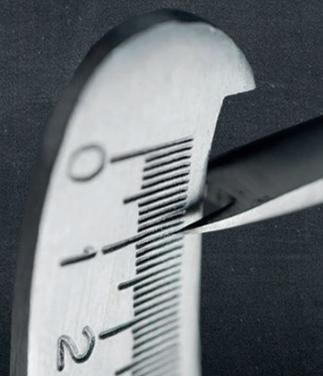**EDITED BY**
SIFISO SIBANDA,
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WASHINGTON DUDU

AOSIS

RECALIBRATING TEACHER TRAINING IN AFRICAN HIGHER EDUCATION INSTITUTIONS

A focus on 21st-century pedagogical challenges

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EDITORS
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DEON VAN TONDER
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Peer review declaration

The publisher (AOSIS) endorses the South African 'National Scholarly Book Publishers Forum Best Practice for Peer-Review of Scholarly Books'. The manuscript underwent an evaluation to compare the level of originality with other published works and was subjected to rigorous two-step peer-review before publication, with the identities of the reviewers not revealed to the editor(s) or author(s). The reviewers were independent of the publisher, editor(s) and author(s). The publisher shared feedback on the similarity report and the reviewers' inputs with the manuscript's editor(s) or author(s) to improve the manuscript. Where the reviewers recommended revision and improvements the editor(s) or author(s) responded adequately to such recommendations. The reviewers commented positively on the scholarly merits of the manuscript and recommended that the book be published.

Research justification

The volume focuses on the pre- and post-COVID-19 challenges facing the African continent. It investigates the need to transform the existing pedagogies into more heuristic forms of epistemological reforms in the wake of the COVID-19 pandemic. The volume seeks to enthuse teacher-training institutions to consider reforming teacher-training programmes to address the present-day dilemma of inequalities brought by a plethora of poverty-driven paradoxes on the African continent. The volume inaugurates matrices of epistemic power on the African continent. It challenges the lethargy most African governments have exhibited in transforming higher education institutions.

The chapters of this volume reflect scholarly research conducted in university communities across the African continent. Each chapter is based on research findings that seek to facilitate the recalibration of the existing education regimes to accommodate the disadvantaged African child. Impoverished African children need scholars to generate ideas to emancipate them from exclusive tendencies which have kept them on the peripheries of knowledge production globally. The works presented in this volume are ground-breaking scientific researches from scholars of different expertise. These researchers provide novel scientific studies that explore issues with an impact on the education sector in Africa.

No part of this volume is a product of plagiarism. Some of the chapters are derived from PhD theses that have been substantially reworked to embody the volume's theme. The global effects of the pandemic have forced the African continent to relook at the nature of programmes offered at universities and high schools, which are the feeder systems of the universities. The multimodality of the approaches that are suggested in this volume should help equip universities and high schools to prepare the underprivileged African child to be instrumental in the generation of the continent's epistemology base. In this scholarly book, the quality of teachers produced at universities has come under the spotlight. The volume addresses such problems and suggests various ways through which these challenges may be addressed. Universities are tasked with the critical role of ensuring that the recalibration of programmes, modes of delivery and equitable distribution of resources are not overlooked. The pedagogical content knowledge of a 21st-century teacher should address the needs of the Fourth Industrial Revolution (4IR) learner.

The book is a result of rigorous scientific research conducted by diverse scholars from universities across the African continent. The research methods used in the volume include qualitative, quantitative, and mixed methods. The findings are justified by triangulation in data collection prominent in most chapters. Moreover, several chapters in this volume draw on researchers' autoethnographic experiences and extensive literature reviews of existing studies.

It is sincerely hoped that the book will contribute significantly to the ever-growing body of knowledge, particularly, but not limited to, the post-COVID-19 era.

Sifiso Sibanda, Research Unit: Research Outside Entities, Faculty of Education, School of Language Education, North-West University, Mahikeng, South Africa.

Gideon (Deon) P. van Tonder, Research Unit Self-Directed Learning, Faculty of Education, North-West University, Vanderbijlpark, South Africa

Washington T. Dudu, Deputy Dean: Research & Innovation, Faculty of Education, North-West University, Mafikeng, South Africa

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List of abbreviations and acronyms

4IR	Fourth Industrial Revolution
ACGISA	Associated Chartered Corporate Governance Practitioner
ACLARS	African Consortium for Law and Religion Studies
AI	artificial intelligence
AIDS	acquired immunodeficiency syndrome
AMBA	Association of Master of Business Administration
ANA	Annual National Assessment
ANC	African National Congress
ASRSA	Association for the Study of Religion in Southern Africa
ATC	advanced teachers colleges
ATP	Annual Teaching Plan
BA	Bachelor of Arts; bachelor's degree
BAAP	Black Academic Advancement Programme
BACIS	Bachelor's of Computer Information Systems degree
BBC	British Broadcasting Commission
BCom	Bachelor's of Commerce degree
BED	Bachelor's of Education degree
CAPS	*Curriculum and Assessment Policy Statement*
CHAT	cultural-historical activity theory
CHE	Council on Higher Education
CHISZ	Conference of Heads of Independent Schools in Zimbabwe
CIE	Cambridge International Examinations
CNN	Cabel News Network
COE	colleges of education
COPE	Committee on Publication Ethics
COVID-19	coronavirus disease 2019
DBA	Doctor of Business Administration
DBE	Department of Basic Education
DHET	Department of Higher Education and Training
DStv	Digital Satellite Television
EASA	Education Association of South Africa

EFAL	English First Additional Language
EFF	Economic Freedom Fighters
EHL	English Home Language
ELI	Entrepreneurial Learning Initiative
ELT	English language teaching
ERT	emergency remote teaching
ESAL	English Second Additional Language
ESRDB	Engineering Science Research and Development Board
FET	Further Education and Training
HE	higher education
GDP	gross domestic product
HEI	higher education institution
HEIs	higher education institutions
HIV	human immunodeficiency virus
HL	Home Language
HMC	Headmistresses' Conference
HoD	head of department
Hons	Honours degree
ICLARS	International Consortium for Law and Religion Studies
ICT	information and communication technology
IJCAR	International Journal of Current Advanced Research
INTASC	Interstate New Teacher Assessment and Support Consortium
IoDISA	Institute of Directors South Africa
IoT	Internet of things
ISC	Independent Schools Conference
ISfTE	International Society for Teacher Education
kB/s	kilobyte per seconds
IT	information technology
LC	linguistic citizenship
LiEP	*Language in Education Policy*
LMS	learning management system
LoLT	language of learning and teaching
LPHE	Language Policy for Higher Education
LPP	language policy and planning
LTSM	learning and teaching support materials
MA	Master of Arts degree; master's degree
MB	megabytes
MBA	Master of Business Administration degree
MEd	Master's of Education degree

MJSS	Mediterranean Journal of Social Science
MS	management system
NILOA	National Institute for Learning Outcomes Assessment
NLPF	*National Language Policy Framework*
NLS	National Language Service
NRF	National Research Foundation
NSFAS	National Student Financial Aid Scheme
NTSSA	New Testament Society of Southern Africa
NWU	North-West University
NWUBS	North-West University Business School
OER	open educational resource
OERs	open educational resources
PanSALB	Pan South African Language Board
PBL	problem-based learning
PCK	pedagogical content knowledge
PDI	professional development intervention
PGCE	Postgraduate Certificate in Education
PGDM	Postgraduate Diploma in Management
PhD	Doctor of Philosophy degree; doctoral degree
PNM	particulate nature of matter
POPBL	project oriented problem-based learning
PSET	post-school education and training
RADLA	Research and Doctoral Leadership Academy
RAN	Reading Association of Nigeria
SAAFECS	South African Association of Family and Consumer Sciences
SAERA	South African Education Research Association
SALALS	Southern African Linguistics and Applied Linguistics Society
SATI	South African Translators' Institute
SCSSE	School of Commerce and Social Studies in Education
SDL	self-directed learning
SDLI	Self-Directed Learning Instrument
SFL	systemic functional linguistics
SIT	social interdependence theory
SOAS	School of Oriental and African Studies
SPSS	Statistical Package for the Social Sciences
TAM	technology acceptance model
TNC	transnational corporation
TPD	teacher professional development

TTI   teacher-training institutions
TVET   technical vocational education and training
UBE   universal basic education
UFH   University of Fort Hare
UK   United Kingdom
UNESCO   United Nations Educational, Scientific and Cultural
                Organization
Unisa/UNISA   University of South Africa
UPE   universal primary education
USA   United States of America
Wits   University of the Witwatersrand
WHO   World Health Organization
WSU   Walter Sisulu University
ZANU–PF   Zimbabwe African National Union–Patriotic Front
ZINTEC   Zimbabwe Integrated National Teacher Education Course

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Notes on contributors

Martha Matashu
School of Commerce and Social Studies Education,
Faculty of Education, North-West University,
Mahikeng, South Africa
Email: martha.matashu@nwu.ac.za
ORCID: https://orcid.org/0000-0001-8029-283X

Martha Matashu is a senior lecturer and currently a director in the School of Commerce and Social Studies Education in the Faculty of Education at North-West University (NWU) on the Mahikeng campus, South Africa. She holds a PhD (Finance), Master of Business Administration (MBA) (Finance), BCom (Finance), Computer Information Systems (BACIS) degree, postgraduate certificate in Education (PGCE) in Economics Management Sciences and Accounting Didactics and a certificate in Econometric Panel data analysis. She has been responsible for lecturing Accounting Education at undergraduate and postgraduate levels. She has published articles in international journals, authored book chapters and co-edited one book. She has been invited to share her expertise with other external stakeholders. She has presented papers and has, on several occasions, been invited to give keynote addresses at international and local conferences. She has supervised several postgraduate students to completion. Matashu is an admitted Associated Chartered Corporate Governance Practitioner (ACGISA). She is a professional member of ACGISA and the Institute of Directors South Africa (IoDISA). She is an EPTDP-accredited assessor, moderator, programme designer and developer. She worked in accounting and finance in the corporate world before joining the academic field. As an academic, her current research interest includes human capital, economics of education, accounting and the use of information and communication technology (ICT) in education.

Melikhaya Skhephe
School of Commerce and Social Studies
Faculty of Education, North-West University,
Mahikeng, South Africa
Email: 42421667@nwu.ac.za
ORCID: https://orcid.org/0000-0002-2507-735X

Melikhaya Skhephe is a senior lecturer in the School of Commerce and Social Studies in the Faculty of Education at NWU on the Mahikeng campus, South Africa. Before joining NWU, he was a lecturer at Walter Sisulu University (WSU), East London, South Africa, and the University of Fort Hare (UFH), East London, South Africa, respectively. He also taught Accounting and Economics at a high school in the Eastern Cape province in South Africa. In his field of expertise, he has presented papers at both national and international conferences. To date, he has published 21 articles in accredited journals. He has been taking part in the management of the faculty as a co-coordinator and programme leader at

the UFH. Apart from that, He has been supervising students at BEd (Hons) and MEd levels. During the time of contributing to this book, Skhephe co-supervising students at PhD level. In addition, he has played a pivotal role in various community engagement activities, including presenting a range of accounting and economics topics on the airwaves. He has further contributed to the field of accounting and economics by developing accounting learning and teaching support materials (LTSM) for use in extra classes for some schools in the Eastern Cape province. Given the demands of the COVID-19 pandemic, he has made use of an array of online and other platforms to teach students.

Benedict Mofosi
Department of Information Technology,
Faculty of Information Technology, North-West University,
Mahikeng, South Africa
Email: benedict.mofosi@nwu.ac.za
ORCID: https://orcid.org/0000-0003-4374-1936

Benedict Mofosi is a senior information technology technician at the NWU on the Mahikeng campus, South Africa. He has been part and parcel of the education and technology fraternity for over a decade with various institutions of higher education in South Africa. He holds an MBA from the North-West University Business School (NWUBS), which is fully accredited by the Association of Master of Business Administration (AMBA). He also holds a postgraduate diploma in Management (PGDM): Operations Management obtained at NWUBS and a diploma in Information Technology from the University of South Africa (Unisa). The NWUBS is a member of the NWU Faculty of Economic Management and Sciences. His MA thesis was titled 'Factors contributing to the underutilisation of the educational technologies at the NWU, Mahikeng campus'. He is currently pursuing his Doctor of Business Administration (DBA) degree. His current research interests revolve around education technology development and ICTs in education, particularly in the semi-rural and rural institutions of education, the role of technology in advancing the quality of education in teaching and learning, the role of technology as a tool to transform and develop rural education to match the standard of urban education in South Africa, as well as rural economic development.

Louise Olivier
Research Unit Self-Directed Learning,
Faculty of Education, North-West University,
Mahikeng, South Africa
Email: louise.olivier@nwu.ac.za
ORCiD: http://orcid.org/0000-0001-7057-2766

Louise Olivier began her tertiary studies in 2000 at the Vaal Triangle campus of the then-Potchefstroom University for Christian Higher Education in Vanderbijlpark. Her majors included English, Afrikaans, and Translation Studies up to BA Hons level. During this time, she also worked as a research assistant at the university. She was awarded best academic performer in her faculty in 2003.

She also completed a PGCE. She passed both degrees and the postgraduate certificate with distinction. She completed her MEd degree in 2009 with a thesis on integrating motion media in the instruction of English literature. In 2011, she was appointed as a lecturer in academic literacy at the Centre for Academic and Professional Language Practice at NWU in Potchefstroom. She completed her PhD in Academic Literacy for nursing students. In 2021, she started a new position as a senior lecturer at the NWU Mahikeng campus in English for Education. Apart from delivering academic papers at local and international conferences, she has also published in local applied linguistics and education journals.

Muchativugwa L. Hove
Research Unit: Research Outside Entities,
North-West University,
Mahikeng, South Africa
Email: 22055215@nwu.ac.za
ORCID: https://orcid.org/0000-0002-6021-4639

Muchativugwa L. Hove is a full professor in English Language and Literature at NWU, and was formerly a postdoctoral research fellow at the University of Limpopo in Polokwane, South Africa. He is the deputy director of the School for Literature and Language Education. His current research interests are in nation and narration, critical literary theory, cultural *métissage* and applied language studies, especially curriculum renewal through the decolonisation project, curriculum theory and pedagogics of teaching English. Hove is an active member of the Southern African Linguistics and Applied Linguistics Society (SALALS), Association for Commonwealth Literature and Language Studies and the Education Association of South Africa (EASA). He is a National Research Foundation (NRF) C-rated researcher with more than 40 articles published in national and international journals, 12 scholarly book chapters, six co-edited books on the dynamics of teacher education, quality education and an edited book on auto/biography. His latest contributions to research include *Quality education: The nexus of human capital development, economic growth and social justice in a South African context* (AOSIS Books 2021) and 'Intersections of Masculinity, Sexuality, Nationality, and Racial Identity in James Baldwin' (*Cultural Studies ↔ Critical Methodologies* 2022). Hove's chapter in this book extends his contribution to debates on nation and narration, issues of equity, access and social justice in the classroom and the matrices of identity and cultures in imagining the postcolonial state.

Byron J. Bunt
Research Unit Self-Directed Learning,
Faculty of Education, North-West University,
Vanderbijlpark, South Africa
Email: Byron Bunt @nwu.ac.za
ORCID: https://orcid.org/0000-0002-2102-4381

Byron J. Bunt is a senior lecturer in the Faculty of Education at NWU on the Vanderbijlpark campus, South Africa, and is part of the Research Unit for

Self-Directed Learning. He has been working in the field of teacher education for the past ten years and his research niche encompasses cognitive education, with a specific focus on developing students' creative and critical thinking through the use of various teaching strategies and games. He has several article publications in both national and international journals and has published in the fields of history education and gamification. Furthermore, he has been the author of several academic book chapters published by Van Schaik Publishers and AOSIS since 2018. In addition, he has initiated a sub-area in SDL called 'Pedagogies of Play', which focuses on research involving game-based learning. Before lecturing, he worked as a teacher at General Smuts High School in Vereeniging, South Africa, teaching the subjects Social Science and Technology.

Gideon (Deon) P. van Tonder
Research Unit Self-Directed Learning,
Faculty of Education, North-West University
Vanderbijlpark, South Africa
Email: deon.vantonder@nwu.ac.za
ORCID: https://orcid.org/0000-0001-5486-1242

Deon van Tonder holds a PhD in Education Management. He has worked in the field of teacher education for the past 32 years. Since 2011, he has concentrated on the professional development of teachers, in particular on internships, induction, SDL and various teaching strategies. Gideon believes in inspiring individuals and, as deputy director of the School of Commerce and Social Studies, he has established and led a school-based project: 'Establishing the merits of a school-wide community of practice project utilising teaching strategies for the development of self-directed learning'. Through this initiative, he improves research among staff and promotes the SDL skills of preservice teachers through a variety of teaching strategies. Van Tonder has several article publications in international journals and has published in education management, critical thinking, and professional development of teachers. In addition, he has been the author of several academic book chapters published by Van Schaik Publishers, as well as AOSIS since 2015. Van Tonder was awarded the NWU Teaching Excellence Award in 2019 and received the Distinguished Teaching Excellence Award in the same year.

Kufakunesu Zano
Department of Linguistics and Modern Languages,
College of Human Sciences, University of South Africa,
Pretoria, South Africa
Email: kufazano@gmail.com
ORCID: https://orcid.org/0000-0003-4767-3109

Kufakunesu Zano is a Grades 11 and 12 English teacher at Vaal Christian School in Fezile Dabi district in the Free State province of South Africa, and is also working on part-time basis for several higher education institutions

(HEIs) in South Africa. He holds a PhD from Unisa, South Africa, and is a candidate for a second PhD with the same university, where he is focusing on a thesis provisionally entitled 'The translingual practices used by teachers in the Further Education and Training (FET) Phase in the Free State province, Fezile Dabi district'. He has more than ten years of classroom teaching experience, both in Zimbabwe and South Africa. He taught both English Home Language (EHL) and English First Additional Language (EFAL) at both primary (Grades 6–7) and high school (Grades 8–12) levels. He is also a registered editor with the South African Translators' Institute (SATI). He has published scholarly articles in accredited peer-reviewed journals. His research interests are in English as an additional language, translanguaging and bi/multilingual education. He mainly publishes in multilingual education in an EFAL context in the FET Phase. His focus on multilingual education is shaped by his belief that meaningful learning only takes place when the teacher and the learners appreciate each other's linguistic backgrounds.

Esther Mavengano
Department of English and Media Studies,
Great Zimbabwe University,
Masvingo, Zimbabwe
Email: esthermavengano@gmail.com/emavengano@gzu.ac.zw
ORCID: https://orcid.org/0000-0002-9630-3334

Esther Mavengano is a lecturer who teaches Linguistics and Literature in the Department of English and Media Studies, Faculty of Arts at Great Zimbabwe University in Masvingo, Zimbabwe. She is also a research fellow at the Research Institute for Theology and Religion, College of Human Sciences, Unisa, South Africa and an Alexander von Humboldt postdoctoral research fellow at the Techische Universistat Dresden Institut of English and American Studies, Department of English, Dresden, Germany. Mavengano holds a PhD in Linguistics and Literary Studies obtained from NWU, South Africa. Her research areas border the interface of linguistics and poetics. She has interests in language policy and planning, sociolinguistics, language practices and linguistic ideologies, media and political discourses, English as a foreign or second language, rhetoric, and language use, translingual practices in fictional writings, identity issues in contemporary transnational Anglophone/African literature, religion and gender, discourse analysis, stylistics, Zimbabwean literature and language education in 'multi' contexts. She has published in reputable international journals, including *Cogent Arts and Humanities*, *African Identities*, *Literator* and the *Journal of Multicultural Discourses*, among others. She is a member of the Circle of Southern African Women and the Zimbabwean Circle Chapter.

Washington T. Dudu

Deputy Dean: Research and Innovation,
Faculty of Education, North-West University,
Mahikeng, South Africa
Email: washington.dudu@nwu.ac.za
ORCID: https://orcid.org/0000-0002-0194-0833

Washington T. Dudu is the deputy dean of research and innovation in the Faculty of Education at NWU, South Africa. Dudu has been working in the field of teacher education for the past 15 years. As part of the community engagement enterprise, Dudu has also been running the Experimento-Stiftung international project, where he has trained many practicing teachers in providing didactic and methodological approaches to classroom experiments using an inquiry-based approach to science education. Dudu's research interests are in scientific inquiry, the nature of science, pedagogical content knowledge (PCK) and the affordances of indigenous knowledge in the science classroom. He obtained a PhD in Science Education from the University of the Witwatersrand (Wits), Johannesburg, South Africa, and all his other qualifications from the University of Zimbabwe, Harare, Zimbabwe, and taught science subjects at high school level for eight years. He has published many academic journal articles, book chapters and conference articles in accredited proceedings at the national and international levels, and he also acts as a supervisor for several postgraduate students (at both MA and PhD levels). Dudu is a manuscript reviewer for at least 15 journal publishers and sits on the editorial boards for at least two journals.

Kgomotsego B. Samuel

Research Unit Self-Directed Learning,
School of Mathematics, Sciences and Technology Education,
Faculty of Education, North-West University,
Mahikeng, South Africa
Email: kgomotsego.samuel@nwu.ac.za
ORCID: https://orcid.org/0000-0002-8118-5080

Kgomotsego Brenda Samuel holds a PhD in Curriculum Studies and a BA (Hons) and MA in Mathematics and Science Education. Her current research interest is curriculum design and implementation, with a special focus on classroom practices and science teachers' PCK. She was during the writing of this book, a NWU Life Sciences for Education senior lecturer in the School of Mathematics, Sciences and Technology Education under the Faculty of Education at NWU, South Africa. Her interest extends to the growth and development of Life Sciences preservice teachers' level of PCK. Her research focus in science education aims at strengthening the pedagogic competencies of 21-century science teachers. She has been employed at NWU since 2014, but her science teaching experience goes stretches over two decades. She has participated in several research

projects focused on curriculum implementation in Natural and Life Sciences. She has attended and presented at a number of local and international conferences. She is attached to the Research Unit of Self-Directed-Learning at NWU, Mahikeng campus in North West province, South Africa. She is an affiliate of research associations such as SAARMSTE and South African Education Research Association (SAERA) and holds a Golden Key membership.

Motlhale J. Sebatana
Self-Directed Learning Research Unit,
Faculty of Education, North-West University,
Mahikeng,South Africa
Email: judicial.sebatana@nwu.ac.za
ORCID: https://orcid.org/0000-0001-6520-423X

Motlhale J. Sebatana is a lecturer in the Faculty of Education at NWU, South Africa. He is a budding researcher and has been working in the field of teacher education for the past three years. He is also an executive committee member of the UNESCO Chair on Multimodal Learning and Open Educational Resources (OERs). As part of the community engagement enterprise, he has also been running the chemistry and physics practical experiments for Physical Sciences teachers and assisting with Grade 12 learners' preparation for final national examinations. His research interests are 21st-century skills and teaching, pedagogical content knowledge, problem-based learning (and teaching), self-directed learning, teacher preparations and teacher professional development in science education. He holds a MA in Science Education from the NWU, Potchefstroom, South Africa; Bachelor of Science (BSc) Hons in in Science Education from Wits, Johannesburg, South Africa; and BEd in Physical Sciences from the NWU, Mahikeng, South Africa. He has taught science subjects at high school level for two years. He has also taught secondary schools intervention programmes for the Sci-Bono Discover Centre.

Adri du Toit
Research Unit Self-Directed Learning
Faculty of Education, North-West University,
Potchefstroom, South Africa
Email: dutoit.adri@nwu.ac.za
ORCID: https://orcid.org/0000-0002-3354-6830

Adri du Toit has been involved in education at various levels for over two decades. She started her career as a high school teacher but now specialises in teacher education and curriculum development at the Faculty of Education of the NWU, South Africa. In particular, Du Toit prepares teachers for Consumer Studies education in the FET phase and Technology education in

the Senior Phase of the South African school curriculum. She has chaired several national research studies for Umalusi, focusing on South African school curriculum aspects. Du Toit is passionate about developing entrepreneurship education, intending to contribute to the preparation of learners for a world where they will not only have to create their employment or income-generating opportunities but in which they will have the skills to thrive. She unceasingly explores strategies to support this aim, including utilising project-based and self-directed learning. Du Toit has published and presented numerous articles and chapters on research regarding pedagogical and curriculum issues in her specialist subject field while maintaining a focus on entrepreneurship education. She enjoys collaborating with researchers from across the globe, particularly with academics that share the challenges and delights of developing education on the African continent. During contributing to this book, she served as the president of the South African Association of Family and Consumer Sciences (SAAFECS). She endeavours to support and engage the organisation's members and educators in the field in the academic and research environment.

Sifiso Sibanda
Research Unit: Research Outside Entities,
Faculty of Education, School of Language Education,
North-West University,
Mahikeng, South Africa
Email: sifiso.sibanda@nwu.ac.za
ORCID: https//orcid.org/0000-0002-3924-5414

Sifiso Sibanda is an English lecturer in the Faculty of Education, School of Language Education at NWU on the Mahikeng campus, South Africa. He holds a PhD in English Language and Literature. He has edited many theses at Hons, MA and PhD levels. He is presently co-supervising MA and PhD students at NWU. He is a researcher outside entities, meaning he is not affiliated to any specific research entity. His areas of research are postcolonial literature, the representation of women in modern literature and educational practices in the 21st century. Sibanda enjoys reading African literature with a view to critiquing various stances by different authors. Some of the authors who have caught his attention are Zakes Mda from South Africa, Nigerian authors Chinua Achebe, Flora Nwapa, Buchi Emecheta and Chimamanda Ngozi Adichie, Ngũgĩ wa Thiong'o, from Kenya, as well as Shimmer Chinodya and Charles Mungoshi from Zimbabwe, to name just a few. He has presented several papers at both local and international conferences. He has also published several articles on postcolonial literature. During his spare time, he helps local high school teachers to cultivate learners' love for literature and to appreciate literature as a reflection of societal ills, norms and values.

Joyce P. Dhlamini
Department of Professional Studies,
Faculty of Education, North-West University,
Mahikeng, South Africa
Email: joyce.dhlamini@nwu.ac.za
ORCID: https//orcid.org/0000-0002-6903-7843

Joyce Phikisile Dhlamini is a senior lecturer in the Faculty of Education, School for Professional Studies in Education at NWU on the Mahikeng campus, South Africa. Dhlamini trained as a teacher at the University of Zululand and taught at Kopanang Secondary school in Emalahleni in the Mpumalanga province of South Africa, before later moving to Khanya-Lesedi Secondary in Heidelberg in the Gauteng province of South Africa. In 1997, she joined the Unisa as a tutor and was subsequently absorbed by the institution as a full-time lecturer. It is her interest in research that shapes her professional life today. She has participated in research projects including the evaluation of the Annual National Assessment (ANA) in the Eastern Cape province of South Africa. Presently, she is participating in an NRF community-based project for school principals. She is a member of the International Society for Teacher Education (ISfTE) and SAERA. Dhlamini has presented research papers at international conferences held in Turkey, United States of America (USA), Japan and Namibia and national conferences in Potchefstroom, Pretoria, KwaMaritane, Cape Town and Port Elizabeth (now Gqeberha). She has published journal articles and academic book chapters and has successfully supervised and promoted 11 MA and three PhD students. She served in the Faculty of Education Research committee as secretary, the Faculty of Education Higher Degrees Committee as coordinator for MA and PhD programmes at NWU (Mahikeng campus) and as a Faculty of Education restructuring committee member representing the NWU Mahikeng campus.

Precious-Pearl V. Mlotshwa
Faculty of Education, Independent Institute of Education (IIE) of Monash South Africa (MSA)
Mahikeng, South Africa
Email: precious-pearl.vezi@monash.edu
ORCID: https//orcid.org/0000-0002-4528-2035

Precious-Pearl Mlotshwa is a lecturer in the Department of Education at the Independent Institute of Education (IIE) of Monash South Africa (MSA), Johannesburg, South Africa. She has been a leader in the Department of Child Development and Support Services at the university. Precious-Pearl registered as a PhD student at NWU in 2017 and completed her degree in 2019. She was promoted to the position of head of department (HoD) at Monash University, Independent Institute of Education (IIE) of Monash South Africa (MSA). Due to the specialisation of her studies focusing on post-school youth development, she found it suitable to take up new challenges and to directly assist in youth development projects. Thereafter, she moved to the Department of Social Services. She is presently a director of youth development in the National Department of Social Development.

Tobias Marevesa

Department of Philosophy and Religious Studies,
Simon Suzenda School of Arts, Culture and Heritage Studies,
Great Zimbabwe University,
Masvingo, Zimbabwe
Email: marevesat@gmail.com
ORCID: https://orcid.org/0000-0001-5479-6735

Tobias Marevesa is a New Testament lecturer in the Department of Philosophy and Religious Studies, Simon Suzenda School of Arts and Humanities, at the Great Zimbabwe University. He teaches New Testament Studies and New Testament in Greek. He holds a PhD from the University of Pretoria, South Africa. His research interests lie in New Testament studies and politics, Pentecostal expressions in Zimbabwean Christianity, culture, human rights, and gender-based violence. He has published on New Testament studies and conflict-resolution in the Zimbabwean political landscape. Tobias is an emerging scholar who has attended and presented several papers at both regional and international conferences and has published articles in reputable international journals. He is a member of the New Testament Society of Southern Africa (NTSSA), the Reading Association of Nigeria (RAN), the Association for the Study of Religion in Southern Africa (ASRSA), the African Consortium for Law and Religion Studies (ACLARS) and the International Consortium for Law and Religion Studies (ICLARS).

Acknowledgements

Introduction

Sifiso Sibanda
Research Unit: Research Outside Entities, Faculty of Education,
School of Language Education, North-West University,
Mahikeng, South Africa

Gideon (Deon) P. van Tonder
Research Unit Self-Directed Learning,
Faculty of Education, North-West University,
Vanderbijlpark, South Africa

Washington T. Dudu
Deputy Dean: Research and Innovation,
Faculty of Education, North-West University,
Mahikeng, South Africa

Teacher-education has always occupied a contentious space in world debates. There are several views that seek to influence the transformation of present-day matrices of epistemologies and their subsequent pedagogies both in higher education institutions (HEIs) and the Department of Basic Education (DBE). The advent of the Fourth Industrial Revolution (4IR) has heightened the scope of debate in education pedagogical reformation. This volume endeavours to engage its readers to appreciate some of the pertinent concerns relating to education in the African context.

Some of the issues speak to equal opportunities and online delivery systems. The authors are cognisant of the opportunities and challenges presented by the 4IR. The availability of technology has become a pacesetter in terms of modern pedagogies that seek to infuse technology in teaching

and learning. The persistent challenge is the uneven ground on which the recipients of the pedagogies stand. Many students are living in abject poverty and can hardly afford technology-enhanced education because they do not have gadgets such as smartphones, iPads, laptops, tablets, et cetera. The African governments are faced with a mamoth task of ensuring that learners and students from all walks of life are afforded equal opportunities in technology-enhanced education. As the world surges forward with online classes, issues of language also come to the fore. Should English be the *lingua franca*? What about those learners and students whose English proficiency is poor?

There is also a need to equip newly qualified teachers with updated skills, such as the use of technology in classroom assessment and developing the practising teachers to be tech-savvy enough to adapt to the changing world. The authors of this volume seek to offer alternatives that could be used by universities and Technical and Vocational Education Training (TVET) colleges during training. The advent of coronavirus disease 2019 (COVID-19) has increased the need to accelerate the use of technology in today's African classroom. With the added burden of COVID-19, African higher education institutions (HEIs) find themselves in a dilemma of coping with students' ever-increasing educational demands. Having appreciated this dire position of African HEIs, local and regional academics have contributed well-researched chapters that seek to establish ways of upscaling the HEIs education system to address various learning and innovation challenges. The contributors to this volume underscore the need to recalibrate the training of teachers in (HEIs) such as universities and teacher-training colleges to meet the needs of today's tech-savvy generation of learners in schools. In some of the chapters, researchers have proposed models that could be used to alleviate the challenges of the absenteeism of technology and innovation in the African classroom.

This book comprises three parts which speak to different themes. The first part addresses the need to equip lecturers with online teaching skills. This first part focuses on the importance of technological literacy. It has come to the researchers' attention that lecturers should be tech-savvy to function optimally in today's teaching space. Lecturers must therefore be staff developed on the use of many technology-enabled platforms that can be used when teaching large numbers of students both synchronously and asynchronously.

The second part addresses the concern of resources, equity and quality in teacher-training institutions. In this part, the researchers trace the challenges facing HEIs, dating back to the colonial regimes. Imbalances that are a direct result of the inequitable distribution of resources during the period of black repression continue hampering the efforts of transformation of the HEIs.

The shortage of resources and continuously shrinking economies negatively affect learning and innovation strategies envisaged by African countries.

The third part of the volume suggests pedagogical strategies that may be considered for language and science teaching. The chapters address the need to reconsider the current teacher-education system with a view to updating pedagogical skills at HEIs. The chapters detail the empirical findings of various research projects that have been conducted to help develop HEIs to meet the world's current educational demands. It is sincerely hoped that this volume will provide universities with insights and alternative ways of addressing pedagogical challenges.

PART 1

Creating a tech-savvy generation of educators

Incorporating technology in education: A focus on flexible pedagogies

Benedict Mofosi
Department of Information Technology,
Faculty of Information Technology, North-West University,
Mahikeng, South Africa

Martha Matashu
School of Commerce and Social Studies Education,
Faculty of Education, North-West University,
Mahikeng, South Africa

Melikhaya Skhephe
School of Commerce and Social Studies,
Faculty of Education, North-West University,
Mahikeng, South Africa

■ Abstract

This chapter investigated academics' views on using educational technologies to create a flexible pedagogy as a way of recalibrating teaching and learning in higher education institutions (HEIs). According to the literature, recalibration of higher education teaching and learning in the form of integration of the

educational technologies process is imperative for the optimisation of opportunities and for addressing the modern-day complex educational challenges in the global environment. As a result, there is a growing belief that educational technologies improve flexible teaching and learning, which provides many flexibilities to both students and lecturers as stakeholders in HEIs. Often overlooked in the literature on the recalibration of education systems in HEIs learning are empirical studies that focus on the academics' perceptions on the use of educational technology to form a flexible pedagogy in universities. There are propositions from the technology acceptance model (TAM) that the use of technology in any given environment is dependent on the users' and stakeholders' acceptance of technology. However, although the TAM model may provide a basis for the adaptation of technology, the application of these principles is context-dependent. Studies that focus on perceptions of academics on the use of educational technology to promote flexibility in South African university context using the TAM theoretical principles are few in the literature. This study thus used the TAM model to evaluate academics' perspectives on the use of educational technologies to support a flexible pedagogy in one selected university. The study findings established that academics embrace the concept of flexible pedagogy, which combines educational technologies with traditional teaching and learning methods. Recommendations for policy implications for the recalibration of university education systems were derived from the evidence presented in the findings. Overall, the study concluded that to enable flexible pedagogy, a context-specific analysis of academic perceptions on the usage of educational technology should be conducted to ensure a sustainable recalibration of the educational processes in HEIs.

■ Introduction

It is critical for studies to focus on the recalibration of the higher education systems following the unprecedented teaching and learning modality shift created by the pandemic and the recent global shift towards the Fourth Industrial Revolution (4IR). According to literature, the use of technology at universities and most HEIs to facilitate flexible teaching has become critical worldwide (Bekiroglu, Ramsay & Robert 2021; Essel et al. 2021, p. 309; Lee et al. 2021). Flexible pedagogy is a learner-centred technique that allows students to choose a variety of options about where, when, and how they learn (Essel et al. 2021, p. 310; Edyburn 2013). Owing to the technological dependence of the modern generation, together with changes brought by 4IR, it is imperative for universities to shift towards flexible pedagogies by educational technologies to enhance flexible pedagogy. Stakeholders, particularly students, professors, and institutions, could benefit extensively from employing educational technology to facilitate flexible pedagogy (Bekiroglu et al. 2021; Essel et al. 2021; Jimola & Ofodu 2021; Lee et al. 2021).

Using educational technologies may promote the delivery of teaching, learning and evaluation that can be enabled by technology towards meeting the lifelong educational needs of the modern generation (Rahmi, Othman & Musa 2014). Moreover, the critical importance of ensuring access to education in societies is crucial, and there is a need to promote a radical paradigm shift from a conventional pedagogical approach towards a plethora of educational teaching and learning systems. This chapter thus submits that failure to transform higher education pedagogies in line with modern technologies could threaten the sustainability of many universities in Africa.

Despite several advantages of using educational technologies, research shows that academics are still reluctant to embrace them (David & Timothy 2015, p. 1245). Based on the growing call for universities to shift from traditional face-to-face tuition under a brick-and-mortar mode to flexible pedagogy, the authors of this chapter contend that institutions should understand academics' perceptions regarding the use of flexible pedagogy in the 21st century and beyond.

The need for the recalibration of higher education systems towards flexible pedagogy is prompted by the need to respond to complex dynamic changes in the environment (Kanwal & Rehman 2017). For instance, Mwapwele et al. (2019) suggest that 4IR is centred on the application of digital technologies so that distinctions between the physical, digital and biological spaces are reduced. This suggests that flexible pedagogies are not limited by physical boundaries and time constraints. Gibson et al. (2018) emphasise the importance for academics to use educational technologies. This means that lecturers may make use of various electronic gadgets to facilitate learning. Educational technologies are ubiquitous, thus further justifying the shift towards flexible pedagogies. While it would be interesting to discuss how educational technologies would be used to facilitate teaching and learning, the scope of this chapter is limited to investigating academics' perceptions of the use of flexible pedagogy. According to Hsu (2016, p. 39), successful integration of educational technologies into the teaching and learning environments may help students learn profitably and contribute positively to their intellectuality. In this regard, the use of flexible pedagogy is envisaged to bring several benefits to the students. All matters discussed earlier lead to the conclusion that it is important to explore ways to optimise academics' usage of flexible teaching and learning approaches.

Despite its innumerable benefits, the full implementation of flexible pedagogies is influenced by the academics' perceptions. According to Buabeng-Andoh (2012, p. 140), academics who have only been exposed to traditional classroom settings prefer face-to-face interactions with students and lecturers, whereas the current generation of academics prefer online interactions because they are tech-savvy. This means that academics' exposure to technology influences their use of technology. Some academics believe

that integrating educational technologies into their teaching is time-consuming and increases their burden (Porter et al. 2014). This indicates that an academic's belief has an influence on their usage of technology in teaching and learning. Salleh (2016, p. 25) recommends that it is vital to consider the academics' attitudes towards technologies. Recalibration of higher education regimes would thus encompass building structures, systems, processes, and procedures to support academics' use of flexible pedagogy, which entails the use of technology in the classroom.

■ Background

The global growth of educational technologies, with its variety of chances to enhance teaching and learning processes, has significantly transformed the education system (Hew & Cheung 2016; Vandeyar 2015). Furthermore, employing educational technologies promotes the delivery of instructional content with supporting multimedia elements such as interactive graphics, videos, animations, simulations, and technology games, resulting in a flexible type of learning (Hew & Cheung 2010). Moreover, Harasim (2016) contends that as interactive technology grew more accessible and user-friendly, technology-driven pedagogical instruction transformed, and a new process of teaching and learning was ensured. As a result, education has transitioned from traditional to modern pedagogy, with students taking greater responsibility for their own learning than ever before (Koch 2014, p. 15). According to Hsu (2016), the successful integration of educational technologies into the teaching and learning environment may improve learning and contribute to the development of students' intellectuality. However, some academics still believe that integrating educational technologies into their teaching is time-consuming and increases their burden (Porter et al. 2014). Nonetheless, lack of confidence, incompetence and unavailability of resources are the three reasons mentioned by Bingimlas (2009) as impeding academics' use of technology. In addition, factors such as lecturer skills, institution infrastructure, budget allocation, lecturer confidence, quality technical support, workload, access to technology, lecturer practices, the structure of education systems, nature of the curriculum, peer support systems and organisational culture were highlighted by Maimun, Wan and Isa (2017) as major factors contributing to academics' negative attitude towards the use of technology in their teaching. It is against this background that the authors of this chapter investigated academics' perceptions of the use of technologies in the classrooms.

