Ch. 5):

- Focus group interview: Four FG interviews were conducted on day 3 of the excursion with groups of student teachers. Participants volunteered to participate in the FGs interviews. The group size averaged between eight and ten student teachers.
- Artefacts: Student teachers were tasked to complete a reflective activity in the form of a newspaper (also refer to Ch. 5). The activity was completed cooperatively in groups of four student teachers. They were expected to compile newspaper articles that reflected on how the different activities assisted them in their professional development to become Super Teachers.
- Questionnaire: At the end of day 3, participating students were asked to complete a questionnaire. Participants provided written responses for the following open-ended question included in the questionnaire: 'what were your lived experiences of the three-day professional development excursion?'

■ Population, sampling and participants

The population consisted of all first-year BEd student teachers ($n = 1700$) of the NWU, who participated in the excursion in 2019. Participation in the excursion was compulsory, and all student teachers were expected to participate in all activities. However, it was not expected that all of them would participate in the data collection process. Student teachers were given an open invitation to participate in the research; 1348 student teachers volunteered by submitting written consent to participate. Data collected from the 1348 student teachers included the newspaper artefacts and the answers to the open-ended question. Thirty-two student teachers were randomly

chosen to participate in FG interviews. Four FG interviews were conducted after participants provided informed consent.

■ Data analysis

After all six excursions, the FG interviews and the open-ended questionnaire of the participant student teachers were transcribed. The researchers studied the newspaper articles (artefacts) and searched for any data indicating relevance concerning social justice issues and SDL. These identified newspaper articles were then photographed and later transcribed. Saldaña's (2009) method of descriptive coding was used to analyse the transcriptions of all three data sources (interviews, artefacts and open-ended questionnaires). Descriptive codes were organised into categories. Themes emerging from the categories were used to answer the research questions.

■ Ethical considerations

Ethical clearance to conduct this research investigation was obtained from the NWU ethics committee (Edu-Rec) of the Faculty of Education. Additional permission was obtained from the NWU Registrar that served as the gatekeeper. An open invitation was given to all student teachers to participate in the data collection process. An independent person was used to obtain consent from student teacher volunteers. The independent person was an NWU staff member not involved in the research agenda embedded in the excursion. The independent person explained the research, risks, benefits, confidentiality and anonymity related to participation. In total, 1348 students volunteered to participate in the research and provided informed consent. Researchers randomly selected participants from those that consented to the research. A new invitation was given to them to partake in an FG interview.

The student teachers were given the assurance that they can withdraw from participation without consequences. Issues

related to data management, confidentiality and anonymity were reviewed with FG interview participants.

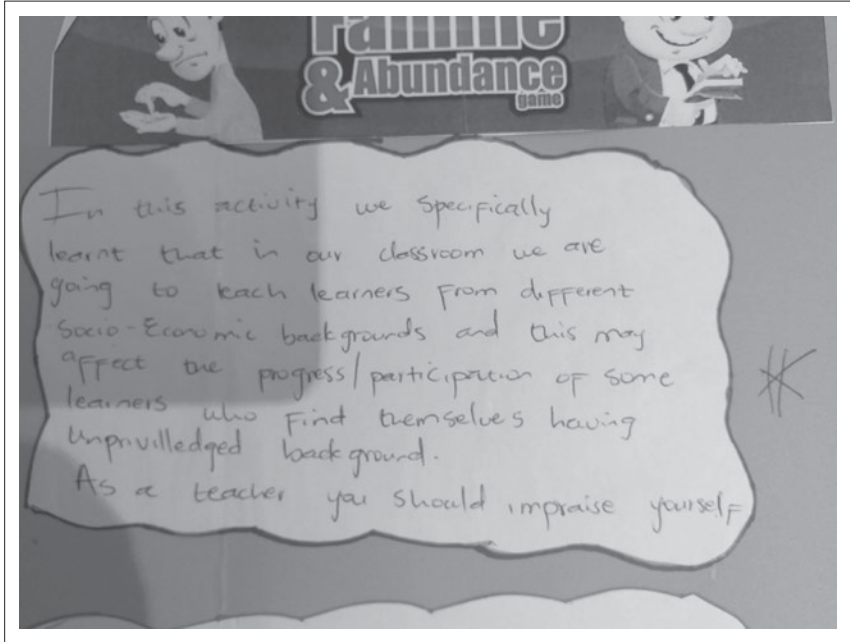
■ Findings and discussion

Thematic analysis of transcripts from FG interviews, open-ended questions and student artefacts were used to understand how the WIL excursion sensitised student teachers to teach social justice in diverse classrooms. The four themes emerging from the data are discussed in this section to answer the primary research question. Secondary research questions are discussed and answered as follows.

■ The student teachers reported effective learning through the pedagogy of play during the excursion

Students reported their emotional experiences during the famine and abundance game. Students were randomly assigned citizenship in a low-, middle- or high-income country. They were allowed to purchase snacks with their allowance, which was based on the income of the country. Students with citizenship in a low-income country reported experiencing feelings of sadness. Some participants stated that the game was unfair. During the reflection stage after the activity, student teachers from both developed and developing countries expressed a desire to become inclusive teachers. The pedagogy of play effectively taught student teachers the importance of addressing issues of socio-economic diversity in their future classrooms (Figure 10.2).

Figure 10.2 shows the newspaper reflection submitted by a group of student teachers. They reflected on what they learnt in socio-economic terms. These students interpreted how their

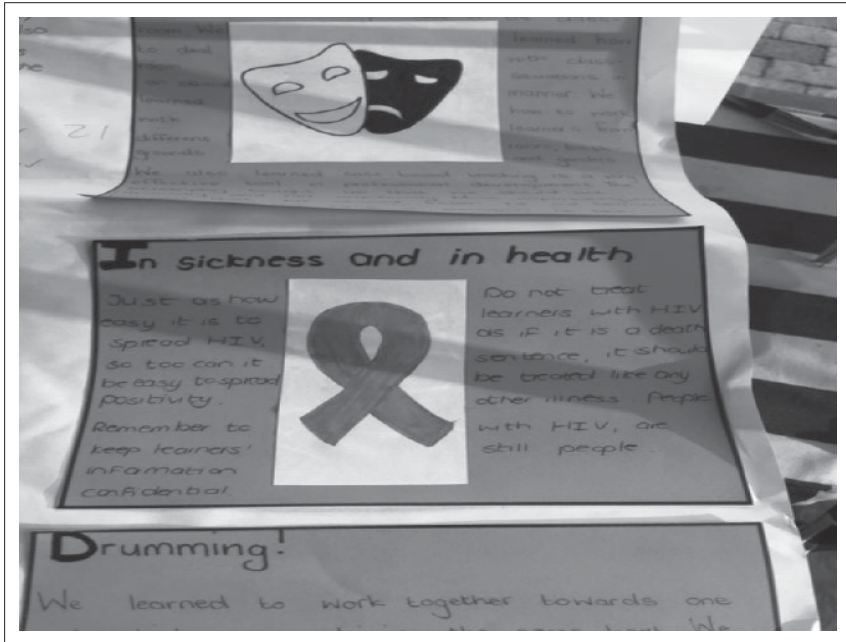


Source: Photograph taken by Josef de Beer, on 27 April 2019, at YFC, Magaliesberg, published with permission from Josef de Beer and signed consent from all students.

FIGURE 10.2: A reflection on the famine and abundance game, from a newspaper artefact.

new understanding would translate into their classroom practice.

Another critical remark is that the student teachers were generally sensitised in terms of engaging pedagogies. In the HIV and AIDS-simulated game activity, student teachers were exposed to the consequences of this pandemic and the impact it has on classrooms. Figure 10.3 shows student teacher reflections on the HIV simulation game. This group entitled a newspaper story, 'In Sickness and in Health'. In the story, the group addressed



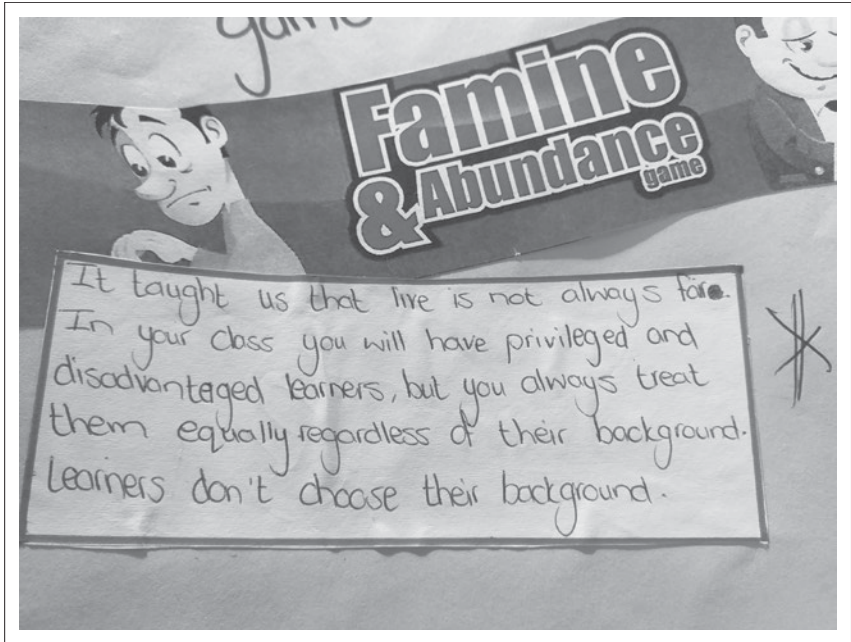
Source: Photograph taken by Josef de Beer, on 16 April 2019, at YFC, Magaliesberg, published with permission from Josef de Beer and signed consent from all students.

FIGURE 10.3: Student teachers' reflection on the simulated HIV game.

issues of othering and stigmatising people. They internalised their learning and applied it to their future classroom. A group member cautioned, 'Do not treat learners with HIV as if it is a death sentence, it should be treated like any other disease' (see Figure 10.3).

■ Student teachers increased awareness of agency and inclusivity

The research data indicate that most of the student teachers were sensitised in terms of being an inclusive practitioner, and to be sensitive to issues such as privilege, for example (see Figure 10.4). For instance, the view of participant 2 in an FG



Source: Photograph taken by Josef de Beer, on 15 April 2019, at YFC, Magaliesberg, published with permission from Josef de Beer and signed consent from all students.

FIGURE 10.4: Student teachers' newspapers articles in terms of the famine and abundance game.

interview #2 indicated insights associated with the characteristics of an inclusive practitioner. His response was as follows:

'What I have experienced is that we will be going to different schools where we will meet learners who are from different backgrounds with different issues. So, we as the future teachers we have to be patient, we have that special room to accommodate all the differences that we might find from our classes'. (Participant 2, undisclosed gender, date unknown)

From this interview, we are of the view that the excursion did make participant 2 aware of the fact that every learner sitting behind the school desk is different and requires different attention. It was also

important that the student teachers indicated that the background of the learners also plays a vital role in shaping the learner's outcomes as one of many factors (Spaull 2019).

In one newspaper article, as shown below, the student teachers reflected on the understanding of student composition in South African classrooms. Some students fall within the quintile of the haves, and the other learners will fall within the 'have not' quintile. It was an important finding to realise that the group of student teachers understood that every learner in the classroom deserves equal opportunity in spite of the socio-economic status of the learner or the background. This view indicates that the excursion sensitised the student teachers to be inclusive practitioners.

■ **The student teachers reported an understanding of and respect for diversity in the South African classroom**

The data indicated that most of the student teachers were sensitised in terms of understanding and respecting diversity in the South African classroom. For this study, diversity is not limited to race. In an FG interview, a student teacher using a pseudo-name, super teacher 2, reflected on the excursion experience and expressed a change in perspective as follows:

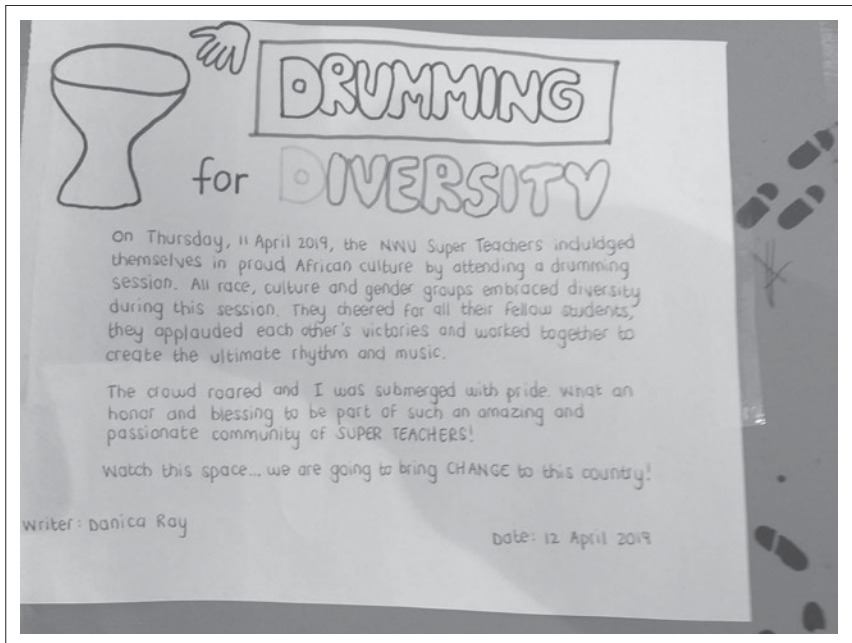
'My experience, mmm ... I have learned to treat people the same way because I have issues or treating other people like gays, lesbians like... I had a problem with them but now I am okay because we are one, you know, we are one'. (Teacher, gender undisclosed, date unknown)

Another FG participant added an insight into super teacher 2's response:

'I would like to add on to what he said (referring to super teacher 2), about the activities that made us to be one ... Now I can actually speak a bit of Afrikaans. And also, I have been trying to learn a bit of Mahikeng lingo and that shows us that we work together; it

also promotes inclusivity and everything. It also goes back to the classroom to try to make the learners one'. (Participant undisclosed, gender undisclosed, date unknown)

These two views of the student teachers indicate an awareness of diversity and willingness to address issues of inclusion. These student teachers also indicated a willingness to apply their learning to their classrooms after completing the BEd programme. Student teacher 1 stated that he learnt not to 'other' learners based on their sexual orientation. Through the excursion experience, he can now see learners holistically as opposed to only seeing their sexual orientation. Similarly,



Source: Photograph taken by Josef de Beer, on 12 April 2019, at YFC, Magaliesberg, published with permission from Josef de Beer and signed consent from all students.

FIGURE 10.5: The use of drumming to embrace diversity during the excursion.

student teacher 2 understands the importance of language and is committed to learning other ethnic group languages. Student teacher 2 noted the importance of language in a country with 11 official languages. Embracing other cultures and languages will be an advantage in a diverse South African classroom.

Figure 10.5 is a newspaper article reflecting on the drumming activity. These student teachers identified themselves as agents of change in South Africa with the closing quote: 'watch the space ... we are going to change this country'. Their article focussed on the unity between different cultures, backgrounds and genders represented at the excursion. This artefact highlights the aim of the excursion and the values of the NWU.

After relating the themes to the research questions, the authors were able to describe the findings by answering the research questions.

■ Revisiting the research questions

■ Research question 1: How did the implementation of the engaging pedagogies during the excursion sensitise student teachers to teach social justice in diverse classrooms?

Based on the data from all the data sources (FG interviews, open-ended question and the artefacts), we made the following overall finding with regard to research question one: most of the student teachers were overwhelmingly sensitised and believed that the excursion contributes towards them understanding the complexities of a diverse classroom

In the paragraphs that follow, three sub-themes will be described to enlighten this overall finding.