■ Problem statement

According to research, institutions have always been under pressure to improve their use of technologies even before the advent of COVID-19. In light

of this view, Reid (2014) noted that HEIs invest millions of dollars in developing instructional technologies to reap the promised benefits, but they frequently encounter impediments to their acceptance. Despite the numerous benefits of educational technologies, David and Timothy (2015) established that many academics at educational institutions continue resisting their adoption. Hence, the first question that arises is: What are the academics' perspectives on using educational technologies to facilitate a flexible pedagogy? The second one is: How supportive are academics of the concept of flexible pedagogy, which combines educational technologies with traditional teaching and learning methods?

■ Theoretical framework

■ The technology acceptance model

The TAM theory was employed in this study to assess the academics' views on the use of educational technologies to facilitate teaching at university. The technology acceptance model is by researchers to analyse the use and acceptance of technological systems by their intended users (Teo 2009). It was coined by Davis, Bagozzi et al. (1989). Technology acceptance model comprises two primary drivers of consumers' attitudes and behavioural intentions to use a given technological device: perceived usefulness and perceived ease of use (Masrom 2007). Many investigations have proved that TAM is an effective model for predicting or explaining users' attitudes and behavioural intentions to utilise a given technology system over time (Baek, Yoo & Yoon 2018; Park 2009, p. 160). As a result, TAM is the best model for explaining and predicting academics' attitudes about the casual use of educational technologies.

The TAM model has been adopted by a growing number of academics as a framework for analysing factors that drive the use and underuse of technologies in education. According to Davis et al. (1989), if technological systems are not used, they will not serve their purpose of improving organisations. The technology acceptance model uses two variables as the main determinants of the attitude and behaviour to use the system (Davis et al. 1989). Users cringe from using systems because users either do not believe the systems will help them improve their jobs or believe they are too complex to use. As a result, TAM uses the two variables as the main determinants of the attitude and behavioural intention to use the system (Davis et al. 1989). Based on the evidence presented in this section, TAM may be useful in tracing the link between lecturers and educational technologies. However, TAM only considers the users versus the system, whereas, in this study, the users (lecturers) must also consider the other users (students) who will be using some of the systems. This study is of the view that it would be futile for lecturers to use a system that would be unprofitable to their students or a system to which the students

are unable to respond in a predictable manner. If TAM, with its additional variables, is used effectively, it should meet the needs of users (lecturers) in integrating and employing educational technologies.

■ Literature review

■ Benefits of flexible technology to the learners, academics, and the institution

A flexible pedagogy that combines educational technologies with traditional teaching and learning approaches is an effective pedagogy for today's dynamic teaching and learning environment. Adopting instructional technology improves flexibility in several ways. According to Bekiroglu et al. (2021) and Gordon (2014), technology improves students' cognitive and emotional involvement, as well as provides students with an array of resources, knowledge, and opportunities to communicate with others. In terms of what is learnt, how it is learnt and where it is learnt, technology offers much-needed flexibility in pedagogy (Gordon 2014). Using technology-aided assessments, various assessment strategies such as team projects, peer assessments and formative and summative assessments can be administered. However, academics have challenges grasping the idea because the interplay between technology, material and pedagogy is so complex (Dagada & Chigona 2013). Dagada and Chigona's argument hinges on the notion that educational institutions should encourage academics to address the problem of unwillingness to use technology. According to Porter et al. (2014), faculty members should be more active in the technology integration process because they have authority over pedagogical practices in their institutions. Technology allows academics to be more adaptable in a variety of ways, including the ability to arrange their teaching, learning and evaluation for a diverse group of students (Essel et al. 2021; Gordon 2014; Lee et al. 2021). Another benefit is the delivery of a wide variety of learning materials (Rambe & Ng'ambi 2014). Moreover, increasing flexible pedagogy through technology allows educational institutions to promote the inclusion of a diverse range of learners as well as the ability to share materials with other institutions (Gordon 2014).

■ Pedagogical strategy and policies intervention

The availability of instructional technology in a facility does not guarantee its use as envisioned, particularly if there are no strategies or policies in place to promote its use. Maarop and Embi (2016, p. 46) have observed that most institutions find themselves in a situation where some of their instructional technologies are underutilised. Moreover, HEIs frequently lack regulations that guide and regulate the use of educational technologies (Aparicio, Bacao & Oliveira 2016). Higher education institutions should therefore be advised to

adopt policies aimed at maximising the use of educational technologies. Nevertheless, after educational technologies are adopted, it is possible that policy adherence may not be emphasised at institutions.

The chosen university's teaching and learning vision 2020 recognises the need for a teaching and learning environment that makes appropriate use of technology to enhance the learning experience by training staff and students (Balfour 2016). Furthermore, the vision 2020 of the university specifies the institution's intention to provide its academics with technology training workshops that will allow them to remodel the teaching and learning environment into a technology-enabled setting (Balfour 2016). In addition, the university acknowledges the use of technology to facilitate on- and off-campus participation in contact classes. In this regard, the chosen university is ambitious in its use of educational technologies and hopes that its staff and students will benefit from the improved delivery of teaching and learning. According to Watty, McKay and Ngo (2016), improved use of these tools advances teaching and learning in those settings. Consequently, educational institutions should transform their teaching and learning practices by incorporating educational technologies to improve teaching and learning (Watty et al. 2016). Formal standards that bind and specify the minimum number of sessions in which academics must use educational technologies in their teaching could help improve their use. The reason for this statement is that if educational technologies are not used in the way that they were intended, the desired outcomes may not be achieved. The intended users' discomfort and beliefs are among the most regularly mentioned reasons for this failure. Strategies aimed at supporting lecturers in becoming more tech-savvy can help to minimise the resistance that stems from the phobia of technology.

In some countries, such as Singapore, information and communication technology (ICT) policies in the education system are aimed at giving students ownership of the knowledge-based economy (Kong et al. 2017). This implies that improved ICT policies can contribute not only to the education community but also to the economies of countries. Many HEIs believe in the benefits of technology, but little is done to promote and support their use. In the African setting, some students in various institutions still do not use educational technologies, which is mostly because of a lack of appropriate infrastructure and accompanying resources (Asampana, Akanferi & Ami-Narh 2017, p. 190). Incentives could also be used to encourage lecturers to adjust their attitudes towards educational technology. According to Uluyol and Şahin (2016, p. 69), lecturers who are strongly driven to employ technology in their courses demonstrate high levels of technology utilisation in their classes. Academics should be increasingly active in the use of educational technologies. Since the event of pandemics or other major calamities, educational technologies may be the only trusted way for HEIs to maintain business continuity.

▪ The perceptions surrounding the use of educational technologies

In recent years, technology has drawn the attention of both students and lecturers, forcing them to spend a large amount of time immersed in it (Elkaseh, Wong & Fung 2016, p. 198). Many institutions have also shown a strong interest in embracing technology as part of their teaching and learning tools (Alharbi & Drew 2014, p. 150). However, as has been explained about TAM, some researchers have discovered that perceived usefulness and simplicity of use have a significant impact on information technology (IT) adoption or rejection (Elkaseh et al. 2016, p. 198). Adding to the reasons why systems are installed but not used as planned, Alharbi and Drew (2014) claim that other factors play a role in the attitude and behavioural intention to use technology. Other factors mentioned in the report include lack of resources, prior experience, and work relevancy. According to Nguyen, Barton, and Nguyen (2015, p. 198), academics find educational technologies valuable in the sense that they help with information dissemination and academic administration, but the problem is that there is a lack of clarity about how to manage and use technology specifically for academics. It can be stated that most academics have positive attitudes about educational technologies, but the biggest obstacle may be pedagogical integration, design, support, and supervision. The current literature does not clearly describe which technologies, if any, are thought to be valuable in helping pupils improve their academic performance. In their research, Manca and Ranieri (2016, p. 422) discovered that academics prefer to use digital tools like social media for sharing information with students. Other educational technologies, such as iPads, are also a subject that interests both academics and students (Nguyen et al. 2015). However, there is no evidence of the tools' integration for teaching and learning reasons. These findings may lead to the conclusion that academics believe educational technologies are valuable, but they lack the necessary skills and support to integrate them into teaching and learning.

In addition, according to Salleh (2016), researchers may disregard the fear of pedagogical change as a deeper problem than just perception. Some educators are eager to embrace educational technologies, but they are hesitant to do so because it requires their institutions to become more involved in pedagogical design (Mei & Lee 2019, p. 90; Tarus, Gichoyal & Muumbo 2015). Fryer and Bovee (2016, p. 29) revealed that one of the most important variables that are frequently missed is lecturers' earlier discussion of the 'relevance of educational technology to students' study' before they are promoted. South African students applaud the presence and integration of technology in higher education, but studies show that some lecturers are not doing their part to promote technology-integrated learning. Makura (2014) established that while some students' grasp of educational technologies is limited to a computer,

they are positive about using technology in their learning, whereas lecturers rarely use technology in their classes. Dlalisa and Niekerk (2015) established that educational technologies are underutilised in South Africa due to a lack of technological skills and expertise, as well as the age factor. These findings show that the recipients and purported guardians of educational technologies may have differing perspectives on how to use and integrate educational technologies in higher education. Institutions should initiate talks with all major stakeholders, from top management to suppliers and users, regarding educational technologies. According to the present literature, the most significant contributors to the underutilisation of educational technology include lack of training, exposure and experience for both students and lecturers. In addition, Hsu (2016) indicates that most instructors are self-conscious about their technological skills. Salleh (2016) discovered that lecturers are suspicious of the educational technologies' value to their students.

Using technology to teach modern-day students by academics

Information and communication technology has revolutionised the way learning is delivered during the last two decades (Hammond 2013; Tongkaw 2013). Harasim (2009) maintains that utilising e-learning technologies such as telematics, blended learning, live broadcasts, smartphones, broadband internet, and social media access has resulted in significant advances in learning, in addition to providing equitable possibilities to all students. The ability to connect to the internet has radically changed the face of education (Harasim 2009). Learning has moved from being a one-man activity to a collaborative nature because of the adoption of innovative technologies. Nevertheless, as certain technologies become more accessible and user-friendly, students develop interest and explore what these platforms have to offer. When students are enthusiastic about using technology in the classroom, a shift in teaching and learning occurs. This transformation in teaching and learning takes place from a traditional to a modern perspective, with students becoming more engaged in their studies (Kock 2014).

Lecturer attitudes towards the use of computers in their work

Very few researchers have conducted studies on how lecturers employ educational technologies to create flexible pedagogies (Albrini 2006). Based on the scarcity of research on the topic, the authors of this chapter broadened their scope to include the notion of lecturer attitudes towards the use of technology as a proxy for gaining an improved knowledge of

instructor attitudes. An individual's favourable or unfavourable behaviour towards an object, person or event is referred to as their attitude (Albirini 2006; Reed 2012). Teo, Fan and Du (2016), for example, measured lecturers' liking, enjoyment, joy and pleasure related to computer use, whereas Shapka and Ferrar measured students' liking, enjoyment, joy and pleasure linked with computer use. Both parties claimed that the emotional scale might no longer be a sensitive measure of overall computer attitudes because, nowadays, most people are at ease with computers. The main question that remains, however, is: are these elements related to the qualities, personalities, and attitudes of academics, or are they influenced by other external factors? (Dahawy, Tooma & Kamel 2014). According to Wagner (2014), chalk and talk is a major indicator of an obsolete style of disseminating information in the 21st-century classroom. This strategy has worked successfully in the past, but for the 4IR generation of students, it may not provide many positive results because of the youth's exposure to and knowledge of the internet (Wagner 2014).

■ Research methodology

The study employed a cross-sectional design because the authors of the chapter wanted to locate changes from numerous variables to find the relationship between them. However, there are several drawbacks to this design (Levin 2006). Patterns of associations extract the relationship between variables but fail to establish the cause and effect (Bryman & Bell 2014). According to Bryman and Bell (2014), the positivist paradigm matches more studies associated with comprehending features of social reality; hence, it was applicable to this study. Quantitative research is a research method that entails quantifying an issue and converting the data into meaningful statistics to find answers. It quantifies ideas, attitudes, and other traits before extrapolating the findings from a sample of a certain community (Bryman & Bell 2014). Based on the quantitative nature of the investigation, a quantitative method was used.

■ Population, sampling strategy, ethics, data collection and analysis

The population is the focus of a study's examination, and it might include people, cities, organisations, and a variety of other entities (Bryman & Bell 2014). The lecturers at all levels from all faculties at the chosen university site comprised the sample of the study. The target demographic included all lecturers who had been actively teaching for at least a year. The process of picking a subset of units to represent a study population is known as sampling (Bryman & Bell 2014). The sample size is determined by the nature and

objective of the research (Cohen, Manion et al. 2007). As a result, when conducting research projects, researchers must adhere to specifically permitted restrictions. Informed consent is vital in business research because it allows respondents to be completely informed about the procedure (Bryman & Bell 2014). Researchers should communicate with respondents in their own language (Bryman & Bell 2014). The analysis was conducted using the Statistical Package for the Social Sciences (SPSS) tool. Statistical Package for the Social Sciences is the most popular quantitative research software for Windows (Bryman & Bell 2014). The SPSS software was used to generate a frequency distribution from the questionnaire data in this investigation. The study relied on primary data collected through an online self-administered survey.

■ Presentation of findings and discussion

This section summarises, analyses and interprets data gathered through an online survey instrument. The results of the analysis are presented to demonstrate academics' perspectives on the usage of technology to enable flexible pedagogy. The findings answer the two main questions that prompted this research. Figure 1.1 depicts the findings on the issue that tried to establish academic perceptions on the usage of educational technologies to enable flexible pedagogy in the institution. The results of the second question aimed to establish if academics embraced the concept of flexible pedagogy.

Figure 1.1 shows the findings on academic perspectives of educational technology adaptation to support flexible pedagogy. According to the results, 98% of the respondents believe that continuing to use instructional tools will improve their skills, while only 2% disagree. In concurrence, technology skills and experience were identified as critical factors contributing to the underutilisation of technology (Dlalisa & Niekerk 2015). This suggests that academics believe their skill sets are improving because of their continued use of educational technology. It further reveals that 97.1% of respondents believed that employing instructional technologies benefits students, whereas the minority (2%) stated that it did not. These findings concur with Englund, Olofsson and Price (2017), Makura (2014) and Porter et al. (2014) that technology in teaching and learning has been viewed around the world as being revolutionary to the education business, bringing a range of benefits to both students and academics. In addition, 95.1% of respondents believed that educational technology should be given more emphasis in the institution, while only 4.9% disagreed. These sentiments are like those expressed by Bakir (2016), who believes that educational institutions should devote more resources to underscoring and enhancing the use of educational technologies in teaching and learning. Furthermore, according to Figure 1.1, 93.2% of respondents preferred and intended to use or continue to use educational
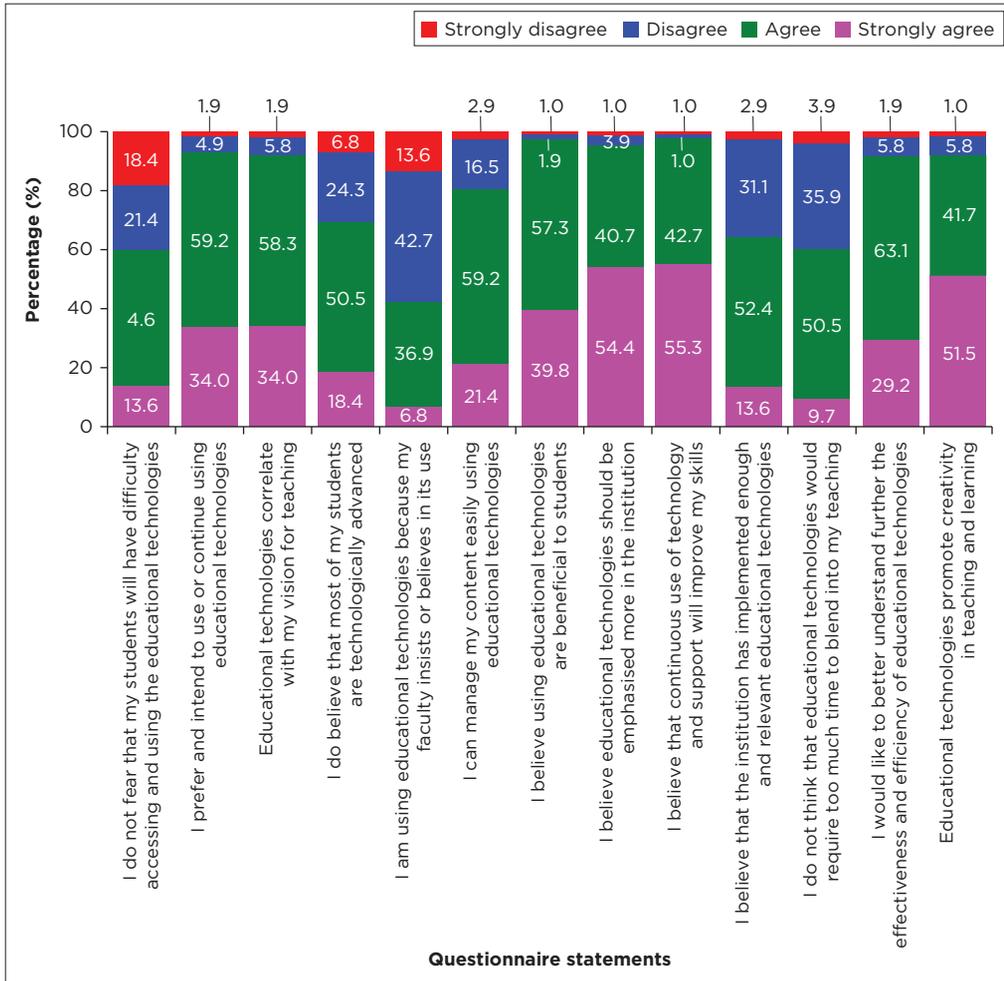
FIGURE 1.1: Academic perceptions about the adaptation of educational technologies to promote flexible pedagogy in the institution.

tools, while only 6.8% declined. In summary, these findings suggest that academics have a strong desire to learn more about educational technologies. Moreover, 92.3% of respondents agreed that they would like to learn more about the usefulness and efficiency of educational technologies, while 7.7% disagreed.

According to the findings, 93.2% of respondents believed that educational technology encourages creativity in teaching and learning, whereas 6.8% disagreed. Students and instructors are reported to be more creative when educational technology is integrated into the teaching and learning environment. Figure 1.1 reveals that 92.3% of respondents agreed that educational technologies aligned with their teaching vision, while

7.7% disagreed. Figure 1.1 reveals that 80.6% of respondents believed that educational technologies could help them manage their content more easily, while 19.4% disagreed. When it comes to education technology, the interaction between the three components (technology, content, and pedagogy) can be difficult to attain and comprehend (Dagada & Chigona 2013). According to this study, academics are aware of the balance between technology, content, and pedagogical design. The respondents were also pleased with the institution's present instructional technology implementation. Figure 1.1 shows that 66% of respondents believe the institution had incorporated enough relevant educational technologies, whereas the remaining 34% disagreed. Modern educational technologies may help academics strike a balance between technology, content, and pedagogy. However, the findings suggest that more and more relevant instructional technology may be required to meet the needs of the remaining 34% of lecturers.

According to this study's findings, 68.9% of respondents believed that most of their students were technologically proficient, while 31.1% disagreed. This study further established that academics appreciate students' technological abilities. Nevertheless, the findings indicate that more research into the pupils' technological abilities is required. Around 60.2% of respondents expressed no concerns about students having problems accessing and using educational tools. The respondents in this survey were optimistic that their pupils' access to educational technologies would not be curtailed. The findings did, however, indicate that lack of access to educational tools could create a negative perception. This highlights the need for more research into the institution's limited access to education technology. Furthermore, Figure 1.1 demonstrates that 60.2% of the respondents felt that incorporating educational technologies into their courses would not take too much time, while 39.8% disagreed. Increased workload has also been suggested as a reason for the underutilisation of educational technologies in the literature review. Most of the respondents disagreed that the time required to incorporate educational technologies was negatively affecting their perceptions of incorporating technology in their teaching. However, 39.2% disagreed, suggesting that the institution should collaborate closely with academics to smoothen the integration process. As reflected in Figure 1.1, 56.2% of respondents declined that they utilised educational technologies because their professors insisted or believed in their use, whereas 43.7% agreed. This research also established that faculties are not doing enough to encourage the use of instructional technologies at the faculty level. As a result, faculties must also play a role in ensuring that instructional technologies are used efficiently.

The findings show that academics welcome the concept of flexible pedagogy, which combines educational technologies with traditional teaching and learning methods, as mirrored in Figure 1.2. To begin with, the

findings show that 98% of respondents wanted to get the most up-to-date information about educational innovations and advancements, with only 2% disagreeing. These findings contradict those obtained in previous research, such as Gregory and Lodge (2015), Maarop and Embi (2016), Macharia and Pelser (2014) and Reid (2014), which claimed that academics had a negative attitude towards the embracement of technology in teaching and learning. The outcomes of this survey, on the other hand, revealed that academics are supportive of a flexible pedagogy that incorporates educational technologies. Respondents expressed an interest in learning more about educational technologies in addition to their support for technology-integrated teaching. In addition, 92.2% of the respondents agreed that the institution should integrate additional educational tools for teaching and learning, while 7.8% opposed the idea. Furthermore, 94.1% of the respondents felt that education technology makes teaching and learning simple and enjoyable, whereas 5.9% disagreed. Moreover, the data in Figure 1.2 demonstrate that 90.3% of respondents felt that instructional technology improves students' work quality, while just 9.7% disagreed. These findings are in line with earlier research that has established that instructional technology increases the quality of students' learning by enhancing characteristics including information processing, self-organisation, and knowledge management (Krasnova 2015; Macharia & Pelser 2014; Zweekhorst & Maas 2015, p. 10).

Other researchers, on the other hand, have argued that there is no empirical proof that instructional technology improves the quality of students' learning (Kirkwood & Price 2014; McKnight et al. 2016). However, this study established that educational tools boost the quality of students' learning. The respondents also suggested that using technology tools to teach improves efficiency and effectiveness. Figure 1.2 shows that 90.3% of respondents agreed that adopting educational technologies in the classroom improves efficiency and effectiveness, while 9.7% disagreed. In summary, it may be concluded that academics are in a better position to resolve the debate over how educational institutions improve learning performance and quality.

Figure 1.2 indicates that 88.4% of respondents agreed that employing educational technologies increases students' collaboration, while 11.6% disagreed. In addition, Figure 1.2 shows that 83.5% of the respondents believed that adopting instructional technologies enhanced student participation, while 16.5% disagreed. As a result, their responses concur with the reviewed literature. Figure 1.2 also shows that 85.4% of the respondents agreed that employing instructional technologies boosts students' interest in topics, while just 14.6% disagreed.

Figure 1.2 further indicates that 79.6% of the respondents believed that contemporary students related effectively to their learning practices while using educational technologies, whereas 20.4% disagreed. Furthermore, Figure 1.2 shows that 77.6% of respondents agreed that they knew how the
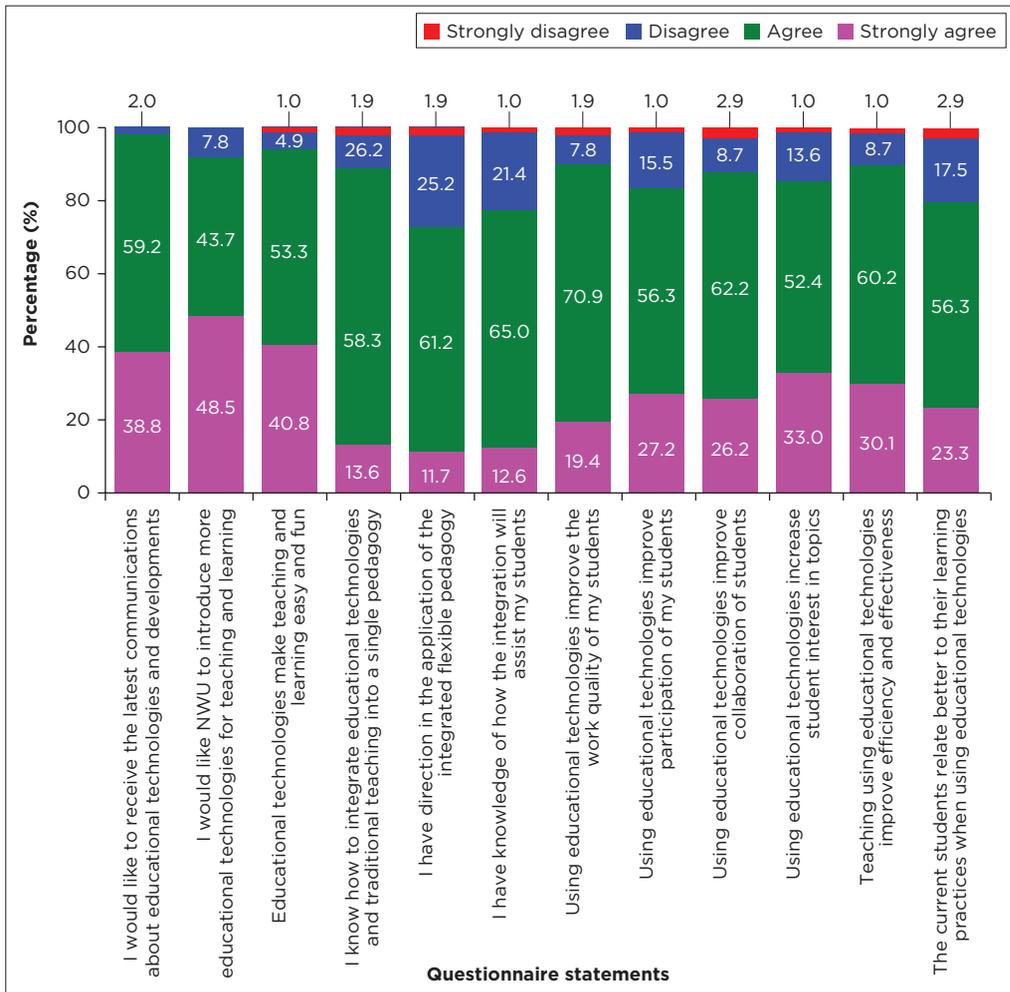
Key: NWU, North-West University.
FIGURE 1.2: Academics' support for the idea of flexible pedagogy that integrates educational technologies and conventional teaching and learning techniques.

integration would benefit their students, whereas 22.4% disagreed. Moreover, the figure reveals that 72.9% of respondents felt that they had a direction in applying integrated, flexible pedagogy, while the remaining 27.1% disagreed. Lastly, as indicated in Figure 1.2, 71.9% of the respondents knew how to combine educational technologies and traditional teaching into a single method.

The findings discussed earlier have policy implications towards the recalibration of higher education pedagogies. The evidence demonstrates the importance of understanding academics' perceptions of the use of technology to form a flexible pedagogy in a given university context. Such insight is necessary for establishing barriers and challenges hindering technology

acceptance within universities. Addressing such empirically identified obstacles provides scientific research-based, evidence-driven approaches towards the transformation of online teaching and learning modalities in HEIs. The findings further provide a foundation upon which to build the integration of proven theories or models such as the TAM. This study submits that the recalibration of the HEI to embrace 4IR and technology-driven education systems requires an institution to first co-opt the academics on the use of educational technology.

■ Conclusion

The findings of the survey reveal that, generally, most academics had positive attitudes towards the use of educational technologies to create flexible pedagogy in the institution. According to academics, the use of educational technology promotes a positive teaching and learning environment. Academics are enthusiastic about using and continuing to employ educational technologies to help institutions develop flexible pedagogy. The demand for new and relevant educational technologies, limited faculty involvement in promoting educational technologies, the technological competency of their pupils and the concern of limited access to educational technology by students were among the major impediments. Academics are in favour of flexible pedagogy, which combines educational technology with traditional teaching and learning methods. After analysing the findings, the study concludes that academics endorse the idea of flexible pedagogy. Academics underscore the importance of embracing technology and related methods, as well as the benefits of doing so in the performance of teaching, learning and research. The study's findings have led to the conclusion that academics believe it is critical to embrace technology in university teaching and learning.

■ Acknowledgement

Online teaching during COVID-19 in the School of Commerce and Social Studies in Education

Byron J. Bunt
Research Unit Self-Directed Learning,
Faculty of Education, North-West University,
Vanderbijlpark, South Africa

Gideon (Deon) P. van Tonder
Research Unit Self-Directed Learning,
Faculty of Education, North-West University,
Vanderbijlpark, South Africa

◼ Abstract

As a result of the coronavirus disease 2019 (COVID-19) pandemic, higher education institutions (HEIs) throughout the world have adopted an online teaching model. To meet the difficulties of the 21st century, education lecturers must rethink their teaching and learning methods. In this chapter, the North-West University (NWU) School of Commerce and Social Studies in Education (SCSSE) in South Africa describes the process of developing and implementing

an online teaching programme. This chapter describes how the programme was executed by the researchers, who are senior members of the faculty. First and foremost, the way we approach teaching online differs greatly from how we approach teaching in person. A small percentage of professors have had experience instructing students in distance education programmes, but for those who are used to classroom teaching, the online environment might be unfamiliar and even daunting. The current situation necessitates a radical rethinking of how students are taught and learned. It is our goal to provide our lecturers more flexibility in delivering online classrooms so that they may better represent our students while making use of the options that are available to us. For the 2020 SCSSE at NWU, this chapter aims to conduct a critical experience assessment of this remote learning technique. Among the topics covered in the literature study are online teaching, history in education, e-learning and the influence of COVID-19 on postsecondary education. This is followed by a discussion of the authors' autoethnographic approach, the earliest stages of planning and, finally, the lessons gained and potential future alterations to this process.

■ Introduction

During the COVID-19 pandemic, universities throughout the world have adopted an online-based teaching model. Lecturers must rethink their instructional techniques. Universities and colleges are required to provide programmes and platforms that enable the utilisation of diverse talents, skills and communications technology as an enabling system in higher instruction (Mahlangu 2018). An institution's long-term existence depends on its capacity to provide quality online education, according to Ilonga, Ashipala and Tomas (2020, p. 117). The COVID-19 outbreak has led to an upsurge in online learning alternatives at higher education institutions (HEIs). Online learning programmes must meet the 21st-century student qualities, which include technological literacy, collaboration, multimodal communication and systems thinking abilities, according to Mahlangu (2018).

Reporting on observations and experiences, this chapter describes how the NWU SCSSE implemented an online teaching programme for students. SCSSE's vice director and subject group head for History Education are both scholars with clout. As a starting point, the way we educate in an online environment is quite different from how we lecture in person. Although some professors have previously taught students enrolled in distance learning programmes, the online environment may sometimes be strange and even daunting for many professors and students used to face-to-face education. According to the research by Racat and Lichy (2022, p. 9), which focuses on French HEIs, the digitalisation of knowledge transfer via distance learning has both positive and negative elements. According to Bird, Castleman and

Lohner (2022, p. 14), the COVID-19 crisis forced a quick shift to online learning, which resulted in a modest decline in course completion among Virginia community college students. Although there were indications of more generous marking during the outbreak, graduation rates dropped. Having a sense of urgency to finish a course or project might negatively impact one's ability to learn online (Alghamdi et al. 2020, p. 220). This negative influence was most evident among underperforming students with little experience. Students acknowledge that online classes make them less serious, only participate for attendance, and are bored and lazy (Nambiar 2020, p. 791). We, as authors, have focused in this research on face-to-face teaching and learning where the current situation necessitates a complete reassessment of how students are taught and learned. Preparation for online classes will give our lecturers more flexibility and serve our students when the best advantages are used.

Students at NWU's SCSSE, History Education subject group, were asked to evaluate this new online teaching technique in the spring of 2020, and the results are shown as follows. The first focus is on online teaching and the COVID-19 impact on higher education. Our next focus will be further on the research methods, preliminary planning, lessons gained and possible future changes to this plan.

■ Conceptual framework

■ Distance learning

Distance learning is any kind of training that occurs outside a regular classroom environment, such as in an online environment (Fïrat, Kïlïnç & Yüzer 2018, pp. 63–70). The whole spectrum of pedagogical contacts involving lecturers and students, encompassing face-to-face engagements in the classroom and interactive engagements using information technology (IT) tools, is included in distance learning (Leleka & Kapitan 2021, p. 19). Information-receptive, reproductive, problematic and heuristic research are all forms of interactive interaction. Pedagogically processed educational content may be found in printed publications, electronic educational resources, electronic publications, audio and video materials, and in the form of podcasts and videos. Fırat, Kılınç and Yüzer (2018, p. 64) summarise many other forms of distance learning that are traditionally available today, including the following:

• Email courses: Everyday emails with no personal touch.
• Radio or television broadcasting is used in telecourses.
• Online courses may be given synchronously or asynchronously, depending on the student's preference.
• Mobile learning: The use of mobile devices such as cellphones, PDAs and MP3 players (iPods, MP3 players).

◼ Online learning

Technology and the internet may be used to educate and study in an online environment. To put it another way, site optimisation and the transmission and availability of all educational resources to students through the internet are both considered to be aspects of online learning (Kisanjara 2020, p. 37). Clark and Mayer (2016, p. 9) note that 'online learning, frequently referred interchangeably with e-learning, digital learning or distance learning, relates to teaching provided on several digital devices for learning purposes'. With the help of cutting-edge teaching methods and technology, online learning is a powerful tool for completing higher education studies and increasing the quality of education in the classroom (Fernando 2018). Over the last several years, online learning has become more popular, allowing students to study from the comfort of their own homes and at their own pace. This involves registering for an online course and studying via online lectures and assignments. The advantages of online learning pertain to both students and lecturers, which are listed as follows.

- Online lessons are more convenient.
- It is handy for individuals who have active lives, especially parents who must remain at home with their children.
- As long as there is a reliable internet connection, learning can occur anywhere on the globe.
- Research can continue without the researcher leaving the job.
- It saves time and money.
- It saves money on travelling by not driving to a physical campus.
- Self-directed learning (SDL) is encouraged through learning at one's own rate and time.

The disadvantages of online learning are (Dhawan 2020, p. 15):

- There are certain courses that cannot be taken online.
- Neither the lecturer nor the student has a close relationship.
- Online work requires a stable internet connection and a suitable computer.
- It is easier to give up on online research without a lecturer who is continuously checking students.

◼ Emergency remote teaching

In a disaster, emergency remote teaching (ERT) may be utilised to substitute traditional classroom instruction (Hodges et al. 2020, p. 7). Rather than delivering training or curriculum in person or in a hybrid or blended format, entirely remote teaching alternatives that can be returned to the basic formulation when the emergency situation has passed may be used instead to give such training or curriculum (Hodges et al. 2020, p. 7). If a full educational environment cannot be established in these circumstances, it is sufficient to

provide access to information and readiness via methods that are easy to construct and dependable when used during an emergency or disaster. We can begin to separate ERT from online learning if we think of it this way (Hodges et al. 2020, p. 7). This alternative to the physical delivery of instructional materials, content and activities, which happens only in times of crises and catastrophic catastrophes in the digital age, is unique from typical online courses (Bozkurt & Sharma 2020, p. i; Mohmmed et al. 2020, p. 3).

■ Information and communication technology

The COVID-19 pandemic has moved an integral part of the worldwide educational system from face-to-face learning to online delivery. Since the pandemic had not yet arrived, schools and colleges were already closed as a precautionary measure. Still, their usage for quality education varied depending on a variety of circumstances connected to information and communication technology (ICT) rules (Paudel 2021, p. 73). It is the teachers' use of ICT that helps them improve their practice, build professional abilities, devise new tactics, think about practice and engage students with varied activities and assignments to enhance learning results. Lecturers play a crucial role when it comes to shifting from a teacher-centred to a learner-centred approach to education (Paudel 2021, p. 73). It has been shown that lecturers' views towards teaching style impact classroom technology integration and are likely to play an important part in effectively integrating online learning, as stated by Duraku and Hoxha (2020, p. 23). Furthermore, institutions, their cultures and regulations, and support for lecturers and students are important elements in determining online or remote teaching (Per & Kitson 2014).

■ Online challenges

Using online learning as a teaching technique since the emergence of COVID-19 has necessitated the adoption of suitable online platforms by students and lecturers. Instructors were expected to teach totally online for the first time. Lecturers face a variety of difficulties while giving online lectures because of this practice. Considerations such as internet connection, speed and time restrictions faced by both lecturers and students must be taken into account by educational institutions while implementing online learning programmes (Yusuf & Jihan 2020, p. 206).

Challenges faced by lectures were:

- In contrast, students were less interested in online education and training.
- A shortage of books and computers is a major issue for students (who were left behind in their on-campus residences).
- Inadequate internet connectivity necessitated the extension of lectures beyond their allocated period.

- Lecturers' internet access is unsatisfactory, causing learning time to be disrupted.
- The students did not attend the online lectures.

■ Literature review

This part of the chapter focuses on online teaching in the field of History Education. It includes the literature that backs up what the authors and their colleagues have said and done.

■ Online teaching

There are several advantages to incorporating distance and e-learning into the educational system. Among other things, online learning lets students keep their jobs while they go to university. A few people have had issues getting their hands on it (Darling-Hammond et al. 2019, p. 97). Higher education institutions across the world have several difficulties when it comes to successfully implementing, maintaining and expanding online programmes (Mahlangu 2018). Africa, the Americas, Europe and Asia all encounter online teaching issues (Palvia et al. 2018, p. 239). Remote and online teaching in the United States is complicated by a variety of institutional variables, including a lack of knowledge about online pedagogy and learning styles as well as support staff for online learning (Ilonga et al. 2020, p. 116). Despite the generally pessimistic outlook for online education, Palvia et al. (2018, p. 239) believe that online access to academic certificates has increased students' abilities in the South African context.

Anyone who has worked as a teacher or facilitator in a traditional classroom environment understands firsthand that the same topic will never deliver the same outcomes with various groups or individual learners (Shahabadi & Uplane 2015, p. 132). Furthermore, material may be helpful to one person's learning style while being useless in meeting another person's learning objectives (Masie 2002; Zenger & Uehlein 2001, p. 56). Based on this scientific finding and its implications for any method of distributing educational content via an online platform, the researchers recommend that when developing and deploying e-learning programmes to enhance SDL, the researchers consider students' behavioural indicators (Shahabadi & Uplane 2015, p. 132). As a result, the authors agree with Codreanu and Vasilescu (2013, p. 127) on focusing on the importance of students' needs and preferences. Given the purpose of this research, which is to develop SDL through digital assessments, measuring the impact of any programme designed and delivered utilising internet-based technologies is crucial. As a result, we will refer to e-learning as a whole from here on. Rosenberg and Foshay (2002, p. 51) describe e-learning as 'the use of ICT to offer information and instructions to people, often via the intranet or

the internet'. Evidence suggests that, despite the wide variety of terminology now used to describe this kind of training, most organisations will choose the term 'e-learning' in the future.

E-learning is available in several forms, including synchronous variants. Synchronous e-learning is defined by Shahabadi and Uplane (2015, p. 131) as 'live, real-time (and generally planned), aided teaching and learning-oriented interaction'. In this type of instruction, learning occurs in the present moment. Synchronous learning may also take the form of 'chat sessions', in which students check in at the same time to work together on certain topics (Shahabadi & Uplane 2015, p. 131).

Asynchronous e-learning is becoming the norm rather than the exception. Online learning resources are used to enable sharing of information irrespective of the restrictions of time among an online network of people, as described by Shahabadi and Uplane (2015, p. 132) in their paper 'Asynchronous e-learning: Comparing synchronous and asynchronous e-learning in a general sense'. Learning can take place at any time and from any location with the help of computer-mediated communication, which is a learner-centred approach that highlights the value of peer-to-peer interactions. Asynchronous online discussions can help educators deliver on the promises of learning at any time and from any location (Shahabadi & Uplane 2015, p. 132). According to the researchers, a constructivist theory-based online environment necessitates a learner-centred system. Researchers used screencasting or interactive PDFs and PowerPoints of study units in this experiment to provide students with prerecorded lectures.

Synchronous e-learning is less frequent because it becomes 'absolute' and requires all students to be in front of their digital devices simultaneously. This procedure was complicated by a lack of support infrastructure. Blended classrooms or learning that incorporates both online and in-person components are on the rise as a teaching strategy (Mahaye 2020, p. 10; Masie 2002; Zenger & Uehlein 2001, p. 56). A completely online remote teaching technique had to be adopted since classroom-based learning was not an option because of how difficult it was to teach during the COVID-19 pandemic.

The programme was implemented asynchronously because not all students had access to data or equipment. A month's notice was given to pupils for all assessment activities so that they could finish them. In order to maintain students' interest in the module material, many interactive tactics (such as hyperlinks and buttons) were incorporated (Subandi et al. 2018, p. 462). The use of various teaching methods, such as multiple-choice and file transfer, aided in student involvement and comprehension. Learning-centred environments that encourage rich engagement among lecturers and students as well as among students may be created via asynchronous online learning,

citing Comer and Lenaghan (2013, p. 262). However, with many face-to-face interactions, you may not experience the same level of cooperation and connection as you would in an online asynchronous forum, which may be facilitated by creating discussion communications between participants (Han & Hill 2006, p. 30).

■ COVID-19 and the move to online teaching

The COVID-19 pandemic lockdown in 2020 resulted in the suspension of vast numbers of classes in South Africa and other nations throughout the globe, as was the situation in many others. Despite the partial reopening of schools and HEIs later that year, significant constraints remained in place, and projecting when the closures would expire is a challenging challenge. In order to provide a minimal level of engagement with students and to promote learning and development in students, lecturers encounter considerable challenges while making the move to online learning environments. Exactly how successfully professors have dealt with these challenges, on the other hand, remains a mystery (Hong et al. 2021).

The COVID-19 pandemic has put students in an impossible position, requiring them to switch to online instruction. When it comes to school/university teaching up to March 2020, students and lecturers were grouped together based on their schedule, with lecturer-led sessions that were planned and focused on the regular material of their subject matter. Students were expected to pay attention to their lecturers, work independently or collaboratively and essentially replicate the knowledge in the assessment process. In contrast, ICT was restricted (Fraillon et al. 2019).

Although the shift to online teaching was rapid and unexpected, it was part of a larger ICT revolution period in educational institutions (McFarlane 2016, p. 1127; Selwyn 2012). The utilisation of digital technology in classrooms is ascendant. Students' conventional growth and learning at schools/HEIs and 'the experiences and skills that our adolescents need to join the information economy' must be bridged, and this is the primary issue (Kozma 2011, p. 106). According to Kozma (2011, p. 115), students should be given the opportunity to employ cutting-edge digital resources and online materials for innovative and multidisciplinary assignments.

■ Methodology

An autoethnographic approach was used in this investigation. 'Autoethnography is a type or technique of study that involves self-observation and reflexive research in the sense of ethnographic fieldwork and writing', says Maréchal (2010, p. 43). As Ellis (2004, p. 9), another notable autoethnographer, puts it: 'Researching the autobiographical and intimate in relation to the cultural,

sociopolitical, and societal contexts'. It is, however, difficult to come to a consensus on the definition of the term. Autoethnography, for example, was referred to as 'insider ethnography' in the 1970s, when it was used to describe 'studies of society in which the researcher was a subject' (Hayano 1979, p. 100). The definitions and purposes of autoethnography have evolved to the point that correct categorisation is challenging, as Ellingson and Ellis (2008, p. 449) pointed out.

Autoethnography recognises and highlights the researcher's viewpoint rather than repressing it. Autoethnography varies from traditional ethnography, a social science technique utilised by anthropologists and sociologists. Autoethnography is a kind of ethnography that emphasises the personal accounts and experiences of the subjects of the study rather than relying only on the findings of researchers in the field.

When an autoethnographer describes the social aspects they are studying, they do it by embracing their own thoughts and feelings, as well as their own experiences and observations, as a way of conveying their understanding of it. This is in direct opposition to positivist epistemology's theory-driven, hypothesis-testing analytical methodologies.

As a result, Ellingson and Ellis (2008) regard autoethnography as a social constructionist endeavour that challenges the profoundly established duality among researcher and research, objective and subjective, methodology and results, self among others, art and science, and the interpersonal. According to the findings of this study, researchers' personal observations served as a lens through which they reported on their observations during the whole process of transitioning to online learning in 2020. During this procedure, qualitative observational research was used to gather information. Direct observation, according to Murphy and Dingwall (2007, p. 2228), is considered to be one of the gold standards of qualitative data-gathering methodologies. It has been proposed that monitoring persons in their native environment eliminates the problems affected by self-reported accounts (Mays & Pope 1995, p. 182) and reveals insights that other data-gathering methods would not uncover. For instance, interviewed participants may be unaware of systems, methods and activities that may be disclosed (Furlong 2010).

You may observe and document the behaviour of research participants in their natural and social environments by examining how they interact with and react to their environments (Mays & Pope 1995, p. 183; Mulhall 2003, p. 306). According to Mulhall (2003, p. 307), observational studies have shown that observing 'provides insight into links between actions and groups, presents the whole picture, captures context/process, and talks about environmental impacts'. It is dependent on the political attitude of the research as well as the position that participants choose on the spectrum from observer to responder

that observational techniques are used (Walshe, Ewing & Griffiths 2012, p. 1050). Shadowing (Quinlan 2008, p. 1480), nonparticipant observation and other forms of observation involve the observer having no further relationship to the group under investigation, while participation observation includes the researcher participating as an engaged team member under investigation (Bloomer et al. 2012, p. 27; Quinlan 2008, p. 1480). The researchers in this study were both participants and observers, meaning they worked as integral team members.

Unstructured field notes and formal template recording are two examples of different ways of documenting (Walshe et al. 2012, p. 1050). It has been shown that documenting results using video-recording technologies is the most efficient way to do so (Carroll, Iedema & Kerrige 2008, p. 2146; Cronin 2014, p. 24; Forsyth, Carroll & Reitano 2009, p. 215; Iedema et al. 2009, p. 291). Field notes and video recordings of the procedures employed were made throughout this investigation.

■ Proposed plan

Figure 2.1 is a visual presentation of the proposed module workflow. Each component will be discussed in the following section.
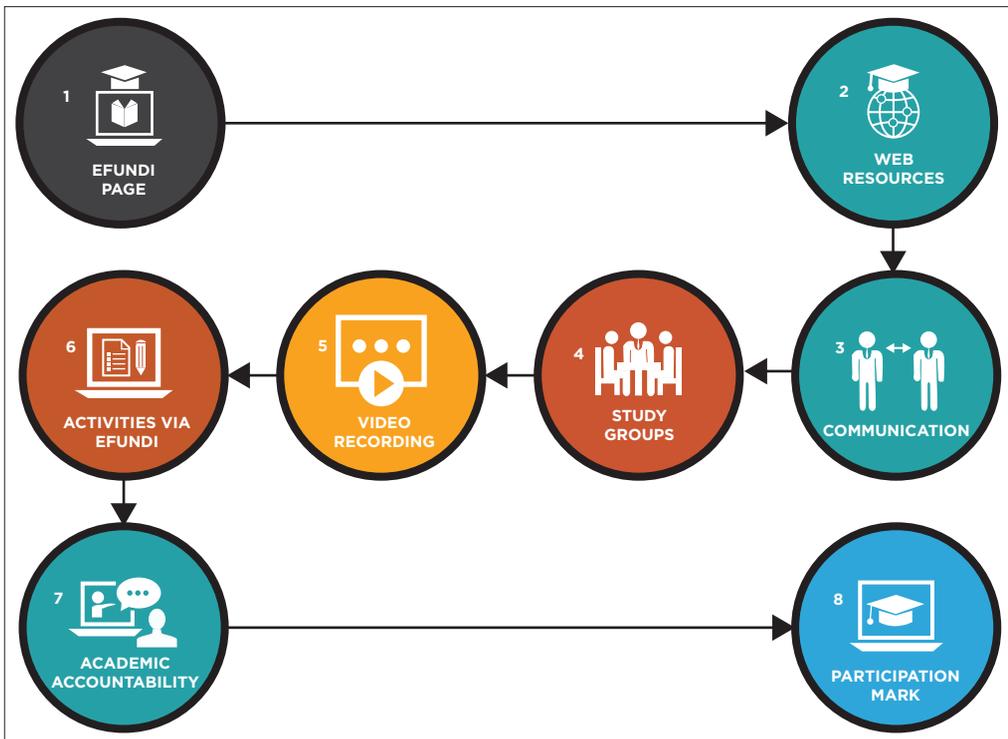
Source: Authors' own work.
FIGURE 2.1: Visual presentation of the workflow for online teaching.

■ Learning management system page

To increase the effectiveness of online instruction, the learning management system (LMS) utilised by the NWU, eFundi, incorporates a variety of capabilities such as chat rooms, online assessment and resource management. As the LMS is the foundation of the online environment, each module and LMS module page must be built and successfully maintained (Weaver, Spratt & Nair 2008, p. 30). The LMS site will be familiar to most students, but we still encourage each teacher to provide a short video to assist students who have never used it before. The notification platform or chat groups in WhatsApp or Telegram may be used to deliver this message.

It is critical that each LMS module site offers students a thorough semester calendar since we will not be seeing them regularly in the classroom. This will let students know exactly what will happen in each module and when. In order for students to be aware of the timetable and adhere to it, it is very helpful if you update it once a week by notice or in chat groups (Weaver et al. 2008, p. 32). There will also be assignments or tests that will be sent out for review as part of the semester programme. Student SDL may be made easier if the semester plan specifies which presentations and study units are submitted.

The students use the LMS as their primary tool. Lecturers will focus on using the LMS effectively to ensure that all students have access to the resources they require (Ip et al. 2000). Uploading information is critical if students have quick access to certain resources.

It is possible to publish a question or questions regarding a certain subject in the LMS using Polls, a beneficial tool. In the absence of external apps that need students to provide data, a wiki system is an excellent tool for teaching students how to collaborate and produce their own material (Ip et al. 2000).

Table 2.1 is an example of a module and assessment plan that includes the aspects mentioned in this section.

■ Web resources

Any other online resources may be utilised instead of an LMS. Open educational resources are critical in History Education, as students learn about a wide range of subjects. Videos, essays, comics, maps and photographs are just some of the available materials. Teaching and learning materials for online classes should include the following resources.

Open educational resources from websites[1] were easily found and altered to meet the demands of the subject group. Lecturers were able to create

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1. See https://www.teachinghistory.org/, https://www.teachinghistory.co.uk/ and https://www.oercommons.org/

TABLE 2.1: Module and assessment plan: Module and assessment plan HISE 411.

Date	This assignment must be sent in for grading	The deadline for submitting tasks	Individual learning	MS PowerPoint slides
19–23 April	Assignment – Argumentative essay	April 24	Revisit all of your completed study modules	-
26 April–02 May	Feedback on assignment	May 01	Study Unit 2	LMS slideshow with voice-over
05–09 May	Unit 3: Assignment 3.2	May 15	Study Unit 3	LMS slideshow with voice-over
10–14 May	-	-	Study Unit 4	LMS slideshow with voice-over
17–21 May	Online jigsaw group work	May 22	-	LMS slideshow with voice-over
24–28 May	-	-	Work on test assignments and study for the exam during this time	Study in groups

Key: MS, Microsoft; LMS, learning management system.

reliable exams across all NWU campuses, thanks to the ease with which these materials could be shared on the LMS platform, the delivery methods and distance learning. While this was a boon for lecturers, students who needed to access this information had a far more difficult time, as can be seen in the next section.

Communication

Continuous and constructive communication is the key to online learning success (Lamy & Hampel 2007). LMS chat discussions; group forums on LMS; WhatsApp or Telegram (make sure you do not use your private number or hide your mobile, to prevent students from invading your privacy) or online, face-to-face applications like Zoom, Google Meet, or Skype are examples of resources that can be utilised for this function.

You may also quickly send short clips to your students through WhatsApp and Telegram, which are both wonderful methods to offer them constructive and speedy assistance (Lamy & Hampel 2007). Specific parameters, such as time periods for students to ask questions, are required when using WhatsApp or Telegram. Because the NWU does not supply other mobile phone numbers, it is important to limit the amount of time students may speak with a lecturer.

Lecturers can still utilise the Google Suite Communication Apps to develop collaborative teams, such as Google Docs, enabling students to edit and comment on a single document in real time. Regular LMS upgrades pertinent to students' learning may help ensure that lecturers and students are always in communication (Lamy & Hampel 2007). Our lecturers will have to prepare for this because not all of them are acquainted with groups and forum

discussions on the LMS site. In addition, several lecturers are unaware of the wide variety of multimedia options available for digital engagement.

Study groups

Encourage the formation of online study groups among students. Students feel at ease as they will be learning in groups via group projects (Brindley, Blaschke & Walti 2009, p. 2). These students might participate in academic communities, such as the present WhatsApp groups in the BEd Intermediate Phase for each year cohort (Brindley et al. 2009, p. 10) that share research, resolve matters of concern in the academic community and support each other. To ensure that your student mentor is able to assist your students and keep you up-to-date on any issues they may be facing, make your student mentor a member of your WhatsApp or Telegram groups (do not permit your student mentor to utilise their personal phone number) (Brindley et al. 2009, p. 14).

Study groups should include four to six students in each module; however, the makeup of these groups might vary depending on the assessment activity to allow for variation among the groups. Students should also share their Google Docs URLs with each other in WhatsApp groups such that all participants may edit and comment on each other's work. In this way, the researchers can see which students are actively engaged in group work and which students are only there but not contributing to it.

Video recordings

Each lecturer would have a different set of video clips to choose from. The lecturer should record at minimum one session for every study unit in the study guide for that section (Hartsell & Yuen 2006, p. 32). The average length of a video-recording is about 20 min. We do not want to exhaust the students' attention spans by giving them lengthy speeches. Typically, the quantity of material dictates the number of recordings because each unit will need more than one video.

Software that can be used is outlined in Table 2.2.

Using a screen recorder, lecturers who have access to tablets may record their PowerPoints and upload them to the LMS. The necessary technological tools and training are offered to lecturers so that they can film graphics on their computer displays. It is also possible to upload these clips on the LMS web pages (Hartsell & Yuen 2006, p. 40).

Activities in the learning management system

During the online teaching time, students need to be always involved in their studies and not only work on projects intermittently during the semester

TABLE 2.2: Software.

Software	Use	Keep in mind
PowerPoint – record slide show	You may record your PowerPoint presentation while you are presenting it using the record slide show feature	In order to ensure that your students can access the recording, save it as an MP4 rather than a MS PowerPoint presentation
YouTube	Streamed sessions, brief introductions to the job they need to do	Do not record for more than 40 minutes. Think about the fact that these students are at home. They are going to be occupied. They will not sit through a 40-minute recording session. Consider little portions instead of one long section. Students might be guided through a quick MS PowerPoint lecture by using voice recordings made using WhatsApp, which consumes much less bandwidth. When using a smartphone, it is possible to instantly retrieve the voice recording. Tell them exactly where to go in the LMS for the specific PowerPoint presentation.
VideoScribe, Powtoons, Doodly and Toonly	Make educational films to help others understand	Students at our institution have a working knowledge of YouTube. At the same time you would hold class or record a brief orientation session for students, you may broadcast your class or capture a short orientation session for students. Make a private link to it on YouTube so that only those with the link may see it. Do not forget that not every student will have access to a computer or Internet connection that allows them to see YouTube.
Active Presenter	A tool for capturing video from the screen	Animated clips may be used to teach topics to students

Key: MS, Microsoft; LMS, learning management system.

(Ip et al. 2000). As a result, students will be more motivated to partake in class and be better able to stay focused throughout the semester. Meyer and Murrell (2014, p. 13) suggest that students should be given smaller exams or assignments to complete. Automatic evaluations of LMS tasks and assessments are possible so that lecturers are spared from doing work that is not absolutely essential. Table 2.3 lists the available programmes.

■ Assessment

A summative activity with greater weighting should be given to students who complete smaller tasks with continuous feedback to promote the learning process (Salas-Morera et al. 2012, p. 39; Salas-Morera et al. 2012, p. 43). The lecturer should methodically analyse this summative role.

Instead of relying on students to complete one or two main activities or take a rudimentary LMS exam with low cognitive standards for the final summative assessment, academic growth will be realised when students are expected to regularly engage with curricular components. For students, the LMS's peer evaluation system increases their own understanding of work, but it also enables them to learn about what their peers are doing (Salas-Morera et al. 2012, p. 43).

TABLE 2.3: Possible programmes.

Name of the programme	Description of the programme	Example of using the programme in the classroom
Piktochart	Infographics may be created	Make visual representations of data through infographics. To prepare for class, write one-page summaries of what you have already covered. (Chandler 2016, p. 9)
Interactive PDF	Create PDFs with interactive elements like buttons	Provide students with PDFs that, when they click on blank spots, play audio or open another file. This encourages them to actively participate rather than passively consume knowledge. (Meyer & Murrell 2014, p. 10)
Google Suite	Participation in a group	Creating papers that require students to work in groups on one document is an excellent way to get them used to group projects. Pages, MS PowerPoint-like presentations and documents may be created using these tools. (Firth & Mesureur 2010, pp. 3–16)
Socrative	Organise students' thoughts on a whiteboard	Make tests that students may complete whenever it is convenient for them by creating your own. But it is advisable to utilise the LMS since marks will be saved in the Markbook. (Kaya & Balta 2016, pp. 4–12)
Padlet	Provide feedback on documents	On Padlet, students may create assignments or discussion points by uploading images, music and video (Sangeetha 2016, pp. 178–184)
Perusall	Infographics may be created	Using Perusall, students may read articles and respond to their classmates' responses online (Lee & Yeong 2018, pp. 46–48)

Key: PDF, portable document format; MS, Microsoft; LMS, learning management system.

The use of extended academic essays as a primary method of evaluation is highly suggested as well. The LMS, on the other hand, is unable to mark them automatically and necessitates a digital marking tool.

◼ Academic accountability

In order to interact with students and their services, academic staff must store videos, tasks and regular communications. Colleagues who serve as module leaders are expected to communicate with their students often and create and submit research notes and resources. During the daily meetings with the deputy director, module leaders are politely requested to work closely with subject chairs (heads of subject groups, such as the History subject group) to provide feedback on the academic curriculum's achievement in a particular area (person who oversees a whole school, e.g. School of Commerce and Social Studies).

Students should answer a short survey that is connected to the LMS page at the end of each class session (Weaver et al. 2008, p. 35). The module leader and subject chair will have an understanding of how the module owner has uploaded all the essential resources, supplying the module owner with relevant data throughout the semester regarding whether students have seen their particular courses. Module leaders and subject chairs will be exposed to the LMS sites to handle student answers to the module's questions and assignments.

During the year 2020, researchers will investigate if the questionnaire can be included in their present student monitoring and flagging study project. Immediate integration is not possible because the replies to the questionnaire must be separated from the students' opinions via extensive preparation. This will be included in the 2022 research plan. Module and subject chairs will be authorised to use the survey responses of students if this alignment is successful.

■ Participation marks

Students' involvement in the classroom is required for face-to-face participation, and the same is true for online participation (Grieve, Padgett & Moffit 2016, p. 9). Polling tools, such as asking students questions, may be used to keep students engaged and monitor their progress. When it comes to collecting and distributing lectures, it is not just about the lecturer; students should also be engaged and accept accountability for their own education (Salas-Morera et al. 2012, p. 43).

It is time to reevaluate the value of a participation mark in today's digital world. We cannot be sure that students are engaged in the module if we just look at their assignments, which is why online polling sites, forums and chat rooms are so imperative for measuring interest in real time (Grieve et al. 2016, p. 11). In an online setting, several activities are required to maintain involvement in smaller learning tasks (Grieve et al. 2016, p. 11).

■ Experiential reflection on what worked and did not work

■ What worked and why?

An LMS called eFundi was utilised by the NWU and functioned well after everything was set up and there was more storage capacity to upload resources. When the university did not anticipate such a high demand for storage capacity on their LMS, a bottleneck was developed; however, this was quickly remedied. More Dropbox storage capacity was required by the IT department to accommodate the posting and downloading of materials by professors and students alike. The LMS's numerous features, including the chat room and polling tools, performed well in keeping students in the loop and provide them with feedback. Commenting in Adobe Acrobat Reader enabled the annotated essays to be uploaded to LMS once each assignment was marked. An online conversation with the pupils was then organised to provide further in-depth feedback. Every significant task was successfully finished, thanks to the excellent collaboration among the lecturers. A poll was

set up on the LMS at the opening and closing of each semester to get feedback from students on online teaching and learning.

The following questions were posed by one of the authors:

- 'Are you ready to learn online?'
- 'Do you have a reliable Internet connection?'
- 'After an entire semester of online teaching, how do you feel about what you have learned?'
- 'When compared to conventional face-to-face instruction, do you believe that online instruction has better prepared you to master the course's material and outcomes? Tell me more about it.'

At the outset, the authors wanted to see how well-equipped they were to guide the students. As a result, the questions took on a more introspective tone in an effort to gauge the efficiency of the online teaching resources and strategies. There was a lot of good news in the surveys that were conducted.

History lecturers and students both were first thrilled with the idea of using video recordings to deliver the curriculum and permit some one-on-one contact between the instructor and the student. This was a better solution than using live synchronous presentations on services including Zoom or Google Meet, which need a fast and reliable internet connection to enable students to join a virtual classroom. The concept of compressing, which I introduced to the faculty, was a crucial part of making videos practical. The programme Handbrake was suggested to reduce the size of large MP4 files encompassing some hundred megabytes or even gigabytes.

In terms of assessment, the tasks essentially remained unaltered; however, careful attention had to be given to students in terms of locating materials online because numerous students did not have access to adequate bandwidth or devices to download the articles mentioned. According to the articles I have included for the students on the LMS, who were provided 0% data access by mobile network providers, this was essentially done. Ultimately, I realised that the early, almost idealised, optimistic age of online education was ending for me personally, and I took the decision to do something about that realisation. A high degree of satisfaction was expressed after completing the evaluations, ranging from academic essays to more practical lesson plans to methodology assignments like worksheets design.

As an analogy, one may think of a war or conflict, where the lecturers and students are represented as generals on one side and troops fighting on the other. In this scenario, the objective is to overcome an adversary while also overcoming the limits imposed by COVID-19. In conflicts and wars, there is a contrast between strategy and tactics that may be drawn. To relate the approach to online teaching, think about it in terms of the general planning

phases for online teaching – the desired objectives. On the other hand, strategies are not constantly effective, and it is 'up to the generals to utilise tactics on the field, adjusting to the manner the enemy is fighting back to succeed'. Tactical adaptations brought about by online learning may be seen as practical adaptations that did not necessarily work out in accordance with 'the war strategy' or ideal preparation. In the end, it seems like the struggle was won. However, the triumph came at the expense of some 'casualties', with some students failing to complete their courses due to the 'victory'.

Despite the 'casualties', there were a few good takeaways from the whole experience. To begin, the Faculty of Education launched a campaign to urge all staff members to provide their subject leaders with a weekly report on the work they had performed as well as any challenges they were experiencing with the work. This was the first of several projects. These weekly reports were delivered to me as I was the subject group leader for the History. In addition, I would keep track of each lecturer's progress, and if they reported that they were experiencing difficulty, I would do all in my power to assist them in overcoming their issues. For example, when a colleague requested assistance with video compressing, I responded immediately by creating a video detailing the software to use and simultaneously offering a step-by-step explanation of how to do this.

There are, of course, a number of drawbacks to online education, which is why we do not live in an ideal world. In the next part, we will look at some of the more difficult problems and how the History group overcame them.

■ What could have worked better?

When all lecturers were instructed that they had to utilise the LMS for all material uploads and student resources, there was a slowdown. As many as tens of thousands of students were logging into the LMS simultaneously, the site repeatedly crashed. As the IT crew laboured around the clock to allow extra space for resources, functioning online became a nightmare. A few weeks later, the issue was resolved.

Certain LMS systems, such as the ability to post forums where students may answer queries, might benefit from doing training sessions with select lecturers (Ip et al. 2000). Making forums more productive would be as simple as assigning grades to the forum questions and ensuring that students comprehended them. In this way, students can concentrate and report on essentials.

The LMS has several good features and some bad ones. Despite the chat room being a need, the test itself had limited usefulness. True and false, multiple-choice and match the columns were the only sorts of questions that may be posed. This is woefully inadequate for a History lecturer. On the

other hand, we use sources and demand a lot of critical thinking. This is not enough for our standards. All students' papers were reviewed for plagiarism using a Dropbox application integrated into the LMS, which thankfully offers Turnitin capabilities. Because of this, I decided to forego the test function and instead pose the standard essay questions. To help students who do not have access to computers or the internet, I used a source-based essay technique, which included excerpts of sources to prevent copyright infringement. This approach resolved my assessment issue.

Regarding the video recordings, regardless of the fact that the compression technique originally worked effectively, numerous students protested that even a 30 MB video clip was still too long and was using their bandwidth at an alarming pace. Another consideration was required in this instance. Fortunately, the History subject group came up with an innovative technique of embedding voice-overs, which consisted of exceedingly small and brief 30 seconds clips of voice-over on each slide, which we were able to use for the remainder of the year. These voice-overs were of poorer audio quality (ranging from 64 kB/s to 128 kB/s) but were still audible and significantly decreased the size of the recordings, which went from between 30 MB and 50 MB for the earlier recordings to a much smaller 1 MB to 3 MB for the newer recordings. The students were quite pleased with this innovative approach. In Figure 2.2, the audio of the full 20-min lecture (on the left) was compressed to 2.92 MB, but the original MP4 (on the right) was compressed to 329 MB, as seen in the figure.

As far as the assessment process was concerned, nothing was altered. Nevertheless, the medium and the way it should be marked did alter. We typically submit assignments using Turnitin, a similarity index tool, as part of the History subject group. As a consequence, the move to online instruction had no effect on this method. The History students were accustomed to exporting their essays to PDF and then uploading them to the LMS. Notwithstanding, the lecturer's end – the grading – was the source of the difficulty. Normally, students would submit both a paper copy and a digital copy of their papers at the same time. Students were unable to provide a tangible copy of their work because of the constraints placed on them by COVID-19. Because of this, the only solution was to mark the paper digitally. However, nobody had a solution at this point. Is it better to simply read it digitally and grade it without adding any comments?

In our case, it did not work at all. More than 95% of our students turned in their assignments on time and posted them to the LMS. But like with every module, some students will always email with many apologies. Even in the conventional face-to-face approach, this occurs; therefore, this was not a big deal. In the beginning, these evaluations were seen as time-consuming because of the time frame required to evaluate digitally.
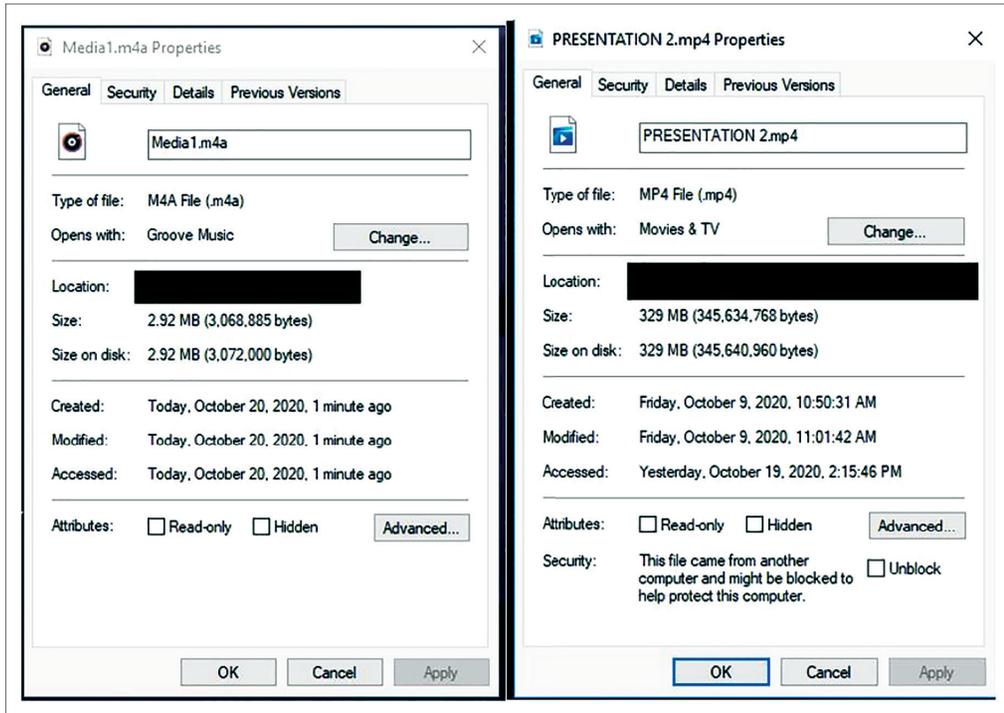
FIGURE 2.2: Compression of audio files.

We were fortunate to have a few IT specialists in the group who were able to sit down and talk about the best course of action. With Adobe Acrobat Reader's comment capabilities, we were able to create something that would benefit the whole faculty. Adobe would use annotated remarks to assess student writings after being downloaded through Turnitin. If you are a lecturer, you might make the text red to mimic the grading process. In order to give students excellent feedback at certain places in their essays, text comments may be added.

Detection of plagiarism in the Turnitin report would also be accessible, providing the student with further feedback. In various instances, checkmarks may also be cut and pasted. The totals might be increased with borders on the first page to show the overall mark. Another level of accountability might be added with the use of digital signatures. Compared to writing it by hand, the total process of adding commentary and typing out the overall grade took a lengthy time to do digitally. We shared our ideas with the IT department and the university. Currently, they are working on a one-button method to mark PDFs that will be available soon.

Certain problems arose in the area of accountability. Moderation became a challenge for some. There are three campuses of the NWU; hence almost all of the History modules taught online were coordinated throughout those

three locations. That meant that all of the module presenters were involved in the planning process for the semester. The tasks and weights assigned to each of us were the same across the board. We may collaborate on our tasks in real time by using Google Docs. However, a new problem has arisen. Even if we were to limit the stage of preparation, what about the graded assignments? An effort to implement a post-moderation approach was spearheaded by myself. We were able to moderate 10% of each other's assignments marked with Adobe comments by providing a link to Google Drive to the module lecturers on the other campuses by utilising the comment feature in Adobe and changing the colour to green. However, the question of time was still an issue. We expect to fix this issue with the new PDF marking tool that the university is presently developing.

The History subject group's original ideal intentions for employing recordings were derailed when the recordings turned out to be a disaster. As a result, a new strategy was urgently needed. The notion of employing Adobe's digital assessment software for marking was first considered to be excellent, but the process proved to be very time-consuming and tedious. As a result, new arrangements were put in place that allowed lecturers to print off physical copies on campus so that they could hand-mark them. It was mostly based on instances of online education in universities throughout the world that had actually used it before. It was thought that these experiences would operate in a South African setting, and the finest solutions were drawn from those cases. At the time, we had no idea that it may not be appropriate in the present situation. For students in remote locations, synchronous live broadcasts are almost unfeasible because of bandwidth limits; hence, the South African environment necessitates an asynchronous method. The South African environment also necessitated low immediacy and poor accessibility. A flexible timetable is needed, as well as conventional learning resources that do not need extra software or hardware. To deal with the situation, a number of modifications and changes needed to be made on the fly, as it were. It was imperative that new strategies be devised as the issues arose. In the next part, we will take a closer look at them.

■ What has changed in terms of our practice?

A few things had to alter for me as a History lecturer when I made the switch to online instruction. First and foremost, my daily routine was drastically altered when I started working from home. There was a paradigm change in terms of managing work time and leisure time, time with family and simply trying to get by day-to-day during the lockdown. It was at first difficult for me, as I had to work for two hours at a time before taking a one-hour rest to enjoy time with my loved ones. However, this did not always function well when it was necessary to attend last-minute urgent meetings to get more clarification on what to do. As a result, I opted to take things day-by-day, which meant that

my schedule would vary on various days, depending on the amount of work I had to do. Even so, if I had the opportunity, I would take a two-hour mental vacation every day at lunch to recharge my batteries.

The second significant shift in my approach was the way I organised my workday and the projects I was focusing on. I had never spent as much time interacting with my students in person as I did when I taught face-to-face. As a result, the discussion forum on the LMS had to be monitored on a regular basis and often several times a day, particularly in the lead-up to assignments becoming due. For example, the LMS might crash if too many students attempt to log in at the same time, causing the chat room to function less than optimally. The LMS was the only place I could find the WhatsApp group for each module, so I made one and shared it with the group. This was a game-changer for me, but it may not be for others. Every day, I checked in on the group to make sure everything was as it should be. For the students, this was a paradigm shift, and they have told me again that they prefer to email or speak with me in person at the office.

It was a third development in my practice that had an influence on my marking, particularly with the use of digital marking. To get used to working with Adobe, I would grade throughout the evening, as did a number of my colleagues when the change to online teaching was just starting. Instead, I told my students that they might turn in their papers earlier, and those who did so before the others would have their work digitally graded first. A daily regimen of checking assignments and grading small batches of early-bird submissions worked well.

Last, but not least, the depth of the information I was going to provide in my presentations had to adapt. Another lecturer began grumbling about the difficulty of downloading huge presentations or the fact that students just were not actually listening to an hour-long video, which made perfect sense. Presenting information to students for lengthy periods is detrimental. This led me to divide my study modules into fragments, where I could record voice-overs for that portion, which could not be more than 10–15 minutes long each time. Doing voice-overs and submitting them to the LMS became my new weekly routine. For these study unit chunks, I would then be responsible for facilitating chat room conversations each week. When compared to the regular hour-and-a-half contact session, this was a radical departure. But it worked.

■ Conclusion

A lot more goes into online teaching than just delivering Microsoft PowerPoint slideshows, much the same as in a classroom setting. Do what your students would do. Being at home means that their attention spans are shorter, and they may not have access to systems that demand large amounts of data.

As a result, any video and audio recordings ought to be smaller than those for a regular class and available on the LMS. Engage your students by getting them as active in online forums, conversations and chat groups as you possibly can (LMS, WhatsApp, Telegram).

The most important element of a successful online education environment is constant and effective communication with students. Having a clear understanding of what is going on and what is expected of them prevents pupils from veering off course or becoming confused. Make eye contact and offer assistance instead. For our contact students, this is an exciting new opportunity. When we, as professors, provide much-needed assistance and support to students who are feeling overwhelmed, they will be better prepared to succeed.

Chapter 3

Re-imagining modes of instruction in teacher-education at Great Zimbabwe University in the context of COVID-19

Esther Mavengano
Department of English and Media Studies,
Great Zimbabwe University,
Masvingo, Zimbabwe

Tobias Marevesa
Department of Philosophy and Religious Studies,
Simon Suzenda School of Arts, Culture and Heritage Studies,
Great Zimbabwe University,
Masvingo, Zimbabwe

■ Abstract

The sudden shift from traditional face-to-face to online learning during the coronavirus disease 2019 (COVID-19) pandemic poses some challenges in teacher-education that demand serious academic conversations. The outbreak of the COVID-19 pandemic has far-reaching implications on pedagogical practices in higher education institutions (HEIs), such as teachers' training

colleges and universities across the world. Zimbabwe was not spared by the wrath of the pandemic, and universities were prompted to re-imagine teacher-training of underprivileged students under unusual circumstances. This chapter examines pedagogical challenges that are encountered by educational institutions with particular reference to the Great Zimbabwe University's teacher-training programme as COVID-19 disrupts modes of instruction. In addition, the study proposes alternative pedagogical practices that could be utilised for effective teacher-education during and beyond the COVID-19 pandemic. Insights from Malcolm Shepherd Knowles' ([1980] 1984) adult learning theory inform the study by applying the five assumptions in reviewing pedagogical challenges faced in teacher-education at the Great Zimbabwe University. The study contends that there is a need to rethink and re-imagine pedagogical practices in teacher-education at the Great Zimbabwe University in the context of the COVID-19 pandemic. Owing to the outbreak of COVID-19, teacher-training has become complex and challenging, thereby demanding alternative modes of instruction, especially for underprivileged students. Drawing from the present pedagogical challenges faced during the pandemic, it is imperative to further provoke academic conversations that proffer insights into reshaping pedagogical practices in Zimbabwe in general and recalibrating teacher-education at the Great Zimbabwe University in particular.

■ Introduction

Across the globe, the university settings such as lecture theatres, classes and laboratories stand perturbingly vacant. Teaching and learning have moved to virtual spaces through video conferencing, e-mailing, Google Classroom, Google Talk, webinars, YouTube, Skype, WhatsApp and Zoom platforms which have suddenly become conventional (Mwale & Chita 2020). These swift changes have tremendously transformed pedagogical activities. As the outbreak of COVID-19 upended the education delivery processes across the globe because of immediate closures in order to curb the spread of the virus, universities were compelled to shift from face-to-face teaching to mandatory virtual teaching. Despite the fact that the outbreak of the COVID-19 pandemic has affected the entire world in all education sectors, each country and institution has had its unique experience as each seeks innovative ways of adapting to new pedagogical possibilities and skills demanded by the emerging realities. The impact of the pandemic on university education in Zimbabwe caused bewilderment. Many institutions have been relying chiefly on face-to-face teaching (Sibanda & Muyambo 2020). The outbreak of COVID-19 disrupted this tradition and called for alternative modes of instruction. The university lecturers faced the dilemma of overnight conversion from conventional face-to-face teaching to an overwhelming online regimen (Ferrante 2008). Unfortunately, most of the universities had limited resources to effectively implement the new modes of instruction. The pandemic left

academics and educators struggling with the vexing questions about the future of the education sector, whether 'normalcy' (that is, a return to the traditional face-to-face classroom practices) would ever be restored or not. Certainly, pedagogical practices had to be changed by way of using remote online technology (Allen, Rowan & Singh 2020). However, the shift generated fundamental questions that needed careful reflection. It is imperative to check whether both the lecturers and students possess the necessary digital skills necessitated by the new instructional realities. Nonetheless, it is an irrefutable fact that the current context of COVID-19 provides vexing challenges that compel academics to think differently. Educators needed to come up with innovative pedagogical trajectories that could be developed in line with the unfolding realities. This study explores the following research questions: How has COVID-19 disrupted teaching and learning practices? What pedagogical challenges and opportunities emerged in the context of the COVID-19 pandemic? What new possibilities could be embraced for the future of teacher-training programmes in Zimbabwe?

■ Insights from adult learning theory in the context of COVID-19

This section of the chapter focuses on the conceptual framework that informs this study. The constructs of adult learning theory are useful in discussing the possibilities of embracing new modes of instruction at Great Zimbabwe University during and beyond the COVID-19 era. Andragogy is a notion that was first introduced by Malcolm Knowles in 1973. It is a humanistic theory that is primarily learner-centred. Knowles' (1989) theory offers five important assumptions which privilege learners' self-reliance, autonomy, readiness to learn, goal-oriented learning and self-directed learning and experience. Cercone (2008) is of the view that the constructs of andragogy are germane when examining the instruction of adult students. The insights from adult learning theory complement other adult learning conceptual frameworks such as self-directed learning and experiential learning theories. The point of departure in Knowles' theory is that adult learning is perceived as unique and bearing different characteristics from those that define children's learning at primary levels. It is appropriate to argue that educators in the teacher-training field could benefit from insights from adult learning theory, as they need to be conscious of what adult learners require (Knowles 1980). The discussion on re-imagining new modes of delivery in teacher-education comes against the background that face-to-face contact was previously predominant in the traditional classroom and the shift in pedagogical practices imposed by COVID-19 in Zimbabwe is an unfamiliar undertaking. This simply means that both the university lecturers and their students face challenges in adapting to the new pedagogical demands triggered by the outbreak of the COVID-19 pandemic (Sibanda & Muyambo 2020).