■ Although student teachers had emotional experiences during some of the activities, they do realise the need to be inclusive

Many student teachers had an emotional reaction to the famine and abundance (F&A) game activity. Student teachers discussed their emotions after the activity. They also shared what the implications would be for their future classrooms. Student teachers deemed the game as: unfair, discriminative and privileged the haves but also as eye-opening. They also reported negative feelings of disgust, sadness and jealousy. Researchers observed the negative body language of some student teachers during and immediately following the activity. However, most groups reflected and expressed themselves on the newspaper artefact (ART), in FG interviews or on the open-ended question (QS):

‘For me, I was so sad that when I got Ghana [*student referring to the passport he received*] and then I go like R5, like I was so sad, because I looked at the indexes and I just saw, that there’s like differences between male and female, there is still discrimination in other countries and it is like I’m a female and R7 and now I’m only having R5 I was okay. I was so sad, ja, that was my experiments of the game.’ (FG) (Student teacher, gender undisclosed, date unknown)

The feelings I experienced when I didn’t get the opportunity to spend the money, was disappointment, sadness and jealousy’. (QS) (Student teacher, gender undisclosed, date unknown)

Most of the student teachers realised that they have to include all learners, regardless of their background. Most of these student teachers clearly understood the need to be inclusive practitioners. This is evident in the following quotes:

‘It (the famine and abundance game) made us realise that not all the learners in our classrooms will be equally privileged and that it is our duty to make sure that those children are not excluded’. (ART) (Student teacher, gender undisclosed, date unknown)

‘We as teachers must acknowledge different background cultures within our individual learners and give respect where it is due, in other words, we must promote a diversified class that promotes unity’. (ART) (Student teacher, gender undisclosed, date unknown)

‘The excursion was a huge success for me, I learnt a lot. As a potential future teacher, I should be very open-minded about my learners. In a diverse country, it will serve me good to respect each culture and be familiar with its norms so that even my learners I cannot discriminate or treat unfairly due to lack of knowledge. The excursion opened up a doorway of ideas, that I can incorporate in my studies, my future classroom and in the learners I will be teaching’. (QS) (Student teacher, gender undisclosed, date unknown)

In the same vein, another student teacher wrote:

‘The main purpose of the camp was to learn and teach the students about diversity and equality which they will have to incorporate in their future classrooms, seeing that our country has such a large collection of cultures and religions. Therefore, our teachers will have to find innovative ways to include all races and cultures in all classroom activities and lessons’. (QS) (Student teacher, gender undisclosed, date unknown)

□ Student teachers acknowledged that, in order to respect other cultures or groups, good communication is needed

The student teachers also demonstrated that they have to listen to each other in order to learn from each other. They recognised that communication is necessary to understand other cultures and practices in respectful ways. The engaging activities were structured in a way that forced student teachers to listen to each other. Listening was a foundational skill in activities such as the bush dialogues, F&A game discussion, HIV and AIDS simulation discussion, cultural activity and the drumming session. Student teachers reflected on values they learnt through participation in activities:

‘The most important lesson learned was respect. This includes listening to all opinions, not excluding anyone out of the group and working as one’, and in the same vein ‘I think my experiences to the excursion is to interact with people and to listen to other people’s opinions’. (QS) (Student teacher, gender undisclosed, date unknown)

‘In this activity (the cultural evening), we learned to respect each other and look beyond our weak points and help each other. We must learn to embrace humanity’. (QS) (Student teacher, gender undisclosed, date unknown)

‘We learned that although each culture is unique, they do have something in common – proudly South African. This also made us aware of the number of different cultures we will have in our classrooms one day. Every unique culture must be treated with respect. UBUNTU!’ (QS) (Student teacher, gender undisclosed, date unknown)

□ The excursion provides a fertile learning space to address personal biases and preconceived ideas

It is worth noting that many student teachers before the excursion tend to ‘other’ people, and this is predominantly owing to their preconceived ideas of other cultural or minority groups, and different campus cultures. For instance, participant 5 in FG interview #2 made the following remark:

‘To be honest I did not really want to come especially when I heard Mafikeng campus is coming. Because I know you guys, there’s a bit of I don’t know what you call it – “*onrus*”³ between Potch and Mafikeng. But when I come here, when we got on to the bus, there was no hostility from any side, I was surprised. It felt to me like although we are different, with different cultures, we actually have the same goal in mind. We want to teach the learners’. (Participant 5, gender undisclosed, date unknown)

In another response, participant 5 reiterates the following comments in the same interview:

‘[W]hen I say us I’m meaning me as a person, I don’t think every white person feels the same, but you guys are very loud [*referring to black people*]. We like it really because you are chirpy and especially on the bus we are more reserve, we talk more like only us can hear the talk. So I always thought it was rude to be loud, and then spoke to some of the persons here [*black people*], and I found out, for me, it’s rude to be loud, but for you, it is rude to be soft because you are thinking we are gossiping. So for me I had to understand where I come from and where you come from, it is just wonderful. So, now I just understand we are different but if you understand how we are different we can accommodate each other’. (Participant 5, gender undisclosed, date unknown)

3. Afrikaans word for ‘unrest’, a perception probably fuelled by the political unrest on the campus from time to time.

■ **Research question 2: How did the excursion facilitate students' awareness of their own cultural biases?**

The excursion indeed created a safe space where many student teachers became aware of their own biases. The structure of the excursion in general, as well as the individual activities, was in such a way that student teachers had to reflect on/confront their own biases. For most of the participating student teachers, this was most probably the first time in their lives that they had to stay and work with people from different races (and ethnic) groups. South Africans, coming from an apartheid history, possess many stereotypes, especially along racial lines. These stereotypes usually are the foundation on which the biases are built. One student teacher remarked:

'I think this excursion was an amazing way to get to know yourself, other people on their culture. Before this excursion, I used to the thought that the other cultures was not nice'. 'I was wrong. I now understand them. They're real nice with such great hearts. I loved the excursion because it put me out of my comfort zone and forced me to grow'. (Student teacher, gender undisclosed, date unknown)

One of the students during an FG interview mentioned that she was sceptical at first to attend an excursion where student teachers from all three campuses were present:

'And then we thought okay we won't be the only white ones there, because there's not always that good vibes especially Mafikeng campus [*mostly black students*], the feelings they have towards the Potchefstroom campus [*mostly white students*]. They sometimes feel like the people of Potchefstroom campus are entitled and stuff like that so we didn't know really what to expect'. (FG) (Student teacher, gender undisclosed, date unknown)

The last sentence of this quote is loaded with an assumption because the white student from the Potchefstroom campus assumes that the black students from the Mahikeng campus (the 'they' in the quote) think like that. However, the white student who made this comment, and her friends, were surprised by the

way the black students treated them, and they even enjoyed the excursion:

‘And like we know each other’s opinions and ja so that was, I think this was very valuable and I’m actually sad that we didn’t have more students from the Potch campus cause this is a very good learning experience’ (FG), and ‘...my father used to say this people [*white people*] they like to be in control’. (FG) (Student teacher, gender undisclosed, date unknown)

■ **Research question 3: How did the exposure to social justice issues contribute to a context of discomfort to assist student teachers in identifying their personal barriers to teaching diversity?**

What is clear from the data is that the excursion did create awareness in most of the student teachers with regard to social justice issues and how it may have an influence on their teaching one day. Some of the quotes given above also alluded to the fact that the activities used during the excursion made them feel uncomfortable and out of their comfort zones. Very few students however demonstrated the ability to identify these feelings of discomfort, stemming from personal biases and beliefs, as barriers for their own professional development as teachers.

During the cultural evening, some students felt ‘afraid’ to perform something about their culture and held a stance that the cultures of others are not so important. The following quote, however, is an indication that some student teachers did realise that their own non-interest into other cultures have to be worked on:

‘We have learned [*from the cultural evening*] that you have to be self-aware. Work out your own beliefs, values and personal biases when working with people, and building relationships with them helps to have some perspectives on and understand their cultures’. (ART) (Student teacher, gender undisclosed, date unknown)

The AIDS simulation game, and the reflective discussions afterwards, inspired some student teachers to reflect on their

own attitudes of judging people, just because they are ‘other’ than themselves. The following quote serves as illustration:

‘I have learned a lot about myself for one. An example is with the AIDS activity. I was quick to judge my friend for having two pink glasses [*small tot glasses were used during the game*] and at the end of the day I was a carrier (and make font smaller) [of HIV] also. I realised my judging behaviour and will definitely work on that. I have gotten so much insight of how a good and bad teacher must be. I had the idea in my head of how I think I will be but to see the outcome and realise that things doesn’t always work out the way you think/you want it to work’. (ART) (Student teacher, gender undisclosed, date unknown)

■ How does Wardford’s zone of proximal teacher development incorporate self-directed learning?

Wardford’s ZPTD progresses through four levels: self-assistance, expert assistance, internalisation and recursion. During self-assistance (level I), it is expected that the student teachers reflect on their own experiences and assumptions. Student teachers enter the excursion with over 12 years of experience of observing teachers teach (Lortie’s [1975] apprenticeship of observation). They also enter with their experiences and practices of privilege, disadvantage, stereotypes, biases and values on the difference. The purpose of the activities was to confront the student teachers with these prior experiences, with the aim that they might identify some individual developmental goals.

During level II, the expert-other assistance, adequate scaffolding should be provided during the mediated learning. Facilitators and group members served as experts during the excursion. Excursion activities were used to scaffold student teachers towards their proximal development. Although Wardford differentiates between levels I and II, the excursion context and activities conflated the two levels. Conflation of the two levels may be attributed to the cumulative effect of the activities. While they were executed sequentially, student teachers had the chance to continually reflect on their own experiences with the expert

assistance of facilitators and group members. Therefore, the authors argue that the first two levels of the ZPTD took place simultaneously.

With regard to level III, the internalisation phase, where deeper integration of the student teachers' learning experiences should take place (Warford 2011), the student teachers engaged in developing 'newspapers'. During this reflective activity, it was expected of student teachers to reflect back on all the activities of the 3 days, and what it meant for them as future teachers. In Chapter 5, reference is made that most student teachers' reflective practices were very superficial. Although we can argue that there were signs of reflection, we can conclude that most student teachers are only at the beginning phase of stage III. This is understandable, because these student teachers, 3 months prior to the excursion, were still school learners. They are products of a school system, dominated by teacher-centred approaches where learners were spoon-fed during which their higher-order thinking skills, such as reflection, were not adequately developed. We would like to believe that as these student teachers move through their 4 years of BEd studies, and get exposed to their other remaining WIL periods (7–21 weeks), they will become better reflective practitioners to internalise what they have learnt, to convert their shortcomings into learning goals and to find ways to act on those learning needs. The recursion phase (level IV of the ZPTD), where teachers are confronted with the 'dichotomy of theory and practice in all its intensity' (Warford 2011:255), is beyond the scope of the research reported in this chapter.

■ Recommendations and conclusion

We conclude with a few recommendations.

■ Recommendations

A challenge in pre-service student teacher education is that many first-year students often enter their BEd programme with very

naïve understandings of the teaching profession. In order to have more nuanced understandings of teaching, student teachers should be truly inclusive practitioners. Currently, the excursion is only offered to first-year student teachers, and we recommend that the WIL excursion should be made part of the entire BEd curriculum (from first year to the final year of the programme), and should also contribute to a portfolio of assessment that can be built over the years and monitored regularly. We also recommend that more systematic and longitudinal research be conducted with novice teachers entering the teaching profession (refer to Ch. 5 in this regard). In doing so, empirical data will inform whether the automatisisation stage in terms of Warford's construct is achieved. For instance, we need to establish whether the teacher in an in-service teaching context is truly a social justice practitioner. In other words, is such an excursion merely a 'flash in the pan' or does it have the potential to lead to long-term reformed teaching practices? In conceptualising the WIL excursion, a design principle should be that it must create a safe space to enable dramatical collisions (Veresov 1999) and cognitive dissonance (Festinger 1962), in order to maximise student teachers' learning.

■ Conclusion

Educational WIL excursions hold affordances to sensitise student teachers in terms of being inclusive practitioners that will teach social justice in diverse classrooms. Such learning, we argue, takes place in a low-risk setting for beginner teachers (Schön 2010). Most of the activities in this chapter focussed on the notion of playing while sensitising the student teachers in terms of prevalent social justice issues in the classroom. The findings of this research indicated that the activities did sensitise the student teachers about social justice issues prevalent in the South African classroom. Student teachers were also required to identify their own developmental needs in this regard. Such excursions create a unique learning opportunity to have visceral experiences of one's own beliefs regarding social justice, which is not possible in a 'sterile' lecture hall on campus.

A hybrid model building on prolepsis for effective practice teaching in pre-service life sciences teacher education

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■ Abstract

The need for this research is substantiated by two sets of research literature, namely, literature that belabours the so-called ‘theory-practice divide’ in teacher education and, secondly, literature on the dismal state of science education in South Africa. This chapter critically looks at the pre-service education of life sciences student teachers and reports on an intervention that was conceptualised and implemented by the UJ to address some of the shortcomings of the customary school practice experience (or WIL).

Teacher education institutions are often criticised as being distant from practice and therefore ineffective in preparing student teachers for the demands of the teaching profession. This is especially true in the teaching of the natural sciences (including life sciences and physical sciences) – a national priority in a country that is not performing well in international benchmark tests. This chapter reports on an innovative intervention of the UJ whereby undergraduate student teachers were given the opportunity to teach life sciences (FET Grades 10–12) to learners from a top-performing school that did not offer life sciences as a subject. The authors will indicate how this intervention addressed three fundamental problems associated with learning to teach, namely, (1) the problem of the apprenticeship of observation; (2) the problem of enactment and (3) the problem of complexity. This qualitative research focussed on how this intervention contributed to the 81 student teachers’ (who participated) professional development. The Japanese lesson study approach, where student teachers prepared and presented lessons in groups of four, were further enhanced with the technique of prolepsis, which involves structuring learning opportunities in a way that assumes that the student teachers know more than they actually do. By using such a prolepsis approach in teacher education, the teacher educator can explore the optimal distance between the student teacher’s actual and potential development. This intervention differentiates itself from the usual school

experience, in the sense that the pre-service student teachers became the actual teachers who took sole responsibility for the learning activities over a full academic year. Data were collected through personal and FG interviews, classroom observations, questionnaires and studying artefacts (e.g. student teachers' lesson plans and written reflections). This authentic immersion in teaching, linked with effective mentoring, holds affordances for the effective education of life sciences student teachers.

Keywords: Pre-service teacher education; Prolepsis; Inquiry learning; Zone of proximal teacher education; Mentoring.

■ Science teacher education in South Africa: Can the phoenix rise from the ashes?

South Africa has unfortunately performed dismally in the past decades in terms of school learners' performance in science and mathematics (De Beer 2016). News 24 (2014) in an article described South Africa as having the 'worst maths and science education in the world'. This was in response to a report by the World Education Forum (WEF), in which South Africa was ranked last out of 148 countries in terms of science education. Most academics would warn that the WEF is not a reliable source, as the study relies heavily on perceptions. However, the research of Molapo and Pillay (2018), Simkins (2010) and Spaul (2013) highlighted similar negative sentiments. Simkins (2010) indicated that:

... 90 per cent of our schools are still failing to meet the minimum performance standards in mathematics and science education, thus undermining the potential of millions of young South Africans. (p. 12)

Many reasons have been provided for this dismal performance in science education: under-qualified teachers, qualified teachers without the necessary PCK or understanding of the tenets of the nature of science (De Beer & Petersen 2016; Motambatamba 2018), lack of laboratory equipment, constant changes to the school curriculum and the lack of a full CAPS, to name but a few

(Cronje 2015; De Beer & Ramnarain 2012; Sebotsa, De Beer & Kriek 2019). Spaul (2013:5) indicated that many teachers have below-basic levels of content knowledge. Teachers are also struggling to contextualise science for learners, and in an era of the 'decolonisation of the curriculum', this is an important issue to address in teacher education (De Beer & Petersen 2016; ed. De Beer 2019). In an attempt to address the above, the question that TEI in South Africa should ask is whether they optimally prepare student teachers for the challenges that they will encounter in the science classroom, and whether the graduate teachers who would act as agents of change. In this section, we first highlight a few specific problems related to teacher education in general, and then we focus specifically on challenges in the education of science teachers.

Darling-Hammond (2006) and Scherff and Singer (2012), taking a more international stance on pre-service teacher education, identified three fundamental problems associated with learning to teach, that is, of particular concern in South Africa, especially in the natural sciences:

1. Firstly, student teachers often mimic the teaching methods and behaviour of the teachers that they had when they were pupils – Lortie's (1975) so-called apprenticeship of observation (refer to Ch. 7 for a comprehensive discussion of this construct). This results in the unfortunate situation that teacher educators do not always sow on fertile grounds in teacher education – student teachers do not always accommodate new theoretical perspectives in their development of personal teaching philosophies.
2. Student teachers should not only learn to think like teachers, but they should also act like teachers, which does not necessarily happen. This is what Kennedy (1999) calls the 'problem of enactment'.
3. Teaching is complex. All teacher educators will concur with Shulman (2004:504) that 'classroom teaching is the most complex, most challenging, and most demanding and frightening activity our species has ever invented'. Learning to

teach requires student teachers to understand the complexity and multi-faceted nature of classroom teaching – an aspect that Jackson (1974) calls the problem of complexity. One of the challenges facing the teacher educator is to change the often naïve viewpoints of student teachers (Petersen & De Beer 2019).

These three fundamental problems are of course also applicable to the education of life sciences student teachers. The mimicry of the teaching methods that they were exposed to as learners is especially a big concern. Science education in South Africa is trapped in transmission-mode practices (De Beer & Ramnarain 2012; Motambatamba 2018; Ramnarain & Schuster 2014). Hailman (1975) argued four decades ago that ‘the approach to the “scientific method” in schools was often just as detached from how an Einstein functioned as the colour-by-number sets are removed from Michelangelo’s painting technique’ (De Beer 2012:324). Several studies have shown that natural-, physical- and life sciences classrooms in South Africa are characterised by transmission-mode teaching, with limited learner engagement, and where practical work is done, it is often characterised by ‘cookbook’ approaches and limited inquiry (De Beer & Ramnarain 2012; Sebotsa et al. 2019). Cronje (2015) and Motambatamba (2018) have also shown that science teachers often have naïve understandings of the nature of science, and this negatively impacts on inquiry pedagogies. This is currently one of the biggest problems in science education in South Africa, and it should be addressed by focussing on teacher professional development on both in-service and pre-service levels. Unfortunately, as we will show later, the customary school practice that student teachers engage in often does not address this adequately. Research (Cronje, De Beer & Ankiewicz 2015; De Beer & Ramnarain 2012; Motambatamba 2018) shows that teachers often have underdeveloped understanding of the tenets of science. This negatively impacts on the teaching of science in which science is portrayed as empirical but creative, exact yet subjected to change, etc.

■ Alternatives to the traditional school practicum

Universities are often criticised for not sufficiently preparing student teachers for the complexity of the teaching profession. Levine (2006:35) noted ‘that the field of teacher education is in a state of disarray in the United States of America (USA), reflect(ing) (its) historic confusion with regard to purpose’. Korthagen (2001), writing from a European perspective, said that many politicians, teacher educators, student teachers and graduates are dissatisfied with teacher education. In England, dissatisfaction of politicians has resulted in the transfer of a considerable part of teacher education to selected schools (Mcnamara, Murray & Jones 2014). The ‘theory–practice divide’ in the education of teachers seems to plague teacher education (Gravett et al. 2016; Holland, Evans & Hawksley 2011; Laverty 2006). Teacher education institutions implement various strategies to address the perceived theory–practice divide, the most common being establishing partnerships with schools, and placing student teachers in such schools for the school practicum component of the teacher education programme. Two models in which schools play prominent roles in the education of teachers are PDSs in the USA (Abdal-Haqq 1998; ed. Darling-Hammond 2005; Güven 2010) and teacher training schools in Finland (Loukomies, Petersen & Lavonen 2018; Tuovinen 2008) and recently also in South Africa (Gravett 2015; Gravett & Ramsaroop 2017). However, the most prominent model that prevails worldwide is placing students in a variety of schools for specified periods with little direct collaboration and dialogue between university-based teacher educators and school-based mentors of student teachers.