According to Merriam and Caffarella (1999), most adult students embark on educational programmes voluntarily prepared to manage their class activities around the family, work and other responsibilities. This implies that an adult learner, from the outset, is self-motivated to learn and complete the programme (Frey & Alman 2003). This is significant when dealing with learning challenges that arise in the process. Yet, this could be a naïve assumption if it relegates fundamental challenges of the complexity around age and socioeconomic exigencies. Apparently, not all adult learners are motivated to learn as generally assumed in Knowles' (1984) theory. The outbreak of COVID-19 caused grave anxieties and uncertainties that hampered both educators and their students. The aspect of motivation severely suffered. Under these circumstances, motivation in students is to be generated through emphasising to students the importance of the knowledge and skills they are studying in relation to their future careers. In other words, the application of learnt knowledge matters to adult students. Thus, the taught aspects should be useful, applicable and important to the futures of adult students.

While some scholars have seen the validity of Knowles' theory of adult learning and its applicability in the learning process of adults, there are some challenges that have been raised by Kerka (2002), Foucault (1997) and Kurasha (2007), among others. For two decades now, there has been a search for an adult educational theory from both education and psychology in order to develop an integrated theory of adult learning to be utilised in adult teaching. The findings reveal that it proved to be problematic because there emerged some questions such as on what basis would a theory of this magnitude be properly established, '[h]ow far would or should such a theory make a distinction between adult and child learning' (Kerka 2002, p. 20). These questions have demonstrated that the adult learning theory has more problems than solutions in being used as a theoretical framework as it stands alone. The Foucauldian hypothesis also questions Knowles' adult theory, especially on the five assumptions. Foucault (1997) questions the five assumptions of the adult theory citing the problem of apt subjects letting themselves be governed by the neoliberal agenda of lifelong leaving with little or no care for actual self-directedness. Several studies have criticised the work of Knowles; the general criticism is waged of the uncertainty of his work, whether it is a collection of assumptions or a theory. Furthermore, there are gender and cultural anxieties concerning the idea of pedagogy and andragogy (Kerka 2002). It can be pointed out that there is no self-contained theory that can explain the differences between how adults can learn differently from children. Knowles' adult theory is an inconclusive way to precisely describe an adult theory of education. It can therefore be used as a guide for educators. Kerka (2002, p. 21) sums it up by saying that '[a]ndrogogical methods, which purport to provide a relaxed, trusting, mutually respectful, informal, warm, collaborative and supportive environment, are more conducive to learning at all ages'.

■ The impact of the COVID-19 pandemic on university education in Zimbabwe

The COVID-19 pandemic has had far-reaching effects on Zimbabwean education, which was already troubled by a poorly performing economy. The Zimbabwean government shut down schools on 24 March 2020 in a bid to protect its citizens from the ravages of COVID-19. Schools, colleges and universities were perceived as places that could fuel the spread of COVID-19. The sudden closure of these institutions of learning disrupted the learning and teaching of Zimbabwe's close to five million primary and secondary learners and thousands of tertiary students. This complicated and compromised educational activity and pedagogical practices. The quality of Zimbabwean education, which has been considered one of the best on the continent, is currently threatened by the existence of COVID-19 as well as persistent poor economic conditions. The learning circumstances generated profound setbacks since the outbreak further widened the already existing socioeconomic divide among students from underprivileged communities. This amplified the vulnerabilities of the poor students. The orientation towards online learning took place in the midst of inadequate infrastructure, lack of skills and frustrated, underpaid educators. The move away from on-campus contact learning also hugely affected students in teacher-training at the Great Zimbabwe University. Students from disadvantaged backgrounds bear the burden of the transition from face-to-face to web-based learning modes. These modes of instruction rely on internet connectivity and accessibility, aspects that are problematic for most university students residing in Zimbabwe's underprivileged communities. These students panicked because their chance to get an education was threatened by the outbreak of COVID-19.

Although the shift from face-to-face teaching caused discomfort and a number of the aforementioned problems, it could not be denied that, to some extent, the development is good. It forced the Zimbabwean universities to immediately introduce modern approaches to instruction. It is high time for the universities and the government, in particular, to be innovative and proactive in bringing these novel modes of instruction to Zimbabwean educational institutions. University students in Zimbabwe should not be isolated from the emerging pedagogic changes that have been triggered by the use of technology in the 21st century. These students need to compete in the international market and platforms where these modes of instruction are used.

■ The challenges of modes of instruction for teacher-education

Implementing the unfamiliar online modes of instruction during the COVID-19 pandemic period caused a nightmare for the university lecturers at Great

Zimbabwe University. The COVID-19 pandemic interrupted university education in general. This is a similar case for the Robert Mugabe School of Education at Great Zimbabwe University, where on-campus learning and teaching completely stopped because of lockdown and social distancing measures adopted by the Zimbabwean government in order to curb the spread of COVID-19. It is essential to mention that e-learning brings back into conversations the notion of the digital divide, which has to do with socioeconomic inequalities. Teacher-training, like any other programmes for students who are majoring in Linguistics and New Testament Studies at the Great Zimbabwe University, is greatly affected by the overwhelming challenges of poor internet connectivity, lack of infrastructure, shortages of hardware and software packages, low bandwidth and inadequate information and communication technology (ICT) skills on the part of both staff and students. Chinyamurindi (2020) observes that the shift to online platforms, such as Zoom, internet surfing, Facebook and Moodle, among others, was meant to facilitate interaction between lecturers and students and for the evaluation of student progress. It is generally agreed that these digital platforms are not only necessary but also critical for pedagogical practices in the 21st century. Yet, at the Great Zimbabwe University, the shift initially cut off the interactive process between the lecturers and the students. Marevesa and Mavengano (2021), writing about the impact of COVID-19 on education in Zimbabwe, posit that:

> [D]ealing with the new challenges brought up by the pandemic was a tall order for university communities that were (are) seriously under-resourced and under-presented in decisions pertaining to the suggestions for education delivery made by the World Health Organization (WHO). (p. 241)

To make matters worse, educational institutions in developing countries like Zimbabwe are left alone to bear the brunt of the COVID-19 pandemic. This is an onerous task that compromises the delivery of quality education. The WHO appears to disregard the sad realities faced by institutions in developing countries which are still struggling to cope with ICT technologies and online instruction.

Another important aspect that should not be ignored is that besides the required ICT skills, the Great Zimbabwe University teaching staff also needs to be pedagogically innovative to function effectively as online instructors. These pedagogical dynamics are necessary for web-based teaching. Thus, staff development is essentially needed for a successful shift from face-to-face to online teaching. Linguistics and New Testament Greek modules like phonetics, morphology and syntax present learning challenges, especially for the first-year Bachelor of Education Primary or Secondary students who are not yet familiar with some of the topics. In the absence of face-to-face contact for teacher illustrations, two-way feedback, elaboration, repetition and emphasis, lecturers face challenges in teaching using online modes effectively.

The lecturers also need to prepare their module content to suit the new online modes of teaching.

Makaza and Madzima (2008) have earlier on observed the socioeconomic issues as affecting the education sector in Zimbabwe. Students from underprivileged backgrounds do not have access to or are not comfortable with learning technologies and digital tools that could be used for successful online training. Similarly, Sibanda and Muyambo (2020) note the plight of the Great Zimbabwe University students during the COVID-19 pandemic and point out that it is unfortunate that only a handful of students possess the required ICT skills and have access to the internet to study online away from the university campus. In addition, Mahyoob (2020) notes that online learning implies incurring expenses to do with data and internet services which are problematic in the present unfamiliar context generated by the COVID-19 pandemic. All these challenges speak about the strenuous shift from traditional face-to-face teaching to online instruction during the pandemic era.

■ The burden of teaching Linguistics and New Testament Studies virtually

Marevesa and Mavengano (2021), writing about the problematic shift from face-to-face to blended learning, contend that

> [/]t cannot be overstated that the realities of developed and developing nations in terms of educational delivery are not the same since the former are well-resourced and the latter are under-resourced. (p. 242)

What does this observation imply for the teaching of Linguistics and New Testament Studies modules at Great Zimbabwe University since the institution has limited resources to support effective online teaching? Apparently, the transition is a daunting task for the institution, not to mention the plight of thousands of its underprivileged students. For Linguistics and New Testament Studies modules, lecturers in the teacher-training department at Great Zimbabwe University quickly switched to blended learning. According to Ferrante (2008), blended learning basically refers to a well-planned combination of web-based learning technologies and traditional face-to-face teaching/learning approaches. Yet, the latter, at some point during the COVID-19 era, had to be entirely suspended, resulting in online teaching taking precedence. During this period, students had to work alone from the confine of their homes. This is when academics tap into tenets of the andragogy, which are self-direction, independence and learner experience, according to Merriam (2001), in order to effectively cultivate and render learning support to students as they navigate the unfamiliar learning environment. One important challenge that is faced by the teaching staff at Great Zimbabwe University in the teacher-education department is supporting the students through their learning in the midst of intermittent internet connectivity, power

outages and poor ICT infrastructure, among other challenges. The university staff in the department of teacher-training should also learn to prepare, design and develop online instructional modules that will enhance successful online learning experiences for students. This has become very expedient in the current context of COVID-19. Yet, some members of the teaching staff are still reluctant to embrace the innovations of teaching online because they have been used to traditional face-to-face teaching until recently when COVID-19 disrupted educational activities in Zimbabwe. As a result, the facilitator's role is not offered in some online cases and students are thrown into the deep end where they either learn to 'swim and survive' the online learning environment or 'sink' in the deep waters. Nevertheless, the benefits of online education cannot be underrated. Kurasha (2007), referring to the Zimbabwean context, advocates that online learning provides more flexible access to both content and instruction, as students can do online learning when it best suits them and from any place because the module material would be accessible online anytime. Coleman (2012) also adds that online learning promotes students' freedom and active participation, especially for those who feel embarrassed or shy in a traditional face-to-face classroom setup where they are observed by both the instructor and other students. Put simply, online learning creates room for individual instruction that caters for learner disparities in personality, learning needs and learning styles, which are essential aspects that ultimately enhance students' active engagement (Coleman 2012). Such conveniences can only be realised in educational environments where the teaching staff can successfully administer online learning. This scenario is very different from the current state at the Great Zimbabwe University and other HEIs across Zimbabwe. The teaching staff is not yet ready to teach effectively using the new online delivery methods. Furthermore, web-based instruction is afforded by the well-to-do in Zimbabwe and students in a teacher-training programme at the Great Zimbabwe University are from diverse socioeconomic classes, with the majority of the student population being from humble backgrounds. This suggests that the Zimbabwean government and donor organisations should rise to the challenge to support the pedagogical revolution presently taking place in the education sector in general. The Great Zimbabwe University authorities should also embark on massive income-generating projects that would be directed towards transforming the university towards online education. This underlines the pertinent role of an intensive staff development programme that would equip university teaching staff with valuable skills to deliver online instruction.

Guided by the tenets of andragogy, there is a need to scaffold students in order to help them to become self-directed and autonomous. Students have been accustomed to the traditional learning classroom, in which the teacher is the sole source of knowledge as an instructor and students are passive participants in the learning process. Although the shift to learner-centred

pedagogical approaches has been in place for quite some time, students' reliance on the instructor is still problematic. This means that application of the principles of andragogy continues to be troubled because some students lack the assumed enthusiasm to learn independently without the constant intervention of the instructor. Such students do not spend their time studying, which compromises their performance. Most importantly, it is pertinent to bear that not all adult students are self-directed because some of them require a great amount of assistance that can only be offered in face-to-face contact. In adult learning, self-esteem, satisfaction and upward social mobility are some of the factors that inspire adult students to embrace learning and endure challenges that could be encountered. However, there are significant learner variables that problematise the assumptions about adult learning.

Merriam and Caffarella (1999, p. 272) explain that another fundamental tenet in the andragogy framework is that 'an adult accumulates a growing reservoir of experience, which is a rich resource for learning'. This aspect underscores the fundamental value of the experience of an adult student who brings to the learning experience a vast amount of knowledge that can be tapped into (Knowles 1989). This resonates with Kolb's ([1984] 2001) experiential theory, which privileges students' experience in the learning process because 'knowledge is created through the transformation of experience' (Kolb [1984] 2001, p. 38).

The student's experience is also shaped by the various factors that complicate this aspect. University lecturers need to be cognisance of the complex variables such as socioeconomic class, culture, personality, sex, learning style, life experience and learning environment that create learning disparities. Some students have self-discipline, self-esteem and a desire to take the initiative, while others do not possess such vital traits. In other words, the uniqueness of each student is also a possible source of the learning disparities that can be noted. The limitations of andragogy should be addressed in an attempt to re-imagine and for the development of an appropriate and effective adult online mode of instruction. Some students need more attention from the instructor than others. Hence, the degree of autonomy and self-directed study varies significantly from one student to the other (Lowry 1989).

The terrific spread of COVID-19 and the danger it posed to humanity caused a health crisis and worsened the crisis in Zimbabwe's education sector, which has been degenerating for more than two decades since the early 2000s when the country was hit by serious economic problems. In view of the multiple challenges encountered in the uptake of e-learning in Zimbabwe in general and at Great Zimbabwe University in particular, it becomes imperative to consider the fate of student-teachers during the COVID-19 pandemic. This is a dilemma that is faced in teaching Linguistics and New Testament Studies modules in teacher-training programmes at the Great Zimbabwe University in

times when COVID-19 is a real threat to humanity. Great Zimbabwe University, just like other HEIs in the country, was unprepared for the abrupt shift to emergency online teacher-training. Universities in Zimbabwe, including the Great Zimbabwe University, are greatly affected by the lack of access to e-learning platforms, lack of ICT hardware, connectivity challenges, power outages and unpreparedness for e-learning (Marevesa & Mavengano 2021). Despite these profound challenges, it is the role of the university administration and the government to ensure there is disaster preparedness in terms of funding, putting in place alternative sources of power like solar panels and generators at the university campus to counter power outages. The question of power outages and internet connectivity challenges can be resolved by acquiring data bundles for both lecturers and students to ensure there is an undisrupted learning process. Clearly, the outbreak of COVID-19 magnified the educational crisis in Zimbabwe amid other socioeconomic and political problems. Technology-based teaching of Linguistics and New Testament Studies modules is still problematic because it requires specific skills to be developed. It is imperative to note that the outbreak of COVID-19 has not only caused challenges for the educational sector but also provided an environment for new opportunities and possibilities (Mwale & Chita 2020). It is indisputable that the pandemic has obliged universities worldwide to be vigilant and plan for the possible future hurdles that can disrupt pedagogical practices. Online training in Linguistics and New Testament Greek modules like phonetics and syntax require strict planning and knowledge of digital resources to be utilised for effective delivery.

From the previous discussion, it has been highlighted that the universities located in developing countries faced complex challenges during the outbreak of the COVID-19 pandemic. Clearly, the onus is on building greater capacity towards online training. Higher education institutions in Zimbabwe are overburdened by the multiple challenges that arise in the shift to technology-based training from traditional face-to-face modes of delivery. The outbreak of COVID-19 compelled academics across the globe to unlearn traditional pedagogical practices in order to learn new modes of instruction demanded by the new pedagogical environment. The plight of the university lecturers at Great Zimbabwe University is amplified by the lack of pedagogical, technical expertise and facilitation skills required in online course development and teaching. Apparently, online teaching requires careful planning and preparation before the shift from traditional face-to-face teaching is implemented. Yet, for Great Zimbabwe University lecturers, just like most academics across the world, the COVID-19 pandemic abruptly shoved them into an unfamiliar, complex and disquieting terrain of web-based teaching without acquiring the prerequisite skills. This unsolicited scenario generated a huge amount of nervousness and discomfort. Chinyamurindi (2020) appropriately argues that amidst this complexity and pedagogical problems, academics should consider

the COVID-19 pandemic–related challenges positively in order to realise and explore emerging novel ways of teaching opportunities that arise other than traditional face-to-face instruction. In other words, Chinyamurindi (2020) views the current crisis of the COVID-19 pandemic as a necessary evil that jolted African academics in general from their deep slumber and complacency, forcing them to rethink and re-imagine their traditional pedagogical practices in a bid to develop, explore and embrace new pedagogies. What this scholar suggests here is that the outbreak of COVID-19 merely steps up the urgency of adopting and implementing the educational practices that have already begun to develop globally. This includes the orientation to the use of web-based technologies. The COVID-19 pandemic generated an educational crisis that immediately demanded greater use of online platforms in order to revert the negative impact of COVID-19 on university education. Thus, the unusual pedagogical context generated by the COVID-19 pandemic becomes a suitable environment for those in the academic field to be innovative and imaginative. Academics should concentrate on figuring out how best to respond to the pedagogical demands that arise as a result of the pandemic. The critical question at this moment is, how best can students continue to benefit from the university teaching staff? This positive approach to pedagogical challenges during the pandemic era does not ignore the fact that academics are under immense strain that can compromise their innovativeness and ingenious abilities. At the Great Zimbabwe University, the sudden transition from traditional face-to-face to online learning and teaching is a daunting task that presents a considerable number of difficulties for both the teaching staff and students. The phrase 'new normal' that refers to the changes necessitated by COVID-19 is problematic because normalising the new conditions of online learning is still absurd at the Great Zimbabwe University. The so-called 'new pedagogical normal' is still basically odd for both staff and students. The mentioned challenges encountered by both staff and students also apply to the teaching of New Testament Studies and Linguistics modules in a teacher-training programme at the Great Zimbabwe University. For instance, teaching Greek modules is a stressful business during the COVID-19 pandemic. Students in previous streams received traditional face-to-face instruction where the lecturers would take a leading role in pronunciation and grammar lectures. However, as has been alluded to, the university administration and the government should have a disaster preparedness fund that should be used in such eventualities as the outbreak of COVID-19.

◼ COVID-19 – the awakening call for recalibrating teacher-education

Concerning the opportunities that have been generated, the COVID-19 pandemic will always be remembered as a critical and unprecedented period

in HEIs because it forced these institutions and academics thereof to find new ways of doing academics (Chinyamurindi 2020). Talking about the Zimbabwean context, Sibanda and Muyambo (2020) state that the COVID-19 pandemic is a game-changer that has revolutionised the operations of universities globally and pedagogical practices in Zimbabwean HEIs which have been reluctant to explore new pedagogical pathways demanded in the 21st century. In another context, Msila (2015) points out that throughout the world, there have been efforts to transform contemporary classrooms by introducing digital technology. Yet, the demand has been ignored by universities in Zimbabwe, including the Great Zimbabwe University, due to a number of factors, some already highlighted earlier, such as insufficient technological infrastructure, an ailing economy and lack of funds to effect the shift from traditional pedagogical methods to web-based technologies. The advent of COVID-19 compelled the academy to reluctantly embrace an online pedagogical trajectory amidst the numerous problems. Although the HEIs encounter multiple challenges because of a lack of preparedness, the pandemic has certainly transformed educational practices in Zimbabwe in a good way through Google Classroom, video conferences, Zoom meetings and WhatsApp platforms, among other modes of e-learning (Sibanda & Muyambo 2020).

The context of COVID-19 evokes conversations around the fate of teacher-education at the Great Zimbabwe University. Most essentially, the COVID-19 pandemic offers academics an opportunity not only to reflect on online instructional possibilities but also to rethink the fundamental duty of realigning Zimbabwean university education with the contemporary global educational trends where web-based technologies have taken precedence for teaching and learning. The essential questions then to address are, how can the academics at the Great Zimbabwe University reshape teacher-training in line with global transformations as well as in preparation for possible future emergencies? Can COVID-19 open avenues for alternative futures for Zimbabwean education or Africans at large? What role can the Zimbabwean government play to ensure that universities in the country successfully achieve pedagogical innovations and transition from traditional face-to-face to online and blended modes of instruction? These are thought-provoking questions that demand academics to explore possible challenges and prospects of transforming the operations of the universities in Zimbabwe at the present moment, as well as reflecting on how the nation would map its educational trajectory into the future. Unquestionably, governments across Africa are aware that education can never remain the same in the 21st century and the COVID-19 pandemic has only speeded up the pedagogical transformation that was anyway bound to happen.

Sibanda and Muyambo (2020) underscore the significance of the role of the government in educational interventions in Zimbabwe. The government has a critical role to play; for instance, it can subsidise the internet cost to

grant continuous connectivity for universities to provide online education during the COVID-19 pandemic. Much earlier on, Kurasha (2007), talking about the importance of e-learning in the context of distance education, had proposed that the government in Zimbabwe needs to work in partnership with public and private partnerships, including telecommunication service providers, to ensure there is sustainable funding to support technological innovations in university education. This means channelling much-needed funds towards digital curriculum development to produce content that matches the demands of online learning. In the present COVID-19 context, it is pertinent to consider how the country can improve technological infrastructure, expand internet connectivity across the nation and help educational institutions in Zimbabwe to offer online learning. This should be regarded as a massive national project that requires funds from the national budget. The future of education in Zimbabwe is hinged on web-based technologies, so the earlier the country aligns its education with these global initiatives towards technological interventions for e-learning, the better it is for the local citizenry.

While there is a need to revolutionise the manner of doing instructional business, HEIs such as universities in Zimbabwe have to perpetually fight copious challenges and resource obstacles that obstruct the effort to make a successful and effective transition. Both the universities and the government should make significant commitments and investments into the renewal of education in Zimbabwe and promote an orientation to digital technologies as part of the inevitable future educational trajectories. The main reason why universities in Zimbabwe are overwhelmed by the impact of the COVID-19 pandemic is that there has been slight progress towards digital technology teaching.

The pandemic has generated ample lessons and opportunities to consider for an enduring educational evolution that will benefit Zimbabwe and Africa. Thus, academics should grab this with a positive mindset. It is time to think about improving internet accessibility and connectivity in order to effectively embrace online and blended modes of delivery, thereby creating a novel educational mode (Cahapay 2020). In other words, if a serious commitment is dedicated to this transformation, the COVID-19 pandemic will leave a remarkable legacy of obligatory and rapid educational improvements across Africa and the world. The pandemic created urgency in driving universities out of complacency. Kurasha (2007) is of the view that technology-based education is critical for national economic growth that will transform the fate of Zimbabwe from its economic quagmire. In this sense, Zimbabwe has a reason to remain optimistic about the emergence of COVID-19 because there is a possibility that a malevolent pandemic will paradoxically welcome educational innovativeness in the form of new modes of instruction and integration of technologies into instructional practices (Marevesa & Mavengano 2021). Thus, the current shift in pedagogical practices in Zimbabwe is very

necessary since it was long expected. In the next section, the gaze is on how this realisation should inform educational trajectory as Zimbabwean universities look forward to a better future. In essence, what can be done to reposition Zimbabwean university education in a global context of emerging wed-based technological instruction? Can Zimbabwe and Africa at large afford to remain behind these fascinating global trends?

■ Reflections and way forward

What is most intriguing is that the foregoing discussion has underlined the idea that the recent pedagogical transition was inevitable. Despite the fact that the outbreak of COVID-19 caused bewilderment, it also set in motion a process that was long overdue. It is imperative to note further that the advent of COVID-19 forced educational institutions to seriously consider channelling their limited resources towards building the technological environment, which is a positive turn of events that will eventually improve the educational delivery system in Zimbabwe. However, the transition remains a troubled pedagogical terrain that does not take away the fact that e-learning is one of the imperatives of the future of African education. Thus, local universities should earnestly strive to revolutionise educational practices in order to avoid becoming bystanders in the global context of modern educational technologies. Online instructional modes are relevant in today's world as they also offer critical up-to-date learning skills that students in the contemporary period should be accustomed to. Equally important is understanding that Zimbabwe should realign its education with global demands in order not to disadvantage students who acquire their education from local universities (Makaza & Madzima 2008). Indications from the ideas discussed in this study are that both the teaching staff and students found themselves in an educational crisis which left them with no choice but rather reluctantly turned to online platforms when the traditional face-to-face delivery mode entirely stopped. The COVID-19 crisis profoundly changed educational practices in Zimbabwe. The lessons that could be drawn from the pandemic include the importance of planning and preparedness, which are critical aspects in dealing with emergencies that impact educational activities. Furthermore, HEIs are reminded of the sober reality of the need to rethink and recalibrate modalities of delivery in the 21st century to suit the complex dynamics of the contemporary educational system.

■ Conclusion

The study has shown that the outbreak of COVID-19 disrupted pedagogical practices, thereby impacting the modes of instruction for university education, including teacher-training at the Great Zimbabwe University. The pandemic

demanded decisive educational actions and far-sighted knowledge on navigating the pedagogical challenges. Catastrophic events involve sudden significant disruption. Although the COVID-19 pandemic caused disorientation with regard to the feasibility of embracing the swift shift to online learning, it is also important to recognise how it revolutionises educational practices. This will fashion better futures for educational activities in Zimbabwe in general and teacher-training at the Great Zimbabwe University in particular. The COVID-19 pandemic thus has opened novel horizons and educational possibilities which can be grabbed and utilised to create new African futures. In other words, the pandemic has created an adaptive environment that provides an opportunity for the reconceptualisation of educational practices in Zimbabwe and Africa at large.

Transforming higher education for self-directed employment

Adri du Toit
Research Unit Self-Directed Learning,
Faculty of Education, North-West University,
Potchefstroom, South Africa

■ Abstract

Reports of students being unable to find employment after graduating are increasing. This situation is often attributed to universities focusing on preparing students for employment (by employers) rather than including learning which students could use to self-directedly develop their own employment based on their university education. Entrepreneurship education is frequently viewed as the panacea to this problem. To ensure that students will benefit optimally and to prevent entrepreneurship education from being a mere add-on to university modules, it needs to be carefully planned and scaffolded to be embedded in existing learning programmes. Globally, several countries have developed and optimised entrepreneurship education as part of university teaching and learning. In South Africa, where youth unemployment is extremely high, entrepreneurship education was only recently introduced at

a few universities. To reconfigure higher education with the purpose of fostering more self-directed employment insights for students as part of their university learning, the implementation of entrepreneurship education has to be expanded in South African university programmes. The challenge and resulting question that needed investigating were how entrepreneurship education should be optimally scaffolded for integration into existing programmes. The current study used a qualitative literature review to explore how entrepreneurship education is scaffolded and implemented in universities across Africa. Findings from descriptive content analysis of practices on the African continent were used to develop a set of recommendations which could be used for implementing and expanding entrepreneurship education in South African teacher-training university programmes, to support the fostering of more self-directed employment insights for students as part of their university learning.

■ Introduction

University education is costly, both in terms of the time and money invested therein (Statistics South Africa [StatsSA] 2020, p. 36). To illustrate this, two examples from the South African context are tendered: in terms of time, most degree courses are planned to be completed within a time frame of three or four years. However, of the students starting a degree qualification in 2011 at South African universities, only 29% of entrants were able to complete their studies and graduate within the required time (StatsSA 2017, p. x). This means that more than 70% of students who started their studies in 2011 had to invest more time and money than initially planned before they could potentially start earning an income in line with graduate-level education. As a result, the cost of tertiary education in South Africa more than doubled from ZAR38 billion in 2011/12 to ZAR79.7bn in 2017/18, representing almost 2% of the South African gross domestic product (GDP) in that fiscal year (StatsSA 2017, p. 5). The financial cost of tertiary education has always been high, but it has dramatically increased in recent years.

Irrespective of these high costs, the number of students entering universities is still increasing. For example, 55 666 students were enrolled at public higher education institutions (HEIs) in South Africa in the year 2000 (Steyn, Van der Walt & Wolhuter 2016, p. 134), but in 2016 that number rose to 975 837 (StatsSA 2020, p. 2). Unfortunately, as the number of students with degrees increased, so did the number of unemployed graduates (Ismail 2017, p. 2; Lourens & Fourie-Malherbe 2016, p. 1; Mncayi & Dunga 2016, p. 413; Van de Rheede 2012, p. 19). Several causes are blamed for graduate unemployment, although some issues are prevalent globally. These include increased access to tertiary education, education quality, skills mismatches and a lack of soft skills development (Mncayi & Dunga 2016, p. 414; Okolie et al. 2021, p. 6; Olutuase, Brijlal & Yan 2020,

p. 2; Van de Rheede 2012, p. 50). Although the South African government ensured increased access of students to universities, their efforts were not matched by creating an increase in employment opportunities, resulting in escalating numbers of unemployed graduates (Department of Higher Education and Training [DHET] 2012, p. 27; Van de Rheede 2012, p. 50). The quality of the education that students receive – although difficult to measure – impacts the relevance of the curriculum content and skills, access to resources and graduation rates (Van de Rheede 2012, p. 30). Prospective employers perceive the quality of education provided by universities differently, which in turn will impact how likely they are to appoint a graduate from a specific university (Mncayi & Dunga 2016, p. 415; Okolie et al. 2021, p. 6). If employers believe the quality of education provided by a certain university to be low, they will be less inclined to appoint a graduate from that institution. Another frequently cited cause of graduate unemployment is the mismatch that often exists between the skills demanded by employers and the knowledge and skills which graduates develop in university programmes (DHET 2012, p. 27; Entrepreneurial Learning Initiative [ELI] 2021, p. 24; Lourens & Fourie-Malherbe 2016, p. 1; Mncayi & Dunga 2016, p. 414; Nwambam et al. 2018, p. 7; Van de Rheede 2012, p. 48). Van de Rheede (2012, p. 48) notes that even when potential employers believe that graduate students are 'hard-working and possess an excellent knowledge of their specialisation, they [the students] are ill-prepared for real-world conditions and show few signs of creativity, adaptability and flexibility'. Graduate students also reportedly lack skills that are vital for a meaningful life and employability in the 21st century, such as communication skills, problem identification and problem-solving skills, presentation skills, financial management skills, computer literacy, time management skills or creative thinking skills (Brown 2017, p. 30; ELI 2021, p. 6; Papenfus 2018; Shekhar & Huang-Saad 2021, p. 8; Van de Rheede 2012, p. 2). This reported deficit in graduate students' soft skills, of which only a few are mentioned here, exacerbates the problem of graduate unemployment even further.

It can therefore be surmised that the graduate attributes that universities aim to develop in students are 'out of sync with the needs and expectations of employers' to some extent, as well as with 'the demands of a rapidly changing world of work' (Van de Rheede 2012, p. 39). This problem is reported in most university graduate programmes, including teacher-education programmes (Centre for Development and Enterprise [CDE] 2015, p. 3). Papenfus (2018) reports that many teacher students in South Africa are trained for subjects or school phases which are already oversupplied, meaning that it would be even more difficult for them to find employment. Continuous curriculum changes, development of new subjects, technological advances and societal dilemmas contribute to destabilising the world of work for teachers, and teacher students, therefore, need to be prepared to be able to adapt to and thrive in such changing circumstances (CDE 2015, p. 29;

Ismail 2017, p. 1; McGuigan 2016, p. 38). Some teachers find it difficult to adjust to the demands of the fast-changing world of teaching and education and opt to find alternative employment (CDE 2015, p. 36). This reiterates the need for universities to implement a holistic approach to learning that includes developing teacher students' skills rather than just focusing their education on 'teaching' (Huq & Gilbert 2017, p. 156).

In a fast-changing world, which includes constantly expanding technological opportunities and the Fourth Industrial Revolution (4IR), many career opportunities exist for teacher students besides 'only teaching' (Olaniran 2020, p. 5). Referring to the intersection between education and entrepreneurship, Schulman (2017) refers to such teaching graduates as 'edupreneurs' who aim to bring positive change to the world through education-related initiatives. Edupreneurs apply their entrepreneurship education (including knowledge, skills and competencies) to address issues and challenges and to foster positive change in education-related ventures (Olaniran 2020, p. 4). These ventures centre around educational aims, usually in combination with certain personality traits, technical skills, language and communication abilities, among others, and requires that student-teachers have (at least some) entrepreneurship education as part of their university training to enable the development of the knowledge and skills they will need, as well as to enable the attainment of these aims and different ways of thinking.

To address the aforementioned issues, universities must include career literacy as part of students' tertiary education (Ismail 2017, p. 8; Van de Rheede 2012, p. 39). Yet, Mncayi and Dunga (2016, p. 414) report that many South African students do not utilise the career guidance services offered by their university during their studies. Therefore, the author of this chapter uphold the recommendation of Lourens and Fourie-Malherbe (2016, p. 8) that universities need to plan and provide expanded support to improve students' preparation for employment after graduation. Furthermore, considering the lack of employment opportunities available in South Africa, such support must include education that students could use to self-directedly develop their own employment based on their university education.

One of the ways in which tertiary institutions can support students in the transition to self-directed employment is through the inclusion of entrepreneurship education in university programmes (Lourenço, Taylor & Taylor 2013, p. 504) to encourage students to self-directedly develop their own employment opportunities. This chapter, therefore, aimed to explore entrepreneurship education as a vehicle to provide university teacher students with more insights and opportunities to create their own employment opportunities after graduation. Including entrepreneurship education in university education programmes could transform higher education to better align with the purpose of fostering more self-directed employment insights for teacher students as part of their university learning.

■ Problem statement

Universities typically provide 'general knowledge, the core work skills and some of the industry-based knowledge and professional competencies that facilitate the transition from education to the labour market' (StatsSA 2021, p. 59). Yet, as described in the introductory section of this chapter, there are still some serious deficits reported, especially regarding developing students' 21st-century skills. The unremitting emergence of research indicating that universities do not adequately prepare students with the attributes they will need to thrive in a changing world or to adhere to the requirements of employers (Mncayi & Dunga 2016, p. 414; Van de Rheede 2012, p. 39) signifies that this gap needs to be bridged. Since current career literacy and career guidance offered at universities are reported to be underutilised (Mncayi & Dunga 2016, p. 414), compounded by the lack of employment opportunities available for graduates in South Africa (Ismail 2017, p. 2), the preparation of students for life after graduation has to be reconsidered.

'Life after graduation' refers to the everyday lives of postgraduate students in a complex and ever-changing 21st-century world, which includes preparation for self- or other employment. It requires that students are prepared with competencies and skills – in particular, those associated with entrepreneurship and entrepreneurial thinking – that will help them to thrive in their future lives and careers. Entrepreneurship and self-directed employment were not traditionally the primary career choice of university graduates, but in a fast-changing world with limited employment prospects, students need to be equipped with the competencies and skills that would prepare them for creating their own employment or income-generating opportunities, but also for a meaningful life in the 21st century (Lourenço et al. 2013, p. 505). The benefits associated with entrepreneurship education are extensive. Not only those students who choose to become entrepreneurs will benefit, but it also develops a different way of thinking, in addition to creating value for individuals and communities in real life and the world of work. When students pursue value creation for others as part of their learning, it enhances their motivation and engagement in the process while fostering 21st-century skills such as critical and creative thinking, as well as 'increasing resilience, life satisfaction and well-being' (ELI 2021, p. 4). The type of learning, thinking and skills development associated with well-planned entrepreneurship education will therefore support students to thrive in the world of work as well as in their personal lives. To enable this long-term goal, the problem that needed investigation was how entrepreneurship education should be optimally scaffolded for integration into existing undergraduate university programmes.

The rationale for the research was to gain insights into how entrepreneurship education could be implemented and expanded into existing South African teacher-training university programmes, to support the fostering of more self-directed employment insights for students as part of their university learning.

Furthermore, if a positive entrepreneurial mindset could be fostered in teacher students specifically, they would be able to transfer this knowledge and understanding to the learners in their classrooms one day, thereby broadening the benefits of entrepreneurship education to a much wider audience.

■ Theoretical lens and conceptual framework

The theoretical lens used for the current investigation was constructivism. At an ontological level, 'education' is often associated with constructivism, or social constructivism, as it is subjective and interpretivist (Gedeon 2014, p. 240). University education has morphed from being teacher-centred and rooted in objectivism towards a more student-centred approach that is underpinned by constructivism (Gedeon 2014, p. 240) and which views 'learning as a modification of cognitive structures' (Ilonen 2021, p. 3), resulting in different ways of thinking. Constructivism follows a scaffolded or organised approach towards knowledge development, where prior knowledge forms the foundation for the organisation and construction of subsequent (new) knowledge, including thinking about the process of such knowledge construction (or metacognition) (Ilonen 2021, p. 3). Entrepreneurship education, and the types of learning approaches preferred for its implementation, such as active, experiential or problem-based learning (PBL), is often situated in constructivism (Gedeon 2014, p. 240; Huq & Gilbert 2017, p. 159; Ilonen 2021, p. 3), particularly because it mirrors the student's involvedness or co-construction of learning, rather than the passive transfer of knowledge (Nabi et al. 2017, p. 280). Constructivist education, however, 'is no place for amateurs' (Neck & Corbett 2018, p. 25), implying that it must be judiciously constructed and implemented to ensure its effectiveness.

The following key concepts and how they were regarded and connected in the current constructivist investigation were used to guide the research: entrepreneurship education, employment, skills development, self-directedness and scaffolding.

■ Entrepreneurship education

Globally, entrepreneurship education is increasingly implemented as a vehicle for ameliorating unemployment but also for developing 21st-century skills (Brown 2017, p. 30; Du Toit 2020, p. 575; ELI 2021, p. 5). Entrepreneurship education entails much more than only these two key outcomes, as is evident from the expansive definition proposed by Gedeon (2014) that states:

> Entrepreneurship education encompasses holistic personal growth and transformation that provides students with knowledge, skills and attitudinal learning outcomes. This empowers students with a philosophy of entrepreneurial thinking, passion, and action-orientation that they can apply to their lives, their jobs, their communities, and/or their own new ventures. (p. 238)

The value of entrepreneurship education, therefore, includes comprehensive development of the individual through new ways of thinking and instilling several critical competencies or skills, which students can use for employment (whether self-employed or employed by an employer), in their everyday lives, and to the benefit of themselves or others in their communities. Including entrepreneurship education in student-teacher programmes will therefore instil several of the competencies and skills which are currently reported to be deficient in graduate programmes and contribute broader application value to their university education.

The expanded value of entrepreneurship education does not always realise in practice. University entrepreneurship education programmes are typically limited to venture creation only, with little or no emphasis on the valuable mindset or competencies associated with entrepreneurship in real life (ELI 2021, p. 11), limiting the associated benefits of the intended learning for students. It is therefore important to distinguish between business-oriented programmes (which focus mainly on venture creation, leadership, management, marketing and sales) and entrepreneurship education which includes much broader intended learning (such as competence and skills development, personal initiative or self-efficacy, innovation, and value creation as part of learning) (ELI 2021, p. 4; Friedrich 2017; Huq & Gilbert 2017, p. 158; Neck & Corbett 2018, p. 22; Shekhar & Huang-Saad 2021, p. 5). Entrepreneurship education should therefore be planned to be comprehensive enough to stimulate broader skills development, a spirit of enterprise and value creation (Fayolle & Gailly 2008, p. 575; Shekhar & Huang-Saad 2021, p. 8) rather than only focusing on employment generation or business development. In line with these recommendations, Friedrich (2017) made the following statement regarding entrepreneurship education at South African universities:

> Entrepreneurship education needs a significant upgrade in terms of its scope and scale. And entrepreneurship skills and the motivation to start a business should be brought to all students at universities, not only those registered specifically for entrepreneurship degrees. (n.p.)

Therefore, entrepreneurship education should be expanded into more South African university programmes, and it must be regarded and approached differently than in the past. This sentiment is reiterated in the following statement from the ELI (2021), highlighting that, for current entrepreneurship education programmes:

> the vast majority of these efforts fail to recognise the lessons of entrepreneurial thinking to help design new program structures and teaching methodologies that appeal to students who may not self-identify as entrepreneurs, but would greatly benefit themselves, their organisations, and their communities by developing entrepreneurial attitudes and skills. (p. 12)

Although entrepreneurship education creates wide-ranging value and includes many benefits, one of the most widely reported benefits thereof is its role in economic growth and employment (McGuigan 2016, p. 38).