University staff visits to the schools are often limited to observing a few lessons presented by student teachers. This model often makes it difficult to sufficiently address the three fundamental problems listed earlier, namely, the problems of apprenticeship of observation, enactment and complexity – especially in breaking the transmission-mode teaching cycle and introducing problem-based inquiry learning. Mentor teachers in

many schools also do not adequately support student teachers in their professional development.

In this chapter, we report on an intervention that addresses the shortcomings of the traditional school practicum involving a partnership between a university and a secondary school. The school in question did not have the means to offer life sciences as a subject option in grades 10–12 though there was interest from learners to pursue this subject. We saw the opportunity at the UJ to assist the school with this need and to simultaneously introduce a school practicum programme at the school that will benefit the university's life sciences student teachers in their development as teachers. To do this, we introduced an intervention in which senior undergraduate student teachers (fourth-year BEd and Postgraduate Certificate in Education [PGCE] students) took responsibility for teaching life sciences to the school learners, supervised and mentored by teacher educators. In this chapter, we report on a qualitative study that was conducted to explore the affordances of this intervention for student teachers' professional growth over an academic year. We first describe the intervention and then present the findings.

■ The school practicum intervention

■ Background: Why this intervention?

The authors, having been involved in teacher education for decades, became increasingly concerned about the inability of the conventional school practicum sessions to often scaffold student teachers in using problem-based and inquiry learning approaches in the natural sciences. The UJ was tasked to lead research on the feasibility of TSs in South Africa, and this specific intervention formed part of this research. (In Ch. 4, the focus is on a TS in Soweto associated with UJ). In 2013, when this intervention was introduced, a group of 26 student teachers collectively took responsibility for teaching 12 Grade 10 life sciences learners for a full school year. In 2014, a new cohort of 25 Grade 10 learners was taken in (and the Grade 10 learners of the

previous year – all 12 – progressed to Grade 11). A new group of 55 student teachers signed up for the intervention in 2014 and again taught the learners for a full year. This chapter therefore reports on the experiences of 81 life sciences student teachers who participated in this intervention. In both years, the student teachers were divided into teams of four, and each team was assigned to either teach in Grade 10 or in Grade 11. The year 2015 earmarked the third year of this intervention (with the first cohort of Grade 12 learners), but only data from 2013 to 2014 are reported on in this chapter.

■ **The approach: Scaffolding learning across a zone of proximal teacher development**

Both authors subscribed to some aspects of Vygotskyan notions of learning, and the intervention was conceptualised around scaffolding student teacher learning across a ZPD (Vygotsky 1978) or, as explained later, across the ZPTD (Warford 2011). The student teachers took full responsibility for the teaching, implying that they planned lessons according to the official curriculum, and pacesetters provided by the South African DBE presented the lessons, monitored learner progress, identified learning needs, conducted the assessment and reflected on the teaching and learning. There was also a research component involved, with the student teachers having had to engage in classroom action research (e.g. student teachers had to conceptualise, implement and research a ‘science-on-a-shoestring’ intervention, where they had to foster open inquiry using low-cost materials).

■ **The process followed during the intervention**

The intervention was based on the Japanese lesson study model. Lesson study is a professional development process, focussing on enhancing critical reflection of teachers, in order to improve lessons. It is characterised by its collaborative, cyclical and continuing nature (Chikamori, Ono & Rogan 2013). This innovation

is a well-established classroom-based and collaborative form of teacher development that is used by Japanese teachers to systemically examine their practice in order to become more effective teachers (Fernandez & Chokshi 2002). In our intervention, the teams of student teachers designed lessons together, and these were discussed, involving the teacher educators, a few days prior to the day that the lesson was presented. The role of the teacher educators was to assess the student teachers' lesson plans and to provide suggestions for improvement. Problems that emerged during the delivery of the lesson were ascribed to the team and not to the student teacher who taught that particular section (Stigler & Hiebert 1999). Student teachers also took responsibility for arranging the practical work sessions. In Figure 11.1, we explain the cycle.

A problem that we experienced at the beginning of the intervention was the lack of continuity. Student teachers would often teach, without having a good understanding of what content was dealt with during the previous class. (Student teachers followed a timetable, and each group got a turn every 4–6 weeks.) We therefore realised that we needed to ensure that a group of student teachers who were teaching should at least know what had been taught in the previous classes. We therefore implemented a system which involved two groups of student teachers every week: the incoming group and the teaching group. The incoming group observed the lesson and assessed the teaching group's lesson using a rubric. This served as a valuable learning experience for them and ensured continuity because the incoming group was again the teaching group in the week that followed. Each lesson presentation was followed by a reflection session, during which both student teachers and teacher educators reflected on the lessons.

Student teachers' involvement in a particular lesson was preceded by planning meetings (with the teacher educators), and after the lesson, a reflection session. One cycle of a team's involvement ran over a two-week period, as illustrated in Figure 11.1.

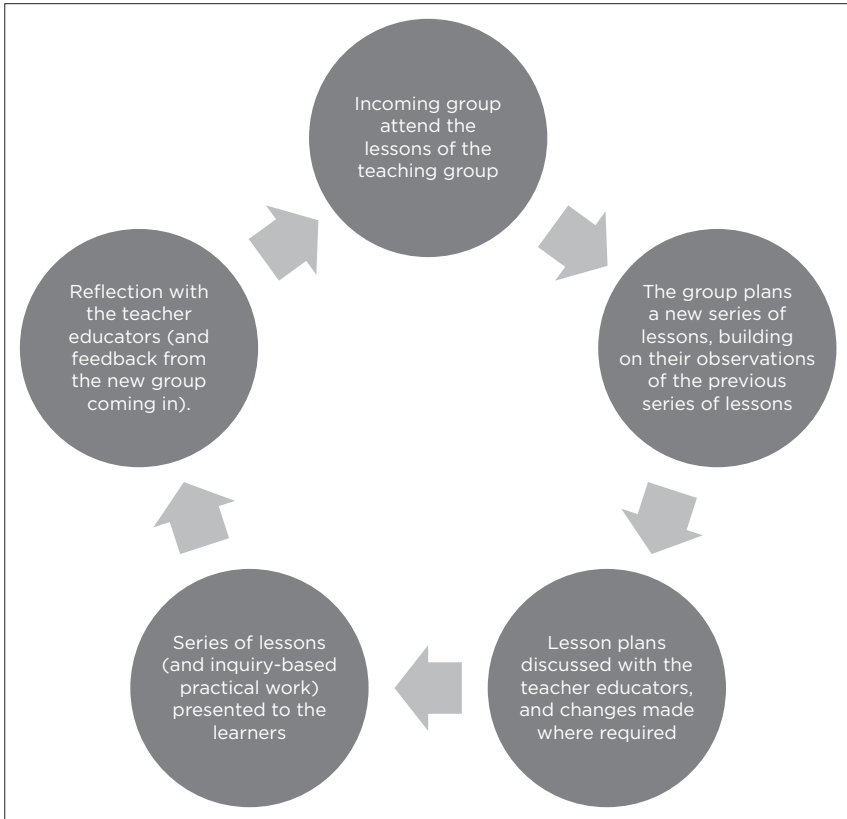


FIGURE 11.1: The life sciences intervention cycle.

A team of student teachers planned the lesson (emphasising inquiry-based learner activities) and then scheduled an appointment with the teacher educators. The latter provided feedback and suggestions on how the lessons could be improved, and the team of student teachers then went back to the drawing board and improved the lesson plans. A second meeting with the teacher educators followed and final changes were made to the lesson plans. The student teachers also had to take responsibility for obtaining all media used during the lesson, as well as for

arranging practical work in the laboratory. The concept of *Homo ludens* (the playing human) (Huizinga 1955) was emphasised – apart from inquiry laboratory approaches, student teachers were constantly reminded to utilise approaches that actively engaged learners in the classroom, including a pedagogy of play. After the lesson, a reflection session took place. In this session, the student teachers engaged in self-reflection on their lessons and the teacher educators and incoming group of student teachers provided feedback.

The class of student teachers collectively set the examination papers and all student teachers joined learners on excursions. Student teachers also engaged in classroom action research, for instance, in adopting science-on-a-shoestring approaches, or ‘frugal science’ (Jackson, De Beer & White 2018), with a view to develop agency. (Science teachers often complain that they do not have the resources to follow inquiry-based approaches, and in our view, student teachers should be taught to improvise, using everyday materials to teach in a more inquiry-based fashion.)

□ Prolepsis

Apart from the lesson study approach discussed above, the intervention is also characterised by prolepsis, a technique whereby a learning opportunity is ‘structured in a way that assumes that the students know more than they actually do’ (Van Lier 2004:153). By using a proleptic approach in teaching, the teacher educator can explore the optimal distance between the student teacher’s actual and potential development (Van der Walt & De Beer 2016:559). Prolepsis foresees the internalisation of concepts that still need to be attained. Van Lier (2004:153) explained that ‘... prolepsis consists of attributing intent before its true onset, and capitalising on incipient skills and understandings as they show signs of emerging’. In this intervention, student teachers were emerged in authentic teaching, before they had been exposed to much educational theory. When they started to teach in this intervention, they had very limited exposure to theoretical lenses.

■ Research methods

This is a generic qualitative study. The research questions that guided this research intervention were:

- How do student teachers view their own professional development during this intervention?
- How do teacher educators view the professional development of the student teachers through their involvement in the intervention?

Data were collected over a period of 2 years through interviews with individual student teachers and teacher educators, FG interviews, reflective essays of student teachers (and their autobiographies), a questionnaire with open-ended questions and classroom observation (utilising the Reformed Teaching Observation Protocol [RTOP] instrument, of Sawada, Piburn & Judson 2002). In total, 81 student teachers were involved in the study over two years. All interviews were transcribed and coded, and a number of emerging themes were identified. Lesson plans and the RTOP questionnaires were analysed utilising a rubric as suggested by Cronje (2015) for the tenets of the nature of science, for example, whether lessons portray elements such as the empirical and the inferential nature of science. Analysis of the rich data has led to findings that are explored in this chapter through descriptive metaphors that students have used to describe their development as life sciences teachers in this intervention (De Beer, Lautenbach & Batchelor 2013:571). A brief discussion of the four themes that emerged from the study is provided. Because of the large number of student teachers in this course ($n = 140$ in 2014), not all student teachers could be accommodated in the intervention, and this resulted in useful experimental ($n = 55$) and control ($n = 85$) groups (for 2014). Although the comparisons between the experimental and control groups are discussed in another publication, we briefly summarise the findings in this chapter. After having analysed the data, we realised that the findings are well aligned with the stages that

Warford (2011) described during student teachers' scaffolding within the zone of proximal (teacher) development. We include a section where we provide the reader with a glimpse of how the professional development of student teachers occurred during the course of an academic year.

■ Ethical considerations

Student teachers were made aware that participation in the project is voluntary, and that they could withdraw from the research at any stage without any negative consequences. Furthermore, they were assured that pseudonyms, and not their real names, would be used when disseminating the findings.

■ The findings: The affordances of such a novel approach to pre-service teacher education

We discuss the findings under three headings. We will firstly look at the four main themes that emerged from the study. Next, we will look at how the professional development took place through scaffolding across a ZPTD, utilising the construct of Warford (2011). Lastly, we compare the student teachers who participated in this intervention, to those who did not participate in the intervention (all registered students in the life sciences methodology module).

■ The findings: The main themes that emerged

There were *four main themes* that emerged from the data, which we will briefly discuss. (More data supporting these themes will be provided in 'The findings illustrate student teacher learning across the zone of proximal teacher development' section).

□ **The intervention assisted student teachers in replacing transmission-mode teaching approaches with more engaging pedagogies**

When the intervention started at the beginning of the academic year, most of the lessons provided evidence of transmission-mode ('chalk and talk') pedagogies. Student teachers relied heavily on extensive PowerPoint slides, with little learner engagement (De Beer 2017:20). In spite of such uninspiring lessons that did not engage learners sufficiently, student teachers generally communicated contentment and *expressed their satisfaction* with the lessons during the reflection sessions (De Beer 2017). This made us realise that many student teachers are used to this type of transmission-mode lessons (the apprenticeship of observation).

At the start of the intervention, we were surprised by the student teachers' lack of sensitivity towards contextual factors and the ignorance about the fact that a teacher needs to know his or her learners, their attributes and contexts (De Beer 2017). An example was a lesson on biotechnology, during which the student teacher discussed traditional healing practices. As most of the learners were of Indian descent, and predominantly Hindu or Muslim, one would have expected more culturally applicable examples (e.g. Ayurveda practices) in the lesson. However, the student teacher exclusively focussed on African traditional healing, and sangomas (and the metaphysical activities of such African medicine people, e.g., making contact with the ancestors were unfamiliar to the learners) (De Beer 2017). The student teacher should have rather asked the learners about their own cultural traditional medicine (e.g. Ayurveda) and then introduce African traditional methods (De Beer 2017).

Gradually, as the school year progressed, there was evidence of transformed teaching practices, and the 'chalk and talk', transmission-mode lessons were replaced by lessons where SDL, PBL and engaging CL were emphasised (De Beer 2017).

The following lesson observation notes (made by one of the teacher educators) provide evidence of this fact (De Beer 2017):

Well prepared lesson. Sabelo sort of took the lead, very confident. They didn't only lecture but used interactive learning, doing activities that involved the learners throughout. Sabelo used the learners as models to show the different layers of tissue in a plant. The learners remembered this well and when Janita recapped the lesson they still remembered it. Sabelo used different narratives to help learners remember the different tissues. The power point lesson was well planned and the practical work with the wet mounts went well. The whole team assisted with the practical work (Teacher educator, undisclosed gender, date unknown). (p. 11)

Feedback by a teacher educator on another lesson (cited in De Beer 2017) was:

'Wow, this was an excellent inquiry-learning lesson, where the student teachers did not provide "recipes" to follow, but the learners had to design experimental procedures to solve the problem. The team of teachers provided excellent scaffolding to the groups of learners, and the body language of the learners convinces me that the learners enjoyed the learning activity' (Teacher educator, undisclosed gender, date unknown). (p. 11)

□ **The intervention provided student teachers with more nuanced understandings of the nature of science**

A similar pattern, as described above, was also observed in terms of the realisation of the nature of science in lessons. At the beginning of the year, student teachers paid lip service to the tenets of science. As the year progressed, lessons were built around the true nature of science, displaying its syntactical nature. One of the student teachers reflected on this intervention (cited in De Beer 2017):

'What I've realised with school experience, is that teachers don't do practical work at all and if they do practical work its always sort of "cook book" activities that serve to confirm. In this project we were taught something that we don't learn during school experience: how

to arrange good inquiry labs'. (Student teacher, undisclosed gender, date unknown)

In a similar vein, another student teacher commented (cited in De Beer 2017):

'I came to realise that the issue is to teach for maximum learner understanding – and not to simply cover the curriculum. And I realised what role inquiry approaches can play in fostering learner understanding'. (Student teacher, undisclosed gender, date unknown)

Another comment of a student teacher indicates an appreciation for the tenets of the nature of science (cited in De Beer 2017):

I could see how the class became alive when we did inquiry activities. I realised that I have to provide learning opportunities in my class one day, that will give my learners a good sense of how a scientist operates. Something of the excitement and messiness of science should be captured in my classroom. (p. 21)

One of the teacher educators provided the following feedback on one of the observed lessons (cited in De Beer 2017):

'Tenets such as the empirical and inferential nature of science were centre-staged in this lesson. There was a definite "energy" in class, where the learners investigated the problem as scientific sleuths'. (Teacher educator, undisclosed gender, date unknown)

□ Student teachers' professional developments were scaffolded through the mentoring of peers and teacher educators

Student teachers commented on the good mentoring that they experienced in this intervention, in contrast to the poor mentoring and lack of support by mentor teachers in schools, during school experience (De Beer 2017):

Most of the time the mentors at the school where we are teaching don't give support to the student teachers. You just ask them what are you going to teach and they tell you and that's it. You have to see for yourself how you are going to deal with the activities,

they don't even ask where you are. You just teach and when the time comes to leave the school they would ask you where did you end. You show them what you did and that's it. They never come to class to check on you and to see how you are doing. They just don't care about their kids and student teachers. There is no support at all. (p. 21)

It was encouraging that some of the student teachers developed a better understanding of the roles of the teacher educators (mentors) that were present in the class during this intervention. Whereas many student teachers initially saw the teacher educators' role as judgemental and finding fault, later they realised that the teacher educators' role was of providing mentoring and support. The following remark by a student teacher serves as illustration (De Beer 2017):

I was terrified by the presence of the Prof in class on the first day. Now I feel most comfortable, because I know he is going to provide supportive feedback that will help me to grow. (p. 22)

Another student commented (cited in De Beer 2017):

'At first I did not want to criticise my colleagues. However, I learned in this project that it is not being negative and finding fault, but that we as students should support each other, and provide other perspectives, so that we can all grow into super teachers. I did not only learn from the professors, but also from my student friends'. (Student teacher, undisclosed gender, date unknown)

□ **The intervention facilitated the development of affective outcomes, such as taking responsibility for the learners and adopting a pedagogy of care**

In the project, student teachers engaged with the learners on a weekly basis and came to know individual learners well. This is in contrast to the situation with school experience, where student teachers visit a school for a few weeks only and never come to know individual learners and their dispositions to learning. During

the intervention, the student teachers developed a sense of responsibility towards the learners. Student teachers experienced a feeling of pride and accomplishment, as can be seen from the following comment (De Beer 2017):

‘By teaching these learners I feel such a sense of accomplishment. I felt that I was making a contribution that was worthwhile. I cannot wait to see them graduate’. Sizwe said, ‘I’m praying that the students who are following us would treat our learners and present themselves the way we started it (as 2013 Life Sciences teachers)’. (p. 22)

One of the teacher educators reflected as follows:

‘It was so satisfying to see how the student teachers developed real care and compassion for the learners they taught. They went out of their way to reflect on better pedagogies to use to ensure learner understanding, and I think they were more stressed than the learners themselves, during the examinations. They so much wanted their learners to excel’. (Student teacher, undisclosed gender, date unknown)

While analysing the data, we realised that there is a pattern in the acquisition of knowledge and skills reported on in all four of the above themes. In ‘The findings illustrate student teacher learning across the zone of proximal teacher development’ section, we further explore this.

■ **The findings illustrate student teacher learning across the zone of proximal teacher development**

After analysing our data and identifying the above themes, we read an article by Warford (2011) and realised that our findings are aligned with the process of development described in his work. We would therefore like to provide a more detailed account on the above four major themes, by following a more ontological approach. In the subsections that now follow, we show how student teachers typically progressed through the four stages identified by Warford (2011). We need to make it clear that we

conceptualised this intervention based on Vygotskian principles but not intentionally according to the phases that Warford identified. It was only when we analysed our data, and we realised that the data clearly highlight this progression. Over the 2 years of this intervention, 81 student teachers were involved, and although each student teacher had a very individual trajectory of professional growth, the majority of the students showed the progression described by Warford's model in their professional growth. Some student teachers swiftly progressed to internalisation and recursion, and for other student teachers it took much longer. However, a general pattern could be seen in the data, indicating a general progression in students' views, and in their teaching, as the academic year progressed. Our argument is that the intervention successfully addressed the problems mentioned earlier of (1) the apprenticeship of observation, (2) enactment and (3) complexity.

Our view of student teacher professional development is underpinned by Vygotsky's ZPD (De Beer 2017:17; Vygotsky 1978). Warford (2011) has further developed this Vygotskian concept in relation to teacher development, and he coined the term 'ZPTD'. We find this a useful construct to reflect on the potential benefits of this intervention (De Beer 2017:17). According to Warford (2011:253), situated learning within a Vygotskian context makes provision for the border-crossing between the academic discourse of the university classroom and the experiential discourse of the school classroom (De Beer 2017:17). Warford stated that the ZPTD represents the distance between what 'student teachers can do on their own without assistance, and a proximal level they might attain through structured mediated assistance (scaffolding) from more capable others' (Warford 2011:253). In this case, the 'more capable others' are the teacher educators who serve as mentors to the student teachers, as well as peer mentoring by the student teachers themselves. Warford suggested a number of stages for this scaffolding within the ZPTD. We realised that our data and findings are well aligned with these four stages.

□ **Stage 1: Student teachers are required to reflect on prior experiences and assumptions**

At the beginning of the course and the intervention, we asked the student teachers to write reflective essays on their experiences and views of the teaching profession. In response, they also formulated rudimentary teaching philosophies. Many education students enter the teacher education programme with a very naïve understanding of what it means to be a teacher. Student teachers' learning is influenced by the 'baggage' of 12 years of schooling, and this is explained by Lortie's (1975) construct of the 'apprenticeship of observation' (which is discussed in detail in Ch. 7). This reflection exercise assisted teacher educators to develop an estimation of the actual level of development of the student teachers. In addition, the student teachers were required to write learning autobiographies, in which they reflected on their professional development on a weekly basis as the intervention progressed. Warford calls this the 'self-assistance stage'. Korthagen and Kessels (1999) showed that preconceptions about learning and teaching often do not agree with the theories taught in teacher education programmes and furthermore that these preconceptions have a remarkable resistance to change. We argue that the self-assistance stage, in which the student teachers reflected on their own views and beliefs (e.g. through the autobiography), cultivated a more conducive ZPTD, where student teachers were more open towards theoretical constructs that challenge them.

As we subscribe to the technique of prolepsis in this intervention, student teachers started teaching immediately at the beginning of the academic year. Whereas every lesson was planned in conjunction with the teacher educators, the first lesson was the exception, which provided the opportunity to determine how student teachers would teach without scaffolding or support. In Table 11.1, we summarise our findings.

The following excerpts from student teachers' reflections summarise the majority of the students' views on their first teaching experience (De Beer et al. 2013):

TABLE 11.1: Summary of findings during the initial phases of the programme (February and March, which in South Africa is the start of the academic year) (the different columns refer to the different data collection instruments that were used in the study).

Student teachers' autobiographies	Classroom observations/ student teaching (from RTOP instrument)	Student teachers reflections (after first lesson)	Interviews
Students reported to be anxious, excited, traumatised, shocked or glad for the opportunity. Very naïve teaching philosophies emerged, which did not take cognisance of the complexity of teaching in a systemic framework.	Transmission-mode teaching, mainly by making use of very poorly prepared PowerPoint slides, were common; very limited interaction with the learners; student teachers were nervous and lacked self-confidence; poorly prepared for the lessons; lack of adequate subject knowledge. Lack of sensitivity for student diversity and different needs.	Students used metaphors such as 'the sinking Titanic' or 'bungee jumping' – very scary, but at the same time exciting. However, the students' reflections were generally of poor quality, and not very critical. Many of the reflections indicated that the students were very pleased with poor transmission-mode lessons.	Student teachers confirmed the teacher educators' observations that the student teachers were not very critical in their reflections. Poor lessons were actually viewed as being of good quality, and if learners nodded during a PowerPoint-driven lesson, student teachers viewed it as an indication that the learners understood the work. In the initial phase of the intervention, many students viewed working in groups as stressful and indicated the desire to rather work individually.

Source: Authors' own creation, based on the stages in scaffolding across the ZPTD identified by Warford (2011). RTOP, reformed teaching observation protocol.

Siphiwe: 'Overall and above this was an experience equivalent to 'bungee jumping' as everything gets heightened, this includes one's fear, anxiety, stress, emotions and the best thing one can do is to act calm and act a teacher, one who is in control and enjoy everything as it comes and learn from each learning experience.' (p. 572)

Lebo: 'This first day felt to me like the sinking Titanic. I was SO nervous ... and every time a learner asked a question, I could feel my heart racing in my chest ... what if I cannot answer?' (p. 572)

Student teachers in general were not very critical in their reflections at the beginning. During his reflection on what we

considered a really bad lesson, one of the student teachers (cited in De Beer, Lautenbach & Batchelor 2013) stated that:

‘[W]hen I read the slides I saw them (the learners) nodding and acknowledging that they understand what I’m saying’. When asked what he felt did not work well, his answer was: ‘What did not work for me is ... no everything worked for me, nothing was wrong – a perfect lesson!’ (Student teacher, undisclosed gender, date unknown) (p. 572)

□ **Stage 2: The expert-other assistance stage**

Warford refers to this stage as the expert-other assistance stage, implying that scaffolding or mediation will assist the student teacher in his or her professional development. As mentioned, we followed the Japanese Lesson Study model, and student teachers planned and presented lessons in small groups of four. The teacher educators involved critiqued the lesson plans, observed the lessons, provided critical yet supportive feedback on the lessons observed and also assisted the student teachers in planning practical work sessions in the laboratory, arranging of field trips and also setting tests and examination papers for the learners. We share the view of Van Lier (2004) that in an expanded ZPTD, scaffolding happens on four levels, namely, self-access, interaction with less capable peers, assistance from more capable peers and interaction with equal peers.

At first, student teachers viewed the teacher educators involved as being judgemental, but this slowly changed into the realisation that the teacher educators actually acted as mentors. Student teachers also started to value the peer support that stemmed from these small communities of practice. Table 11.2 summarises the findings during this phase.

Siphiwe wrote the following in his reflection, indicating that he valued teamwork with his colleagues and the peer mentoring (De Beer et al. 2013):

Victory loves preparation, this is what I think me and my group represent, we planned in time and worked as a unit and delivered the lesson as smoothly and as enjoyable as possible. The planning process was quiet drastic as a lot had to go into it, including time

TABLE 11.2: Summary of findings during phase 2, the scaffolding within an expanded ZPTD (March to May).

Classroom observations/ student teaching	Student reflections	Student teacher interviews	Interviews with mentors (teacher educators)
Student teachers engaged the learners more during the lesson; asked more questions and took cognisance of the different levels in Bloom's taxonomy. Student teachers used more practical examples and gave more meaningful homework.	Reflections started to become more critical and nuanced. Whereas many student teachers were irritated by the 'lesson study' approach in the intervention, they started to reflect on the value of peer mentoring.	Student teachers reported on being more confident than in the beginning and also started to be more critical on their own practices.	There was a definite shift visible from the initial transmission-mode lecturing style, to more engaging practices, where learners participated. Student teachers were more at ease with each other.

Source: Authors' own creation, based on the stages in scaffolding across the ZPTD identified by Warford (2011).

management which I think we executed perfectly as we started the lesson on time and finished in time, and also preparing for the practical in time before we went to class enabled us to execute the practical effectively enough for the learner's to learn and have fun at the same time. (p. 573)

The 'fun' provides evidence that student teachers started to value a pedagogy of play, getting the learners to participate in learning activities as *Homo ludens*, the playing human.

Natalie again reflected on the role of the teacher educator providing guidance (cited in De Beer 2017):

'I was very nervous at the beginning, because this sporophyte and gametophyte and dominant generations are difficult concepts, but my lecturer explained it so nicely at the beginning of the lesson so I understood it better. This made me feel better and more confident. So I was nervous in the beginning but then I started to feel confident and I could enjoy it because these learners are stunning learners and ask good questions'. (Student teacher, undisclosed gender, date unknown)

Many of the student teachers reflected on the realisation that a teacher should be well prepared for a lesson and (especially with such bright learners) expect that they will ask difficult questions (cited in De Beer 2017):

'I really enjoyed the learners and the questions that they asked. Absolutely brilliant even though we did look like monkeys most of the time if we could not answer their questions, but in a normal school environment if a kid asks you a question that you don't know ... it doesn't really happen, so I think it's stuff for us to think of as well, because it's not always easy to think on your feet but if somebody would ask her a question maybe I would know, so we could help each other, so teamwork, I know it's not how it's going to be when I teach one day, but it's a nice way to work together.' (Student teacher, undisclosed gender, date unknown)

Thabo realised that teamwork is the key here and that his student colleagues could act as a safety net for him. Our observations showed that student teachers started to act as effective communities of practice, supporting each other where they could.

□ **Stage 3: Internalisation**

Student teachers were guided in their reflective practice, and reflection for practice, reflection in practice and reflection on practice were emphasised. After each cycle of lessons, student teachers individually reflected on their lessons, assisted by feedback from both their peers and the teacher educators. Student teachers started to develop an own footing and voice, as they engaged in critical reflection and journaling. Slowly the teacher educators started to witness more nuanced teaching philosophies. In this stage, there is often evidence that the student teacher starts to 'de-learn' some prior experiences or preconceptions, and start valuing new knowledge and practices. This we have indeed observed in this intervention.

Some student teachers started internalising their learning experiences early on in the programme, whereas other students only arrived at this stage towards the end of the academic year. In Table 11.3, a summary of the main findings is provided.

TABLE 11.3: Summary of findings during phase 3, the internalisation phase (April to November).

Classroom observations/ student teaching	Student teacher reflections	Student teacher interviews	Interviews with mentors (teacher educators)
Student teachers used narratives, case studies and more inquiry activities. Questions were asked on higher cognitive levels. Student teachers were much more sensitive towards individual learner needs. Better teamwork than before. Student teachers were more confident to support other students.	Student teachers were much more critically reflective and did not hesitate to critique bad pedagogy. They also came up with alternative approaches themselves.	In general, student teachers commented that they enjoyed the experience much more than the beginning of the year. They also started to value more creative teaching methods and inquiry-based laboratory lessons.	There was significant professional growth observable. Whereas some student teachers, in the beginning of the year, could not use a microscope, the student teachers were now able to plan and present very effective laboratory-based classes. Student teachers valued learner participation.

Source: Authors' own creation, based on the stages in scaffolding across the ZPTD identified by Warford (2011).

In this phase, we found evidence of internalisation of some of the concepts (e.g. more inquiry-based teaching) in the student teachers' practice, as well as far more nuanced reflections. To a question to Natalie on what she would, in hindsight, change if she had to teach the lesson again, she answered as such (cited in De Beer 2017):

'The introduction, I had a different idea and I wanted to use hydrophytes in an experiment on photosynthesis to show them the different adaptations, but I couldn't find any hydrophytes, so I had to change my introduction by using moss, it wasn't as amazing as the hydrophytes would have been'. (Student teacher, undisclosed gender, date unknown)

In a similar vein, Yvonne answered that, if she had to present her lesson again, she would (Cited in De Beer 2017):

'[E]ngage the learners more than I did, ask them more questions while I'm teaching as supposed to them asking me questions all the time - that is still good because they are thinking for themselves, but that I pose questions that they start thinking about that. I think that

would also solve the problem that they don't get so tired.' (Student teacher, undisclosed gender, date unknown)

Another student teacher reflected as follows:

'I'm very upset about the slideshow that wasn't very nice, maybe instead of the audio-visuals and video I wish we could've brought earthworms. I wanted to bring earthworms to take out but I had no time to go and buy them, which would have been nice if learners could've touched them. Or if I could've taken the tarantula Isabella out'. (The student teacher did have a tarantula, named Isabella, there, as an example of an arthropod, but we decided before the class that it is in the best interest of the learners and Isabella that the learners did not handle the spider). (Student teacher, undisclosed gender, date unknown)

The feelings of nervousness, and the metaphors of 'bungee jumping' and 'the sinking Titanic', gradually changed to more positive experiences:

Danelle, during an interview after one of her lessons, said: 'It was very nice, it was something else, and these learners are here because they want to be here. I love it. These are very dedicated learners, they come here every Saturday because they do not have the subject at their school, I will teach here every Saturday, I really love it. I know they don't have a teacher so through my teaching I could have an influence in their learning and motivation in this subject'. (Student teacher, undisclosed gender, date unknown)

□ **Stage 4: The recursion or the de-automatisation phase**

This fourth stage described by Warford could be seen as the 'theory into practice' stage, as the student teachers confronted the dichotomy of theory and practice in all its intensity' (Warford 2011:255), implying that student teachers could use theoretical lenses to interrogate practice. Student teachers accommodated new concepts in their conceptual understanding, and this equilibration might entail discomfort and stress. Student teachers developed more nuanced teaching philosophies.

During this phase, we saw that many of the student teachers had mostly abandoned the transmission-mode of teaching that

TABLE 11.4: Summary of findings during phase 4, the recursion or de-automatisation phase (July–November).

Classroom observations/ student teaching	Student teacher reflections	Student teacher interviews	Interviews with mentors (teacher educators)
Learners effectively engaged in the lessons; many open-ended inquiries and practical work sessions were well facilitated. Student teachers were far less dependent on notes or PowerPoint slides and showed respect for learner diversity and became much more skilled in addressing learner needs.	Student teachers were critically reflective; they knew their own strengths and shortcomings better. They were better able to identify gaps in their traditional school experience and had an insight into how this intervention provided opportunities that did not always manifest during school practicum. More nuanced teaching philosophies were displayed, drawing on theorists such as Piaget, Vygotsky, Gardner, etc.	They celebrated their professional growth and saw the value of this intervention. Student teachers showed a pedagogy of care and expressed their concerns about the next group of student teachers, who would be taking over the following year.	There was a definite shift in emphasis towards more inquiry-based approaches. Student teachers showed a remarkable growth in terms of pedagogical content knowledge. Hopefully, new pedagogies were well established and will not be 'washed out'.

Source: Authors' own creation, based on the stages in scaffolding across the ZPTD identified by Warford (2011).

characterised their initial lessons. Whereas student teachers initially showed resistance towards incorporating more inquiry-based approaches, they became far more confident and skilled in planning practical work sessions that were more towards the open-ended inquiry spectrum. We saw far less 'cookbook' laboratory activities. Student teachers also showed a far more nuanced understandings of the complexity of the teaching profession. In Table 11.4, we summarise the findings.

One of the teacher educators commented (cited in De Beer 2017):

'Wow, what a wonderful example of inquiry learning. Learners had to formulate a hypothesis and plan an investigation. The decibel level in the lab testifies to the enjoyment of the activity by the learners'. (Student teacher, undisclosed gender, date unknown)

Yvonne had the following to say (cited in De Beer 2017), when she was asked during the interview what value she personally gained through her involvement in this intervention:

‘There are two aspects – individually – for me this is a great opportunity to gain experience in teaching the subject that I will be teaching someday ... I get an opportunity to practice the type of questions to ask while you are teaching, and to reflect on your lesson ... so that I don’t make the same mistakes when I’m a practising teacher. For the learners, I think that it is good that they have currently studying students teaching them, so it’s not old ways of teaching that they are getting, its ways that we got taught in our classes ... so it’s a new generation way of teaching’. (Student teacher, undisclosed gender, date unknown)

Yvonne’s first lesson was, like most of the student teachers’ lessons at the beginning of the year, transmission-mode lecturing. However, as the intervention unfolded, she started to plan more engaging activities for the learners, and eventually also more open-ended inquiry lessons.