Employment

Employment is commonly defined as 'the activity by which one regularly makes a living' (Merriam-Webster Dictionary 2021a), implying that an individual needs to be involved in an activity, or do something, to enable them 'to earn the money one needs to pay for housing, food, etc.' (Merriam-Webster Dictionary 2021b). Without employment, or the income resulting from employment, it would be difficult to make a living or even survive. When searching for a definition for employment in the South African context, it became apparent that a vast array of definitions and descriptions exist for *unemployment*, but few describe employment – reflecting the negative state of employment in the country. Statistics South Africa (Africa Check 2014) defines the 'employed' in this country as:

> A person (between 15 and 64) is considered to be employed if during the week before being surveyed they worked for a wage, salary or commission or ran any kind of business by themselves or with other people. They will be categorised as 'employed' even if they only worked for an hour in that week.

Therefore, statistically (and astoundingly), someone who only worked for a single hour in seven days would be reckoned as 'being employed'. In a changing world, employment, and how it was traditionally viewed, is therefore also changing (Ismail 2017, p. 5). Other trends indicating employment changes include increased employee turnover, rather than long-term employment, 'gig employment' based on the contractual needs of employers and working multiple jobs at a time (Ratten & Usmanij 2021, p. 100367). Increasingly, young people report that they would rather be self-employed than work for an employer or a company (Shekhar & Huang-Saad 2021, p. 8).

When viewed against these changes in the world of work or employment, as well as the need to prepare students for 'future occupations [that] do not currently exist' (Ratten & Usmanij 2021), it becomes clear why employers expect (Ismail 2017):

> [G]raduates to have a well-rounded sense of self, to display a range of graduate employability capacities and to adapt to constant changes they are faced with in order to obtain and maintain employment. (p. 1)

To make graduates more employable, whether they plan to work for an employer or become self-employed, their university education focus should include the development of broad and transferable skills rather than only preparing them for one particular job.

Skills development

One way of increasing university students' employability is through the effective adoption of entrepreneurship education (Brown 2017, p. 30). Developing students' skills and attributes is a key objective of entrepreneurship

education (Hahn et al. 2017, p. 945; Ilonen 2021, p. 4). Students view the skills developed in entrepreneurship education as valuable for their personal lives and future careers (Shekhar & Huang-Saad 2021, p. 8).

Entrepreneurship education supports the development of several skills and competencies, including (but not limited to) communication and presentation skills, teamwork, problem identification and problem-solving skills, taking the initiative, self-management, lifelong learning skills; entrepreneurial thinking skills; motivation to learn; reflection; design thinking, critical thinking and creativity skills; observation skills, recognising opportunities; generating ideas using innovation; and value creation (Brown 2017, p. 30; Gedeon 2014, p. 237; Huq & Gilbert 2017, p. 156, 158; Ilonen 2021, p. 6, 7; Ratten & Usmanij 2021, p. 100368). Broadly, these skills contribute to students' successful interactions with others (for example, through teamwork, communication or presentations); their learning (self-management; lifelong learning; motivation to learn; reflection); their way of thinking (design thinking; entrepreneurial thinking; critical and creative thinking) and how they apply these skills to solve problems or create opportunities (observation skills, problem identification and problem-solving skills; recognising opportunities; generating ideas using innovation; and value creation).

To foster the development of these skills and competencies, suitable entrepreneurial learning environments must be created in higher education. Such environments should be based on a 'self-regulatory, co-created learning setting, wherein entrepreneurship students from different backgrounds learn in teams' (Ilonen 2021, p. 9), to contribute to constructivist learning. Student-centred teaching-learning approaches and strategies must be used for its implementation to not only develop their skills but also to develop a sense of ownership of their learning (Huq & Gilbert 2017, p. 157). This sense of ownership of learning, as well as the intended lifelong learning that is needed for sustaining entrepreneurship education in their lives and careers, can be strengthened through self-directed learning (SDL).

■ Self-directedness

Self-directed and active learning pedagogies are preferred for entrepreneurship education (Piperopoulus & Dimov 2015, p. 974) and are often utilised in combination with other strategies such as PBL (Brown 2017, p. 34; Shekhar & Huang-Saad 2021, p. 2). Self-direction in learning becomes more fundamental when non-compulsory learning or elective learning opportunities arise, which is often the manner in which entrepreneurship education is packaged or offered (Shekhar & Huang-Saad 2021, p. 2). Self-directed learning supports students in developing ownership of their learning and fosters their skills to contribute to the co-construction of learning (Neck & Corbett 2018, p. 14).

The eminent definition of Knowles (1975) for SDL is that:

> [/]ndividuals 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 this definition, the student and a structured learning process are the core elements. Self-directed learning is a student-centred approach that moves away from teacher-centred teaching (Steyn et al. 2016, p. 130). The educator (or lecturer), however, still contributes to the learning process in the role of facilitator and guide (Neck & Corbett 2018, p. 14). The lecturer can contribute to the SDL process by exposing students to new opportunities; encouraging healthy co-operative learning; supporting students in organising themselves; guiding students to utilise resources optimally; and helping students to apply new learning in their own worlds to make it more integrated and meaningful (Neck & Corbett 2018, p. 14, 16). Using Knowles' (1975, p. 18) definition above, the SDL process is structured around goals, resources and strategies for the implementation and evaluation of the attained learning. Self-directed learning is therefore underpinned by a structured and planned process that supports students in its effective implementation.

◾ Scaffolding

To ensure optimal construction of entrepreneurship education, several elements need to be considered and combined to contribute to meaningful learning. A straightforward but efficient approach to planning and scaffolding entrepreneurship education recurs in literature. Several authors, such as Du Toit (2020, p. 579); Fayolle and Gailly (2008, p. 575); Olutuase et al. (2020, pp. 6–8) and Huq and Gilbert (2017, p. 158), recommend that entrepreneurship education be planned according to five guiding questions. These questions are generic enough to consider and include diverse contexts or divergent approaches, with the overarching purpose of creating opportunities or benefits for students (Fayolle & Gailly 2008, p. 571). Informed by the recommendations described by Du Toit (2020); Fayolle and Gailly (2008); as well as Huq and Gilbert (2017) to guide the design of entrepreneurship education, the five questions are as follows:

- Why? Illuminates the rationale or purpose for entrepreneurship education and informs the objectives or goals thereof. The learning needs should inform the individual (micro-level) and societal needs (macro-level).
- For whom? As far as possible, delineates who the learners or 'target audience' for the intended learning would be. The type of learner, their ages, prior knowledge or experiences, as well as the learners' perceptions about the value of entrepreneurship need to be considered.

- What? The content for entrepreneurship education programmes should be designed to support the harmonious development of knowledge, skills, values and competencies, creating value for individuals and their surroundings.
- How? The choice of pedagogical or teaching methods needs to support active, learner-centred, real-life learning that will foster an entrepreneurial mindset in students. Suitable teaching-learning strategies will foster the transferability of learning to diverse contexts and make the learning process more meaningful for students, contributing to metacognition and SDL.
- For which results? The intended outcomes and how they will be measured or assessed have to be planned from the onset of the development to ensure alignment of these two aspects. The outcomes should not be only content based but have to include competencies and skills applied in active, real-life situations.

Each of these questions should be asked and the answer carefully analysed to contribute to insights into how entrepreneurship education should be optimally planned and scaffolded, especially when it is being implemented for the first time.

■ Research methodology

The research was nested in constructivism, in the interpretivist paradigm. The researcher believes that meaning is constructed (not merely 'given') through a complex process influenced by various factors, in line with descriptions by Schreier (2013, p. 170). The researcher's ontological viewpoint was that the world consists of multiple realities and different perspectives and that we can learn from each other. Epistemologically, the researcher believes in qualitative meaning-making, which includes subjective interpretation. Lastly, the researcher's background in education contributed to her approaching the study with the view that meaningful education is a structured process of combining certain elements to construct meaningful learning experiences.

Qualitative content analysis of purposely selected literature was used to allow the researcher to focus closely on the aspects related to the research question, as recommended by Schreier (2013, p. 170). Since the university where this research was conducted was already collaborating with other South African universities to develop entrepreneurship education programmes, the decision was made to explore a broader perspective in this regard. In other words, how other universities on the African content scaffold and implement entrepreneurship education, in order to determine which practices would be useful in the South African context. Two additional key decisions informed the selection of literature for review. The first was the understanding that the intended (or 'put-on-paper') curriculum does not always realise in practice; therefore, it was necessary to look at secondary sources that discuss,

describe or critique the programmes and their implementation in practice. Secondly, it was decided to focus on literature that view entrepreneurship education as a vehicle for the development of graduate attributes that students could use in employment OR entrepreneurial endeavours (even if not to generate an income), rather than texts that only focus on its use for addressing unemployment. The study was qualitative; therefore meaning derived from the text was considered more imperative than frequency of inclusion. The aim was not to generalise its findings, but to provide a broad overview and understanding of entrepreneurship education in African universities. A Google Scholar search was used to identify useable literature, delineated by the following inclusion and exclusion criteria:

- Inclusion criteria:
  - the term 'Entrepreneurship education' is included in the title of the article
  - Africa, the African context or a particular African country's name in keywords
  - university, tertiary or higher education in keywords
  - published between 2017 and 2022
  - published in peer-reviewed journals
  - full text downloadable or accessible online.

- Exclusion criteria:
  - studies published before 2017
  - studies focusing on entrepreneurship education at the school level rather than at the tertiary level
  - studies focusing only on entrepreneurship education in technical vocational education and training (TVET) colleges
  - studies focusing on entrepreneurship education in the South African context
  - studies focusing only on challenges related to entrepreneurship education
  - studies focusing solely on entrepreneurship education for business development/businesses (rather than student and skills development)
  - single-focus investigations rather than programme discussions (for example, only focusing on 'psychological traits' or 'conflict mitigation' linked to entrepreneurship education)
  - studies focusing solely on students' entrepreneurial intentions.

Judicious application of the inclusion and exclusion criteria to the initial list of literature in the Google Scholar search resulted in a set of 70 articles. The abstracts of this initial set of articles were then carefully analysed to determine if each study would contribute to a better understanding of how entrepreneurship education is approached and implemented in a particular African country or group of African countries. A final set of 21 articles were

used for the current investigation, including studies on entrepreneurship education at universities in Cameroon, Ghana, Kenya, Mauritius, Namibia, Nigeria, Rwanda, Sierra Leone, Tanzania and Zimbabwe. The final set also included four studies that explored entrepreneurship education across various African universities (including Ethiopia, Kenya, Nigeria, Botswana, Ghana, Tanzania, Sudan, Namibia, Rwanda and Tunisia); in 'sub-Saharan Africa'; and as part of a Pan-African University Alliance (including Kenya, Ghana, Sierra Leone, Uganda, Ivory Coast, Senegal and Ethiopia). The distribution of research across these countries was believed to be suitable to provide a 'bigger picture' or a broad overview of the five elements or questions (why, what, who, how and for which intent) that contribute to the scaffolding of entrepreneurship education.

An iterative process of concept coding, as proposed by Saldaña (2016, p. 119), was subsequently utilised to identify broad ideas (or concepts) from the literature in order to form an overall picture of how other African universities scaffold and implement entrepreneurship education. Concept coding contributes to developing broader meaning as part of the 'bigger picture' (Saldaña 2016, p. 119). Deductive analysis and coding were applied, using a pre-populated coding list in Atlas.ti to manually identify concepts from the literature related to the 'purpose' (why), 'content' (what), 'pedagogy' (how) and 'intended outcomes' of entrepreneurship education at HEIs across Africa. These codes were informed by the five guiding questions for scaffolding entrepreneurship education, as discussed under 'Scaffolding' earlier in this chapter. The codes were clustered into groups (or categories) using Atlas.ti software to provide a 'bigger picture' (or broad and overall understanding) of the scaffolding and implementation of entrepreneurship education in African universities.

■ Findings and discussion

The findings are described and discussed in line with the five 'questions' recommended by Du Toit (2020), Fayolle and Gailly (2008) and Huq and Gilbert (2017) for the design or scaffolding of entrepreneurship education. That is the purpose (why?); the intended or target audience (for whom?); the learning content, skills and competencies included (what?); the pedagogical approach used for its facilitation (how?); and the intended outcomes (for which results?) of entrepreneurship education at universities across Africa.

■ The purpose of entrepreneurship education

The most prevalent purpose for including entrepreneurship education in African university programmes is to reduce poverty and unemployment (Iipinge & Shimpanda 2021, p. 10; Mbeteh & Pellegrini 2018, p. 93). The majority

of programmes aim to expand students' entrepreneurial knowledge, skills and competencies, which might engender entrepreneurial activities that will expand the economy and reduce poverty and unemployment (Forje 2021, p. 30; Igwe, Okolie & Nwokoro 2021, p. 2; Nyadu-Addo & Mensah 2017, p. 576; Puni, Anlesinya & Korsorku 2018, p. 506; Roopchund 2020, p. 98; Yatu et al. 2017, p. 166). All descriptions of the programme's purpose or aims revolve around this main theme; however, several programmes include additional qualifiers or foci. In Zimbabwe, for example, the purpose of entrepreneurship education at universities is 'empowerment and sustainable development' (Mawonedzo et al. 2021, p. 86).

Several entrepreneurship education programmes include developing entrepreneurial *knowledge* for business development or venture creation as part of their purpose (Blimpo & Pugatch 2019, p. 186; Iipinge & Shimpanda 2021, p. 1, 4), whereas others include *skills* development in their main focus. The skills that are mentioned as part of the focus of such programmes are varied, as evident in the unpacking of the findings for this in Table 4.1. The type of skills specified as part of the programmes' purpose includes business skills, generic skills, trade skills, practical skills and skills for employment or the job market (Table 4.1), which aligns with the broader purpose of better-preparing graduates to become employed. Including skills for functioning effectively in the job market and skills for employment (Table 4.1) as part of the purpose of these programmes seems contrary to the common perception that entrepreneurship education prepares students (only) for creating their own employment opportunities. It is, however, indicative of an increasing body of published research highlighting the value of skills development in entrepreneurship education as having broader application than only for self-directed employment. Brown (2017) succinctly highlights this sentiment when she notes that entrepreneurship education:

[/]s not just about preparing students to set up and successfully run their own business, but it is to equip them with the skills to be successful in the world of work. (p. 31)

TABLE 4.1: Skills included in the purpose for entrepreneurship education programmes.

Skills as part of entrepreneurship education programme purpose	Country	Reference
Business skills	Rwanda	Blimpo and Pugatch (2019, p. 186)
	Nigeria	Ubogu (2020, p. 131)
Generic skills such as identifying and solving problems using critical and creative thinking	Nigeria	Nwambam et al. (2018, p. 2)
	Nigeria	Yatu et al. (2017, p. 166)
Trade skills	Nigeria	Iyortsuun, Goyit and Dakung (2020, p. 69)
Skills to function effectively in the job market	Nigeria	Ubogu (2020, p. 132)
Practical skills	Rwanda	Blimpo and Pugatch (2019, p. 187)
Skills for employment	Tanzania	Mbunda and Kapinga (2021, p. 5)

The purpose of entrepreneurship education programmes is therefore to prepare students for self-directed employment and for employability.

In addition to the inclusion of knowledge and skills development in the purpose of entrepreneurship education programmes, it was also established that an increasing number of programmes include students' individual or personal development as a key purpose. For instance, the foci of some African entrepreneurship education programmes also include building students' confidence (Nyadu-Addo & Mensah 2017, p. 583); an entrepreneurial spirit (Mbunda & Kapinga 2021, p. 2; Mshenga et al. 2020, p. 290; Zegeye & Singh 2019, p. 8); an entrepreneurial culture (Iipinge & Shimpanda 2021, p. 1; Roopchund 2020, p. 103; Ubogu 2020, p. 133); students' personal and social skills (Mbeteh & Pellegrini 2018, p. 92); and students' 'own individual development and achievement' (Forje 2021, p. 22). It is evident that entrepreneurship education can (and should) serve several purposes, including the development of individual students' knowledge, skills, mindsets and perceptions about their own potential for success.

■ Students targeted for entrepreneurship education at universities

Echoing a pattern similar to that reported in numerous existing entrepreneurship education studies, the current study determined that the majority of African university entrepreneurship education programmes have business, business management or economics students as their target audience (Forje 2021, p. 25; Ngigi, Gichunge & Orero 2020, p. 9; Nyadu-Addo & Mensah 2017, p. 579; Sanusi 2017, p. 9; Ubogu 2020, p. 126). One exception in the current investigation was a programme in Kenyan universities which targeted Agricultural Science graduates for entrepreneurship education (Mshenga et al. 2020, p. 291). Another pattern emerging from the current investigation was that entrepreneurship education programmes are broadening their target market to include more diverse university students. Therefore, whether students aspire to become entrepreneurs, only have a general interest in entrepreneurship, or only do it because it is part of the curriculum (Iipinge & Shimpanda 2021, p. 7), 'all higher education students' (Iyortsuun et al. 2020, p. 64), graduate as well as undergraduate students (Mbeteh & Pellegrini 2018, p. 92) are increasingly invited to participate in these programmes. Furthermore, no matter which students are targeted as the audience for entrepreneurship education programmes, Iipinge and Shimpanda (2021, p. 6) warn that their learning needs, background and prior knowledge need to be taken into consideration when planning these programmes. It might therefore be useful to have an instrument (such as a brief questionnaire) to collect this background information from students before the onset of entrepreneurship education programmes to ensure the learning meaningfully meets the needs of the students in the programme.

Another finding of the current study, which is dissimilar to the pattern reported in previous studies – that mostly final-year students are targeted (such as the case in Ghana, reported by Nyadu-Addo & Mensah 2017, p. 582) – was that university programmes are now often targeting younger students for entrepreneurship education. It is reported that younger audiences are more 'malleable' towards entrepreneurship (Olutuase et al. 2020, p. 11), and consequently, universities are expanding their target audience for entrepreneurship education programmes to include 'youngsters', as is happening in Mauritius (Roopchund 2020, p. 101). In some cases, universities or countries (such as Rwanda) specifically target secondary school learners to prepare them 'for entrepreneurship education in tertiary education' (Blimpo & Pugatch 2019, p. 187). The need to start with entrepreneurship education at an early learning age has been reported previously (Brown 2017, p. 30; Kirkley 2017, p. 20) and seems to have gained momentum in recent years and therefore needs to be considered for inclusion in future entrepreneurship education programmes.

Content, skills and competencies included in entrepreneurship education programmes

Four categories of 'content' that are included in African university entrepreneurship education were developed from the literature analysed in the current study. These are entrepreneurship knowledge content; skills and competencies in entrepreneurship education, an entrepreneurial mindset; and values related to entrepreneurship education.

In general, the knowledge content in entrepreneurship education programmes centres around business plans and venture creation (Blimpo & Pugatch 2019, p. 187; Iyortsuun et al. 2020, p. 69; Puni et al. 2018, p. 506; Roopchund 2020, p. 103; Sanusi 2017, p. 9; Zegeye & Singh 2019, p. 32) or broadly around 'general knowledge in entrepreneurship' (Puni et al. 2018, p. 504). Several studies reported that the content in university entrepreneurship education programmes is often more focused on developing entrepreneurship knowledge rather than practical activities, experiential exposure or applying entrepreneurship skills (Iipinge & Shimpanda 2021, p. 6; Mawonedzo et al. 2021, p. 88; Mbunda & Kapinga 2021, p. 9; Yatu et al. 2017, p. 173). The 'transfer of knowledge' or lecture-based approach favoured at many universities (see 'Pedagogies utilised in entrepreneurship education programmes') is more focused on factual knowledge acquisition in entrepreneurship education (Igwe et al. 2021, p. 3; Mawonedzo et al. 2021, p. 88) and neglects the significant skills development that is intended as part of entrepreneurship education learning content. Such knowledge-based approaches tend to be (sometimes shallow) education 'about' entrepreneurship rather than deeper and more meaningful education 'for' or 'through' entrepreneurship (Zegeye & Singh 2019, p. 30).

Data analysis in the current study further indicates that there is a growing emphasis on the development of entrepreneurial skills and competencies for individual students, as well as for the broader society (Olutuase et al. 2020, p. 15; Ubogu 2020, p. 128) as part of university entrepreneurship education programmes. Competencies are sometimes referred to as 'personal attributes' (Roopchund 2020, p. 104); however, most studies use the terms skills and competencies interchangeably (even when referring to particular skills or attributes). Therefore, in line with the quest for a broad overview of entrepreneurship education content at African universities, the current study did not differentiate these two terms. Several skills and competencies are noted as part of programme content for entrepreneurship education, sometimes broadly referred to only as 'skills', and sometimes specified. In no particular order or organisation, the skills and competencies that are included as 'learning content' in most African university programmes for entrepreneurship education are idea generation; goal setting; decision-making; critical thinking; innovation; identifying and selecting resources; communication skills; applying PBL principles (such as problem identification and problem-solving); teamwork; organising skills (for oneself, activities and information); willingness to take risks and learn from mistakes; and reflection skills (Blimpo & Pugatch 2019, p. 188; Forje 2021, p. 22; Igwe et al. 2021, p. 9; Iyortsuun et al. 2020, p. 67; Nwambam et al. 2018, p. 2; Zegeye & Singh 2019, p. 32). In addition, Forje (2021, p. 25) notes that students' competencies to be able to adapt to a 'continuously changing and uncertain world' should be developed as part of entrepreneurship education. The lack of differentiation or clarification of these skills and competencies in entrepreneurship education programmes indicates a need to investigate, analyse and more clearly organise these attributes as part of such programmes.

Yatu et al. (2017, p. 172), however, warn that the learning content in entrepreneurship education programmes should not only focus on developing students' skills but also that the development of students' entrepreneurial mindset should be an integral part of the curriculum. Despite the same sentiment being echoed by other researchers at African universities (Iyortsuun et al. 2020, p. 67; Nwambam et al. 2018, p. 2; Olutuase et al. 2020, p. 5; Zegeye & Singh 2019, p. 27), the development of a positive entrepreneurial mindset is seldom included in entrepreneurship education programmes (Yatu et al. 2017, p. 168). One reason for its limited inclusion is given by Mbeteh and Pellegrini (2018, p. 93), who claim that 'aiming to modify mindsets and attitudes' makes entrepreneurship education complicated. Perhaps this limitation is caused by lecturers' lack of a positive entrepreneurial mindset, which could be addressed by the previous suggestion of targeting lecturers as the primary audience for entrepreneurship education (including developing a positive entrepreneurial mindset) before attempting to inculcate it in students.

The fourth category as part of content included in entrepreneurship education programmes is 'value creation'. Although most curricula refer to learning content as 'knowledge, skills and values', in entrepreneurship education, value creation – for the student as well as for others – is increasingly included as an element of such programmes' learning content. Students need to be taught how entrepreneurship education (knowledge and skills) can be applied to be beneficial to individuals and communities – in other words, how it can create value (Roopchund 2020, p. 103). One programme refers to developing this as the value of 'global social responsibility' (Igwe et al. 2021, p. 2), whereas others refer to it as social entrepreneurship, where the goal is not economic but rather to ameliorate social problems and support communities (Zegeye & Singh 2019, p. 32). The increasing inclusion of value creation as part of the learning content in entrepreneurship education moves the emphasis from the self (self-directed employment, own income generation, for example) to include a broader field of beneficence, further underscoring the need to expand entrepreneurship education to the advantage of not only students or graduates, but to their families and communities too.

To enable the facilitation of this broad intended learning content, it is necessary that entrepreneurship education programmes have to be implemented with suitable pedagogical strategies to encompass all this learning.

Pedagogies utilised in entrepreneurship education programmes

The teaching-learning strategies or pedagogical approaches utilised for facilitating (or teaching) entrepreneurship education have a substantial impact on how the intended learning aims are realised in the classroom and to what extent the proposed outcomes of programmes are achieved (Mawonedzo et al. 2021, p. 87). Reiterating a concern that was noted in several studies from other countries, Mbunda and Kapinga (2021, p. 2) argue that ineffective or unsuitable teaching-learning methods used in university programmes are key obstacles to the 'quality of entrepreneurship education provided in Tanzania'. Suitable teaching-learning approaches will not only facilitate entrepreneurship learning content but will also contribute to attaining the long-term goal of entrepreneurship education, which supports students to thrive in the world of work as well as in their personal lives (see 'Problem statement').

Confirming the need for training lecturers to effectively facilitate entrepreneurship education (as reported under 'Students targeted for entrepreneurship education at universities'), Mbunda and Kapinga (2021, p. 1) describe how, in Tanzania, lecturing methods and 'paper and pencil form[s] of assessment are commonly preferred by instructors while teaching entrepreneurship education'. Lecture-based pedagogies are often too focused

on factual knowledge rather than skills development and do not reflect the central student role required for meaningful entrepreneurship education (Iipinge & Shimpanda 2021, p. 6; Mawonedzo et al. 2021, p. 88; Mbunda & Kapinga 2021, p. 4; Zegeye & Singh 2019, p. 28). Students themselves prefer teaching methods that would enable design thinking, reflective practices and SDL, all of which would include them more deeply in their learning process (Igwe et al. 2021, p. 8). Only focusing on education *about* entrepreneurship (factual knowledge development) or grooming students to pass an exam on entrepreneurship content severely limits the potential of these programmes to prepare students for a meaningful life after graduation, especially since skills development is neglected in such approaches (Blimpo & Pugatch 2019, p. 190; Mbunda & Kapinga 2021, p. 8). Echoing these concerns, Mawonedzo et al. (2021, p. 95) argue that traditional lecturing methods do not keep up with modernisation and technological advances. This means that students are not prepared for a modern, technological (and fast-changing) world, which reduces the efficacy of those entrepreneurship education programmes.

Dynamic pedagogies (rather than static education) ensure that knowledge, skills, attitudes and values become more relevant when students can apply such learning in practice (Nyadu-Addo & Mensah 2017, p. 578). This results in deeper and more meaningful learning and is attained by education *for* and *through* entrepreneurship (Zegeye & Singh 2019, p. 30). Teaching methods based on experience(s) increase students' inclination 'to engage in entrepreneurship after graduation' (Zegeye & Singh 2019, p. 28). Broadening the experiences of students require that lecturers reduce their reliance on lecturing and use more experiential methods that involve other contributors or role players in the learning process. For example, guest speakers can be invited to share their experiences, video clips or films about entrepreneurship can be shown, games and competitions can be used to entice student participation, and workshops or case studies based on real entrepreneurs' experiences could contribute to more effective entrepreneurship education (Sanusi 2017, p. 14; Zegeye & Singh 2019, p. 29).

It also emerged that pedagogical approaches to explicitly link entrepreneurship education to real-life experiences and real-world learning are also becoming more prevalent. Experiential learning linked to students' real-life experiences 'demonstrates realistic challenges' which graduates may come across in their future (self-)employment and provides extensive opportunities for applying their learning in practice (Forje 2021, p. 27). For example, internships are used in Cameroon universities (Forje 2021, p. 23); 'field-based experiential clinics' are used in Ghana (Nyadu-Addo & Mensah 2017, p. 582); in Tanzania, students have to 'observe and imitate the activities of successful entrepreneurs' (Mbunda & Kapinga 2021, p. 3); in Sierra Leone 'real-life case studies of entrepreneurs' are used to make the learning more realistic (Mbeteh & Pellegrini 2018, p. 93); and in Zimbabwe incubators and

enterprises mimicking real-life situations are used for similar outcomes (Mawonedzo et al. 2021, p. 87).

Problem-based and project-based pedagogies were found to be particularly useful in entrepreneurship education, to support a facilitated or guided approach to student-centred learning while embedding diverse skills development such as communication, critical thinking, teamwork, problem-solving, SDL and reflection (Igwe et al. 2021, p. 2; Iipinge & Shimpanda 2021, p. 6; Mawonedzo et al. 2021, p. 88; Roopchund 2020, p. 100; Zegeye & Singh 2019, p. 27, 32). Problem- and project-based approaches can therefore contribute to facilitating the type of learning (constructed from a broad base of knowledge, competency and skills development) that graduates need to become more (self-directedly) employable. Yet, problem- and project-based learning is not utilised widely enough as the preferred pedagogy for entrepreneurship education programmes (Mbeteh & Pellegrini 2018, p. 105; Mbunda & Kapinga 2021, p. 10).

Selecting a suitable pedagogy for entrepreneurship education is not only relevant for students, though. The lack of properly trained lecturers for entrepreneurship education resulted in the recommendation that similar experiential teaching-learning strategies be employed as part of the training of teachers and lecturers for effective entrepreneurship education (Sanusi 2017, p. 14). This will ensure that more entrepreneurship education lecturers are exposed to (and experience) how valuable and meaningful these types of experiential learning approaches can be, not only for their own professional development but also for implementation as part of their students' learning processes.

■ Intended outcomes of learning for entrepreneurship education programmes

The research established that the planned outcomes for entrepreneurship education programmes do not always realise the intended outcomes or realise them in equal measures for every student, as many aspects can impact their efficiency (Anosike & Oluwatobi 2021, p. 158). Considering that most university entrepreneurship education programmes include business creation as a core purpose (see 'The purpose of entrepreneurship education'), it was not surprising to find that the intended outcomes for many of these programmes are also that graduate students will start their own (or new) business ventures (Anosike & Oluwatobi 2021, p. 166; Blimpo & Pugatch 2019, p. 197; Igwe et al. 2021, p. 4; Mbunda & Kapinga 2021, p. 9; Olutuase et al. 2020, p. 2; Sydow et al. 2018, p. 8; Ubogu 2020, p. 133). This broad economic outcome is reliant on the outcome that students will develop skills and competencies to become successful entrepreneurs (Anosike & Oluwatobi 2021, p. 151; Igwe et al. 2021,

p. 2; Ngigi et al. 2020, p. 13; Olutuase et al. 2020, p. 3; Puni et al. 2018, p. 504), which in turn will have an outcome of contributing to economic growth. 'Well-educated entrepreneurs create jobs' (Ubogu 2020, p. 133) not only for themselves but also for others and can contribute to ameliorating unemployment (Mbunda & Kapinga 2021, p. 2; Nyadu-Addo & Mensah 2017, p. 579). Ngigi et al. (2020, p. 3) determined that self-actualisation, which is often taught in entrepreneurship education, develops not only the individual student's potential but also contributes to a social purpose by 'enabling them to become the best they can be in society'. Sanusi (2017, p. 12) provides a similar broad outcome for entrepreneurship education, noting that the 'intention of entrepreneurship education is to make life better for the students after their tertiary education experience'. Limited additional evidence was found that entrepreneurship skills and competencies are also recognised to be valuable for employability (by others, rather than for self-directed employment), as well as for individuals (students themselves) in their personal capacity, even if they choose not to become entrepreneurs.

Anosike and Oluwatobi (2021, p. 168) point out that entrepreneurship education not only has economic outcomes but that it should include social outcomes too. Limited evidence was, however, uncovered that 'social entrepreneurship' is a key outcome for entrepreneurship education programmes at African universities. Despite limited references to social entrepreneurship as an outcome, Forje (2021, p. 26) states that the intended outcome for entrepreneurship is 'to prepare students to impact the real world' – entrepreneurship education should therefore aim to change (and preferably improve) the world (or at least a community) – and not only benefit an individual. The outcomes of entrepreneurship should therefore contribute value or meaning to the lives of the graduate students and those around them. Value creation as an outcome of entrepreneurship education (Olutuase et al. 2020, p. 3) was also mentioned to a limited extent in the studies analysed for the current investigation, even though it is included in the content of some of these programmes (see 'Content, skills and competencies included in entrepreneurship education programmes'), and even though it is increasingly reported as a key outcome of entrepreneurship education globally. The continued focus on the economic value of entrepreneurship education undermines its potential contribution to social and other areas.

One 'physical' outcome of entrepreneurship education programmes is when evidence of students' entrepreneurship education work is collected in a portfolio to showcase not only what knowledge they learned but also which skills and competencies they developed (Blimpo & Pugatch 2019, p. 188). Potential employers can use the portfolio to gain insights into the graduate's skills and competencies for employability, or investors may use them to form an idea of the preparation of students for self-directed employment.

As a final comment, to contribute to continuously improving entrepreneurship education programmes, it is also suggested that universities keep a database of entrepreneurship education students who have become successful entrepreneurs, as they can contribute insights into what made those graduates successful (Mbunda & Kapinga 2021, p. 11). Keeping a database of the outcomes of these programmes can contribute to adapting the content or other elements thereof to improve outcomes in future implementations.

■ Conclusion

The current study concluded that entrepreneurship education must be included as part of efforts to recalibrate student training in African higher educational institutions. Entrepreneurship education inculcates competencies and skills that graduates will need to prepare them for employment or for developing their own income-generating opportunities, as well as for a meaningful 'life after graduation' in the changing world of the 21st century. The combination of the types of thinking, knowledge and skills development associated with well-planned entrepreneurship education will support students to thrive in the world of work as well as in their personal lives. These benefits will contribute to more meaningful learning at the university level for individuals as future employers/employees but can also contribute a rippling advantage for the communities in which these graduates reside. To enable these benefits, entrepreneurship education has to be carefully planned and scaffolded for its successful implementation in existing university programmes. To contribute to such scaffolding, the following recommendations are made, informed by the insights gained from the analyses of the entrepreneurship education programmes offered at the university level of other African countries:

1. The core purpose for including entrepreneurship education at the tertiary level in South Africa should be to foster insights into the potential opportunities for self-directed employment that exists for graduates in combination with their university learning. Graduates will then be able to make informed decisions about whether they will utilise this knowledge and skills to self-directedly create their own employment or if they want to implement it in a job to the benefit of an employer.
2. The findings of this study indicate that there is a noticeable departure from linking entrepreneurship education purely to business-related programmes. This is evident not only in the purpose of these programmes but also in the variety of students included in entrepreneurship education programmes. Entrepreneurship education can and should be expanded across different faculties and programmes. Targeting teacher students for entrepreneurship

education would better equip them for a range of education-related careers, including that of (employed) teacher and (self-employed) edupreneur. It will have the additional advantage that well-trained teachers can better implement entrepreneurship education in their classrooms to the benefit of their learners, expanding the rippling benefits of such learning.

3. Content about entrepreneurship, skills for entrepreneurship and competencies through applying their learning should be included in entrepreneurship education programmes. The particular content, skills and competencies will vary in different programmes but should contribute to a positive mindset and the development of a broad range of transferable 21st-century skills.

4. Entrepreneurship education will not benefit students optimally if unsuitable pedagogies are used for its implementation. It is therefore vital that lecturers are prepared or trained with suitable active, experiential pedagogical insights, which will enable them to facilitate entrepreneurship education to be meaningful and valuable for students.

5. Entrepreneurship education programmes should aim to develop graduate students as individuals who have a range of entrepreneurial skills, which they can use to create value – for themselves and their communities.

Future research could explore the challenges experienced regarding entrepreneurship education at African universities and investigate if similar challenges are experienced in the South African context. The research could further advance recommendations to ameliorate their impact on the implementation of entrepreneurship education.

PART 2

Resources, equity and quality in teacher-training institutions

Distinctive attributes of resilience to educational success[2]

Joyce P. Dhlamini
Department of Professional Studies,
Faculty of Education, North-West University,
Mahikeng, South Africa

Precious-Pearl V. Mlotshwa
Faculty of Education, Independent Institute of Education (IIE) of
Monash South Africa (MSA),
Mahikeng, South Africa

■ Abstract

The purpose of this research study was to investigate academic resilience attributes from the experiences of post-school youth from the Tembisa informal settlement, South Africa. The study identified aspects in the environmental context of the youth participants' lived experiences that have contributed to sustaining these youth, leading to academic success. Furthermore, the study also attempted to bring perspectives on coping mechanisms through culture, education and religion for the post-school youth, protective factors and academic resilience attributes. The study used a

2. Sections in this chapter is based on the work of Mlotshwa (2018).

qualitative approach to collect data which included eight individual interviews and two focus group interviews with post-school youth from Ekurhuleni Technical Vocational Education and Training (TVET) College. The qualitative approach was chosen as it enables for sharing of realistic information from participants. The study was framed by the resilience, Circle of Courage and ecological models, which propose that individual and collective processes are directly related and that the youth's responses to real-life environmental stresses reflect the presence of positive academic resilience attributes. The analysis of data generated from the interviews and the results revealed that post-school youth possessed academic resilience through the presence of both intrinsic and extrinsic attributes. The findings indicated that resilient youth hold distinctive personal attributes of resilience. They displayed a willingness to seize opportunities that are directed at various career paths, which are needed to improve the youth's living conditions. The study recommends the recalibration of school programmes and the establishment of community-wide academic support programmes through alignment with values that the post-school youth attached to their cultural and religious beliefs.

■ Introduction

Mampane (2014, p. 1) and Dass-Brailsford (2005, p. 574) state that resilience is the ability of youth to overcome overwhelming risks in their environment and develop successfully into competent individuals. Resilience is having the ability to investigate tomorrow and hope for a better future. Herman et al. (2011, p. 259) define resilience as the 'positive adaptation' or rather the ability to recover and maintain mental health, despite experiencing adversity and hardship. The concept of resilience is further defined as the attainment of unexpected social, cognitive and environmental competence despite significant adversity (Goldstein & Brooks 2012, p. 3; Michael 1999, p. 119).

There are many different aspects to understanding the concept of resilience; such aspects include analysing social or relational resilience, academic resilience, spiritual resilience, cultural resilience or cognitive resilience (George 2014, p. 77; Theron & Theron 2010, p. 2). Charney (2004, p. 290) also discovered that resilience is a broad concept that has many angles for consideration, which resilience researchers can consider in their investigation to bring a vivid understanding of the phenomenon. These aspects include categorising resilience as psychological adjustment, academic adaptation, social competence or emotional intelligence. The various areas for understanding resilience need to be granted individual attention for a thorough analysis to unfold. Hence George (2013, p. 290) found that it is not all individuals that are exposed to adversity and vulnerability who become stronger; others fail to cope. Therefore, studies on factors of resilience and coping mechanisms are important to investigate the different categories and specific contexts. This

study focused on exploring the correlation between the concept of culture, education and religion as tools for understanding the impact of these environmental attributes on academic resilience and achievement for the Tembisa youth. Rojas (2015, p. 63) presents resilience as a process where one demonstrates the ability to adapt in the face of adversity, such as poverty and unemployment. Resilient youth are not hindered by challenging circumstances that make education difficult due to the pressures of growing up in a previously disadvantaged location such as Tembisa.

Research has shown that unfavourable circumstances in the environment result in youth who experience learning difficulties, as encapsulated by Theron (2008, p. 215); Daniel, Wassell and Gilligan (1999, p. 70); and Ungar, Russell and Connelly (2014, p. 66). As a result, Theron (2008, p. 45) contends that 'these are youth who do not perform well in schools'. The result of poor performance is youth who resort to dropping out of school. According to Normand (2007, p. 2), there is an increase in the number of youths who drop out of school because of socioeconomic challenges faced by South African communities, particularly informal settlements. Informal settlements are still underdeveloped in South Africa. They have poor infrastructure and resources are needed by schools to aid in the provision of education that is up to a reasonably good standard (Rakabe 2016, p. 12). While the youth in South Africa drop out of school, they remain most of the population that is affected by unemployment which, Mampane (2014, p. 1) proclaims, is dominantly evident in informal settlements. As a result of economic, social and political ills in the country, the youth experience challenges in reaching their optional capacity and development due to the insufficient capacity to thrive under these difficult and challenging circumstances in informal settlements. It is therefore important to find ways to aide youth with coping mechanisms. South Africa presents with deep-rooted values, norms and standards in the shared cultures, various religions and education that reaches even the poorest of the poor in society.

The above adversities that are faced by the youth have led to the need for studies on academic resilience, which are specific to the South African context. Theron and Theron (2010, p. 5) motivate that the challenges of the youth call for qualitative studies on resilience which are aimed at exploring the phenomena's impact on the youth so that they can be supported to cope under difficult conditions and improve in their education. Studies on academic resilience in many South African informal settlements remain limited. There is a lot to investigate on how education can be used as a tool to bring society out of poverty, including studies on academic resilience that are aimed at establishing how resilience can be nurtured and used to support the youth of South Africa. South African researchers ought to consider the context when studying academic resilience. South Africa is unique through its culture, indigenous knowledge and education, which needs to be explored to

understand youth resilience within the country's context (Letseka 2012, p. 47; Masolo 2010; Morrow 2007; Nkondo 2007, p. 88).