Student teachers compared this experience to their usual teaching experience in other schools (that they still do). One of the student teachers commented (cited in De Beer 2017):

‘I really think that having kids that are so smart is a big benefit to us because not a lot of us will be teaching at a private school where you have these type of learners; normal kids are very average and they normally don’t prepare before class, they don’t study before class. They come to class and they don’t know anything, so they can’t ask all these nice questions. It helps a lot’. (Student teacher, undisclosed gender, date unknown)

Another student teacher added to this sentiment:

‘In many schools, we can get away with little planning. One often spends half the period disciplining the kids. This intervention made me realise that a teacher should be well prepared, and should engage the learners’. (Student teacher, undisclosed gender, date unknown)

■ **Another student teacher reflected as follows (cited in De Beer 2017):**

‘I worked in a location (poor socio-economic areas, with often informal housing) school and I was a learner in a former model C school so I’ve

been exposed to learners in the location schools they do not get exposed to the resources as the learners here are exposed to. The apparatus in their classrooms are not on the same standard as the apparatus here; here things were created for the learners so that they can understand the stuff. When you go to schools you have to finish with the syllabus, and getting the learners to understand the content, it's all about rushing to finish the syllabus'. (Student teacher, undisclosed gender, date unknown)

Student teachers also commented towards the end of the year on their personal growth, and the development of self-confidence (cited in De Beer 2017):

'I want to comment on my personal development; as an education student I always imagined my worst case scenario to be discipline and I also imagined very smart learners asking me questions that I couldn't answer. But I was with these children today and I saw that, OK, I could handle smart children, then my worst case scenario just became my best case scenario. Now I don't think there is any stumbling block that I cannot overcome when I go back to my school, I have this self-confidence that when I go back to my average learners and they try to act smart with me, I know that I was dealing with smarter children'. (Student teacher, undisclosed gender, date unknown)

Student teachers also came to realise the complexity of teaching, as can be seen in Memory's reflection (cited in De Beer 2017):

'[T]eaching is complicated and not simple, you need to conquer your fear. Don't give up. You can plan but it can flop but you need to think on your feet. Courage doesn't mean to have no fear, you are going to make mistakes, but you can learn from it and improve'. (Student teacher, undisclosed gender, date unknown)

It is interesting to note how student teachers' metaphors have changed over the period of a year. Metaphors such as that of the 'sinking Titanic' were replaced by metaphors such as the following (cited in De Beer 2017):

'I am the eagle - I can fly! This project has given me wings - I feel confident to go and teach next year.' (p. 25)

'I feel like a concerned parent. Will next year's group of students care as much for these learners, as we did?' (Student teacher, undisclosed gender, date unknown)

■ **Comparing the student teachers who participated in this intervention to their peers who did not**

One could of course ask the question whether such progression would not also be seen amongst student teachers who were only subjected to the more conventional school practicum model. We would think that one would see the same progression, but we argue here that there are nuanced differences – for example, this intervention centre-staged inquiry learning. Owing to the large number of student teachers in this course ($n = 140$ in 2014), only a limited number of student teachers ($n = 55$) could be accommodated in the intervention in 2014. It must be pointed out that these 55 students also taught in other schools during the school practice period. Students who did not participate in the intervention had to visit schools for 7 weeks, while the students who participated in the intervention only went to other schools for 5 weeks – they obtained 2 weeks' credit for their involvement in this intervention. The other student teachers ($n = 85$) engaged in traditional school practice, for a period of 7 weeks. All 140 student teachers had to present three lessons for assessment purposes: two of the lessons were assessed by teachers in the respective schools, and one of the lessons by a teacher educator. It was interesting to note how, in general, the student teachers who were involved in the intervention did better in their assessments, compared to the student teachers who were not involved in the intervention. (This is communicated in another publication.) The average mark (based on three assessments for each student) of the student teachers who were involved in this intervention was 80.49%, compared to an average mark of 69.78% for the students who were not involved in this intervention. Based on the fact that the experimental group on average obtained a mark which was 10.71% better than the control group, we argue that such an intervention enhances student teachers' development across the ZPTD.

■ Implications of the findings and conclusion

Firstly, we need to highlight that this is an intervention that is not easy to replicate. We capitalised on a situation where a good school, in close proximity to the university, was willing to accommodate the intervention, and the university saw the potential of such an intervention in terms of the professional development of its student teachers. However, the results clearly showed that some of the limitations of traditional school experience were effectively addressed.

This intervention showed that involving student teachers in challenging, authentic teaching situations, and ‘throwing them in at the deep end’ (prolepsis), holds affordances for their professional development as future teachers (De Beer et al. 2013; De Beer 2017). However, it is a requirement that there should be sufficient scaffolding and support. These life sciences student teachers had to take responsibility for the learners. An important outcome achieved was that these student teachers came to realise the affordances of inquiry learning approaches and laboratory work, which emphasises the tenets of science in life sciences (De Beer et al. 2013; De Beer 2017). Over the course of the year, the teacher educators saw student teachers replacing transmission-mode PowerPoint-slide-driven lessons with problem-based, open-ended inquiry lessons (De Beer 2017). In order to reflect the true nature of the natural sciences in the classroom, it is essential for student teachers to get hands-on experiences of inquiry labs, and how to structure it. This intervention provided such experiences to student teachers. For example, at least two of the student teachers did not know how to do microscopy at the beginning of the intervention (De Beer 2017). A fourth-year student, who has been to schools on several occasions (school practice), had *never* witnessed a lab/practical work session. Whereas student teachers often report that school experience does not assist them in acquiring these skills, this intervention assisted them in developing such skills and insights. Towards the end of the academic year, student teachers

provided evidence of creative problem-based lessons, reflecting the true nature (tenets) of science (De Beer et al. 2013).

Another factor that enhanced the learning of student teachers was that the learners involved in this intervention (intelligent, motivated and keen to learn) challenged student teachers all the time, and this enhanced student teachers' own PCK development (De Beer et al. 2013). The teacher educators reported a significant growth in student teachers' understanding of the Shulman concept of PCK. Several student teachers indicated that the traditional school experience was helpful in sharpening their classroom management and discipline skills, but that they 'could get away' with being unprepared for lessons or having insufficient knowledge (De Beer 2017; De Beer et al. 2013). Their involvement in this project however highlighted the importance of having sound subject and pedagogical knowledge. Student teachers reported on how this realisation enhanced their SDL (De Beer 2017).

The role of student mentors was taken up by the teacher educators involved in the life sciences intervention. This experience alerted them to the time-consuming nature of such mentorship (if it is done well). The teacher educators also reported on how pleased they were with the Japanese lesson study model that was used in the project. Although many of the student teachers did not like the CL environment created by the lesson study model (and would rather work on their own), it is essential that they were introduced to the affordances of a community of practice.

Such an intervention programme should be structured such that student teachers assume *responsibility* for the learners (De Beer et al. 2013). The data showed that the student teachers did take up such responsibility, and they felt like *real* teachers who had to demonstrate a pedagogy of care. We are of the opinion that the intervention assisted the student teachers in their development of teacher identity, namely, to start acting like teachers, and not simply thinking like teachers (De Beer et al. 2013; De Beer 2017).

Prolepsis provides student teachers with the necessary support, within an enhanced learning trajectory, within the

Vygotskyan ZPTD (De Beer 2017). This research shows that scaffolding by the teacher educators (as mentors), less capable peers, more capable peers and equal peers, contribute to learning within an expanded ZPD (De Beer 2017). The data also show that student teachers learnt the value of collegiality and to appreciate the value of working within a community of practice.

Zeichner and Tabachnick (1981) warned that, very often, concepts taught during teacher education are ‘washed out’ during practical experiences. It seems though as if student teachers saw the practical value of what they have learnt, especially the affordances of engaging pedagogies, during this intervention (De Beer 2017). Hopefully, this would prevent the ‘washing out’ effect when they start teaching in other schools (De Beer et al. 2013; De Beer 2017).

This intervention successfully addressed three fundamental problems associated with learning to teach, namely, the apprenticeship of observation, the problem of enactment and complexity (De Beer 2017). It is clear that the intervention scaffolded the learning and professional development of student teachers so that they not only thought like teachers but also acted like teachers. The intervention further developed more nuanced understandings of the complexity of the teaching profession amongst student teachers (De Beer et al. 2013).

As noted before – this intervention is not easily replicated. However, we are of the view that the learning elicited could be used to inform traditional school experience practices.

To conclude, we concur with De Beer (2017), who stated that teacher educators often criticise the school experience component of pre-service teacher education, yet they do not consider ways in which such shortcomings could be addressed in their methodology courses. De Beer suggests that teacher educators should, through a scholarship of teaching and learning, create ‘low-risk settings’ (Schön 1987) for novice learning, to address the so-called theory-practice divide.

An alternative model for work-integrated learning in South African schools

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■ Abstract

This final chapter focusses on some of the complexities in terms of teacher education in both pre-service and in-service contexts. The WIL of student teachers could potentially equip neophyte teachers better in order to cope with the demands of a challenging profession. However, research shows that WIL has serious limitations in terms of how it unfolds in many South African schools, and this might impact teacher attrition. On the other hand, no pre-service teacher education programme can claim to prepare young teachers 100% for the demands of the profession. There is therefore a need to also consider the role of induction programmes, externships, internships and job shadowing. This chapter sheds light on some of the factors that influence teacher attrition, for example, being socialised within pseudo-communities of practice in some schools.

Keywords: Work-integrated learning; Internships; Externships; Induction programmes; Apprenticeship of observation.

■ Introduction

The worldwide practice of WIL, sometimes called work-based learning, is an umbrella term taking on many formats, such as apprenticeships, internships, externships, service learning and shadowing (Hendrikse 2013:18). All of these forms promote opportunities for learning, offering the student teacher practical experiences in a real-world environment within their particular field of study (Hanney 2005:105).

In the case of the ITE, student WIL takes on the form of TP periods. This encapsulates the process of learning in practice and learning from practice. In this regard, Lederman and Lederman (2015:270) remarked that as this is where theory meets the reality of the actual world, it serves as a vital opportunity to enhance student teachers' experiences of the reality of education outside of the university lecture hall.

■ Problem statement

Introductory to the undercurrent of the problems being discussed in this section, one first needs to take a look at the broader picture connected to one of the vital problems related to educational issues, namely, the shortage of teachers in South Africa. Van Broekhuizen (2015) asserted:

It is commonly recognised that South Africa has a severe shortage of adequately qualified and competent teachers. (p. 1)

In a similar research conducted by The South African Centre of Development and Enterprise on teacher supply and demand, 2013–2025, it was confirmed that that one of the biggest challenges pertaining to education in South Africa is to provide adequate number of teachers proficient enough to teach all of the subjects on all levels (Bernstein 2015:3). A 2015 Bureau of Economic Research Work Report on teacher provision indicated that South Africa requires between 20 000 and 30 000 new teachers every year; however, at best, only about 92.5% of the required numbers are produced annually (Van Broekhuizen 2015:30). Related to this, one has to take note of the high attrition rate of South African teachers; the fact that the highest rate of attrition has been among beginning teachers is of vital importance (Pitsoe 2013:310). All of these inclinations assert the fact that South Africa needs to take better care of its teachers, especially new (beginner) teachers. Against this background, some of the problematic issues that will be discussed in this chapter are:

- The reality shock of the newly appointed (novice) teacher
- The negative experiences of the student teacher regarding school-based WIL periods
- The time South African student teachers spend in schools during school-based WIL periods, and their lived experiences of such an engagement.

Roehrig, Pressley and Talotta (2002) described the novice teacher, entering the education profession, as undergoing a *baptism of fire*:

Baptism of fire is an expression often associated with the experience of beginner teachers. Every autumn, neophyte educators embark on a journey through uncharted, unpredictable waters as they enter the classroom for the very first time in the capacity of teacher. (p. 534)

In South Africa, the induction of novice (neophyte) teachers is not up to standard (Steyn & Schulze 2005:235). As the experience of many beginner teachers during their first years of teaching appears to be rather negative, it tends to have an adverse impact on their attitudes towards the teaching profession – and often times even paving the way to teacher attrition (Harrington & Jenkins 2010:264).

For example, owing to a lack of sufficient induction programmes, about 50% of US novice teachers leave the profession within the first 3 years (Whitaker 2001:1). South Africa currently has very few induction or mentorship programmes for beginning teachers, and the needs of beginner teachers are not adequately addressed. The scarcity of good induction programmes contributes to the challenges that beginning teacher's experience. One of the few existing induction programmes is the one developed by Whitelaw, after his research showed that neophyte teachers often have to navigate the tensioned space within pseudo-communities of practice (Whitelaw, De Beer & Henning 2008).

Interviews conducted with beginner teachers regarding their first-year experiences in the teaching profession showed that many of them felt that the profession 'failed to meet their expectations of professional practice' (Harrington & Jenkins 2010:264). A male student teacher who confirmed these sentiments remarked that after a period of WIL at a school, he felt that the school's unitary accord was being rather disjointed and disengaged (Acheson & Gall 2011):

Just the way the departments are organised, it's very strange ... it just doesn't feel like a very cohesive unit. It doesn't feel there is a team producing a product ... it's like there's a load of individuals there and they could be anywhere and that was not what I was expecting. (p. 2)

In a South African study, participants echoed the findings of these international studies. One participant mentioned that (Botha & Rens 2018):

It was a shock to realise that teaching was not what I thought it would be ... or even what some of my lecturers lead me to believe it would be.

University taught me the academic content. It did not teach me how to work with learners, how situations were going to affect me and how to handle all these things without becoming negative about teaching. (p. 5)

These negative experiences invariably might have an influence on many of beginning teachers leaving the teaching profession. Whitelaw et al. (2008) have shown that novice teachers in South Africa were inadequately prepared for the socialisation within communities of practice, or as Whitelaw et al. called it, 'pseudo-communities', that characterise many schools. In line with Whitelaw's findings regarding the high attrition rate of neophyte teachers, the New South Wales Department of Education reported that as many as 40% of their beginner teachers were expected to resign during the period between 2006 and 2011 (Hague 2007).

An empirical survey, conducted by Steyn and Schulze (2005:246) identified the typical problem areas most often experienced by novice teachers, as well as the frequency of occurrence thereof, as shown in Table 12.1.

Whitelaw et al. (2008) added another dimension to this list of problems, namely, the 'wars' that sometimes take place in school staff rooms, and that many student teachers are not adequately trained to act as members of a community of practice (or, in Whitelaw's parlance, 'pseudo-communities of practice'). Qualitative research conducted in the Philippines by means of interviews resonates with some of the findings in Table 12.1. A participant, referring back to his novice teaching years, phrased his former frustrations in dealing with, for example, learner conduct as follows (Aguirre & Faller 2017; Candilas 2018:4):

TABLE 12.1: Problems experienced by novice teachers in South Africa.

Item	Frequency	Percentage
Lack of resources	306	57.3
Learner discipline	247	46.3
Fear of making mistakes	230	43.1
Learners' varying abilities	216	40.4
Assessing learners' work	212	39.7
Overload of paperwork	211	39.5
Varying learning methods	205	38.4

Source: Steyn and Schulze (2005:246).

‘I really have had a struggle with my classroom management. Specifically, on dealing with students that are so noisy. Every time I discussed, I have seen them not listening in my discussion. However, I still continue with my lesson though some of them are not listening. I want to improve this aspect of classroom management. I am still thinking at present on how I deal with this.’ (R1) (p. 3396)

The South African Policy that pertains to the basic competencies of beginner teachers requires that newly appointed teachers ‘have to be able to manage classrooms effectively’ in order to enhance an effective learning environment (Republic of South Africa 2011).

Other participants referred back to the problems they experienced in dealing with the lack of work ethos among lethargic learners (Aguirre et al. 2017; Candilas 2018:4):

‘I had such a difficult moment during my first year of teaching. I had find [sic] it hard to deal with students’ absences, tardiness and low performances in every activities and quizzes and even term examinations.’ (R2)

‘My main problem was making students submit their requirements on time. How to make them follow you. I think child psychology is an important topic for a teacher.’ (R11) (p. 3396)

But whatever the situation might be, the policy related to the basic competencies required by a beginner teacher determines

that a neophyte teacher has to understand diversity and be able 'to teach in a manner that includes all learners' (Republic of South Africa 2011).

One participant commented on the difficulty in dealing with younger learners while another one referred to more senior learners (Aguirre et al. 2017):

'I did not know how to deal with kids.' (R 12)

'I was worried of [*sic*] my relationship with students. I have a hard time figuring out what persona to take [*sic*] in the classroom whether to be strict or lax.' (R 4) (p. 3397)

Some of responses obtained from interviews with participants highlighted the problem of communicating with parents (Aguirre et al. 2017):

'At the university there are many factors to consider how I deal [*sic*] with parents - the pressure with demanding parents. One parent came to me forcing an answer for her daughter to be given a passing mark in the special project defence.' (R16) (p. 3397)

Whitelaw et al. (2008) presented a unique focus on the high attrition rate among newly qualified teachers, namely, the pressure of being socialised within a community of practice within a school. The following quote by a teacher illustrates the power issues that often emerge amongst teachers in a school (Whitelaw 2007): 'You can see there's that power issue, you know whereas they are in charge and you are seen as something below them.' (Susan's interview) (p. 139)

The problem with this is the fact that, in terms of South African policies, it is expected from beginning teachers to be able 'to communicate effectively in general' (Republic of South Africa 2011).

This immediately raises a few questions: why were some beginning teachers caught off-guard pertaining to their expectations of a career in the teaching profession? Why did not they earlier on pick up the true nature and the realities of what it takes to teach? And ultimately, do the current WIL practicums

actually meet the requirements of preparing some of the student teachers for the realities of a career in the teaching profession?

Although the importance of the student teacher practicums in schools cannot be underestimated, certain aspects thereof are debatable. (e.g. in Ch. 4, Ramsaroop, Petersen and Gravett show that WIL experiences of student teachers, especially in dysfunctional schools, can demotivate them). In the next paragraph or two, we will analyse a few student teachers' feedbacks on the effectivity of their WIL experiences (Acheson & Gall 2011:13).

The alignment between the approaches of the mentor subject teachers at a particular school is sometimes off balance with that of the university faculty approaches. Receiving mixed messages do sometimes lead to confusion among student teachers (Lederman & Lederman 2015:2). This problem is amplified by the old school model of chalk and talk (teacher-centred approaches) used by many mentor teachers, rather than embracing the innovative and creative student-centred teaching strategies that students are being taught at tertiary institutions (Botha & Rens 2018):

I learnt all these cool tricks and strategies, but I was so overwhelmed when I stood in front of those children that I simply grabbed the textbook and kept on reading to them. (p. 6)

Questions about the appropriate placement of student teachers and the functionality of schools are another worrying factor. Being a mentor or host teacher of pre-service student teachers requires additional skills such as sound interpersonal skills and abilities as well as the experience of mentoring a younger generation of student teachers. In actual fact, what is really needed are experienced teachers trained in mentorship and supervision, having completed a course in mentorship and supervision. It is however also imperative to note that the calibre of teachers whom one would like to see act as mentors for beginning teachers are those who are already carrying a very heavy workload.

Often, student teachers are placed under the tutelage of teachers with a good teaching reputation and subject expertise; however, being a good subject teacher does not necessarily pave the way to being an effective student teacher supervisor (Lederman & Lederman 2015:2). The attitude of a school, specifically mentor teachers and principals, towards hosting pre-service teachers for TP periods can contribute towards the challenges they experience. Leaving students unsupervised with large classes of learners, expecting them to invigilate and stand-in for whole days for teachers who are absent, and even expecting first-year student teachers to teach full lessons, are frequent occurrences in the WIL experiences of student teachers.

Based on the data from research outcomes on student teachers' WIL experiences, it became clear that some student teachers experienced their school-based WIL periods as positive, while others experienced the relationships with some of the teachers as rather negative (Hobson, Maldegem & Tracey 2009):

- During the interviews, some of the student teacher participants to the survey admitted that they often felt unwelcome in their placements at certain schools. In one instance, after a period of WIL and in-school observations, a male student teacher commented: 'I went to a meeting on how the school was going to make provision for abled students. I raised my hand and a teacher commented why I was giving an opinion when I am not even a teacher'.
- Another student teacher said that they felt isolated in the staff room: 'The department I was in was very welcoming but none of the other teachers would talk to us and there were five students there, so we were always sticking together but we were in different subjects in five different departments. In general, we were shunned in the staffroom and I was like "maybe that's what it is like in a secondary school, I don't know." If I was on my own I would find this quite an isolating experience'.
- A female student teacher felt that she was treated with a certain amount of disrespect and not with the respect due to

a prospective colleague: 'I mean I don't mind getting her a cup of tea at break, but when I was meant to be observing her, when I was in the middle of working with a group for her, and she'd come over and say "do you mind getting me a cup of tea." I don't feel then I'm being treated like I should be because that's not what I am here for. I'm there to learn a job'. (p. 64)

In actual fact, this feeling of not being welcome has been a problem for many years. Many school principals have been dissatisfied with the beginning teachers they have appointed at their schools. It is one of the reasons why various private schools have decided to rather place student teachers in learnerships, or on the online teaching programme, in order to prepare them for the real world of educational practice (Harvey & Knight 1996:4; Washbourn 1996:5).

Yet another question with regard to the WIL programme is: does the South African student teacher spend enough time during WIL periods at school in order to get the full picture regarding the complexity of the profession? The South African student spend about 10% of their time in school classrooms while the British student teacher spend about 60% of their time in a school classroom (Steyn & Schulze 2005:235).

After everything has been said and done, the bottom line regarding the strong flow of educator attrition is the fact that not only will this have financial implications for the country but also a negative effect on the teaching profession. And in the end, it will certainly have an adverse impact on the standard of teaching the learners are receiving. And, strictly speaking, this is out of step with the 'best interest of the child' as specified in Section 28(2) of the South African Constitution (Republic of South Africa 1996:s28[2]; [*author's added emphasis*]), which states that '[a] child's best interests are of paramount importance *in every matter* concerning the child'.

■ Aim of the chapter

The aim of this chapter was to determine as to how to address the problems related to WIL mentioned in the 'Problem statement' section, to determine which alternative format of WIL might be suitable in preparing student teachers for the reality of a career in the South African teaching profession and to develop a suitable alternative model based on applicable (existing) theories.

■ Methodology

The methodology of this chapter consists of a meta-theoretical approach, whereby existing theories on WIL will be analysed and synthesised in order to construct a suitable alternative WIL model (Creswell 2012:351).

■ Theoretical framework

The theoretical framework of this chapter is based on Kolb's Experiential Learning Theory, which is based on the earlier philosophies of Dewey and Lewin (Healey & Jenkins 2000:185). This theory is based on a four-step cyclic experiential learning process consisting of the following four consecutive phases:

- concrete experiences
- reflective observation of the experiences
- abstract conceptualisation of the observations
- active experimentation.

Normally, the application of the four phases is cyclic and therefore repetitive by nature in that it is repeated until the matter at hand is fully understood. Although Healey and Jenkins (2000:185) declared that experiential learning is ideal for fieldwork and laboratory sessions, it is actually also highly applicable to a much

broader field of learning. In this regard, it is a highly applicable cycle to be adopted in the presentation of WIL where the student teachers have to learn about all of the countless aspects related to their future careers in the teaching profession.

■ Exposition of some existing work-integrated learning theories

As mentioned in the Introduction, WIL can take on a wide variety of formats, dependent on the context and policy of the specific tertiary institution. In this section, some of these theories, which might be relevant to education, will be explained.

■ Externships

A system closely related to job shadowing consists of the informal arrangement of externships, offered by volunteers from various institutions helping students to obtain an insight in the field they are interested in and/or studying. One format of externships is applied in Geneva where a student is placed in a work environment of interest for one semester. Normally, although these students are not remunerated for the duties they fulfil, their basic day-to-day expenses are reimbursed. Another practical option is of course for students to complete such an externship during their holidays.

Basically, externships also find itself in the realm of experiential education, which can roughly be described as a process through which a learner constructs knowledge, skill and value from a direct experience (Itin 1999:91–98). Broadly spoken, the basis of experiential learning consists of cycles of learning of an action that creates an experience; reflections on the action, as well the ensuing experience; abstractions drawn from the reflection and an application drawn from the abstraction are taken to a new level.

■ Job shadowing

Paris and Mason (1995:47) described job shadowing as a work-related experience, where the student learns about the particular work 'by walking through the workday as a shadow to a competent worker'.

Although job shadowing is limited in the sense that a student *only* observes, it does, however, according to Paris and Mason (1995):

- provide an opportunity to show how lecture room theory is applied to real-world practice
- show how a variety of career options and practices can be observed
- display different work environments and cultures. (p. 47)

■ Apprenticeship of observation

Unlike other professions where the students (such as engineering, law and medical students) are ignorant about the environment of the workplace, education students, having previously spent 12 or more years in a school environment, think they 'know it all' – it creates in them an impression that they know everything about the world of teaching. However, they often fumble when a reality shock kicks in when they realise that their previous teaching experience did not adequately prepare them for the unknown (Steyn & Schulze 2005:239). This confirms the words of Lortie (1975:62): they have only seen 'the frontstage of education like an audience viewing a play', but it is essential that 'they need to see the backstage as well'.

In general, pre-service teacher education courses are reported to have a rather weak effect on novice teachers on entering the profession. One of the results of this trend is that the weakly trained, inexperienced and ill-prepared novice teacher, on

entering the class, reverts to the patterns of teaching they experienced while at school. The outcome of this trend often leaves WIL in a state of 'folkways teaching' consisting of nothing more than the outdated ready-made recipes of yesteryears (Borg 2004:274). Such practices are then no longer evidence of best practice, but rather an accentuation of the apprenticeship of observation where teaching merely becomes what students have seen in their 12 years at school, rather than applying the knowledge, skills and strategies they were equipped with at university.

And, it is especially in this regard where job shadowing can make a difference. The advantage of job shadowing is that the student and novice teachers are given the opportunity to shadow the modern styles and didactical approaches when they are afforded the opportunity to shadow selected modern teachers during the planning, preparation and presentation of their lessons. In addition, the student teacher and novice teachers are also afforded the opportunity to communicate with the selected teacher; and to witness and to obtain a first-hand experience of a classroom atmosphere conducive to teaching and learning. In addition, they are also able to observe successful (and quite often unique) new didactical approaches being applied by the particular teacher.

Insights into the 'apprenticeship of observation' provide the teacher educator an opportunity to have student teachers reflect on their often naïve views on teaching matters. This might prevent the so-called 'wash out' effect (Zeichner & Tabachnick 1981:7), where newly acquired theories and insights are replaced with long-standing practices and beliefs.

■ Internships

An internship consists of a formal arrangement providing off-campus learning opportunities for students in their particular fields of interest obtaining academic credits at the same time.

Internships also afford the opportunity to apply the theoretical knowledge the students obtained from the classroom into practical experiences and in doing so, entering into a cycled process and adding to their existing theoretical knowledge. In addition, it helps the students in establishing a network of professional contacts (Stretch & Harp 1991:67).

As far back as 1906, the idea of internships was developed as a practice-based solution fuelled by an awareness that students need to (and actually want to) work while they are attending the college in order to accumulate as much practical experience and insight that compliments their theoretical 'lecture room' knowledge (Linn, Howard & Miller 2004:5).

Internships show many similarities with apprenticeships traditionally akin to the industrial world, where tradesmen are being trained in the practical realities of their particular trades. Internships are normally based on a formal agreement between the employer and the intern, affording the intern an opportunity for on-the-job training. In the process, the intern ideally is afforded the opportunity to come in contact with all of the facets of his or her future work environment where they actually have to fulfil certain chores, normally earning a minimal form of remuneration. Such an internship is normally conducted on a part-time basis, offering the interns an opportunity to complete their professional qualifications.

If properly planned and constructed, internships could set a platform for a win-win situation for both the employer as well as the intern (Hendrikse 2013:21; Reece 2010:8). In the words of Reece, this affords the (intern) apprenticeship - 'the opportunity to earn while you learn'. In addition, the interns are afforded an opportunity to enhance valuable work experience; they also have the opportunity to get an edge in the job market, an opportunity to make sure that this is indeed the kind of work they want and therefore they have an opportunity to make sure of the right choice. In addition, they get the opportunity to become mature, to become independent, to grow in self-confidence and to develop social and interpersonal skills.

On the other hand, internships can benefit the employer in many ways as well; for example, the employer is able to obtain cheap (and in some instances even free) labour. In addition, an employer is able to select promising interns to become permanent employees from the pool of interns, without having to offer much initial training.

Although internships as a format for tertiary students studying bachelor's or master's degrees are rather unfamiliar in the South African WIL arrangements, it is not the case on the international arena (Hendrikse 2013:21-24):

- In Italy, the internships are more or less compulsory for all students studying bachelor's and master's degrees. In Italy, it is regarded as a manner of reducing the gap between an employer's demands and the theoretical academic content of tertiary institutions.
- In the Netherlands, where internships are not always remunerated, an internship lasts for about 5 months.
- In the United States of America, a meeting between the 'National Commission on Excellence in Teacher Education' and a group of college deans, called 'Tomorrow's Teachers', was conducted in 1986 to discuss and analyse their concerns about teacher students' school-based practicums. One of the issues they discussed was the inadequacy of the six-week school practicum experiences of students. They felt that there was a lack of true curricular connection and that as such, the whole WIL exercise was detached from reality.
- During the last part of the 20th century, education in the United Kingdom experienced the outcry that not enough time was being spent on practical issues in student teachers' training, which resulted in a stronger emphasis on 'learning by doing' (Pretorius 2004:55).

The 'learning by doing' soon turned into 'doing it *together* by doing' (authors' emphasis) when faculties and certain schools began to collaborate in the training of student teachers. The outcome of these deliberations paved the way to what was called

'PDSs' followed by the introduction of internships, which they based on partnerships between schools and university faculties (Morey & Murphy 1990:134). This paved the way towards the so-called competency-based training of student teachers – especially those teachers who were identified as mentors at those selected schools. In addition, where many pre-service teaching programmes focus very strongly on academic readiness and the theoretical knowledge a subject specialist teacher needs to have a successful WIL experience, internships offer the opportunity to also have the time to focus on the emotional readiness and the soft skills that beginning teachers will need to thrive rather than just survive (Botha & Rens 2018). Issues such as administration, classroom discipline, time management, self-care, etc., can now also be adequately addressed by the mentor teacher.

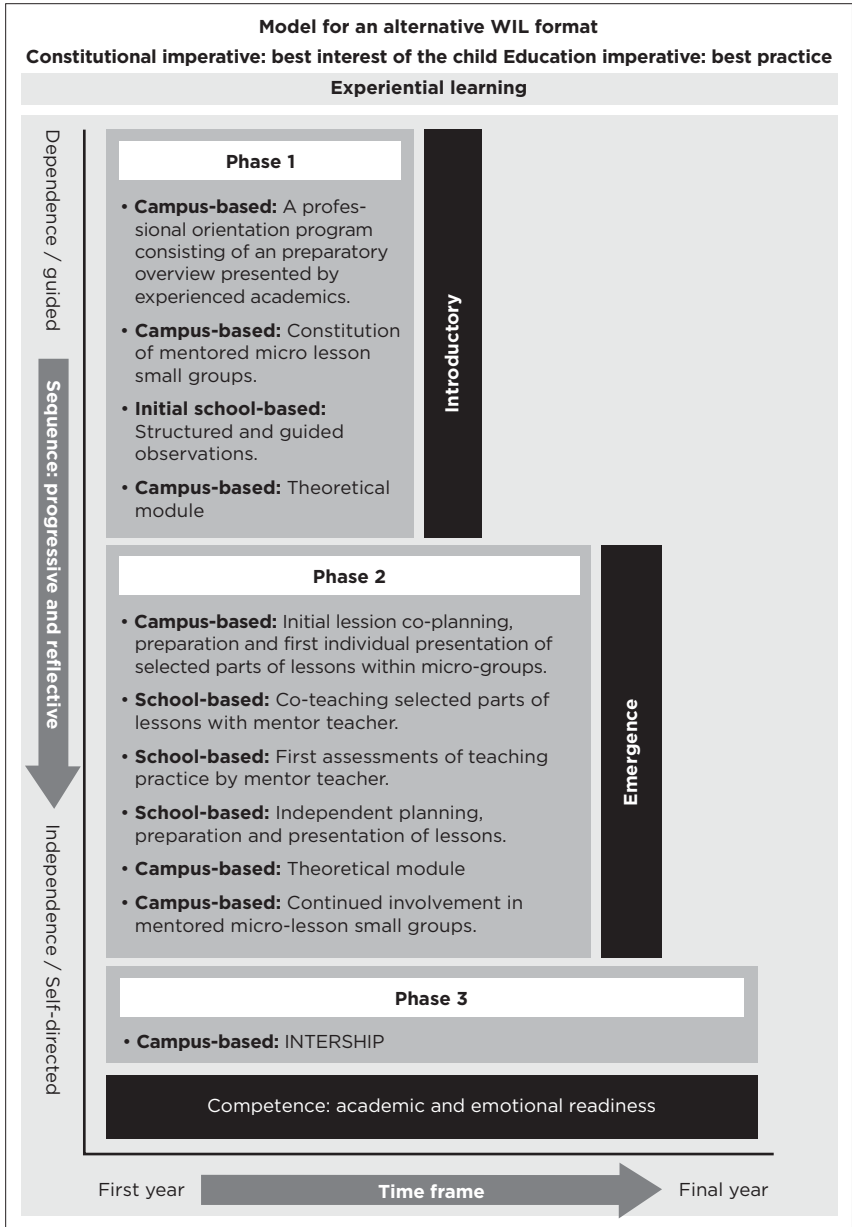
■ **Synopsis: Work-integrated learning as the 'elephant in the room'**

Ideally, WIL should be the backbone of ITE. In many instances, it has become an 'add on' that is operating in a silo, far removed from the academic modules and even micro-teaching that student teachers complete. Students do not succeed in seeing WIL as a progressive event that should enable them to develop the graduate attributes their tertiary institution seeks to develop and working towards the expected roles of the teacher as set out by the DHET (Republic of South Africa 2011). At most universities, WIL has become an administrative matter, rather than an academic matter, owing to the large administrative burden of student and lecturer placements. Resources and energy are therefore distributed on arranging, accommodating and providing transport for lecturers, rather than on the content of the reflective conversation they have with the student after the formal assessment. Administrative documents form an integral part of the WIL portfolio at most institutions, but the crux of the matter, the development of the competencies needed to be an effective teacher (Republic of South Africa 2011), sometimes falls on the wayside. Tertiary institutions have the responsibility to create an

environment where WIL rotates around the axis of experiential learning, where students are inspired to become lifelong learners and mentors in their own right. (Refer to Ch. 4, which provides an insight into student teachers' experiences in typical WIL schools, in contrast to TSs.) Student teachers need to experience how WIL prepares them, not for a 'baptism of fire', but for a smooth induction into the world of being a beginner teacher. Within the framework of experiential learning, they should obtain the knowledge, skills and values to cope in any context they are placed in. They should obtain the skills to adapt themselves and their teaching to meet the immediate needs of the situation they find themselves in and to proactively plan their conduct in and out of the classroom. Then, experiential learning will create the platform from which they can learn in practice and learn from practice. In actual fact, this is the theoretical framework, the undercurrent set as being discussed in this chapter. Basically, student teachers need to experience the application of their faculty lecture room theories in the practicality of the school classroom, reflect on it and make an abstraction in order to apply it in practice.

The other matter we had to deal with in this chapter is to consider a possibly more effective, alternative manner in which to apply the above-mentioned cyclic learning, whereby the student teachers are confronted with education practice and 'learning by (repetitive) doing' (author's insertion) (Pretorius 2004:55). Related to this, we wanted to know if a specific existing theory, discussed in the previous sections of this chapter, would be the most appropriate in training the student teacher during WIL. Would a reconstruction, an amalgamation, of certain features of various theories to construct an alternative model be more ideal and be more suitable to speak to the space of the diversity of context in the current education habitus?