This study is important to the field of education as it aims to investigate attributes and interventions that harness academic resilience through the influence of education, culture and religious practices. The study creates a deeper understanding of the realities of the concept of academic resilience as shared by individuals who have lived through the experiences and further contribute perspectives on coping strategies. The study expanded to determine whether education, religion and culture serve as protective factors that should be preserved as values of what the country holds true to be mechanisms for coping with adversities.

Research has shown that many studies conducted on resilience in South Africa have put emphasis on risks and deficits. The need to view youth and their circumstances differently regarding education and academic success is necessary (Theron & Theron 2010, p. 1). Qualitative studies on resilience that are specific to the South African context are becoming critical as youth issues remain pressing and ill behaviours overtake informal settlements and negatively impact the education system in South Africa. Qualitative studies on academic resilience influence the education of youth and inform programme interventions for professions in South Africa, such as teaching, youth work, child and youth development and community development (Hlagala 2012, p. 36). The difference is achieved with the youth in informal settlements when the way they have perceived shifts from a deficit approach to a positive approach that is strength-based and resilience-based (Bernard 1997, p. 29; Theron 2010, p. 2; Ungar 2003, p. 90). In response to the need for studies on academic resilience, the more specific aims of the study were as follows:

- To investigate academic resilience attributes from the experiences of post-school youth from Tembisa as influenced by education, culture and religious practices.
- To analyse the significant impact of education, religion and culture on academic resilience.
- To bring perspective on the coping mechanisms for the higher education institutions (HEIs) youth through analysing the impact of protective factors 'education, culture and religion'.

■ Theoretical framework

■ Resilience theory

According to Greene, Galambos and Lee (2008, p. 76), resilience theory is the study of what and how circumstances contribute to successful consequences in the face of adversity. The theory has emerged as an important means for conceptualising social and health-related risks, thus leading theorists to

identify elements that act as buffers, therefore interrupting and preventing further problems from occurring and re-occurring (Greene et al. 2008, p. 78). The resilience theory provides a great sense of urgency to accommodate the increase of technological complexity in society which impacts the number of youth facing adversity (Goldstein & Brooks 2012, p. 19). Goldstein and Brooks (2012, p. 21) describe the resilience theory as a determinate of information that can be distilled into relevant interventions and can also be applied in an effort to create a 'resilient mindset'. A great deal has been written on individual resilience; however, research on resilience as a theory indicates that although resilience is conceptualised as a quality of the client, resilience is however located within a system of functions (Goldstein & Brooks 2012, p. 30), thus the development and emergence of the resilience matrix. The resilience theory and matrix, therefore, provide an understanding of how persons who have experienced adversity respond to challenges. The matrix will assist in identifying resilience attributes.

■ Resilience matrix

According to Bracco, Piccinno and Dorigatti (2013), the resilience matrix, as a model of the resilience theory, is a model that explains resilience to be an emergent property of a system, whereby all the actors involved form part of an information flow that essentially enables the provision of strong response to much weaker responses. Furthermore, the resilience matrix, in conjunction with the resilience theory, allows for any practitioner working with a client to make sense of the information gathered by identifying and noting the strengths and pressures surrounding them (Aberdeen 2012, p. 52).

In addition, the resilience matrix is known as the vulnerability matrix, which identifies risk factors that emanate as a result of daily hardships in the lives of children. According to Sawyer and Burton (2012, p. 54), the matrix carries the objective of highlighting an increase in vulnerability which can possibly result in evidence of resilience. A resilience matrix is an efficient tool that functions as a tool for use with young people who are active representatives in research (Sawyer & Burton 2012, p. 54).
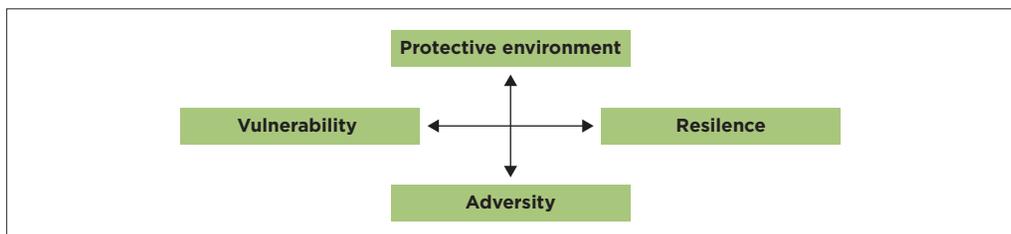
Source: Mlotshwa (2018, p. 42).
FIGURE 5.1: Resilience matrix.

The tool's objective is to inform programme interventions that promote resilience which prioritises human development by ensuring protection and resilience and decreasing the risk factors present in their systems (Sawyer & Burton 2012, p. 55). The tool facilitates the assessment of resilience factors in an individual, their daily interactions and relationships, families and external systems and networks that contribute significantly to the child's life (Daniel et al. 2010, p. 13).

■ The Circle of Courage model

According to Lee (2005, p. 14), the science of resilience has been called the study of human courage; thus, the Circle of Courage has become a framework for understanding resilience that can be applied and applicable to those that have been through hardship and experienced vulnerability. What exactly is the Circle of Courage and how does it coincide with resilience? The Circle of Courage, as revealed by Brendtro, Brokenleg and Van Bockern (2013, p. 37), is focused on promoting four 'sacred' segments: belonging, mastery, independence and generosity. According to Brokenleg and Van Bockern (2013, p. 38), the Circle of Courage has shown its relevance across diverse cultures. The model assesses the needs of vulnerable groups and also seeks to promote holistic development in human beings (Brokenleg & Van Bockern 2013, p. 40). The model is focused on identifying lack as well as promoting four segments: belonging, mastery, independence and generosity, which are important for development. Consideration of the four segments of the Circle of Courage allows youth who have experienced hardship to lead positive lives and yield positive outcomes towards holistic development. Furthermore, the Circle of Courage is explained as a 'medicine wheel' which represents the need for all things, particularly involving the young person, to be in balance and harmony; thus, the four segments of the circle accommodate for the identification of areas that need attention in the life of a young person.

These four basic needs, therefore, define the relationship between an individual and other people in the larger community, whereby, with the aid of the Circle of Courage, the young person learns and practices life skills that help them meet their own needs while being able to realise the needs of others too (Brokenleg & Van Bockern 2013, p. 40; Grover 2017, p. 9). Application of this theoretical framework creates an element of significance, competence, virtue and responsibility, thus creating a community of inclusion and acceptance. Furthermore, the Circle of Courage fosters a sense of self-esteem, which is primary and key in socialisation, as well as those persons who are deemed and seen as at-risk. This theory will therefore allow for a sense of self-worth, thus making the troubled youth least likely to be at risk of social, learning and psychological problems (Brokenleg & Van Bockern 2013, p. 41).
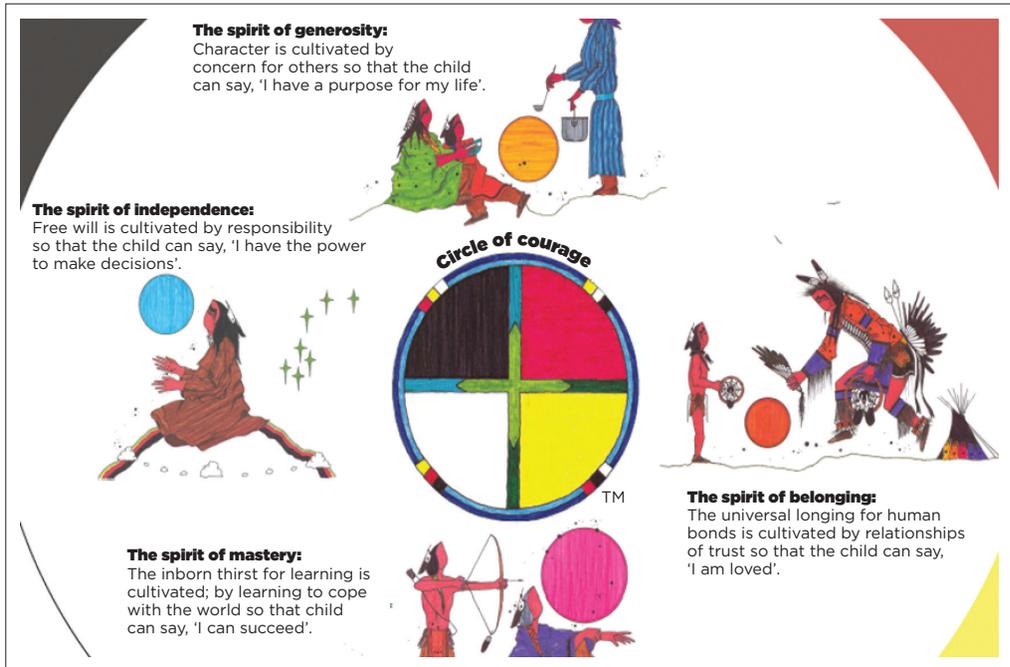
Source: Mlotshwa (2018, p. 45).
FIGURE 5.2: Circle of courage.

The systems and ecological theory

According to Anderson, Carter and Lowe (1999, p. 41), the systems theory provides a way of elaborating the increasingly complex systems across a continuum that encompasses the person in the environment, whereby it enables the understanding of the components and dynamics of the child or youth, thus being able to interpret problems and also develop balanced intervention strategies. The term 'systems' is commonly rooted in the ecological environment and thus is a framework that allows for the analysis of the complex nature of human interactions within a given social environment. This theory therefore acts as an entity of interacting components and their relations, conserving some identifiable sets of relations to other entities (Stuart 2009, p. 60). In much simpler terms, and contextualised to the research topic, this theory will therefore provide for the understanding of the young person at the centre of his environment; their surrounding environments such as family, peers and school system, et cetera; and how such systems play a part in contributing to the resilience in the youth of Tembisa. The theory emphasises that nothing ever happens in isolation. Furthermore, the theory includes an evolving body of conjecture concerned with the conditions and processes that precede over the lifelong course of the child's human development in the actual environment the child lives in (Bronfenbrenner 1994, p. 20).

◼ The ecological theory

The theory states that young children cultivate within their surrounding complex systems of relationships which are directly affected by multiple levels of surrounding milieus (Berk 2016, p. 40). Stuart (2009, p. 69) outlines Bronfenbrenner's works identifying five basic systems within the framework: the microsystem, mesosystem, exosystem, macrosystem and chronosystem, with the child at the centre. The microsystem involves the active participation of children with social systems such as the individual's family, school and peer group (Stuart 2009, p. 70). The mesosystem evaluates the interactions that occur within the microsystem (Stuart 2009, p. 72). The third system, the exosystem, consists of external influences such as church, neighbourhoods, the media, legal services and many others, whereas the macrosystem is based on cultural influences such as ideologies, attitudes and laws. The works of Vygotsky also found that culture was a contributing factor towards the development of an individual (Papalia & Feldman 2011, p. 89). The chronosystem focuses on sociohistorical conditions and time since events. This is where Bronfennbrenner identified that the child and the four ecology systems have the ability to transform gradually.

According to Stuart (2009, p. 72), the model emphasises that these systems have the ability to directly affect a child individually, resulting in risky and undesired behaviour traits. The ecological systems model is highly applicable to this research study due to the fact that it emphasises the development and the subjective experiences of the individual within their environmental context. The model values the need for intervention to occur within the affected individual's environmental context.

South Africa has limited resources for youth that are aimed at contributing to the holistic development of the youth in informal settlements. Normand (2007, p. 2) remarks that 'many youths from disadvantaged communities and their families live with stressors of hunger, overcrowded unhealthy accommodation, poor education, limited recreational facilities and high levels of crime, including high rates of abuse'. Normand's (2007, p. 16) study indicates that many youths experience school drop-out, poverty, crime, unemployment, substance abuse, violence, teenage pregnancy, lack of resources, limited basic needs such as shelter, food and good education. Thus, the youth struggle to cope, according to Guoxiu et al. (2015, p. 7).

Theron and Theron (2010, p. 1) contend that one of the pathways to resilience that is in the South African youth report is the educational aspiration or the profound hope that a good education will potentiate success, access to university and an upward trajectory thereafter. These authors remark that (Theron & Theron 2010):

> [S]adly, research on education in South Africa has shown that youth from disadvantaged communities typically attend under-resourced schools that offer
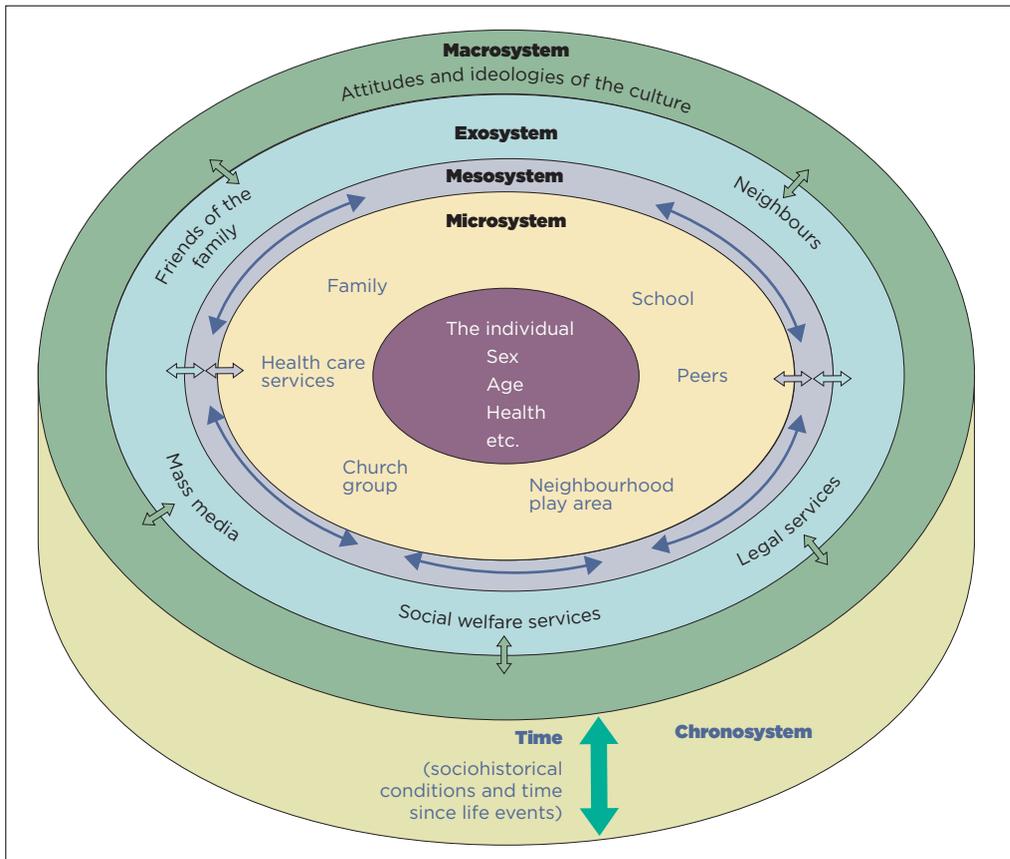
Source: Mlotshwa (2018, p. 48).
FIGURE 5.3: Ecological model.

inferior education and that fewer than 5% of these students succeed at university level. (p. 6)

They further state that (Theron & Theron 2010):

[*Y*]outh coping or not coping confirms that more studies on youth resilience and academic are crucial to addressing issues of youth through the use of positive, strength-based and resilience promoting approaches. (p. 6)

Bernard (1997, p. 29), Donald, Lazarus and Lolwana (2002, p. 83) and Ungar (2003, p. 85) support the notion of the need for exploring risk and resilience interventions. They further argue that there is a greater need to move away from a deficit approach when dealing with youth who experience different environmental challenges. Theron and Theron (2010, p. 6) support the conclusion that is presented by Donald et al. (2002, p. 85), which emphasises that efforts in resilience studies are important to contribute to the strengthening of educational interventions that promote abilities to survive regardless of life-threatening challenges that the youth are exposed to. This study sought

to explore the academic resilience attributes of the youth in an informal settlement setting called Tembisa as an initiative to respond to the sector recommendations and the need for resilience studies. This relates to the role of education, culture and religion in the disadvantaged and high-risk communities of South Africa.

Research has shown that there are many factors that trigger the presence and display of resilience, whether academically or educationally, related to formal school education or informal learning. This could be socially through interactions with people and intellectually through mental capacities (Mampane 2014, p. 7). In many instances within the African context, it is known that there is a culture that shapes the socialisation of a young person's upbringing in a community (Enslin & Horsthemke 2004, p. 545; Letseka 2012, p. 47; Louw 2001, p. 15). According to Ismael-Lennon (2010, p. 24), various multicultural factors surround resilience and academic resilience. These multicultural areas can be understood as cultural factors, which are values, norms, practices, religious factors such as belief, faith and ethnicity factors like groupings and parents as role models.

Letseka (2012, p. 47) presents a strong case for the belief that Ubuntu, norms and values embedded in the understanding of culture help us to understand the ability of a person to cope with challenging circumstances. In his argument, he states that 'Ubuntu-oriented attributes and dispositions amongst learners can serve as a moral theory and public policy', which can inform programme implementation towards consciously instilling academic resilience. Ubuntu is also supported to inform public policy through the findings of Nkondo (2007, p. 88) in his study entitled 'Ubuntu as public policy in South Africa: A conceptual framework'. Furthermore, Letseka (2012, p. 47) finds that Ubuntu, as it is embedded in the culture, believes in human dignity, giving a helping hand and caring. This is displayed in academic resilience through an individual taking the initiative to ask for help from teachers, peers and family. According to Rojas (2015, p. 63), the external protective factors that Letseka (2012, p. 47) argues about contribute towards academic resilience. He further states that parents as role models play a critical role in shaping a strong, resilient youth and nurturing secured attachment that acts as a buffer, which enhances resilience.

Phillips, Chamberlain and Goreczny (2014, p. 1) argue that research studies conducted in differing religious orientations have proven that religious beliefs develop and nurture positive intrinsic and extrinsic coping factors that enable persons to cope under difficult circumstances. To expand on the above argument on positive factors, religious beliefs have shown that a believer develops the willpower to believe that the current difficult and challenging circumstances are not the ultimate end. Religious believers believe in standing firm in their faith and pressing on, trusting that hard work results in a bright future. Believers are not shaken by challenges; religious orientation teaches

that trials are to be expected to make a person stronger and that the future will yield fruits and success once the storms are over. Intrinsic factors within religion teach that good is better than bad; therefore, negativity is to be avoided, such as substance abuse, as it does not yield positive developmental outcomes. The resilience theory, as presented by Greene et al. (2008, p. 76), reveals that a person will always cope and succeed in the midst of adversity, provided there are strong intrinsic and internally developed fighting mechanisms embedded in the morals, beliefs and faith of an individual. This includes extrinsic mechanisms, which are the external support by family, school, community and friendship structures that develop coping mechanisms.

In the research conducted on different religions, as mentioned by Phillips et al. (2014, p. 1), seven resources appear to coincide with religion. These are strong relationships, a sense of identity, power and control over decisions, social justice, advocacy for human needs, a sense of belonging and cohesion, and rituals and holidays. The seven resources in religious studies are supported and viewed as important factors in the person's environment. Aberdeen (2012, p. 52) says they act as protective buffers from the negative effects of adverse experiences. These then build resilience academically, socially and intellectually and more. Esparza and Sanchez (2008, p. 193) say, in their findings on the study conducted on the role of attitudinal familism in academic outcomes, that the involvement of parents and support groups towards an individual positively impacts academic achievement. Role models, therefore, play a critical role in shaping an individual towards being motivated to achieve academically and in their chosen careers.

In the study of resilience, Cantor (1990, p. 735) says it is important to understand the role of culture and religion to make sense of the context. He views culture as a combination of mechanisms through which individual beliefs, assumptions and goals influence how people monitor, reflect on and respond to their lived experiences. Many young people in the Tembisa community are from black South African families (South African Cities Network [SACN] 2016). Black South Africans have always believed that (Mlotshwa 2018):

> [/]t takes an entire community to raise a child: A child has the best ability to become a healthy adult if the entire community takes an active role in contributing to the rearing of the child. (p. 88)

According to Zolkoski and Bullock (2012, p. 2295), communities play a critical role in contributing to positive outcomes through programmes that teach and instil culture, morals and knowledge of history. The community of Tembisa, though less privileged, has strong human values as they still take the time to get to know their neighbour and care about their well-being (Rakabe 2016, p. 11). The community still holds community meetings to address social issues such as crime and teenage pregnancy. The youth still find elders of the community that will be role models to upcoming youth who act as support to the nurturing of

hopeful youth people. Religion plays a role in the management of behaviour. Families encourage the youth to be religious, particularly in the hope that this will teach them principles that will shape a positive future. There are also different cultural beliefs that are still practised by the community of Tembisa, such as respect for elders, helping fellow brothers, sharing and caring with the belief that 'Umuntu ngumuntu ngabantu', meaning 'I am because you are'.

Some youths are born with resilience and others develop resilience in the presence of protective factors of support against adversity (Ungar 2014, p. 62). In the study of academic resilience, it is important to understand the role of education and the position of programmes that foster resilience in the lives of learners to assist with positive adjustment. According to Theron and Theron (2014, p. 297), education services heighten student vulnerability if not managed properly. In understanding academic resilience, one needs to explore factors and programmes in the education sector within the South African context that play a role in academic resilience. Ungar et al. (2014, p. 66) state that academic resilience is impacted by decisive programmes in schools that address issues faced by vulnerable groups, such as low self-esteem and support towards education, lack of resources and malnutrition, to name a few.

Theron and Theron (2014, p. 298) discovered that education services play a role in contributing to resilience in the youth's education. However, there was a discovery of inconsistency in these programmes. The role was discovered through active teacher–community connectedness and student responsiveness. They further say more research needs to be conducted to determine how education services can bring about more educational resilience and adjustment. Moreover, as argued by Theron and Theron (2014), formal services discovered to impact resilience in vulnerable youth include education services, mental health services, social welfare or correctional services. Education was the most constructive of all these services towards structure and consistency. The discovery made by Theron and Theron (2014, p. 295) is supported by the work of Ungar et al. (2014, p. 67), where they state that the resilient youth who strive academically do so because of well-structured education programmes that ensure what they refer to as seven clusters of resources that support resilience processes. These are access to material resources, constructive relationships, a powerful identity, personal control, social justice, a sense of coherence and cultural adherence.

According to Ismael-Lennon (2010, p. 1), schools play a critical part in building positive achievement as it comes with support, structure, mentoring and development programmes. In his research, Ismael-Lennon identifies critical areas that contribute to the academic resilience of a person. These are extracurricular activities, athletic programmes, religiosity and spirituality factors, the influence of mentors, life's obstacles, cultural factors and single-gender school. Ungar et al. (2014, p. 67) support the argument that a school setting and school engagement is an important factor associated with

academic resilience. The school has the potential to enable learners to tap into their talent with the provision of programmes aimed at supporting and enabling learners to cope with adverse circumstances. For students exposed to higher levels of family, school and community stress, school engagement is the most important factor associated with resilience and academic achievement.

■ The research design and methodology

■ The research design

This study used a basic interpretivist qualitative research design because such a design is aimed at searching for meaning and understanding of contexts in their uniqueness (Creswell 2014, p. 26; Du Plooy-Cilliers, David & Bezuidenhout 2014, p. 26). The approach chosen was the qualitative interpretivist research methodology as this method sought to rely on linguistic features, as opposed to numerical data, whereby it employed meaning-based rather than a statistical form of data analysis (Elliot & Timulak 2005, p. 147; Litchman 2010, p. 83). Creswell (2018, p. 46) states that a research approach is any plan and any procedure for the research that extends the steps from broad and extensive assumptions to much more detailed methods of data collection, data analysis and data interpretation.

This study explored resilience in post-school youth living in an informal settlement and this community's unique academic resilience attributes. Babbie and Mouton (2010) state that a research design is a strategy that is used to find information; determine 'what information needs to be found and how the information will be found'. An interpretivist study, as explained by Du Plooy-Cilliers et al. (2014a, p. 98), suggests that the interest lies in symbolism and the way in which people are able to use those symbols to create their own identity. The approach to this study was a qualitative approach that entailed the use of qualitative research techniques. According to Du Plooy-Cilliers et al. (2014b, p. 175), qualitative studies consist of various methods 'for generating data' and the examples include the research methods such as focus groups and in-depth semi-structured one-on-one interviews. When using these methods in a qualitative study, the aim is to create an understanding of the lives of the targeted population as well as the sociohistorical context that impacts on the people (Maree 2020, p. 78 & Babbie 2010, p. 56).

■ Methodology

This study used the qualitative methodology as it sought to engage with participants within their context, as explained by Creswell (2014, p. 26). The qualitative methodology enabled the researcher to collect stories, experiences and words that helped to understand the 'academic resilience' phenomena

and experiences of the youth in Tembisa. The methods, therefore, included semi-structured one-on-one interviews, focus group interviews and a literature study.

Site selection

The setting selected for the study was a college called Ekurhuleni TVET College: Tembisa Campus, in an informal settlement which maximised the opportunity to engage with the research problem. The college in Tembisa accommodates the Tembisa youth for various career training programmes. The college was accessible and closer to the researcher's place of residence, as well a reasonable distance to the researcher's workplace. The Tembisa community is an informal settlement with Zulu, Tswana, Xhosa, Venḓa, Tsonga and Shangaan-speaking youth. Tembisa presented with significant levels of vulnerability, including poverty, unemployment, crime and substance abuse, to name a few. Access was acquired into the community and the campus through the researcher's knowledge of the area where the campus is situated. The researcher was able to use the TVET college for semi-structured one-on-one interviews and focus group interviews (Elliot & Timulak 2005, p. 63). The campus had security and trained counsellors on-site.

Participant selection

A population consists of all universal components, possessing the features and characteristics in which the researcher is interested (Creswell 2018, p. 46; Davis 2014c, p. 107). This, therefore, includes the total group of people from whom relevant information is required (Babbie & Mouton 2016, p. 67). Owing to the immensity of what encompasses a population, parameters for this study were put in place. The population for this study was youth learners between 18 and 23 years old who lived in Tembisa and were resilient in their conduct. The resilience was evident in the youth being enrolled at a TVET college to further their studies. The participants were enrolled at Ekurhuleni TVET College: Tembisa Campus. The target was eight participants for one-on-one interviews and two focus groups with seven participants each. The researcher used one-on-one interviews together with focus group interviews because some participants were not participating fully in the focus groups. The one-on-one sessions provided individualised attention so as to gain in-depth data from individuals that were reserved in the focus groups.

The youth participants were identified as key informants for the study because of their experiences of risk and vulnerability, which translated to the presence of poverty, crime and unemployment. Rakabe (2016, p. 13) confirms that informal settlements in South Africa, including Tembisa, struggle with these risks and vulnerabilities. This allowed for the assumption that the youth in the study had experienced these risks. The study, therefore, investigated

the strengths that the youth adopted as their coping strategies within their 'culture, education and religion'. The researcher used purposive sampling, referred to as snowball or chain sampling, to identify the interviewed youth. According to Creswell (2018, p. 46), purposive sampling is a type of nonprobability sampling where participants are chosen deliberately.

This research study intended to be considerate of gender and therefore adopted an inclusive approach where both male and female participants were identified. These were post-school youth who had direct experiences of community challenges but more so had displayed resilience while experiencing these challenges.

■ Demographic information of the entire sample

The names used in the study data are pseudonyms.

■ Data collection strategies

The study employed the use of the qualitative methodology of collecting data through focus group interviews, semi-structured one-on-one interviews using structured interview questions and a literature study as recommended by Du Plooy-Cilliers et al. (2014, p. 175). Klenke (2008, p. 130) identifies in-depth interviews as a means for participants to share 'values and experiences that are meaningful to them'. During the process, the interviewer had the ability to motivate the interviewees to share their perspectives and experiences on resilience, academic resilience and the dynamics of the Tembisa community. Data collection is an essential tool which helps with understanding the quality of the information obtained (Groves et al. 2009, p. 150). The one-on-one interviews were scheduled for approximately an hour for semi-structured one-on-one interviews and one-and-a-half hours for focus group interviews. This allowed for robust discussions and responses as guided by the

TABLE 5.1: Summary of the demographic characteristics of the youth focus group participants.

Characteristics	Gender	Number
Gender(s)	Males	7
	Females	7
Age: 18–20 years	Male	4
	Females	3
Age: 21–22 years	Males	2
	Females	2
Age: 23–24 years	Males	1
	Females	2

Source: Pascoe 2014b.
Note: Common career aspirations: Generic Management ×3, Electrical Engineering ×2, ERD: Fabrication ×2, Finance ×2, IT: Information Technology ×3, and Engineer-related design ×2. All 14 participants were black people.

interview questions. The researcher used an audio recording device and transcribed the data from the interviews (Pascoe 2014a p 63). Prior to the interviews, an explanatory statement on the study was presented to the participating organisation and the participants explaining the purpose of the study. The participants were provided with the consent form to confirm participation in the study, assuring the participants of confidentiality.

■ Data analysis

Du Plooy-Cilliers et al. (2014, p. 233) state, 'Qualitative data analysis is used in a basic interpretivist study including a process of altering data into findings'. The process involves decreasing raw material, separating important from nonessentials and establishing patterns and common themes that cut across the collected data. The chosen data analysis method for this specific study included the use of open coding, axial coding and selective coding techniques that assisted the researcher in packaging and transcribing the information. The researcher was able to run through the process of inductive analysis of data with the aim of identifying recurring themes, patterns and codes. The qualitative research method using a thematic approach allows the data to be identified with the themes of the study from the literature review (Bezuidenhout & Cronje 2014, p. 60). The interpretation of non-numerical data, word responses, was used and it gave the study credible data in line with the study's aim. Credibility ensures reassurance and explanation of the data (Polit & Beck 2008, p. 539). The trustworthiness of the results was important in providing the overall view of the phenomena with the realities of youth within Tembisa (Koonin 2014b, p. 253).

■ Presentation of data collected from the participants

The qualitative data that are discussed in this section were collected from interviews conducted with the participants using tape recorders and written notes from the interview sessions as guided by Creswell and Plano Clark (2011, p. 129) and Schurink, Fouché and De Vos (2011, p. 403). The purpose of this section is to show the clustering of data according to themes. Thematic analysis is a qualitative analytic method used to identify, analyse and report on themes within the analysis of data to allow for the organisation of data to describe them in a rich and raw format (Braun & Clarke 2006, p. 79). Semi-structured one-on-one interview data presentation uses thematic content data analysis to make more sense and bring structure into the collected data (Grbich 2007, p. 31). This included decreasing raw material, separating important data from nonessentials and establishing main themes, patterns and codes that cut across the collected data (Du Plooy-Cilliers et al. 2014, p. 233). Verbatim responses of the participants are presented in *italics*.

The formulated themes were:

- academic resilience attributes related to education, religion and culture
- the significant impact and the role of education, religion and culture on academic resilience
- perspectives on the coping mechanisms through analysing the impact of protective factors.

■ Academic resilience attributes related to education, religion and culture

The participants in the interviews shared their experiences and perspectives on various questions that looked at the attributes towards academic resilience at an individual, family and environmental level. There was consensus on several attributes that evidently demonstrated the presence of academic resilience. At a personal level, the influence of culture, education and religion was demonstrated by most participants through their willingness to seize opportunities for a better future. The art of seizing available opportunities is not spontaneous unless the person can look beyond circumstances that present as stumbling blocks, preventing them from reaching their full potential (Berk 2006, p. 26; Dass-Brailsford 2005, p. 574; Goldstein & Brooks 2012, p. 3). The act of seizing available opportunities comes with faith and belief that things will change for the better, as motivated by the youth's religious belief and faith. Seizing opportunities existent in the Tembisa youth's responses where there was an indication of youth working hard, grabbing opportunities in pursuit of qualifications that enhance opportunities for jobs.

The interviews presented considerable consensus that the youth had the ability to learn from their mistakes and the mistakes of others (Van Breda 2001, p. 57). The participants demonstrated this attribute through an indication that they did not want to be like disruptive youth in their community as they pledged to stay away from trouble. The participants further displayed the attribute ability to withstand criticism. Van Breda (2001, p. 40); Rakabe (2016, p. 32); and Theron and Theron (2014, p. 297) indicate that this is hardiness and not succumbing to peer pressure. Salis, Owen and Fisher (2008, p. 465) state that the individual's ecological system puts a lot of pressure that could lead to unfavourable decisions. The youth in the study confirmed this from their experience. Persistence was discovered by Phillips et al. (2014, p. 29); Aberdeen (2012, p. 52) and Van Breda (2001, p. 49) as being present if there is academic resilience within the context of an individual experiencing adversity. The youth highlighted that there were always stereotypes, insults and ridiculing against them as the youth who stayed away from trouble, but the participants remained persistent. The negativity put a strain towards the participants' academic achievement. Most youths are continuously aligned with those who have the same attitude towards dreams and education. The youth indicated

that they would strive to stay away from trouble and exercise discipline. The participant youth exercised self-discipline and held strong religious beliefs. Religion and culture foster values, morals, norms, ethics and skills to make informed decisions that influence success in attempted tasks (Dass-Brailsford 2005, p. 574; Phillips et al. 2014, p. 29).

The academically resilient youth demonstrated the attribute of having the ability to choose appropriate ways to solve problems. This is presented by Brendtro et al. (2013, p. 67) as acquiring mastery and independence to make informed decisions. This was evident in the youth's responses, where it was mentioned that when faced with challenges, they would ask teachers for help and engage in piece jobs to contribute towards their schooling. The post-school youth in this study shared common beliefs about the value of education and that education is the key to a better life. According to Meichenbaum (2004, p. 32), education positively shapes the individual's reality through set standards, knowledge and skills transfer. The youth in the study were academically resilient and indicated that together as friends, they aspired to be entrepreneurs and bring development to their community. They acknowledged rules and used these to make the right decisions. The participants believed that being positive in life is the first victory before the pressures that surround them in the community, as they expressed that they do their best through hard work (Mlotshwa 2018, p. 89).

The youth of Tembisa demonstrated the intrinsic attribute of being hopeful. There was a strong presence of hope for a better future and the ability to draw strength from positive role models. Role models played an important part in shaping the youths' character and acted as motivation to those in hopeless circumstances (Benard 1997, p. 29). This was demonstrated as the youth expressed willingness to be better men, like DJ Sbu, who is a motivational speaker from Tembisa. The youth expressed their aspiration to share motivational stories to make a difference. Further to the attributes was the ability to go the extra mile to achieve better; this was evident in the use of available resources at the college to achieve academically.

The youth displayed an attribute of assisting others; these were friends, school peers and family. In most participants, there was a strong sense of taking the initiative and support for others. The support was expressed when the participants indicated that they would encourage one another to work hard. The interviews further expressed a sense of self-pride and respect in participant youth.

◾ The significant impact and the role of education, religion and culture on academic resilience

The interview participants were engaged in experiences that reflect the role of education, religion and culture in their lives in order to address the objectives

of the study. The participants presented any of these three clustered concepts 'education, religion and culture' as they wished. In transcribing the data, the researcher clustered responses that addressed a similar issue to help with a sequence in this data presentation. In the responses that follow, verbatim responses are typed in *italics* and participants will be addressed as P1, P2 up to P8, of which P5 stands for participant P5.

P1 had this to say in response:

> 'According to participant P1 family developed a culture of "education first" which gave direction to the participant's aspiration towards education. P1 further expressed himself and said my grandmother did not negotiate when it came to doing schoolwork; this was a household culture to put education first, friends and playing later.' (P1, young person, date unspecified)

The school and friends from school acted as an important part of contributing to academic resilience. P2 identified more with the education setting 'the school' as he looked forward to going to school. Attending school will assist him to have direction for the future, and to develop the required skills to open their own projects for the future.

P2 said:

> 'My close group are friends from school and our studies are the main factor that brings us together, but we do have times when we also just chill and talk about life issues, which I can't speak to my mom about. P8 agreed with P2 as she found education and the school to be a great support that provided a sense of belonging and indicated that the teachers at our school were also helpful in helping me to love Mathematics and my schoolwork. If they saw you were trying, they would meet you halfway. I always asked for help, and I think this really helped me.' (P2, young person, date unspecified)

P1 believed in education as key to a better life as he expressed his response by saying:

> '*Love for* Civil Engineering training and said he *wished to find a job one day and make grandmother's living conditions better*.'

> 'The participant spoke of the love and appreciation he had for the effort that the grandmother has taken to raise and support him. P2 shared the sentiments with P1 as he believed in education as being important for a better future and therefore grabbed education opportunities.' (P1, young person, date unspecified)

Participant P2 said:

> '*I believe that the TVET college is a stepping stone to university, and I am working towards this goal*. In some of the youth's families, education was expressed as a priority.' (P2, young person, date unspecified)

Furthermore, the same value was expressed with P8 as he indicated that:

> 'Guardians were said to not compromise when it came to doing schoolwork. P8 shared that there were always boundaries to study hard before any privilege. This developed a sense of responsibility in the youth of this area.' (P8, young person, date unspecified)

The responses were as follows from the other participant P7: 'In order to survive in Tembisa youth formed their culture, which met a need for belonging and survival'. In the expression of the value of culture, P7 indicated that:

> 'Youth love loud music and dressing in a certain way; there is a culture in the township though at times negative, but youth feel a sense of belonging.' (P7, young person, date unspecified)

Participant P8 confirmed what was expressed by P7 that:

> 'Culture was what people identify with us and that youth formed their own culture in the township which had nothing to do with promoting academic resilience.' (P7, young person, date unspecified)

Participant P1 gave the impression that culture is valued in Tembisa and described the man's role as that of providing for the family. He said in his expression:

> 'The man's role as prescribed by culture, I want to work hard and wish to find a job one day and make my life and my grandmother's living conditions better, it is expected of me as a man.' (P1, young person, date unspecified)

Another participant P8 believed in the perceptions of P1 as she believed that:

> 'As an older girl in the family, culture teaches that you take responsibility. P8 expressed that being a girl at home has increased the responsibilities. There is an expectation to help with the kids, while busy with the load from school and training work. The family expects excellent results.' (P1, young person, date unspecified)

Also, participant P2 further indicated that:

> 'Culture does not allow for a man to be irresponsible as being a male you have to look after the family, acknowledgement and association with culture was a coping motivation.' (P2, young person, date unspecified)

In the African culture, when members of the family are deceased, the relatives take over the responsibility of children. For P8, this has been a support that pressed a positive impact after both parents passed as he indicated that:

> 'I have always feared doing wrong things like my friends here; my aunt and uncle would have disowned me for doing drugs, gangs, teenage pregnancy and things like that. Living with them has been an opportunity that I did not even in my wildest youth dreams want to spoil.' (P8, young person, date unspecified)

During the discussion about the role and impact of religion, P1 believed in his religion and in serving through his church to stay away from trouble. Religion was found to play a big part in creating understanding, interpretation and acceptance of lived experiences.

Participant P1 indicated that:

> 'I am a Christian; I believe in God's plan with my life and spend time serving at the local church if I am not busy with schoolwork.' (P1, young person, date unspecified)

From the expressions of P3, religion provided youth with hope for a better future. P3 mentioned that:

'I pray to God I will get a job, though my long-term goal is to own my very own business.' (P3, young person, date unspecified)

Participant P8 shared the same belief as P3 on the role religion as she expressed that religion had influence in her life. P8 made a statement that:

'I am glad I have not disappointed my parents and I believe that they are watching over me from heaven. I always reminded myself that my aunt and uncle are not my parents; they are just doing me a favour. The church helps us to understand that everything that happens to us, God knows about it. He watches over us.' (P3, young person, date unspecified)

The same belief was found as P3 indicated that the current hardships were temporal; the Word of God promises that faith shall open doors of blessing if we remain pure and work hard which I believe is true.