The stance of this chapter is one of amalgamation. One of the objectives of this chapter was to deconstruct an amalgamated alternative (new) model from the existing theories, as discussed in previous sections of this chapter (This is shown in Figure 12.1).



WIL, work-integrated learning.

FIGURE 12.1: Model for an alternative WIL format.

Some of the feedback discussed in previous sections indicated that certain aspects of the traditional WIL approaches are less successful; that for some student teachers, the reality shock is rather severe – one author, as mentioned, even typified it as a ‘baptism by fire’. One of the reasons for this could be related to the limited contact time student teachers have in schools during their WIL practicums. Lortie (1975:62) confirmed this by suggesting that student teachers only see ‘the frontstage of education like an audience viewing a play’, but that it is essential that ‘they need to see the backstage as well’. For the student teacher to focus only on presenting lessons for formal assessment at school in order to obtain the necessary academic credits is a far cry from what the reality of the teaching profession in a school structured environment is all about. The teaching profession is so much more than teaching a subject content in a classroom. The student teacher needs to be immersed and experience the full circle of the teaching profession including the intra- and extracurricular activities related to the realities of school life. In other words, the student teachers ‘have to see the backstage as well’. As mentioned, another integral component of the backstage addresses the issue of soft skills beginner teachers need to develop. Another of the complexities of teaching on the ‘backstage’ relates to learners. Pre-service student teachers need to get the opportunity to experience and to relate wisely in dealing with a myriad of aspects and scenarios related to learners. Some of these issues include:

- Student teachers need to know how to direct classroom management. In essence, classroom management relies on ensuring order and discipline, which is essential for sound teaching and learning. It is therefore important for student teachers to learn to apply order in the classroom. This includes addressing issues specifically related to inclusivity in the classroom and diversity in learners and the specific context of the school.
- Student teachers need to know how to be fair and just towards all learners in their classes – learners from different racial,

gender and socio-economic standings (refer to Ch. 10). Added to this, they need to obtain patience in applying order and discipline; they need to develop a patient wisdom in dealing with untold selections of a variety of personalities and temperaments in every class. The student teacher needs time to acquire ways in which they have to deal with all of these matters. In addition, dealing with sensitive matters requires a skill set that many beginning teachers do not have. All of these skills go beyond academic book theories obtained from their text books; it only comes from maturing along the way of experiential learning.

Some of the other diverse matters the student teacher needs to deal with on 'the backstage' are to show appropriate and respectful conduct to the fellow staff members (to constructively participate in a community of practice), to the parents, to the community and the education profession. In addition, the student teacher needs to become part of the extracurricular activities of the school; they also need to understand and relate to the administrative matters of a school and the Department of Education. Becoming familiar with systems like the South African Schools and Management System (SA-SAMS) (for capturing marks) and the South African Integrated Quality Management System, amongst teachers, requires time and effort for the beginning teacher to become competent and confident.

None of the above-mentioned skills can truly be acquired in the short time blocks that pre-service teachers spend on WIL. These are all cyclic actions that take time and practice: a time to observe; to experience; to reflect; for abstraction and to apply. And then, more than often, the cycle starts all over again: a time to experience, to reflect, for abstraction and application. This also contributes towards the deconstruction of Lortie's apprenticeship of observation and the development of the professional identity (Botha 2017).

Normally, any cycle of learning commences with the *small and simple*, and then advances to the *tall and complex*: normally, the

learner first has to comprehend the simple, easy and straightforward concerning the matter at hand before they can advance to the next level of complexity. And normally as the complexity of the matter under focus progresses, time allotted for conceptualisation is increased accordingly.

■ Exposition of an alternative model

The construction of an alternative model for WIL in this chapter is based on all of the above-mentioned reflections, analyses and lines of thinking. It is suggested that WIL, stretching over a four-year period, should commence with an introductory, easy to regulate and understand, on-campus phase, after which, during Phase 2, student teachers start visiting schools and ultimately start presenting formal lessons that are assessed. (Ch. 5, Ch. 7 and Ch. 10 provide an insight into the value of excursions as part of the above-mentioned 'on-campus phase'). It is suggested that during the major and final phase, Phase 3 of student teacher training, the focus should be on internships in partnership with selected schools affording the opportunity of 'learning by doing' in the words of Pretorius (2004:55).

All of these steps could for example be applied in the following progression.

Phase 1:

- Firstly, an on-campus, introductory phase consisting of a preparatory overview is presented by experienced academics; this is complemented by a POP where student teachers are socialised into the profession and exposed to the professional and ethical framework of teaching. The skills student teachers learn during this initial phase are repeated in the theoretical WIL modules they are taught throughout the semester. This adds to the endeavour of assisting students in considering WIL as a semester-long event and not a block in a school.
- Secondly, student teachers are exposed to mentoring and micro-teaching by being part of an intimate and specialised group of peers, mentored by a particular lecturer. In this safe

space, students are offered the opportunities to observe best practice, to reflect on their own and other's teaching and to practice teaching strategies and skills. They can experiment and take risks without the fear of failure in front of a class of learners.

- Finally, initial contacts with schools are established in the form of apprenticeships of observations, externships and/or job shadowing. It is important to note that students should be provided with a very clear table of progression. They should be guided to start with structured observation, and then move towards co-planning with their mentor teacher. After the co-planning stage, they are invited to team-teach lessons with their mentor teacher, and as they acquire the necessary skills, they become confident enough to teach portions of the lessons on their own.

Phase 2:

- Firstly, a continuation of the work done within on-campus micro-groups is maintained. Student teachers reflect on the impressions of their visitations to schools after which they refine their lesson preparation for formal lesson assessment at school within the confines of the small micro-groups. Again, the student teachers are offered a safe space where they can experiment with various ways of teaching their lessons and preparing as best possible for presenting the lesson in front of a class.
- Secondly, the student teacher now presents his/her first lessons for formal assessment in schools; these lessons are assessed by mentor teachers as well as accredited mentors or lecturers of the tertiary institution.
- The development within micro-groups, with student teachers sharing their experiences and reflecting on the content of feedback of reflective conversations after the formal assessment, is validated within the small groups. As student teachers develop, they can progress from presenting parts of lessons to this micro-group, towards teaching whole lessons, adapting the lessons and presenting them again. They can

also reflect on the lessons their peers present and learn from them. Another very important role of these groups is the formation of a community of practice where students can support each other on an emotional, as well as academic level. (The research by Whitelaw, referred to earlier in the chapter, emphasises the importance of such socialisation into communities of practice). Throughout these phases, student teachers are enabled to move from guided dependence towards self-directed independence.

- Follow-up visits to schools for WIL sessions and the presentation of lessons for formal assessment by mentor teachers and university-accredited mentors.

Phase 3:

- Phase 3 comprises a concentrated, extended and uninterrupted period of internship during which the student teacher gets the opportunity to be immersed in as many as possible processes and functional activities of educational practice in a selected school. During this phase, selected mentors, as associates with the education faculties, could play a vital role. The students will again have the opportunity to form a community of practice where they can share ideas and experiences, and reflect on their teaching.

The advantages of such an alternative model could be:

1. The variety of applications in the form of introductory talks, lessons, micro-group presentations and discussions, class observations, externships, job shadowing, critique lesson presentations and even excursions (refer to Ch. 5, Ch. 7 and Ch. 10), all of which culminate in a long period allotted to internships, provide an ideal platform for suitable experiential learning opportunities for school WIL.
2. The emphasis on the internship reduces the 'Lortie effect' of student teachers only witnessing 'the frontstage of education like an audience viewing a play'. In fact, the extended period

of continual internship could afford the student teacher a much better, first-hand experience of the whole educational practice picture by seeing and experiencing the ‘backstage as well’ (Lortie 1975:62). Spending more concerted time of maybe 3–5 months in experiencing the administrative, intra- and extracurricular side of the school life, student teachers should have more clarity pertaining to their future in the education profession (or elsewhere). It also provides an opportunity for student teachers to excel in order to prove themselves as viable options for a contract or permanent post at the particular school.

3. Especially in the light of the fact that South Africa has been experiencing a shortage of teachers for many years now, internship affords schools a golden opportunity and enough time to identify suitable candidates, from a pool of potential teacher material, for filling vacancies/pending vacancies at their particular school. In addition, the time required for the induction for newly appointed teachers, during the critical period of the beginning of an academic year, might be reduced as the teachers are likely to be familiar with most of the values, routines and approaches of the school.

■ Conclusion

On a final note, WIL is all about raising the quality of student teacher training, the retention of beginning teachers and the elevation of teaching in the teaching and learning school environment and, in the final instance, the fulfilling of the constitutional imperatives regarding the best interests of the child through quality education. In this manner, student teachers will develop into beginning teachers who feel confident to enter the workforce, those who are academically and emotionally ready to act as an agent of change and who will thrive and not merely survive in teaching.

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Index

A

- accept, 27, 170, 249, 259, 304
- accessibility, 26, 32, 49
- Africa, 1–2, 8, 11, 13, 17–18, 23, 37, 39, 43–45, 65, 70, 73–74, 89, 91, 105, 115, 139, 157–160, 163–164, 167–169, 172–173, 182, 184–186, 188–189, 191, 195, 215, 218–220, 225, 247, 279–284, 289, 291, 305, 314, 323–329, 343, 357, 359–363, 366, 373, 381
- African, 3, 8–11, 13, 18, 36, 44, 47, 49, 63, 68, 73, 116–117, 134, 137, 143, 145, 157–160, 162–169, 171, 174, 182–188, 191, 229, 236, 249, 274, 279–288, 291, 293, 296–297, 312, 314, 317, 322, 330, 336, 357–364, 366–368, 370, 372, 374, 376–378, 380
- apprenticeship of observation, 116, 118, 139, 151, 165, 190, 194, 199, 202, 204, 214–217, 220–221, 224–234, 238–240, 242, 244–245, 258, 267, 277, 320, 324, 326, 328, 336, 341–342, 355, 358, 369–370, 377
- attitude, 77, 86, 148, 176, 267, 365
- avatars, 44, 49–51, 55, 57–58, 61
- awareness, 6, 8, 16, 37–38, 40, 65–66, 69, 76–82, 84–87, 122, 135, 137, 154, 205, 216, 223, 227–228, 235, 242, 244, 252, 280, 288, 291, 310, 313, 318–319, 371

B

- becoming a teacher, 1, 43, 52, 65, 89, 97, 115, 117, 147–148, 157, 189, 215, 223, 229–230, 245, 247, 279, 323, 357

- behaviour, 15, 50, 100, 106, 142, 201, 205, 236, 242, 253–254, 272–273, 303, 320, 326
- business, 233, 284

C

- care, 29, 170, 261, 339–340, 349, 352, 355, 359, 373
- case-based teaching, 189–192, 194, 196–198, 200, 202, 204, 206, 208–210, 212–214
- challenges, 7, 11–12, 14, 26–27, 29, 31, 45–46, 66, 68, 77, 85, 123, 135–136, 147, 184, 193, 198–200, 205, 209, 218, 226, 231, 234, 244, 249, 253, 280, 282–283, 285, 298, 326–327, 359–360, 365
- change, 7, 26, 29–30, 40, 51, 103, 112–113, 123, 125, 127, 134, 144, 150, 153, 169, 181, 198–199, 213–214, 218, 226, 250, 253–254, 257, 259, 266–267, 272, 282, 287, 312, 314, 326–327, 342, 347, 381
- characteristics, 76, 82, 130, 167, 176, 180–181, 223, 251, 254, 293, 311
- child, 90, 92, 98, 105–106, 114, 170, 266, 281, 296, 302, 362, 366, 375, 381
- children, 14, 44–45, 61, 92–93, 95–96, 98, 100, 105–106, 111, 119, 134, 153, 177, 213, 218, 239, 243, 266–267, 281, 315, 351, 364
- collaboration, 13, 15, 21, 26, 28, 80, 99, 114, 161, 175, 180, 221, 241, 244, 253, 296, 328
- community, 15, 19, 22, 25, 30, 38, 43, 72, 80, 87–88, 119, 126, 150–151, 153, 178, 182–183, 185, 218,

- 228-229, 237, 263-265, 272,
274, 354-355, 361, 363, 377, 380
- concept, 2-4, 18, 23, 34, 41, 70, 80,
82-84, 113, 187, 201, 203, 229,
242, 244, 250, 256, 268, 296,
333, 341, 354
- context, 2, 4-7, 10-11, 33, 35, 47, 50,
58, 76, 85, 95, 107, 118, 120,
123, 132, 141-142, 158-159, 163,
182, 184, 195-198, 202-205,
216-217, 220, 226-227, 229, 232,
235-236, 245, 249, 251, 255,
261-262, 273-274, 280, 284,
288, 291-295, 300, 319-320,
322, 341, 368, 374, 376
- contextual, 2, 20-21, 29, 66, 75,
234, 336
- create, 16-17, 26, 36, 44, 61, 80, 91,
116, 122-123, 138-140, 179, 182,
216-217, 221, 225-226, 235, 244,
277, 285, 290, 293, 303, 319,
322, 356, 373-374
- creating, 40, 92, 138, 177, 205
- culture, 8, 13, 21, 34, 39, 97, 131, 134,
145, 159, 168, 219, 292, 304,
316-319
- D**
- defined, 22-23, 132, 188, 224, 229,
251-252, 254, 256, 292,
295-296, 299
- design, 12, 15, 75, 90, 92-94, 97-98,
124, 128, 169, 192, 195-196, 207,
222, 226, 235, 248, 260, 290,
305, 322, 337
- develop, 4, 10, 15-16, 28, 37, 46, 48, 77,
80, 82-83, 85, 92-93, 96, 98-
99, 101, 105-106, 112-114, 120-121,
123, 125, 135, 149, 162, 177-179,
197, 200, 212, 221, 230-231, 235,
242, 250, 252-255, 258-260,
265-266, 270, 273-274, 277,
300, 333, 342, 346, 367, 371,
373, 376-377, 379, 381
- developing, 2, 7, 25, 30, 36, 44, 78,
80, 95, 107, 120-121, 147, 158,
160-161, 175, 205, 209, 211, 221,
223, 229-233, 236, 245, 248,
263, 265, 270, 278, 290, 297,
299, 301, 308, 321, 354
- development, 3, 6-8, 10-12, 14-19,
21-22, 25, 30-31, 33-34, 40-41,
45, 64-70, 72-76, 78-82, 84-88,
91-92, 94-96, 98, 101, 107,
111-113, 115-117, 119-124, 126-127,
136, 139, 143, 145, 152-154,
160-162, 166-167, 175, 177-178,
180, 187, 192-193, 198, 212, 214,
216, 218, 220, 223, 231, 234, 245,
248, 252, 254-261, 263-265,
267-270, 274-278, 280-282,
285, 287-290, 293-296, 298,
300-304, 306, 319-320, 324,
326-327, 329-331, 333-335,
339-342, 344, 351, 353-355,
359, 373, 377, 379
- dignity, 9, 15, 218, 221, 288
- diversity, 2-3, 8-9, 11, 17, 21, 24,
37-41, 121, 133-135, 147, 184, 195,
221, 223, 229, 236, 242, 280,
283-286, 288-290, 300-304,
308, 312-313, 316, 319, 343, 349,
363, 374, 376
- dramatical collisions, 120, 196, 281,
290, 292, 294, 298, 322
- E**
- economic, 83, 159, 195, 236, 281-282,
301, 308, 312, 350, 359, 377
- educate, 180, 282
- education, 1-15, 17-20, 22, 25-26,
29-41, 43-46, 48-49, 53, 55,
64-70, 72-75, 80-83, 86,
89-94, 96, 98-101, 105-106, 110,
112, 115-120, 123-124, 129, 139,
141, 144, 150, 153-155, 157-176,
178-191, 194-196, 198, 202, 205,
208, 212, 214-215, 217-220,
225-227, 231, 236-237, 247,
252, 258, 260, 273, 279-289,
292-293, 296-297, 303, 307,
321, 323-329, 335, 342, 351,