■ Perspectives on the coping mechanisms through analysing the impact of protective factors, education, culture and religion

Schools play a major role in promoting academic resilience and coping for youth in an informal settlement setting (Meichenbaum 2004, p. 23; Theron & Theron 2014, p. 297). The Tembisa youths demonstrated that the presence of protective buffers contributes to academic success. Normand (2007, p. 45), in her exploration of youth who live in high-risk communities, indicated that resilient youths are those that tap on the support such as schoolteachers and family to make a success of their learning experience. The responses from participants on the concepts of education, religion and culture as affirmation and coping mechanisms towards resilience indicated the youths used the ability to access available support (Aberdeen 2012, p. 52). The author alludes that resilience is nurtured through the availability of support systems in the individual's environment. The teachings in culture, education and religion encouraged the youth to have the desire to work hard and strive towards making a success of themselves and their education. The school and teachers at schools acted as buffers and a coping mechanism for academic success.

The participants repeatedly mentioned that the schools were always helpful in developing the desire to achieve good grades. Participant P2 mentioned that 'when teachers saw that us as learners were trying hard, they would provide the necessary support' (P2, young person, date unspecified).

Resilience theories argue that for an individual to succeed, there needs to be an internal sense of willingness to achieve (Charney 2004, p. 16; Goldstein & Brooks 2012, p. 3). The willingness to achieve was demonstrated in the Tembisa youth through their persistence to achieve their career paths.

The participant youth made use of support in the environment 'family, friends and extended family' to strive towards achieving their goals. The environmental support acted as a buffer in nurturing the academic resilience of youth (Sawyer & Burton 2012, p. 54). The academically resilient youth overcome the pressure to succeed in their education (Lee 2009). Education is valued and motivates the post-school youth to persevere.

Participant P2 said:

> 'In most townships, there is a lack of recreational and development activities, as a result we find ourselves having nothing to do to keep us engaged.' (P2, young person, date unspecified)

Mampane and Bouwer (2011, p. 114) indicate that education is the main support system that enables youth to cope. The youth in the study indicated that they needed to motivate themselves through the experience of adversity because of being goal-driven (Charney 2004, p. 41; Goldstein & Brooks 2012, p. 30; Phillips et al. 2014, p. 29).

Data indicated that culture provides morals, values and directions to acceptable behaviour. Tembisa has various cultures that shape the reality of the youth and contribute to educational success. There is the youth culture of seeking an easy way out through gang activities (Normand 2007, p. 57) and the community culture of not having faith in the youth (Mampane & Bouwer 2011). Culture acts as a support for survival (Aberdeen 2012, p. 52). The post-school youth in the study had to find strength in the various influences of culture to define their own culture and value in education. Tembisa does not have a single form of culture but various cultural practices. There is a youth culture, community culture and family culture. The culture of the community is that of caring about education, while at a family level, education is valued through encouragement to participate in the learning process. The presence of resilience provides a sense of responsibility, accountability and striving towards the attainment of a better education. Both guardians of P8 believed in empowerment through education and they instilled good values and conduct towards education. This confirms that not all families in Tembisa did not value education. The school is the main support structure towards academic resilience in Tembisa, though the structure is under-resourced. The youth participants in the study indicated that they gained support from friends and teachers, which enabled them to cope.

According to Phillips et al. (2014, p. 29), there is a strong relationship between religious orientation and coping mechanisms. This was evident in participant P5 as he indicated that 'support that we receive from the church affiliation towards paying for our education according to our needs' (P5, young person, date unspecified).

The church was presented as a strong support system and coping mechanism that proved to nurture resilience at academic, social and

psychological levels (Phillips et al. 2014, p. 39). The church structure contributed to coping strategies by many youths in the study.

The evidence of this was noted when P1 and P8 indicated that they would run to church whenever faced with environmental pressure. Schools were also indicated as protective factors that supported academic resilience. Meichenbaum (2004, p. 23) affirms that teachers and schools play a major role in the development of academic resilience and social resilience attributes in learners. The schools are challenged by a lack of resources to be more effective in contributing to academic excellence. Daniel et al. (1999, p. 70) express that for holistic development to be established, the systems in the individual's life play a big role in channelling progress and facilitating holistic growth. There is resilience in Tembisa as many youths survived without proper infrastructure and community support. Religious beliefs and Ubuntu assisted in encouraging the youth towards academic success (Dass-Brailsford 2005, p. 574; Enslin & Horsthemke 2004, p. 545).

The family is an important structure that supports the youth in their academic success. A family structure is an immediate support in the learner's ecological system that addresses their emotional, social and psychological strength (Salis et al. 2008, p. 465; Van Breda 2001, p. 79). The family was found to have the ability to adjust and adapt to environmental challenges (Van Breda 2001, p. 108). The encouragement from the family structure holds more value in causing an individual to want to help others and make a difference (Dass-Brailsford 2005, p. 574). The post-school youth in the study experienced support from their family, which Brendtro and Shahbazian (2004, p. 75) say serves the learner in their education, leading to academic success. In informal settlements, schools play a major role in nurturing academic resilience (Williams 2011). The learners learn and adopt positive values, such as the need to work hard, exercise discipline and pull away from peer pressure and negative activities. Ungar et al. (2014, p. 66) indicate that school-based interventions and programmes have a direct impact on shaping a character and teaching discipline and moral values that are needed for survival. Tembisa lacks recreational facilities and schools act as buffers towards academic resilience (Sawyer & Burton 2012, p. 54). The environment provides reasons to look forward to opportunities, engagement, socialising and learning. The interviews revealed the presence of good communication in the families of youth. Most families in Tembisa support one another with the little means they have. The families believe in supporting one another as means of coping with poverty in Tembisa (Rakabe 2016, p. 24).

Tembisa remains with issues of underdevelopment (Rakabe 2016, p. 32). Youths are forced to assume roles more advanced for their age, which provides them with no choice but to act independently. The values, norms and beliefs achieved through culture, religion and education shaped responsible behaviours in the youth. According to Brendtro et al. (2013, p. 67), every

person deserves an opportunity that allows individuals to feel they are making a difference, impact lives positively and apply independence in important tasks. In the case of post-school youth, independence is not a choice as they are expected to cope. The youths work hard to save money and assume leadership roles to bring stability to their homes as well as to their education.

■ Discussion of findings from the study

The presence of environmental factors that are important in nurturing resilience, such as the school, family, friends and community's collective spirit, is evident in youths with positive resilience attributes (Salis et al. 2008, p. 465; Daniel et al. 1999, p. 70). The presentation of the qualitative findings below is based on the research objectives and the theoretical frameworks that helped in conceptualising the study. Braun and Clarke (2006, p. 79); Silverman (2011, p. 274); and Bezuidenhout and Cronje (2014, pp. 236–243) recommend the use of thematic analysis stating that the process is a suitable qualitative analytic method used to identify, analyse and report themes, patterns and codes within the analysis of data. This includes decreasing raw material, separating important data from nonessentials and establishing main themes (Du Plooy-Cilliers et al. 2014, p. 233).

■ Academic resilience attributes related to education, religion and culture

Individual attributes such as self-control, making good choices with friends and saying no to peer pressure were also demonstrated in the consolidated responses of the youth participants in the focus groups. This was termed as the presence of independence according to Brendtro and Shahbazian (2004, p. 75) and Brendtro et al. (2013, p. 67) in the study of the Circle of Courage model. The resilience attributes demonstrated by the focus group at a personal level included the youths' ability to grab available educational opportunities; learn from mistakes; positive view of life, persistence, assertiveness, ability to exercise self-control, self-awareness (self-belief and esteem); hardworking character; belief in own abilities and self-respect. The attributes that were identified from the youth in relation to religion indicated that the youth held strong religious beliefs, saw religion as providing a sense of identity, and believed religion plays an important role in shaping a character. Religion was further seen as having the ability to develop and nurture positive resilience attributes needed to cope. The participants demonstrated that Tembisa is a church-going community; though they go to different denominations, they believe in Jesus Christ. The church helps where possible with extra Mathematics classes and study teams where facilitators are available. This developed the attributes of self-control, initiative to ask for support, patience, persistence, determination and willingness to try again, learn how to deal with peer pressure, how to fight against HIV

and AIDS, and teachings on abstinence. The youths in the study were also found to be hopeful, courageous, disciplined and able to exercise will power to choose right from wrong. Culture developed a sense of identity, belonging and sharing as important attributes for academic resilience.

■ The significant impact and the role of education, religion and culture on academic resilience

The participants in the focus group were engaged in experiences that reflected the role of education, religion and culture in their lives. The participants presented on any of these three clustered concepts 'education, religion and culture'. In transcribing the data, the researcher clustered responses that addressed a similar issue to create a sequence in this data presentation.

When participants were engaged in their perspectives on the role of education, religion and culture in academic resilience, it was evident that these concepts had an impact on the lives of the post-school participants. In response to the first question on the role and impact of culture, participants indicated that, in the African culture, extended families are regarded as valued close members of the family. P2 indicated that they have close families, cousins are your family, *kagogo isekhaya* [at the grandparents' place is home].

Tembisa still practices unity and Ubuntu as guided by the African culture. P7 indicated that they think very high of family here and spend time together, sit under the trees and talk about things that make them laugh. P3 shared a similar experience where she said as families, we spend time together and talk about our hardships and laugh as though it is not as bad as it is. P3 indicated that as families, they stood together through it all in small families. The discussion by P1 emphasised the sense of care within families that experience vulnerability. P4 added that they rally around one another as a family; it was just that they were not from rich families who had money to do everything that they desired to make them happy. Traditions and celebrations in the African culture bring the community together. P1 indicated the evidence of community good spirit in the indication that when they have weddings and funerals, they support one another.

Though there is clear evidence that culture is practised in Tembisa families, education is not equally recognised by most families. P1 indicated that families engage together in social activities, but the support is not the same towards education; elders cannot help because they did not go to school, they do not know how to help with schoolwork and they rather get help from schoolteachers. The challenge with most parents is that of being uneducated and illiterate, which remains a reality in Tembisa.

The church is identified as an important player towards academic resilience through instilling faith and good behaviour as well as good morals. P2 indicated

that the church helps where possible with extra Mathematics classes and study teams where facilitators are available to help at no cost. Religion plays an important role in the Tembisa. P6 indicated that most of them go to church. They have Protestants, Wesley's church, Roman Catholics, Ushembe 'traditional worshipers' and Zionists. The streets are full of people in colourful church uniforms on Sundays. Many families draw their strength and courage to face hardship by holding on to their faith that circumstances can change. Although families value church, it is not all the youth who attend church gatherings as the youth have their own culture, as alluded to by the participant. P5 said that not many youths go to church, though; they hang out in places of fun like 'party kind of environments where they jive' [*okumunye phez'kokunye*]. Youth have their own culture where fun and socialisation are celebrated. In Tembisa, the church fulfils not only a religious role of teaching good moral but also an education role where youth are taught about life skills and good and acceptable behaviour. It is without a doubt that there are dynamics in Tembisa. P3 continued the value of church which was associated with religion and said church contributed to academic resilience like this: some churches try to help and take youths to weekend camps where they learn about how to conduct themselves, how to deal with peer pressure, how to fight against HIV and AIDS, teachings on abstinence, how to apply for a job and career guidance.

Other families do not value education. There are members of society who believe in education. Some participants indicated that they used to have retired teachers helping at the senior citizens' club that also shut down due to being under-resourced. Department of Social Welfare did not have enough funding and the place did not have the means to keep running and helping older persons with stipends. The lack of resources frustrates academic success in the youth of Tembisa. They said that development is slow and things are hard in the community. Religion and culture are found to have played a big part in building discipline and positive life goals for the youth. As P5 indicated that to survive in Tembisa, a big part of the drive is that they must make a psychological decision to improve their life circumstances. Not many people care whether they are winning or losing, whether they are coming or going with education.

For resilient youth, education has been a source of motivation; P1 confirmed that they only get motivation from the school, the schoolteachers and friends at the school. P1 further said that elders in the community want youth to get a better education in the hope that they will not experience similar hardship. Elders play a disciplinary role, as P1 said that the community does not give much to education except that you still get elders in the community who will chase youth away during school hours while they are dressed in school uniforms. Many members of the community do not have an appreciation for education, which makes it difficult for youth to thrive. Participants indicated that academically resilient youth would be confronted by the stress of being surrounded by people who are negative towards education.

◼ Perspectives on the coping mechanisms through analysing the impact of protective factors, education, culture and religion

According to Phillips et al. (2014, p. 39), there is a strong correlation between religion and culture as support mechanisms for the youth. The participants in the focus groups were asked about their perspectives and experiences on coping mechanisms that supported them through their education, religion and culture to academic resilience. The responses were from the post-school youths' ecological context, which includes individual level, family, school and community levels. Education, religion and culture were found to instil character, personalities and significant individual and family attributes for survival. Persistence was used as a coping mechanism and was described as the courage to refuse to allow challenging circumstances to determine the direction of the future. The youth indicated that their resilience was influenced by having the spirit of fighting for what they need and what they believe in regardless of the hardship; refusal to give up easily. The youth worked hard (Normand 2007, p. 64), a character discovered in the study by Normand to determine hard work in the lives of resilient youth from a high-risk community. The youth worked hard to cope with challenges. Hard work was not only driven by environmental rules but from within to achieve all the attempted tasks. Bracco et al. (2013, p. 17) and Aberdeen (2012, p. 52) mentioned, in their studies on resilience and the resilience matrix, can be extrinsic: influenced by the environment or intrinsic, which means coming from within. Salis et al. (2008, p. 465), in their study on ecology and systems, discovered that there is potential for great influence that can be found in an individual's behaviour from the experience of hardship in their environments. Though the pressure from youth gangs was evident in Tembisa, the resilient youth had the self-determination and discipline not to engage with these gangs. Culture, religion and education through norms, values and discipline can build a character and ability for a person to make informed decisions in response to life challenges. Culture and Ubuntu 'humanity' present communities with a set of values and norms (Enslin & Horsthemke 2004, p. 545). This proved to have worked in building academic resilience for the participants in Tembisa.

Resilience and coping ability were demonstrated further through the attributes and desires to make a difference and help others as oriented through culture, education and religious beliefs. This helped the youth to cope. Brendtro et al. (2013, p. 67) term this as the presence of generosity and willingness to make a difference. The youth indicated, in their responses, the need to make a difference by stating the desire to make a difference. Academically resilient youth demonstrated the attribute of being able to use support systems (church, school, family and community) in the environment, which became a support and coping mechanism for the youth. The support

systems act as buffers and protective factors that nurture resilience, according to Bracco et al. (2013, p. 17). The participant youth demonstrated the ability to ask for help in their response and indicated the importance of asking for help. The resilient youth also valued, acknowledged and believed in the principles embedded in religion, culture and the family structure, which shaped the positive attitude of youth towards life. The disciple and good morals were evident when P1 indicated a belief in God and the direction gained from the culture through the values they have as a family. The influence of culture enabled the post-school youth to stay out of trouble by saying no to drugs and learning from mistakes and problematic situations. Culture, religion and family are support systems that allow for values and norms to be applied in real-life circumstances to provide direction when considering communities that exercise Ubuntu (Enslin & Horsthemke 2004, p. 545; Phillips et al. 2014, p. 29; Van Breda 2001, p. 57). The youth demonstrated value for culture and religion as coping mechanisms. These are elements presented as factors that enable coping with adversity (Enslin & Horsthemke 2004, p. 558; Phillips et al. 2014, p. 39). Culture and religion are present in the ecological context and systems that shape an individual's character, according to Berk (2006, p. 26); Salis et al. (2008, p. 465) and Daniel et al. (1999, p. 70) in their discussion of the systems and ecological theory. Acknowledgement of the value of culture was expressed in the participants' discussion, where there was an indication of the belief in God and direction gained from culture through values that the families have. Working hard and being goal-oriented was another coping mechanism for youth participants. Being able to learn from one's and others' mistakes brought a sense of responsibility and maturity, thus preventing youth from engaging in erroneous activities. Participants expressed that they learn from mistakes. The participants further demonstrated being internally motivated. Goldstein and Brooks (2012, p. 33) indicated that resilience could be intrinsic or extrinsic.

The community of Tembisa identifies with the Christian religion, according to the participants. Religion and spirituality were discovered in the research on resilience theories as important factors for survival (Phillips et al. 2014, p. 29; Van Breda 2001, p. 76). Religion and spirituality assisted in the shaping of the youths' reality and developed a deep sense of acceptance of the status quo, yet not as a way of defining their future. Although there were shortages and insufficient resources for schools, the community generally believed in the value of education. Meichenbaum (2004, p. 27) believes that education plays a major role in building the academic resilience of youth learners in the informal settlement as this presents a sense of structure, discipline, values and responsibility and teaches life skills. Learners experienced a sense of belonging in the school when they were with their peers; they experienced a sense of mastery in the tasks executed and generosity in their experience of sharing with other learners. Brendtro et al. (2013, p. 67) and Brendtro and Shahbazian (2004, p. 75) refer to the experience of mastery, independence, generosity

and belonging as important segments of the Circle of Courage theory which enables a person to feel complete. Youths in Tembisa demonstrated the value of education and the school as they indicated that the community believes education is key to real freedom though there are poor resources.

■ Summary of findings

Education was presented through the experiences of youth as important in nurturing the resilience of the youth in Tembisain the Gauteng province of South Africa. The coping strategies highlighted in the study indicated that the school acted as a strong support system which played a very big role in motivating youth and in giving direction through the implemented discipline measures, rules and regulations that governed the school programme. The schools provided academically resilient youth with hope through the peers and teachers that were always there, willing to help with academic matters and offering friendship. Education was found to be the most important activity that kept the youth going in Tembisa through the inclusion of some extra-mural sporting activities that helped in relieving stresses of learners and contributed to physical fitness 'though limited resources were highlighted as an issue'. The youths prioritised education and ensured coping academically through spending lengthy periods of time working hard at their education-related activities; this gave learners focus, confidence, collaboration exposure, wish to achieve, problem-solving skills, time management as well as discipline and determination to achieve set goals.

Some of the youth in the study proved to hold strong Christian religious beliefs. The youth believed that religion provided them with a sense of identity, 'defining the value of a human life according to beliefs in their faith'. The youth believed that religion provided them with self-realisation and understanding of life struggles as not being there to destroy them but to build a positive character that can be used to help others in the families and community. Religion was presented as providing a sense of self-worth that the adversities do not have to determine the future but should be viewed as stepping stones to a better future that can be used to motivate other youth. Religion also offered a sense of hope, as some religious groups applied their beliefs of caring and giving and demonstrated this through the provision of food to feed the poor, retreat camps to teach survival skills, and homework and tutorial help for impact education in Tembisa. The study identified that youth believed that religion plays a role in moulding good behaviour and instilling disciplined values to deal with challenging risks in Tembisa.

Culture was another protective factor that shaped the youth's reality and ability to adapt to the challenges faced by the Tembisa dwellers. Cultural orientation in Tembisa guided some of the youth in the study to choose the right friends of a similar age that shared common goals in their education.

Culture presented a sense of responsibility to some youth, where it was expressed that they needed to do well in their education and career path to be heads of families. In the black people's culture, a 'male person is the head of a family that should fulfil a providing role'. Culture was found to provide other participants with a sense of identity and ancestral connection, where a male youth participant expressed that he believed that the deceased parents were watching over his family hence the academic success. He also expressed that he was working hard to do well and find employment so that he could perform a cultural ceremony for his deceased parents. Culture provided a sense of unity; families of youth were united, supportive of one another, protective of one another and sharing the little they had. It is culturally acceptable to honour the family structures as most families believe that this is often rewarded with success in life. The resilient youth were also found to respect their elders and submit to authority while accepting encouragement from parents towards their academic success. Respect for elders, as it is the expectation in the culture of post-youth participants, played an important role towards adapting to environmental challenges. The community had a culture of identifying with one another in terms of all the families being black people, who instilled a sense of 'Ubuntu' in the Tembisa community.

◼ Conclusion

Both the higher and basic education regimes need to be recalibrated to help learners at high school and university cope with challenges. There are various coping mechanisms that could be adopted by the Tembisa youth. The most critical issues here are that various sectors should be given opportunities to play roles in high school learners' and university students' lives. Schools and universities must open their doors to religious and cultural organisations that can assist with counselling and other similar activities to improve the lives of youths. Teacher-training institutions must recalibrate their offerings to include modules on counselling learners and equipping them with life-handling skills. This means that such teachings must be incorporated into each subject. Life orientation may not be enough because it is viewed as a subject and learners may not necessarily take it seriously. The education system must keep learners in school as long as possible to continue nurturing them until they can possibly stand on their own.

Alter/natives and im/perfect futures: Recalibrating education sites and communication for transformative democracy[3]

Muchativugwa L. Hove
Research Unit: Research Outside Entities,
North-West University,
Mahikeng, South Africa

◼ Abstract

The decolonial project in postcolonial Africa strives to inaugurate an immanent aura of sacredness on the highest-ranking values – human dignity, human rights, freedom, justice, equal respect and respect for pluralism. Education, specifically at the tertiary level, has been touted as the singular platform for redress, reform and re-articulation of hope and redemption for marginalised people. What has not happened in sub-Saharan Africa is a strategic appropriation of the education sites and recalibration processes for the development of a pedagogy of hope. Half of the world's 100 largest economies

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3. Sections in this chapter represent a reworking of Hove (2020).

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are not countries but transnational corporations (TNCs). If TNCs have the capital, they wield power to determine the trajectory of both the international economies and the educational processes. These TNCs have crafted and disseminated powerful messages predominantly in the English language and these essentially constitute what we understand today as globalisation. This insatiable demand for English as the language of learning and teaching (LoLT) has provided these TNCs with the capacity for the deployment of an ensemble of electronic communication and computer-aided technologies to move massive amounts of financial capital across the globe, predominantly out of Africa to metropolitan Euro-American capitals. The same strategies have been used to globalise contact and distance education, which has become a massive business for American, Australian and British universities. In the new communicative apparatus and strategies that are owned by TNCs, globalisation has been disseminated simplistically to mean a multiplicity of international relations, diversity, personal encounters with foreign peoples, obscene dances, musical profanities and the spread of the internet. This has now been pedalled as 'the Internet of things' (IoT). In tandem, globalisation has witnessed the proliferation of privately owned schools and academies that offer Cambridge International Examinations (CIE). In apposition to reviving a pedagogy of hope, these private schools and institutions offer alternative examination syndicates that work to rival the stymied domestic curricula. The same private schools use English as the medium of instruction from Grade 1 to exit advance-level examinations and therefore justify their exorbitant fees: not one private school in South Africa has an indigenous language policy. The clamours for universal literacies and multilingual communicative competencies are subverted by the way in which postcolonial states privilege the English language, private schools and the IoT. Indeed, the weakening of the postcolonial state is a principal characteristic and agenda of the process of globalisation. At the core of the vexed relationship between the coloniser and the postcolonial state is the pertinent question: who gets globalised into what? Globalisation is a capitalist market economy that openly strengthens former colonial languages to the detriment of translanguaging encounters that could generate new assemblages and knowledge. It is a hurricane (à la Brathwaite) whose vortex is the supremacy of coloniality. Globalisation can therefore be regarded as epistemic and linguistic violence, marked by a deleterious businessification of tertiary education institutions in Africa. Transformative democratic communication can only be realised if democratisation will not forever remain synonymous with Westernisation – as it has been for a long time – and will truly open up to diversity.

◼ Introduction

'The iambic pentameter [...] cannot carry the experience of the hurricane [...]'

— Brathwaite (1984)

I commence this chapter with a reference to the Barbados poet, Edward Kamau Brathwaite, asserting that the iambic pentameter cannot carry the experience of the hurricane. The iambic pentameter had become a norm in English poetry from roughly the 17th century. The kernel in Brathwaite's argument relates to the constitution, practice and differentiation of a poetic voice, writing from Barbados and the Caribbean spaces. Form and context matter in the poetic refashioning of agency and voice. Equally, education in postcolonial Africa, particularly at the tertiary level, has been flaunted as the singular platform for redress, reform and re-articulation of hope and redemption for people pushed to the margins of society. What has not happened in this postcolonial sub-Saharan Africa is a strategic arrogation of the education sites and curriculum processes for the development of a pedagogy of hope. The past two years (2020–2022) have compelled educators in Southern Africa and elsewhere to concentrate on the reconfiguration and recalibration of modalities and structures of pedagogical delivery. As a result, both educators and students have often been obliged to look at academia in essentially practical ways. However, the higher education sector has never been exclusively concerned with the practicalities of delivery and has never existed in isolation.

The academy brings in students from diverse educational backgrounds with a multiplicity of experiences. It prepares them for a world of work and practice rather than a world of engagement with knowledge production. In the process, it seeks to 'transform' them – opening students to the myriad of possibilities education is expected to bring. This brings us to the more problematic dissemination of 'globalisation' as one of the most contentious concepts in terms of both its meaning and its outcomes among social scientists who seek to recalibrate teacher-education (Rhoten 2000). We argue here that globalisation has dismally failed to deliver all the benefits that its prophets have promised. In fact, the globalised economy 'has largely been a disaster of staggering proportions and consequences for the world's oppressed peoples', as Fischman and McLaren (2002) argue.

Considered within this context, there is a litany of issues that recalibrating teacher-education should consider. How does the academy support entry-level students? How does teacher-education foster the critical self-reflection needed for self-directed learning and the reconceptualisation of metaliteracies? In a technologically fluid world, how do teacher-education departments keep pace with changing media and teaching practices? How do we support the engagement and understanding of our students with the social issues and players they will engage with once they leave the academy? In short, how are we contributing to the transformative experiences of education? Phillipson (1999, p. 1) writes about the ways in which the English language has been actively marketed as an instrument of globalectics (Wa Thiong'o 2012) and domination. He argues that, in the past, the United Kingdom (UK) ruled the

waves, but that has now been superseded by the English language. This boon is evident in English language teaching (ELT), which has seen a proliferation of university departments, private 'chain' academies, language schools, journal and book publications, international conferences, and colloquia and all the paraphernalia of an established and intimidating multinational corporation. Again, Fischman and McLaren (2002) state explicitly that the globalisation of capital is administered through the hydra-headed operations of TNCs and guided by the mutual interests of the G-7 countries (United States of America [USA], Canada, France, Japan, Italy, Germany, and the UK). Under such invasive practices, where privatisation, commodification and commercialisation have been privileged, it is time that educators need to redefine public education as a resource vital to the democratic and civic life of the nation. The most significant challenge for teachers, researchers, academics and cultural workers is to join together in opposition to the transformation of public education into a commercial enterprise more concerned about dollarisation rather than accountability.

■ Understanding the context for transformative democracy

This chapter strives to demonstrate several coterminous positions. It strives to explore the analytical and practical implications of the dissemination of the English language. It interrogates globalisation and the intersectionality of race across differing postcolonial contexts. The penultimate effort is to link this analysis of the omnipresent use of the English language, the 'dollarisation' of the curriculum in postcolonial Africa and its educational sites to a transnational frame in which the postcolonial world is profoundly shaped by Euro-American capital flows and circuits of plunder. The chapter analyses the continued re-articulation of binary distinctions between colonial and postcolonial Africa, Self and Other and, by extension, online and offline, indigeneity and globalectics, the English language and 'other' languages as performed through the IoT.

Local and international research has for many years focused on ways of understanding language relative to its usages and role in education (Gee 1996; Lisa Delpit 2006; Stroud & Kerfoot 2013). Christopher Stroud develops the notion of linguistic citizenship (LC) (Stroud 2001, 2009, 2015; Stroud & Heugh 2004; Williams & Stroud 2015). Linguistic citizenship has particular resonance with the decolonial project and Paulo Freire's *Pedagogy of the Oppressed* (Freire 1976) as it challenges dominant notions of languages as separate, bounded entities. Both Freire and Stroud strive to conceptualise pedagogy and LC 'in ways that can promote a *diversity of voice* and contribute to a *mutuality and reciprocity* of engagement across difference' (Stroud 2015, p. 20). If we understand the curriculum and languages as 'constructed and

contested' (Stroud 2015, p. 23), LC conceives of language as a semiotic resource that speakers use and reconfigure 'through the creation of new meanings, the repurposing of genres and the transformation of repertoires' (Stroud 2015, p. 25). By disrupting normative (read British standard) language ideologies, LC (as a theoretical lens) draws attention to the diverse, creative and dynamic ways in which people use their linguistic and semiotic resources to assert their agency and voice; in other words, to act and be heard as citizens. For Stroud (2009), citizenship discourses are the medium through which politics is enacted, including the potential 'to bring about alternative worlds' and a sense of 'utopian surplus' (Stroud 2015, p. 23) through a recalibrated curriculum.

Bock (2019) traces the discourse on decoloniality as typifying scholarly concern and local activism since the celebrated Bandung conference of 1955. The groundwork for decolonisation was laid by scholars such as Ngũgĩ wa Thiong'o (*Writers in Politics* and *Decolonising the Mind*), Paulo Freire (*Pedagogy of the Oppressed*), Lisa Delpit (*Teaching other people's children*), Henry Giroux (*On Critical Pedagogy*), Walter Mignolo (*Epistemic disobedience*), Boaventura de Sousa Santos (*Epistemologies of the South: Justice against Epistemicide*), Quentin Williams, Christopher Stroud (*Linguistic Citizenship*) and others. In *Pedagogy of the Oppressed*, *Decolonising the Mind* and *Epistemic Disobedience*, the scholar-activists write about the need for 'epistemic disobedience', which entails delinking from the dominant Euro-American derived epistemologies by changing both the *content* and the *terms* of the curriculum and the attendant disciplinary conversations. In higher education, recalibrating the *content* becomes a call to critically interrogate those epistemologies that are valued and included in the national curricula of postcolonial states. It entails recognising the fact that much African knowledge – and semiotic resources – has been made invisible or 'non-existent' (Santos 2012) because it has been relegated to the status of the 'local, limited and particular languages'. Thus, a pedagogy of the oppressed requires epistemic disobedience that critically confronts Anglo-American knowledge archives and re-centres languages, epistemologies and practices that have historically been marginalised. What needs to be inserted into the content is a fuller understanding of the 'unruly and disobedient black body as an agent' as Miller (2019) would script it.

Mignolo (2009, 2013), following the footsteps of Freire and Giroux, suggests that the process of 'delinking' from the grand narrative of Anglo-American modernity necessitates changing the *terms* of the conversation. This is obviously premised on the understanding that all knowledge is shaped by the *context* in which it is produced. It is in this context that the production of knowledge garners relativity. However, this context-embeddedness is often trivialised by the 'fiction' of 'language standards, proficiency and articulacy' manning the disciplinary rules of conversations and knowledge-making

(Mignolo 2009, p. 4). Asking questions about *who* produces (or consumes) *what* knowledge, *when*, *where* and *why*, argues Mignolo (2009), serves to shift attention from the 'enunciated' (or 'the known') to the 'enunciator' (or 'knower'). It is about participating in the creation of epistemic sites that have been negatively shaped by colonialism and modernity and making visible (and audible) the experiences and perspectives of people who live and work in these spaces. The spectacular invisibility of the victims of the Bhopal Gas Disaster in India in 1984, when one of Union Carbide's TNC factories exploded, calls for an alternative politics of looking.

For Santos (2012) and Blanch (2016), the decolonial turn is about developing theories that are anchored in an understanding of the world as infinitely diverse. There is an 'immensity of alternatives of life, conviviality and interaction with the world' not recognised by northern theory (Santos 2012, p. 51). For Santos (2012) and Giroux ([1998]2015), the construction of Southern epistemologies includes four core tenets: *the sociology of absences*, *the sociology of emergences*, *the ecology of knowledge* and *intercultural translation*. This framework charts alternatives for hope and democratic participation in the im/perfect futures where the institutional and communicative repertoires of and in the English language have been privileged in science, technology and computers. These decolonial scholars question the ways in which research engagements and the dissemination of such research in books, accredited journals and software are mobilised to the extent that certain outlets are 'legitimised' while others are perceived as predatory. The anxieties raised over predatory journals and suspicious conferences call for serious examination of the recalibration of teacher-education. There is a serious understanding that research and the dissemination of such research consecrate the innovation practices of tertiary education institutions. Publishing and evaluation, in tandem with peer-review at their core, are critical components of the scientific research and innovation endeavour. Yet, traditional academic publishing models, research evaluation and peer-review systems are not immune to exploitation and malpractice. Malpractice in research has the capacity to compromise the integrity of research and make the scholarly dissemination of new knowledge vulnerable to overt commercial predatory channels. While the digitisation of scholarly communication and ongoing development of open-access models have undoubtedly revolutionised many aspects of scientific endeavour – opening up exciting new avenues for access, dissemination and knowledge-generation – they have also exacerbated predatory practices. Shifting paradigms of research communication, evaluation, peer-review, institutional rankings, metrics and business models have created more space for predatory academic practices to take root and thrive.

It is a fact that in international relations, non-governmental organisations and global news agencies such as BBC, CNN and Al-Jazeera are leading

opinion-makers instead of the national and local media houses and newspapers in southern Africa. This extends to mass media entertainment, where hip-hop youth culture, as seen on YouTube, and the corporatisation of devoted English Second Additional Language (ESAL) championship channels on Digital Satellite Television (DStv) have a more sinister hold on local audiences. The functional load carried by and in English in these domains presents new anxieties about the cultural, linguistic and political risks and hopes staked against the decolonial project that aims to recalibrate teacher-education. The following research questions offset the parameters for this chapter.

In order to understand, interpret and analyse the world and produce knowledge in different ways that inaugurate academic advancement and civic, democratic participation in the knowledge economy, what communicative strategies do students, student-teachers and classroom practitioners need?

What are the institutions and curriculum matrices necessary in the cultural and linguistic quest for a pedagogy of hope?

◼ Schooling in postcolonial Africa (after Bowles and Gintis – *Schooling in Capitalist America*)

Whether terms such as 'rebirth', 'regeneration', 'renascent', 'renewal' or 'renaissance' are used to characterise the historical and current struggle for the decolonisation, liberation and unification of Africa, the majority of the proponents of the African renaissance agree that Africans must embrace *rehumanisation* and *re-Africanisation* (Ngũgĩ wa Thiong'o 2009; Sesanti 2016). We need, therefore, to understand the militancy in recalibration as simultaneously driven by *a form of resistance* and *a vision of liberation*. Rikowski (2002) argues that 'globalisation' is essentially capitalist globalisation: the globalisation of capital, which is at the core of all the economic, social, political, educational and cultural trends that have been associated with conventional and more superficial notions of 'globalisation'. Rikowski further points out that capital's social universe is an expanding and ever-increasing one. He identifies three forms: spatially, through differentiation and through intensification. Differentiation helps us to examine the practices and institutions of schooling and tertiary education in postcolonial Africa. Capital expands as the *differentiated form of the commodity* through the invention of variegated types of education as a commodity. This is capital's *differentiation*. For example, there are different types of schools and universities placed in the market of 'choice'. In South Africa, for instance, the English language is offered as a mega-subject that incorporates assessment in literature, visual literacy and comprehension segments. English is offered as Home Language (HL), English First Additional Language (EFAL) and ESAL, each version tapering

towards a mimic show of 'competencies'. In each variegation, there is a differentiated cultural and linguistic capital where EHL) accrues better purchase and social mobility mileage than either EFAL or ESAL.

We have already hinted at the growth of private schools and historically white, privileged universities with immense cultural capital in the postcolonial state, but it is quite relevant to add that this phenomenon is a prime example of capital's differentiation. In South Africa, the public school system is under siege from private entrepreneurs and privately owned school groups. Historically, black universities trail behind those that were formerly all white and materially privileged in terms of resources and communicative technologies. Against all decolonial aspirations, these academies re-inscribe the Anglo-American centred map and academic curriculum, in spite of the stellar 2015/16 student movements, #RhodesMustFall and the #FeesMustFall.

The Heritage Group of Schools has expanded into Zimbabwe, together with another consortium called Petra Schools. These are educational establishments that have amalgamated into the massive Conference of Heads of Independent Schools in Zimbabwe (CHISZ). The CHISZ is both a constellation and a confederacy that boasts of former Group A schools and private tertiary chains such as the Peterhouse Group of Schools. We read this as a 'local confederacy' that replicates the British behemoth, the Independent Schools Conference (ISC). Both CHISZ and the ISC exhibit obdurate connections with the CIE. This umbrella confederacy seeks to preserve the independence of its schools, spurred against 'contamination and lamination' by the Latinate motto '*Quod Susceptum Perfectum*' – What has been undertaken has been achieved. The five core tenets of CHISZ and the ISC as independent educational corporations are articulated in unequivocal terms, where the school must:

- follow its own unique mission (including its particular ethos, faith and philosophy)
- determine its learner admission and promote definitive policies
- choose its curriculum and exit examinations
- determine how it will be governed, financed and staffed
- manage its operations.

In the inauguration and expansion of these private academies, capital expands through *intensification* – it deepens and develops within its own domain. Intensification deepens and develops in the ways in which it relentlessly penetrates educational institutions where profit-making and profit-taking enter the 'public sector'. Globalisation facilitates the penetration of private education services by corporate capital. In South Africa and Zimbabwe, it is a foregone conclusion that the CHISZ schools choose their curriculum and exit examinations (read Cambridge); they determine how they are funded and staffed (read exclusion of 'other' racial profiles). The CHISZ schools in Zimbabwe and the Private Schools in South Africa open the door to the

marketisation of education services and curricula specifications in English, made more versatile through the ubiquity of information technologies and interactive Promethean boards in such institutions. In postcolonial Africa, education has been increasingly subordinated, not just to the specific requirements of capital but also to the ubiquitous demands made of postcolonial governments by the capitalist class. Besides exhibiting an over-representation of one racial profile over another, private schools' claim to being 'borderless learning spaces' is buttressed by their capacity to purchase into the IoT and literally 'internationalising' their curricula offerings. This increasing subordination of education to national and international capital runs through school education and teacher-education to university education. Education and humanity itself have become increasingly commoditised, with education being restructured *internationally* under pressure from international capitalist organisations and the TNCs.

This chapter consolidates the point that capital expands through intensification and illustrates this from the entrepreneurial mission statement of the Peterhouse Group of Schools, an academy where this researcher was the first black teacher of English and head of the English department (Peterhouse Group n.d.):

> The Peterhouse Group is widely regarded as one of Zimbabwe's top independent schools and arguably the country's best for boarding (Peterhouse Boys and Peterhouse Girls) and weekly boarding (Springvale House [SVH]). Pupil numbers at all levels are healthy [...] the marketplace is becoming increasingly competitive. The Peterhouse Group has an enviable reputation for breadth of education/opportunity [...] The Rector is an overseas' member of the Headmasters' and Headmistresses' Conference (HMC), which represents 300 top independent schools in the UK and beyond [...]. (n.p.)

The explicit mission statement is embossed in the vocabulary of the corporate enterprise (Peterhouse Group n.d.):

> Peterhouse aims to provide a specialist environment which is flexible and responsive in fulfilling the academic, social, emotional, and physical potential of all our young people, equipping them with the skills, knowledge and understanding to be successful adults. (n.p.)

One of the most expensive corporate-driven schools is the Crawford Schools. The school also recommends such payment of fees be made online, using the encryptions of MasterCard and Visa, both networks of a global capitalist conduit. Table 6.1 shows the tuition fees payable in South African rands for 2020, in spite of yet another TNC experiment gone wrong.

Should the annual upfront plan be selected by the fee payer during the re-enrolment process, but the full annual amount not be paid by 17 January 2020, this would result in the account being automatically defaulted to the 10-monthly plan with the monthly instalment becoming due immediately. The school requires *one full term's written notice* in the event of a parent wishing

TABLE 6.1: Mandatory tuition fees in South African rand (ZAR) in '-00 and '-000 of one private school, 2020.