- 355-359, 361, 368-369, 372,
374-377, 380-381
- environment, 5, 15, 17, 36, 39, 43-44,
46-48, 50-52, 54, 56, 58, 60,
62, 64, 72, 75, 95, 99, 112, 119,
121, 123, 132, 139, 161-162, 202,
218, 231-232, 236-237, 240, 252,
259, 274, 289, 298-299, 304,
346, 354, 358, 362, 368-369,
371, 374, 376, 381
- ethical, 13-14, 16, 18, 36, 58, 77, 129,
143, 205, 221, 236, 238, 242, 251,
266, 307, 335, 378
- ethics, 7, 10, 18, 21, 26, 35, 82-83, 100,
129, 174, 205, 207-208, 238, 307
- excursion, 116-129, 134-135, 138-155,
190-197, 204, 206-210, 212-213,
236, 241, 280, 285, 288-294,
296-297, 299-308, 311-314,
316-322
- excursions, 118-121, 123, 140, 143,
148-149, 151-152, 190-192,
194-195, 207, 279-280, 282,
284, 286, 288-292, 294, 296,
298, 300, 302, 304, 306-308,
310, 312, 314, 316, 318, 320, 322,
333, 378, 380
- externships, 358, 368, 379-380
- F**
- families, 14, 302
- family, 75, 224
- fear, 304, 343, 351, 362, 379
- Finnish education, 158, 171, 182, 188, 289
- formation, 170, 380
- formulation, 41, 61
- G**
- generation, 116, 122, 125, 134, 159-160,
172, 174, 248, 262, 272, 350, 364
- group guided reading, 44, 46-49, 51,
55-61, 63
- growth, 15, 28-31, 33-34, 56-57, 75,
98, 107, 110, 205-206, 230-231,
245, 249, 253, 260-261, 275,
329, 341, 347, 349, 351, 354
- H**
- holistic, 4-5, 10-11, 21-22, 34, 66, 97,
167, 296
- human rights, 8-9, 149, 297
- human, 7-9, 37-38, 50, 122, 149,
161-162, 176-177, 195, 198, 205,
207, 214, 217-218, 221, 237, 256,
280, 288, 290-291, 293, 295,
297, 300-301, 304, 333, 345
- humanity, 176, 316
- I**
- identity, 7, 14, 17, 116-117, 123, 148, 150,
154, 164-165, 170, 175, 185, 216-
217, 221-223, 227-231, 234, 236,
242, 244-245, 248, 250-251,
253-254, 256-261, 263-268,
270, 272-278, 355, 377
- implementation, 2-3, 11, 17, 28, 34, 107,
122, 132, 169, 277, 288, 314
- implications of, 145, 199, 353
- importance, 3, 6, 9, 12, 23, 25, 27,
29, 39, 73, 75, 122-123, 134,
141, 159-161, 163, 192, 212, 225,
239, 244, 249, 254, 259, 271,
278, 308, 314, 354, 359, 364,
366, 380
- inclusion, 9, 14, 36, 67, 150, 195, 300, 313
- inclusive, 8, 14, 126, 133-134, 145, 150,
153, 194-195, 280, 283, 285, 287,
289, 291-295, 297, 301-302,
308, 310-312, 315, 322
- inclusivity, 11, 15, 135, 147, 154, 236,
280, 289-290, 293, 300-304,
310, 313, 376
- independence, 33, 123, 177, 183,
375, 380
- induction programmes, 220, 358, 360
- inequality, 3, 281-282, 286
- influence, 13, 29, 37, 54, 94, 97, 116-117,
153-154, 165, 182, 200, 204, 214,
216, 224, 227, 229-231, 234, 242,
244, 251, 284, 288, 319, 348,
358, 361
- inquiry learning, 5, 299, 325, 328-329,
349, 352-353

inside, 14, 176, 180
 instruction, 21, 24, 71, 95, 185, 202–203, 227, 251, 270, 276
 instructional, 70, 75, 87, 299
 integrate, 5, 27, 29, 35, 40, 73, 94, 136, 149, 205, 217, 223
 integrity, 218, 288
 interests, 94, 96, 366, 381
 internships, 73, 358, 370–373, 378, 380
 interpret, 71, 82, 100, 104, 172, 187, 225, 305
 interpretation, 9, 243, 257
 investigation, 48, 305, 307, 349

J

justice, 8, 15, 112, 150, 153–154, 194–195, 279–280, 283, 285, 287–288, 290–295, 297, 300–305, 307–308, 314, 319, 322

L

language, 10, 16, 43, 69, 71, 131, 139, 159, 173, 184–185, 196, 198, 208, 213, 215, 219, 280, 284–287, 296, 298, 300, 303, 314–315, 337
 leadership, 6, 18, 31, 126, 168, 357

M

media, 72, 332
 mentor teacher, 50, 56–58, 60–61, 63, 90, 93, 99, 103–104, 112, 162, 167, 174, 180, 373, 375, 379
 mentor teachers, 48, 98–99, 101–104, 110–111, 158, 160–162, 166–167, 169, 171–179, 183, 187, 328, 338, 364–365, 379–380
 mentoring, 2–3, 12, 15, 21, 27, 29–33, 37, 69, 95, 100–102, 104, 112, 164, 166–167, 171, 178–179, 183, 185, 187, 220, 325, 338–339, 341, 344–345, 364, 378
 metacognition, 67–68, 76–80, 84, 86, 88, 248, 250, 254–255
 metacognitive awareness, 66, 76, 78–82, 84–87, 205
 minimum requirements for teacher education qualifications, 2, 9–12, 73, 94

moral, 77, 205, 251
 motivation, 31, 77–78, 122, 126, 129, 131–132, 149, 161–162, 164, 222, 257, 293, 348

N

National Development Plan, 280, 282
 need, 5, 8, 12, 16, 18, 20, 34, 39–40, 51, 62, 69, 75, 84–85, 88, 93, 95, 104–105, 117, 122, 126, 131, 137–139, 141, 148, 153, 159, 161–163, 167–168, 170, 179–181, 196, 198, 200–202, 211, 216–217, 225, 232–233, 242, 244–245, 253, 255, 272, 283, 288, 291, 303, 315, 322, 324, 329, 333, 341, 351, 353, 358, 369, 371, 373–374, 376–377
 needs, 3, 7, 17–18, 29, 31–32, 34, 37, 54, 83, 86, 88, 92, 94, 96, 98, 100, 106, 122, 124, 135–136, 162, 181, 186, 190, 206, 218–219, 229, 231–232, 234–235, 253, 255–257, 280, 291–293, 321–322, 330, 336, 343, 347, 349, 359–360, 373–374, 376–377
 network, 84, 169, 371
 networks, 84, 125

O

objectives, 9, 18, 28, 92, 132, 147, 149, 160, 181, 266, 374,
 open distance learning, 65–71, 75, 79, 81–82, 84–87

P

paradigm, 67, 80, 124, 143, 161, 192, 207, 248, 296, 305
 parent, 138, 149, 151–152, 197, 352, 363
 parents, 15, 18–19, 117, 149–151, 153, 169–170, 176–177, 183, 185, 220, 281, 302, 363, 377
 participation, 4, 19, 21, 26, 33, 35–36, 49, 129, 174, 193, 223, 297, 306–307, 316, 335, 347
 people, 8, 29, 32–33, 35, 38–39, 104, 118, 133–134, 140–141, 149, 165, 173, 176, 182, 184, 193, 198, 206,

- 209–211, 218, 223, 232, 252, 256,
282, 284, 286, 289, 292, 295,
304–305, 310, 312, 316–320, 336
- philosophy of value, 66, 83
- philosophy, 66, 75, 80, 83, 118, 187
- poor, 105, 110–112, 154, 164, 166, 168,
183, 191, 200, 202, 212, 268, 272,
278, 281–283, 338, 343, 350
- poverty, 18, 38, 195, 218–219, 280–281
- power, 70, 111–112, 292, 337, 363
- practice, 1–6, 10–14, 16, 19–22, 29, 33,
35, 37, 40, 43–48, 50–52, 54,
56–64, 66, 68, 73–75, 77–78, 82,
86–87, 90–92, 94–102, 106–107,
110–114, 119, 121, 131, 135, 140–141,
145, 160, 163–164, 166–167, 169,
178–179, 181, 183–184, 187–188,
190–193, 196–197, 200–201, 205–
206, 212–214, 216–218, 220–221,
223–230, 232–235, 237, 240,
242–245, 249, 251, 254–255,
258–259, 287–289, 292, 295,
309, 321, 323–324, 326–328,
330–332, 334, 336, 338, 340,
342, 344, 346–348, 350, 352,
354–356, 358, 360–361, 363,
366, 369–371, 374–375, 377,
379–381
- pre-service teacher education, 1–2,
120, 139, 158–161, 163, 168–170,
173, 175, 182–183, 185–187,
189–191, 194, 196, 212, 325–326,
335, 356, 358, 369
- pre-service teacher training, 165, 217
- process, 7, 14, 17, 20, 22–24, 26, 28–29,
38, 49, 51, 53, 55, 58, 62, 68,
71, 77, 80, 83, 94–95, 98–101,
103, 119, 123, 129–130, 132–133,
139, 141, 149, 155, 164, 170–171,
185, 188, 203, 205–206, 217,
219, 221, 226, 229–232, 235,
248–258, 260–261, 263, 265,
268, 272–273, 291–293, 296,
298–299, 306–307, 330, 340,
344, 358, 367–368, 371
- professional development, 3, 6, 10,
14–15, 19, 22, 34, 40, 65–69, 75,
81, 84–85, 87, 91, 115, 117, 119, 121,
123–124, 126–127, 136, 139, 143,
145, 152, 162, 166, 175, 177–178,
180, 187, 198, 220, 231, 248,
254–255, 257–259, 261, 269,
274, 277–278, 280, 287, 289,
306, 319, 324, 327, 329–330,
334–335, 341–342, 344, 353, 355
- professional identity, 7, 14, 17, 165, 170,
185, 216–217, 221, 223, 227–231,
234, 236, 242, 244–245, 248,
250–251, 253, 256–261, 263–
268, 270, 272–278, 377
- Professional Orientation programme,
118, 215, 217, 240
- prolepsis, 323–326, 328, 330, 332–
334, 336, 338, 340, 342, 344,
346, 348, 350, 352–356
- protection, 17, 238
- purpose, 9–10, 13, 19, 23, 30, 32–34,
37, 79, 83, 94, 166, 197, 240,
245, 250–251, 254–256, 266,
304–305, 316, 320, 328
- R**
- reflection, 2–3, 14–15, 22, 25, 28, 33–
34, 38, 47, 51, 53, 63, 75, 78, 81,
83, 86, 91, 95, 99, 107, 120–121,
127, 143–146, 150, 153–154,
175, 177, 183, 187, 190, 192–194,
197–199, 204–206, 217, 220–223,
228, 245, 247–266, 268–270,
272–278, 280, 289–291,
293–295, 298, 308–310, 321,
330–333, 336, 342–344, 346,
351, 368
- relation, 3–4, 8, 10, 13, 18–19, 23, 31,
33–34, 39, 66, 86, 128, 140, 187,
254, 341
- relationship, 29, 32–33, 76, 84, 86,
90, 94, 99, 111, 114, 120, 166, 258,
298, 363
- research, 1, 15, 37, 43, 46, 48–49, 52–
53, 58, 61, 65–68, 76, 78–79, 81–
82, 84–85, 87, 89–90, 92, 100,
106, 115–117, 121–125, 128–129,
139, 149–150, 152, 154, 157–161,
163, 166–167, 172, 174–175, 178,
181–183, 187–191, 196, 200, 202,

207–209, 213, 215, 218, 229,
 247–252, 258–260, 262, 266,
 277–279, 286, 288–289, 305–
 308, 310, 314, 318–319, 321–325,
 327, 329–330, 333–335, 355,
 357–361, 365, 380

resources, 7, 16–17, 69, 71, 91, 94,
 103–104, 108, 122, 130–132, 138,
 146, 162, 183, 207, 229, 231,
 256–257, 271, 277, 291, 293, 333,
 351, 362, 373

responsibilities, 14, 33–34, 37, 75, 177,
 267, 275

responsibility, 5, 12, 18, 26, 35, 64, 72,
 95, 116, 123, 128, 132, 136, 147,
 162–163, 176–177, 180, 195, 212,
 220, 231–232, 235, 244, 257,
 259, 267–268, 287, 325, 329–
 332, 339–340, 353–355, 373

rights, 8–9, 17–18, 149, 282, 297

risk, 40, 51, 119, 174, 196, 213, 220, 293,
 322, 356

S

school, 1–2, 5–6, 8, 11–13, 15, 17–19,
 23, 25–30, 32, 34–40, 43–44,
 46–47, 49–50, 56–57, 63, 66, 71,
 73–75, 89–94, 96–99, 101, 103,
 108–109, 112, 116, 118–119, 125,
 130–131, 138, 141, 145, 151, 153,
 158–159, 162–172, 174, 178–179,
 183–187, 190–191, 193, 196–200,
 203–204, 211, 213, 215–216, 218–
 220, 224, 226–230, 232–233,
 235–237, 240–245, 247, 250,
 255, 258, 260, 263–265, 268,
 281, 285, 300, 303, 311, 321,
 324–325, 327–329, 336–339,
 341, 346, 348–356, 359–361,
 363–366, 369–370, 372, 374–381

self-directed learning, 1, 7, 43, 65–66,
 80–81, 89, 115–117, 121–123, 132,
 152, 157–158, 160, 162, 164, 166,
 168, 170, 172, 174, 176, 178, 180,
 182, 184, 186, 188–189, 206, 215,
 231, 237, 247–248, 250, 252,
 254, 256, 258, 260, 262, 264,

266, 268, 270, 272, 274, 276,
 278–279, 281, 288, 291, 293,
 304, 323, 357

social justice, 8, 15, 112, 150, 153–154,
 194–195, 279–280, 283, 285,
 287–288, 290–295, 297, 300–
 305, 307–308, 314, 319, 322

society, 8, 11, 15, 18, 38, 182, 206,
 280–282, 287, 290

socio-economic, 159, 195, 281–282,
 301, 308, 312, 350, 377

South Africa, 1–2, 8, 11, 13, 17–18, 23, 37,
 39, 43–45, 65, 70, 73–74, 89, 91,
 105, 115, 139, 157–160, 163–164,
 167–169, 172–173, 182, 184–186,
 188–189, 191, 195, 215, 218–220,
 225, 247, 279–284, 289, 291,
 305, 314, 323–329, 343, 357,
 359–363, 366, 373, 381

space, 99, 111, 119, 158, 162, 167, 186,
 192, 194–196, 212–213, 221, 274,
 292–293, 314, 317–318, 322, 360,
 374, 379

spaces, 73, 97, 101, 105, 186, 298, 303

status, 14, 159, 169, 218, 281, 312

supervision, 12–13, 25, 27, 29, 48, 364

T

teach, 15, 44–46, 56–57, 59–61, 73,
 77, 79, 83, 91, 94, 96, 98–99,
 102, 104–105, 107–108, 110, 117,
 134–135, 138, 145–147, 151–152,
 164–166, 176–177, 179, 181, 200–
 201, 217, 220, 224, 232–233,
 239, 251, 266, 268, 270, 274,
 281, 287–288, 303, 308, 314,
 316–317, 320, 322, 324, 326–327,
 330–331, 333, 338–339, 342,
 346–348, 351, 355, 359, 361,
 363, 365, 379

teacher educators, 4, 7, 24, 26, 29,
 44, 46–47, 94, 99, 114, 117, 119,
 125–126, 150, 152–153, 158, 160–
 161, 167, 172–176, 178, 180–183,
 187, 192, 225, 227–228, 238,
 244, 326, 328–329, 331–334,
 337–344, 346, 349, 353–356

teaching schools, 89–90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 186

theory, 1–4, 6–7, 10, 19, 21–22, 47, 63, 66, 68, 72, 74–75, 79–80, 82–83, 85, 87, 90–91, 106, 116–117, 119, 125, 150, 158, 161, 163, 167–168, 174–175, 179, 182–183, 187, 190–192, 197, 213, 217, 223, 226–227, 230, 232–233, 235, 237, 245, 248–249, 262, 264, 287, 291, 321, 324, 328, 333, 348, 356, 358, 367, 369, 374

transformation, 18, 38, 68, 158, 169, 251, 283, 285

trust, 14, 138, 147, 184, 227

V

value, 7, 10–11, 19, 29, 33, 65–66, 68–70, 72, 74, 76, 78–88, 112, 118, 129, 137–143, 154, 177, 206, 211, 214, 217, 221, 231, 251, 267, 277, 344–345, 347, 349–350, 355, 368, 378

values, 7–9, 29–30, 39, 66, 68, 80, 82–83, 85, 113, 126, 133, 171, 176, 205, 221, 250, 257, 261,

266, 288–290, 299, 314, 316, 319–320, 374, 381

W

Work-integrated learning, 1–8, 19–20, 22, 24–27, 34, 36–37, 40, 43, 52, 65–66, 68, 70, 72–74, 76, 78–82, 84–86, 88–90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114–115, 157, 189, 215, 217, 220, 226, 234, 247, 249, 279–280, 282, 284–286, 288, 290–292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 314, 316, 318, 320, 322–323, 357–358, 360, 362, 364, 366, 368, 370, 372–376, 378, 380

workplace, 4–6, 21–22, 26, 34–35, 66, 73, 141, 170, 197, 217, 234, 237, 249, 369

written, 140, 174, 190, 221, 236, 238, 242, 266, 303, 306, 325

Z

zone of proximal teacher development, 192, 281, 294, 296, 320, 330, 335, 340

Where would prospective teachers develop the capacity to work creatively with the risk, uncertainty and complexity that education necessarily entails; the habit of critical reflection on experience and a willingness to work towards a new imaginary of 'good education'? While deep knowledge of subject matter, pedagogy, learning, context diversity and social justice may be programmed into initial teacher education curriculums, prospective teachers need to synthesise and enact these knowledge bases in 'the moment of practice'. It is at this significant intersection where this book brings a breath of fresh air to what pre-service teachers often report as the most influential component in their learning to become a teacher. In an enlightening way, the book connects teaching practice as Work Integrated Learning with self-directed learning. A suit of innovative approaches for implementing teaching practice that range from professional teaching schools, case-based scenario's employing puppetry and drama and hybrid models between school-university partners to Teachlive avatars are a few of the research projects documented in the book. Appropriately selected insights and ideas from the effective Finnish teacher education landscape are also explored.

This book maps a journey of research evidence for innovative projects and hope for re-imagining learning in and from authentic schooling environments.

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Becoming a teacher in this modern era – the 21st century – becomes challenging with new developments taking place each day. Taking into account the 2030 Sustainable Development Goals (SDG) and Minimum Requirements for Teacher Education Qualifications framework (MRTEQ), namely quality education and education for all, places a tremendous burden on the training of professional teachers. This manuscript is a timeous collection of work, much needed for the current debates on work-integrated-learning (WIL) and how to best approach the praxis of teaching, considering the diverse South African contexts. The manuscript comprises a collection of various experts' work in the field of student teacher training, sharing various perspectives on WIL and the much-debated theory-practice divide. Suggestions, recommendations and solutions are presented by the variety of studies done, arguing for self-directed learning, case-based learning and authentic learning by employing innovative methods such as excursions and dramatizations. The everlasting endeavour to address learning in-, for- and from practice to ensure well trained teachers for the future is emphasised in the book. Through this collective work, the researchers (authors) present new ideas from their findings as to how to best prepare the new generation student teacher cohort for an unknown future, and in order to address the problematics clouding WIL, specifically in the South African educational context. These recommendations challenge educational institutions to re-think their offerings of initial teacher education programmes.

In conclusion, the manuscript opts for alternative ways or models of WIL, and how to challenge the theory-practice divide.

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