Grade	Fee option 1	Fee option 2	Fee option 3
	Annual (discounted)	10-monthly	12-monthly
Grade RR	76 920	8230	6960
Grade R	86 520	9250	7830
Grade 1	99 500	10 760	9100
Grade 2	99 500	10 760	9100
Grade 3	113,370	12 130	10 260
Grade 4	113,370	12 130	10 260
Grade 5	119,750	12 810	10 830
Grade 6	119,750	12 810	10 830
Grade 7	120,540	12 890	10 900
Grade 8	141,010	15 080	12 760
Grade 9	141,010	15 080	12 760
Grade 10	144,030	15 400	13 030
Grade 11	144,030	15 400	13 030
Grade 12	151,290	16 180	-

Source: Retrieved from the website of a privately-owned school.

to deregister a student. Should sufficient notice not be given, parents may be held liable for a full term's fees. This is the acme of the new gold rush. Private schools and these business-oriented academies do not shy away from marginalising alter/native epistemologies. Giroux (2012) warns of such business fraternities that have reduced schooling to training and students to mere customers. In essence, there must be an alternative lexicon that historicises the complexities and complicities of capital disguised as globalisation and the neoliberal imperative.

A recent paper on mission statements in universities (and schools) contended that there is an embedded monetary drive in the institutions (Hove 2018):

> Mission statements establish institutional legitimacy; they interpret institutional and global realities and are an outcome of competition in the realm of institutional politics. Strategic plans implicitly, and often explicitly, state a change in organisational structure or a move toward change. Change can be a difficult process and sometimes requires time. It is important to get stakeholders and employees on board with the decision-making process and an expertly articulated mission and vision statement accomplishes these imperatives for the organisation. Articulating and repeating the positives of the move toward change in the organisation enables stakeholders and employees to stay engaged and motivated. Decision-makers and architects of goals should emphasise the current mission statement to employees, which clarifies the purpose and primary, measurable objectives of the organisation and the entrepreneurial sponsors. As clients of capital universities craft the (o) mission statements in order to project efficiency and responsiveness to the overt and covert demands of local and global markets. (p. 5)

The shrewd business orientation of the private schools invites a direct contrast to the mission statement of an emerging university in New Zealand, founded

on providing an alternative democratic communicative apparatus and epistemology.

Te Whare Wānanga o Awanuiārangi – Aotearoa is a Māori university headed by Sir Graham Hingangaroa Smith, a distinguished Māori scholar. This is the mission statement of this visionary institution (Te Whare Wānanga o Awanuiārangi n.d.):

> We commit ourselves to explore and define the depths of knowledge in Aotearoa, to enable us to re-enrich ourselves, to *know who we are*, to *know where we came from* and to *claim our place in the future*. We take this journey of discovery, of *reclamation of sovereignty*, establishing the *equality of Māori intellectual tradition* alongside the knowledge base of others. Thus, we can stand proudly together with all people of the world. This is in part the dream and vision of Te Whare Wānanga o Awanuiārangi. (n.p.)

To *know who we are*, to *know where we came from* and to *claim our place in the future* becomes the quintessence of a liberating mission statement. At the core of this quest for roots and routes is the establishment of the equality of an Other and distinctly Māori intellectual tradition.

Within universities, and vocational further education in particular, the language of education has been widely replaced by the language of the market, where lecturers 'deliver the product', 'operationalise delivery' and 'facilitate clients' learning' within a regime of 'quality management and enhancement'; where students have become 'customers' selecting 'modules' on a 'Pick'n'Pay' basis (Pick'n'Pay is a South African TNC behemoth specialising in food, liquor and accessories whose presence is felt in Zimbabwe, Zambia, Kenya and Nigeria) and where 'skills development' at universities has surged in importance, to the derogation and marginalisation of the development of critical thinking.

Lincoln (2019) takes a trenchant critique of this incipient managerialism in the university. She hits hard at the compulsive 'marketisation' and enumeration of researchers' publications at the expense of critical and scholarly engagement that liberates the student and the teacher. She introduces in her chapter a scathing indictment of the new culture of auditing of knowledge driven by savage and fanatical capitalism: when Edward Snowden described the National Security Agency's bulk collection of telephone and email information from private citizens as the most dangerous weapon ever invented, he might as well have been talking about the neoliberal-cum-managerialistic rituals imposed upon public higher education faculties in the name of accountability (Lincoln 2019, p. 37). Lincoln (2019, p. 38) is unsparing in her attack on the regimen of the corporate university where audit technologies being introduced into higher education and elsewhere are not simply neutral, legal-rational practices; rather, they are innocuous instruments for new forms of governance and routes to power. They embody a new rationality and im/morality designed to engender amongst academic staff

new norms of conduct and auditable behaviour. In short, they are agents for the creation of new kinds of subjectivity: self-managing individuals who render themselves appraisable in quantitative metrics.

Lincoln (2019) extends her critique of the tentacles of an audit culture that contributes to the disappearance of the idea of accountability and publicness as traditional public service norms of citizenship, representation, equality, impartiality, openness, responsiveness and social justice. Social justice and epistemic alternatives are all marginalised and surreptitiously replaced by competitiveness, efficiency, productivity, profitability and consumer satisfaction – all normative practices in business. Indeed, in the global desire to produce 'competitive' researchers – of colleagues teaching and researching in collaboration, sharing and constructively criticising the ideas of others – collegiality, along with its norms of academic citizenship, is slowly fading away. The competition for external funding has become grotesque. Researchers perceive colleagues as competitors for this highly prized external funding. The consequences of such academic rivalry and competition are simply too drastic to contemplate. Indeed, cutting across the postcolonial university in Africa, there is evidence of the increasing influence of corporate monies on academic curricula and on the research programmes of researchers.

There is even more palpable commodification of intellectual property, including publication (Lincoln 2012; Spooner 2018). The academy has witnessed a surge in top-down managerialism. More distinctions have been wrought in rebranding the 'human resources' departments into 'people and culture' administrative staff pitted against teaching and research staff. Tertiary institutions that are run as business models emphasise entrepreneurial acumen as a criterion for academic staff promotion, tenure and merit bonuses. There is also an explicit shift in imagining students as consumers and clients, rather than as partners in critical thinking learning journeys. Similarly, the focus has entirely shifted to metrics and rankings as a measure of quality (Burrows 2012; Tuck 2003). Tomaselli (2021) adds weight to this distorted focus, delving into a decidedly uncomfortable, insightful and entertaining ride through the managerial university to show us that universities have become corporate organisations. He perceives a mindless pursuit of efficiency, productivity and measurement, wherein the same tertiary institutions have lost sight of the broader purposes of education and the intrinsic value of academic work. There is the perverse and ridiculous idea that universities need a 'brand'. Academentia (cf. Tomaselli 2021) is a distortion of academic values in favour of quantitative, economic criteria. Academentia is a view of teaching and research staff that demands ever more 'accountability' measures to assure that such staff are doing what they have been hired to do (teaching, research and community engagement). Manic managerialism, which is another term for academentia, places a skewed emphasis on external recognition and funding for the 'research agenda of the university', even when external fund

priorities do not match the research entities' interests or those of the research niche areas. There is the increasing use of a new generation of academics programme (nGAP) and postdoctoral research fellows (postdoc) and, in South Africa, the Black Academic Advancement Programme (BAAP) to raise the publication statistics. The university as a corporate organisation has been cajoled into raising scores for institutional recognition and third-stream income.

In the wake of a heightened demand for the English language, the businessification project has enabled the deployment of an ensemble of electronic communication and computer-aided technologies to move massive amounts of financial and human capital out of Africa to develop the metropolitan capitals. There is an enormous movement of prominent African scholars to metropolitan research centres such as School of Oriental and African Studies (SOAS) and the Nordic Africa Institute. The same strategies have been used to globalise distance education, which has become a massive business for American, Australian and British universities trading as training sites in southern Africa. In the new communicative apparatus and strategies that are owned by TNCs, globalisation has been disseminated 'innocently' to mean a multiplicity of international relations, diversity, personal encounters with foreign peoples, learning the local dances, importing lyrics from the West and the spread of the internet. In the past two years, 2020–2022, universities in South Africa scampered for data and laptops to distribute to students who had to adopt hybrid and online affordances in order to get on with the academic project. Too little too late; not one of the 26 universities has publicly admitted to massaging marks simply because connectivity on Wi-Fi networks was impossible or unstable through these two years.

There is evidence that the capitalist re-engineering of developing-world postcolonial educational practices has been scaffolded by what Zuboff (2019) calls 'the age of surveillance capitalism'. She sees in this subtle project a whole arsenal of apparatuses designed to create new frontiers of knowledge and power. By extension, surveillance capitalism is indicted for educational and languaging practices that have become raw sources for performance and behavioural data. Artificial intelligence has taken the ominous task of producing 'prediction products' that are used in decision-making processes and sold in a new type of market that she calls the 'behavioural futures market'(Zuboff 2019, p. 8). The drive for market domination and profit maximisation is embedded in the English language, the data algorithms that shape Big Data enterprises. Again, Zuboff (2019, p. 87, 399) has an apt nomenclature for this: the 'extraction imperative'. The extraction imperative has its roots in extractive capitalism that saw Europe plunder Africa's natural resources. Data extraction uses Boolean algebraic permutations and combinations of biometrics and keywords to generate a new terrain for prediction. In the educational systems of postcolonial states, surveillance capitalism accumulates behavioural and

performance data at the lowest cost possible and then turns this into massive profit.

In the extraction and profit-making agenda, Google, Yahoo, Facebook and Android software products appear as disconnected establishments, yet these multinational behemoths google (a verb) their search engines; they have massive e-book projects (purchasable in hard currency through credit cards from publishing houses, none of which are located in Africa). All these processes have one common denominator: the extraction of raw materials, no longer just the gold, platinum and diamonds, but African voices and African-generated data. For those who are accustomed to Academia.edu, there should be an immediate experience of déjà vu: you need to subscribe at a stiff rate, again in hard currency, for one to identify their readers and to access bulk downloads of what is already esoterically theorised from western academies for you, depending entirely on your monitored reading history.

Surveillance capitalism is not just technological finesse. In order to dispossess entirely, surveillance capitalism has an amalgam of political, communicative, administrative, legal and material strategies that define, demarcate and decide on im/perfect futures. Artificial intelligence and its architecture, designed to fulfil the prediction imperative, has the configuration capacity to 'nudge, tune, herd, manipulate, map, track and modify' behaviour and performance in specific directions. Google is by far the largest computing network in the world, having enabled its machines to learn more and faster (predominantly in English and other European languages). This extraction architecture is anchored on the unstated idea that highly predictive and therefore highly lucrative behavioural surplus can be plumbed from the intimate patterns of the self (Zuboff 2019, p. 201). This extends to the realisation that the IoT has broached a novel English-language-driven instrumentarianism whose purpose is the automation of postcolonial societies for guaranteed profits. What alter/native digital and technological routes are possible in this Big Data and techno-utopia where the postcolonial African education and communication platforms are suffused with the power of algorithms in the English language and other former colonial languages? This is not a simple search for alternatives; it is a realisation of the alarming ideological production in technology-qua-technology imagined as an alternative for the democratisation of education and communication.

The national and transnational mobilities of students in the tertiary education systems in southern Africa are dependent on the selection, assembly and efficient performance of particular bricolages of linguistic resources that construct them as grassroots research labour and not as agents in the construction of new epistemologies. The various institutions and social actors involved in this epistemic infrastructure include the state, transnational funding and research agencies, plus the students as disempowered intellectual workers themselves (Freire 1978; Rabaka 2022). It is patently clear that the products

of the tertiary education systems become templates that index domesticated workers; their graduation con/scripts them as embedded in large-scale and everyday processes that produce labouring subjectivities awaiting their selection and purchase by potential employers. In this sense, intellectual and research work, which is inscribed in transcripts, is highly ideological and includes material processes of distinction, stratification and commodification for the graduates from the educational academies.

◼ Books, banks and bullets

The question of agency, as a vector of identification and belonging, is *a strategic installation* for fields of activity within socially, linguistically and politically constructed territories. Giroux (2012) submits a cogent argument when he states that 'all education is a struggle over what kind of future you want for your young people'. This tallies with Kachru (1986), who argues that those in possession of English benefit from an alchemy of material and social gains and advantages. The curious question remains whether or not the purposefully structured English-language-dominated public and private education curricula that produce cultural eunuchs is a sustainable alternative. There is a need to pry open the structural and cultural inequalities characterising North–South capital and epistemic flows. To answer the question of what kinds of lives are possible after political democracy in the light of corporate globalisation, the media glut and the hegemony of fake news and alternative truths, Giroux (2015, p. 3) ardently warns against 'pedagogies of repression'. His thesis is that all education is an introduction (cultural, ideological, power dialectics) to the future.

In an incisive article called 'Books, Banks and Bullets: Controlling our minds the global project of imperialistic and militaristic neo-liberalism and its effect on education policy', Hill (2004) identifies five aspects through which globalisation has embedded itself as a capitalist enterprise.

The first embraces the 'businessification' of education – privatisation, deregulation of controls on profits, the introduction of business forms of management and the intensification of labour.

The second is a *deepening of capitalist social relations* with the commodification of everyday academic and research life. This is carried out – in particular through the electronic and computer-enabled media and educational state apparatuses – to recompose human personality.

The third takes the form of *increased use of repressive* economic, legal, military and other *state and multi-state apparatuses* globally and within states. This ensures compliance and subordination to multinational capital and its state agents. The means used include repressive state apparatuses: the police, incarceration, legal systems and surveillance procedures.

The fourth is a more sinister enterprise: *increasing use of ideological state apparatuses in the media and education systems*. On the one hand, they are used to both 'naturalise' and promote capitalist social and economic relations, for instance, through research collaboration and exchange programmes where the Southern academies collect raw data, and the Euro-American partners distil the data into esoteric theories that explain the Other (Giroux 1997). On the other hand, they are used to marginalise, demonise and justify punishing resistant, anti-capitalist, hegemonic, oppositional ideologies, actions and activists.

The last of the Pentateuch: the *increasing concentration of wealth and power* (power to retain and increase that wealth) *in the hands of the capitalist class*. This embraces fiscal policy, cutting back social and public welfare programmes and policies and opening to the market divisive, marketised, stratified programmes in schooling and higher education. Such programmes increase hierarchies of provision, resulting in increasingly racialised and gendered social-class inequalities.

This segment teases out the first and second enterprises of globalisation as capital-driven ventures. In a conference paper that I provocatively called 'Circuits of Plunder' (2019), I interrogated the internet as a communicative assemblage whose totalising presence has become a ubiquitous feature of this age of asymmetrical communication. I insist on the asymmetry because it is palpable. The presentation demonstrated how the ensemble of digital technology shapes and disrupts societal organisation. I adapted Deleuze (1990, p. 180) to demonstrate that 'control societies function with a third and fourth generation of machines, with information technology (IT) and computers', which are inextricably intertwined with 'a mutation of capitalism'. Indeed, Deleuze makes a distinction between the capitalism that informed and operated within disciplinary societies and the capitalism associated with Google–Yahoo–Apple–Hewlett Packard control societies. Accordingly, the mutation in control and regulatory surveillance occurred through a move away from 19th-century capitalism – which was 'concentrative, directed towards production, and proprietorial' and which rendered sites of education and sites of production into sites of confinement – and toward a capitalist orientation that 'is no longer directed toward production'. Rather, present-day neoliberal capitalism, control and regulation are oriented toward 'meta-production', 'metaliteracies', outsourcing various aspects of production, focusing on the selling of services and operating as an assemblage in which everything is 'transmutable or transformable'. Thus, in contrast to the contiguity and confinement of disciplinary societies, in control societies, everything becomes 'short-term and rapidly shifting, fluid but at the same time continuous and unbounded'. Deleuze's (1990, pp. 180–181) perceptive summary is that, within control societies, 'a man is no longer a man confined but a man in debt'. It is therefore urgent to disrupt and dismantle

colonial iconography not as an erasure of the historical past but as a radical re-insertion, privileging and disseminating of new circuits of Southern cultural epistemologies.

Digital technology makes such control possible – from electronic tagging devices to electronic cards that allow or disallow (and record) access to certain areas at specific moments in the day. The major implication of such a form of societal organisation is that one is constantly engaging with the features that the capitalist state aims to promote. Accordingly, this regulation enervates populations far beyond the submissiveness engendered through colonial societies by effectively disallowing citizens the time to operate in an independent manner outside of statutory confines. That is, Deleuze suggests that within the disciplinary societies thematised by Foucault, one was always beginning or starting again, as one moved from the school to the barracks, and from the barracks to the factory, et cetera. Consequently, interstices existed between disciplinary institutions where the formation of resistance – or the generation of difference – was, in principle, always possible. 'Circuits of Plunder' amplified the singular fact of the communicative apparatuses: control societies, on the one hand, replace signatures with numbers and codes or 'passwords', which one gains and utilises for the purposes of access to the 'businessification' of the school and university through compliance with the status quo. On the other hand, within control societies, it is no longer possible to distinguish between the 'individual' and the 'mass' – as it was in disciplinary societies – but only between '*dividuals* and [...] *samples*' (Deleuze 1990, pp. 179–180). Deleuze's 'notion of the dividual grasps a vital part of the dynamics of modern communication technologies: the intersection of human agency and high technology in the constitution of selves'. From Deleuze's bleak viewpoint, this entails the progressive loss of the agency still possible for disciplinary subjectivity through the dissolution of critical individuality and its transformation into coded economic data, *dividualised* to the point where resistance is not only difficult but de facto unimaginable. In a bid to recalibrate teacher-education, we need to hearken to the call we discussed earlier: *Te Whare Wānanga o Awanuiārangi* is designed to know who we are, where we came from, and to claim our place in the future, questing for the establishment of the equality of the Southern intellectual tradition.

There are several other ways in which societies of control operate in the architectural design of coercive effects of digitality on personal relations and desires. Societies of control utilise constant and rapid communications (memos, emails, advertisements) to inform people where they stand in the constantly shifting field of interpersonal relations. Surveillance generates anxiety, which in turn spawns critique. From critique, we generate a discourse of possibility, allowing a multiplicity of alternative futures. Bell (2009, p. 150) argues further that if one does not participate in this field, one risks falling off the grid, as it were, and thus becoming an undesirable 'unknown variable' who

will undoubtedly begin to 'fall behind'. As Bell (2009, p. 151) darkly notes, 'the net result is that we come to desire the very systems that control and monitor us'. The immense popularity of social media sites such as Facebook and WhatsApp, where users willingly disclose their personal information, innermost thoughts and anxieties, along with their successes – however arbitrary these might be – under the auspices of a belief that one only *is* insofar as one is *digitally articulated* in this way, immediately come to mind when considering Bell's argument.

Jakub Siwak (2018) highlights the ways in which Facebook users fail to make the distinction between digital (virtual, online) space and their offline (actual) lives. His study elaborates on the pernicious ways in which the robotic moment has privileged the triumph of surveillance and information over the recognition of existence. Julian Assange, in an interview with *The Huffington Post*, discusses some of Google's current infrastructure and its plans for expansion.

☐ The new technocratic imperialism

In what I see as technocratic imperialism depicted in a meme found on Twitter,[4] Assange claims that 'Google controls 80 per cent of Android phones now sold, [and] YouTube' – a subsidiary of Google, bought in 2006 – 'is buying up eight drone companies. It is deploying cars, it is running […] Internet service providers', and it even 'has a plan to create Google towns.' Likening Google to a 'high-tech General Electric', Assange (cited in Grim & Harvard 2014, n.p.) proposes that the company represents 'a push towards a technocratic imperialism' in which 'Google envisages pulling in everyone, even in the deepest parts of Africa, into its system of interaction'.

However, before this chapter engages with the technocratic imperialism and digital politics of the Internet consolidated in the earlier linked meme from Twitter (see Footnote 2), there is a need to situate the raging battles in knowledge generation and dissemination evident in the book publication and journal industry. University presses such as Cambridge, King's College, Oxford, Massachusetts and Tilburg, as far as one can tell, impose restrictions on certain Southern institutional publications. Under hiring the 'knowledgeable other' professoriate, their monographs in English and other former colonial languages become prescribed reading for courses in the tertiary institutions of postcolonial states. Tertiary institutions have intricate networks with publishing houses that are members of the Committee on Publication Ethics (COPE). A variety of archive repositories, including Academia.edu, Corwin, and EBSCOhost, host academic research papers, and Working Papers in Urban Languages and Literacies (WPULL) use artificial intelligence (AI) analytics

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4. See https://twitter.com/zimeye/status/1252956275886956545

such as SPSS, ATLAS.ti and NVivo, and plagiarism detection software such as Turnitin and iThenticate for plagiarism detection. The alter/native journals of Southern publishing houses, such as the Mediterranean Journal of Social Science (MJSS), the International Journal of Current Advanced Research (IJCAR), the Taipei and Taiwan conferences that host the Engineering Science Research and Development Board (ESRDB), and the Indian-Pakistani consortium seem to have become predatory enterprises with the ostensible publication of plagiarised scholarship and fictitious research. Some 'established' publishing companies legitimise and transform large parts of the academic enterprise into a knowledge production and dissemination economy regulated by these establishments (Rosa & Floares 2017). Here, a form of tech-imperialism is at work to dis/enable any alter/native quest for hope.

■ Conclusion

The decolonial project should investigate how institutionalised hierarchies of racial and linguistic legitimacy are central to the processes of the postcolonial subject formation, specifically the agency in reading and writing in the English language, the overestimated capacity of Google search engines, the tapestry of TNCs whose amnesia pushes to the periphery the violence and pain of their scandalous trade in bodies. The participation of the South in what is purveyed as the Fourth Industrial Revolution (4IR) needs to be fully fathomed. Activists, researchers and scholars need to identify specific limitations (and affordances) in scholarship and research in and through the English language and other former colonial languages where there is curtailed capacity to disrupt the entrenched inequities. Toni Morrison (n.d.) sagely names the alter/natives into those im/perfect futures:

> The [...] very serious function of racism (and globalisation and marketising education and pedestalling the English language in communicative repertoires) is a distraction. It keeps you from doing your work. It keeps you explaining, over and over again, your reason for being. Somebody says you have no language, so you spend twenty years proving that you do. Somebody says your head is not shaped properly, so you have scientists (read black scholars and academics) working on the fact that it is. Someone says you have no art, so you dredge that up. Somebody says you have no kingdoms, so you dredge that up. None of that is necessary. There will always be one more thing. (n.p.)

This chapter strove to demonstrate several coterminous positions. It sought to explore the analytical and practical implications of the dissemination of the English language and its subsequent parade as the acme of globalisation. The chapter identified and interrogated the deployment of race across differing nation-states and postcolonial contexts, linking the analysis of the pervasive use of the English language in postcolonial Africa and its educational sites to a transnational frame in which the postcolonial world is profoundly shaped by Euro-American capital flows and circuits of plunder. The chapter analysed the

continued re-articulation of colonial distinctions between colonial and postcolonial Africa and, by extension, online and offline, English language and 'other' languages. The chapter examined extractive capitalism embodied in TNCs whose identities keep mutating into new credit card economies and linguistic scales. The macabre violence of the colonial period is engraved in the current re-commercialisation of the black body and takes the visual tapestry in the cinematic messiness of cultural entanglements. As an extension and elaboration of the decolonial project and the interrogation of tertiary education as sites for transformative democracy, the chapter enjoins reflexivity. Such reflexivity is bound to nurture creative students capable of critiquing the mediocrity of corporatisation. As a generative matrix, it mediates reflexive as well as intuitive contextually embedded research practices. While undoubtedly constituting human agency, decolonisation is an *open system of dispositions* that is constantly subjected to archives of remembrance, experiences of marginalisation and exclusion, and therefore the imperative to confront the magisterial cynicism of globalisation. These distinctions anchor the joint institutional (re)production of categories of race and language, the rupture of alter/native archives, as well as perceptions and experiences thereof.

It is prudent to recommend practical strategies for researchers in public universities with regard to predatory publishing and conferences. Both are motivated by profit, not scholarship. Predatory journals and conferences solicit articles and abstracts from activists, scholars and researchers by exploiting the pressure 'to publish or perish' in the academy. Features of these practices include rapid pay-to-publish or pay-to-present models. Such predatory journals and conferences do not have a meticulous (if any) peer-review. Such platforms boast fake editorial boards, and they often list respected scientists, fraudulent impact factors or metrics (Slaughter & Rhoades 2004; Spooner & McNinch 2019). A tell-tale feature of these journal and conference titles lies in the fact that they are deceptively similar to those of legitimate ones. In addition, paid review articles generally promote fake science and aggressive spam invitations to solicit articles. As has been argued, the challenges are threefold: monetisation and commercialisation of the scholarly enterprise, the predominance of quantity-over-quality research evaluation systems (what Tomaselli calls manic managerialism) and serious challenges and weaknesses in the peer-review system. On private schools and academies that opt for international examinations after charging exorbitant fees, the public schools and local examination authorities are obliged to recalibrate their curricula, develop students capable of creativity and critique and refrain from massaging marks for the sake of projecting images of success when the quality of education is actually in dire straits.

Chapter 7

Quantity or quality? A focus on the crises in African teacher-education

Sifiso Sibanda
Research Unit: Research Outside Entities,
Faculty of Education, School of Language Education,
North-West University,
Mafikeng, South Africa

■ Abstract

The advent of independence flung most African democracies into tempestuous modes of educational reformation. Triggered by the euphoria of independence, many newly liberated countries embarked on *en masse* teacher-training programmes to meet the demand for free education for all citizens, as enshrined in their manifestos. Most African countries embraced the populist view of eradicating poverty by providing better access to educational institutions to reduce illiteracy among citizens. To date, access to education remains a priority for most governments. However, this invitation has attracted large numbers of citizens who scramble for the opportunity to attain education. Unfortunately, lack of resources, poor infrastructure and inequitable distribution of financial support prove to be formidable challenges for

mass education. These, coupled with a plethora of other issues, such as abject poverty, add to the woes that are faced by higher education institutions (HEIs). They serve as a recipe for the promotion of substandard education, which is exemplified in the poor performance of students in exit examinations. In several ways, this significantly endorses teachers who perpetuate mediocrity in schools where they are later deployed for full-time services. This chapter seeks to highlight the need to recalibrate modes of teaching delivery in teacher-education institutions (TTIs). The chapter contends that mass teacher-education severely compromises quality. The chapter seeks to trace the ill-preparedness of many post-independence TTIs. The chapter further maintains that quantity in TTIs has a dire effect on the quality of teachers produced by the system. Teacher-training institutions should assess their capacities, capabilities and resources before enrolling student-teachers.

■ Introduction

Mass education refers to teaching students in large numbers. This chapter uses the terms 'mass education', and 'massification' interchangeably to mean (Singh & Shawa 2021):

> [*T*]he growth of enrolment beyond the capacities of universities or a steady escalation in student enrolments that is not accompanied by commensurate increase in budgetary provisions, and investment in facilities and academic staff; leading to a disparity between quality and quantity. (p. 123)

Owing to the history of colonisation in Africa, most universities have had to deal with large numbers of students who seek to transition from being marginalised to middle-class citizens (Kipchumba 2019, p. 132). Massification is usually a word that is used to refer to the growth of admission in higher education (United Nations Educational, Scientific and Cultural Organization [UNESCO] 2004). Massification of higher education has become an inevitable process in today's globalised economy as it is used to solve the problem of discrimination in epistemological generation and dissemination by opening access to higher education to all (Jacob, Abigeal & Lydia 2020, p. 2). The purpose of the massification of higher education in nations is to address the concerns of equity, global competitiveness, relevance and quality of higher education (Jacob et al. 2020, p. 5).

Quality, on the other hand, refers to 'high performance which results in good results which are essential for the development of the school goals, thereby deeming an institution as providing quality education' (Kobla, Mirriam & Li-Hua 2018, p. 25).

An education institution can conclude that it has achieved quality when 'education output conforms to the planned goals, specifications, and requirements' (Kobla et al. 2018).

In TTIs, mass education was triggered by severe shortages of teachers both in primary and secondary schools (Kobla et al. 2018):

> [*T*]here is an acute shortage of trained teachers created by an expansion of pre-tertiary enrolments because of rapid population growth, the success of basic education reform, and the inability of colleges of education to produce the required number of teachers because of inadequate infrastructure. (p. 27)

Apparently, most African countries have suffered the scourge of massification of HEIs, forcing them to reconsider the 'wisdom or lack of it' in increasing enrolment figures while turning a blind eye to the conundrums of increased enrolments.

■ The history of contemporary higher education in Africa

The attainment of independence triggered an unprecedented influx into schools by many previously disadvantaged citizens. This was in response to the national political parties' goals of free education for all, universal basic education (UBE), education as a basic human right etc. Several African countries adopted a free basic education for all approach for their citizens. In some cases, the invitation was extended to adults through adult literacy campaigns. These efforts were meant to redress the imbalance that had been perpetuated by the erstwhile apartheid government regimes.

The sudden increase in school enrolments stimulated the need to expand trainee teacher admissions into colleges and universities. These enrolments were an attempt to meet the increased demand caused by a huge influx of learners who heeded the call to enrol for free education in schools. There was, therefore, a sudden need to increase the number of teachers to meet the growing numbers of learners in the schools. For example, at independence in 1994, South Africa's African National Congress (ANC 1994) manifesto stated that an African National Congress government will:

- introduce one education system that provides ten years of free and compulsory education for all children
- start utilising all existing school facilities
- provide more classrooms and repair and modernise inadequate facilities
- double the number of free textbooks within one year
- allow mother-tongue instruction and education in the language of choice
- provide a national bursary and loan system
- provide adult literacy programmes
- assist youths who have not been able to complete their education
- focus on ways of providing preschool education
- give special assistance to women. (ANC 1994)

We should be cognisant of the fact that before 1994, there was no 'compulsory education' for all children. When the ANC-led government declared 'compulsory education', they might have been oblivious to the infrastructural and human capital implications of this mammoth undertaking. In summary, it meant a massive overhaul of the education system that would see all township and rural children attending school. The invitation to 'free education' was enough motivation as it sparked a glimmer of hope for the marginalised and underprivileged citizens. The post-apartheid period therefore witnessed unprecedented levels of enrolment in South African schools (Msiza, Zondi & Couch 2020, p. 48).

In 1980, the Zimbabwe African National Union Patriotic Front (ZANU–PF) extended a similar invitation to Zimbabwean citizens. Education was declared a right for all citizens. This invitation was embraced by a population that had been denied access to education for a long time and was therefore anxious to grab the opportunity (Gatawa 1986). This suggests that the response to the invitation was overwhelming. This inevitably led to the expansion of the education sector. After the invitation, several schools in that country practised 'hot-seating'. This actually meant that two schools were operating within the same infrastructure, albeit at different periods. The first school would, for example, begin at 7:15 am and end at 12:15 pm. The next school would then start at 12:30 to 17:30.

Similarly, after Nigeria gained its independence in 1960, enrolment figures skyrocketed in schools after the declaration of universal primary education (UPE), which was later renamed UBE. In Lesotho, HEIs witnessed an unprecedented surge in student admission as a result of the free primary education agenda (Tlali, Mukurunge & Bhila 2019, p. 1562). This growth pressure was transferred from schools to HEIs. Likewise, several countries like Botswana, Namibia and Zambia witnessed phenomenal growth in student enrolment (Shava et al. 2021, p. 597).

In line with UNESCO 2030 Agenda, sustainable development goal (SDG) 4, the targets for member states include equal access to technical vocational education and training (TVET) and higher education (UNESCO 2019). Additionally, 'One of the three means of implementation of SDG 4c calls on countries and donors to significantly increase the supply of qualified teachers in developing and underdeveloped countries' (Sunthonkanokpong & Murphy 2019). The expansion of the education system has led to a need for an increase in the number of teachers in most African countries. This has inevitably prompted several options that countries have had to adopt.

The most important goal is to produce many teachers to fill in the gaps that have been created by mass education in primary and secondary schools.

TABLE 7.1: Increase in enrolment in tertiary education in African countries.

Country	Tertiary enrolment		Percentage increase	
	1999	2005	1999–2005	Annual average
Burkina Faso	9 878	27 942	182	30
Burundi	5 037	16 889	235	39
Ethiopia	52 305	191,212	265	44
Kenya	47 254	93 341	98	16
Lesotho	4 046	7 918	96	16
Mali	18 663	32 609	75	12
Mauritius	7 559	16 852	122	20
Rwanda	5 678	26 378	365	61
Senegal	29 303	59 127	102	17
South Africa	632,911	735,073	16	3
Swaziland	4 880	5 897	21	3
Tanzania	18 867	51 080	171	28

Source: UNESCO Institute for Statistics (UIS) (2007).

African countries had to increase the number of TTIs, for example, in Nigeria (Ijaduola 2020):

> [*7*]here were 22 advanced teachers colleges (ATCs) and colleges of education (COEs). By 1981 there had been 43 of them, with about 34 391 students. In the late 1990s, going by the statistics contained in the National Commission on Colleges of Education, NCCE (1996), Nigeria Encyclopaedia and Directory of Government Establishment (1997) and Joint Admission and Matriculation Board (1998), there were no less than 36 Universities, 34 Polytechnics and 62 COEs. At present, both universities and COEs in Nigeria are each over one hundred. (p. 28)

The trend is similar across the continent. Most countries had to more than double their primary and secondary education intakes. There is, however, a challenge in the quality of the teachers who are trained en masse to meet the ever-increasing demand for teachers. The number of teachers produced may be very significant, but the concern lies in the quality of the product. Table 7.1 shows the exponential growth in university enrolments from 1999 to 2005.

■ Conceptual framework

The chapter is premised on Martin Trow's concept of massification of higher education. Trow (1999, p. 304) explains that massification is often accompanied by a host of challenges which should be tackled to maintain quality education. However, these challenges have proved insurmountable for most countries. The first challenge is the introduction of information technology (IT), as it is the most suitable way of handling large numbers of students in universities. The transition from traditional teaching to IT-facilitated instruction poses a challenge to lecturers. Lecturers have to be redeveloped to fit the new mode

of teaching. In addition, universities suffer underfunding from governments which cripples their efforts of expansion to meet demand. Furthermore, for political reasons and possibly to appease the electorate, governments resist the imposition of student fees. Moreover, the expansion in enrolment is usually not met with corresponding growth in infrastructure and teaching staff. Besides, Trow (1999, p. 304) posits that the growth in student figures is often overwhelming to the university leadership, which is not usually ready to tackle the problems that often accompany massification. In addition, Trow (1999, p. 305) avers that massification gives birth to cultural decline. Universities tend to breed students whose culture of reading is astoundingly low. Universities have a new culture of video and audio. Students no longer read but would rather listen to audio and watch videos. Trow (1999, p. 306) further contends that universities are adjusting to global trends and thus losing their identities, integrities and autonomies. Lastly, his theory focuses on the issue of de-professionalisation. The increasing workload for lecturers negatively affects their morale. As a result of the pressure that they find themselves in, lecturers choose to shun any other added responsibility and focus on their teaching loads. This, he argues, is also caused by the commercialisation of research and teaching.

■ Methodology

The research method of this chapter is twofold: a review of literature and autoethnography. A literature review is an organised way of gathering and integrating earlier studies (Baumeister & Leary 1997; Tranfield, Denyer & Smart 2003). By incorporating discoveries and perceptions from empirical research, a literature review can answer research questions far beyond what one study can achieve. Besides, it is an exceptional method of integrating study outcomes to show evidence of a higher degree and to reveal fields where further investigation is required (Wong et al. 2013). This chapter bases most of its argument on the findings of various scholars that have researched the dilemma of massification on the African continent. Many researchers have established similar challenges, mainly because most of these countries are former colonies and have suffered similar pangs of repression and deprivation.

Twinned with a literature review, as has already been stated, is autoethnography. Autoethnography describes 'a research method that uses personal experience ("auto") to describe and interpret ("graphy") cultural texts, experiences, beliefs, and practices ("ethno")' (Adams, Ellis & Jones 2017, p. 1). Ethnography entails observing, participating and writing about cultural experiences (Adams et al. 2017, p. 3). Characteristically, ethnographers should approach social groups inductively, allowing themselves to be guided by their observations. At the end of their observation, they synchronise their findings with more formal research about their encounters (Adams et al. 2017). The author of this chapter used autoethnography to complement the findings of

the researchers cited in the literature review. The researcher is a lecturer at a university that is undoubtedly enmeshed in massification challenges.

■ Findings from literature review and autoethnography

■ Teacher-education programmes

Several scholars have argued that preservice teacher-education curricula do not adequately equip teachers to meet the challenges of a teaching career. There is usually an imbalance between pedagogical content, content knowledge and practicum. Most institutions seem to pin their hopes on the notion that the longer preservice teachers spend doing their practice in schools, the sharper they become. One example of such a programme is the Zimbabwe Integrated National Teacher Education Course (ZINTEC) which was introduced in 1981. The programme combined distance and face-to-face education to equip teachers with pedagogical and content knowledge (Gatawa 1986, p. 96). The programme significantly increased the number of qualified teachers, reaching about 300 per year from the fourth year after the programme was introduced.

The main challenge of appointing preservice teachers in practice schools is that the schools are often under-resourced in terms of human capital that could serve as role models or mentors for the preservice teachers. In addition, mentor teachers are conflicted in their duties of mentoring preservice teachers or student-teachers, as they are sometimes called. This means that mentor teachers are burdened with teaching their own learners and mentoring student-teachers. There is an idea of *teaching schools* that are meant to hone student-teachers. Teaching schools could be defined as 'teaching laboratories' where student-teachers get an opportunity to participate in learning from practice, such as by witnessing best practice, partaking in small-group teaching exercises and studying instructional programmes (Ramsaroop & Gravett 2017, p. 849). The school is serviced by specialist teachers who are classified as suitable to play the role of mentoring student-teachers. However, the problem is that these specialists have to manage their classes while mentoring student-teachers. This practically means that the teaching load is doubled for the specialist teachers. An example of such a school is found in Soweto, in Gauteng province, South Africa. The school serves as a practising school for students from the University of Johannesburg.

■ The gap between theory and practice

Apparently, preservice teachers are not taught fully with the hope that the schools to which they will be deployed will fill in the gaps. Training institutions expect that student-teachers 'will successfully transition from a theory-oriented

preservice teacher to a well-rounded practice-based teachers within the first few years of employment' (Botha & Rens 2018, p. 1).

Unfortunately, when newly trained teachers arrive in schools, they are shocked. Upon experiencing the shock, new teachers fall back on the knowledge and skills that they learnt and may try to survive, or they may quit (Botha & Rens 2018). This could explain why there is high staff turnover in the teaching industry.

Causes of mass education

The expansion of higher education is expected to improve admission to universities and promote social status (Mok & Marginson 2021, p. 6). The enrolment figures of students at universities keep soaring as they are driven by the goal of escaping poverty and marginalisation. However, students tend to flood a university with 'an impeccable academic history'. Teferra (2017, p. 3) refers to flagship universities as prominent universities in a country or academic system, often regarded as the apex of a higher education system or those universities that excel beyond the rest. Notably:

> [*T*]he earlier trend of massification in higher education in most African countries took place on campuses of flagship universities which vastly expanded enrolments in a number of cases. Student residences, laboratories, and facilities which were planned to accommodate several thousands, if not hundreds were pushed to accommodate hundreds of thousands. (Teferra 2017, p. 6)

The result is that the flagship universities experience ballooned enrolments which eventually leads to a lowering of standards. Students continue flocking based on the 'high clout and influence' of these universities, which boast of 'colonial tutelage'. Consequently, 'the flagship universities thus stand as the first gates of "mass" expansion of higher education system on the continent' (Teferra 2017). However, the challenge is compromised quality.

Another cause of massification could be open-door policies by governments. In Cameroon, for example, 'the government has adopted an open-door academic policy. The open-door policy that aimed at making postsecondary education accessible to everyone was imposed on the majority of public universities' (Mve 2021, p. 197). Most of the applicants are usually enrolled in various areas of study based on their qualifications, in spite of the number of candidates that have applied. Admission to the first level of higher education is accessible to most applicants who have successfully finished secondary education.

Challenges brought by mass education

Calibre of students

Driven by the goal to meet the demand for teachers, some universities deliberately lower the qualifications for entrance to teacher-training programmes. Unfortunately, this severely compromises quality and promotes

a high drop-out rate. Mok and Marginson (2021, p. 1) contend that as a result of massification, 'HEIs accepted more students than those with the capability to finish their studies'.

Through its drive towards equality, equity and transformation, the government of South Africa has mounted pressure on universities to increase access to higher education. This notion of education for all citizens has witnessed ballooned enrolments in universities (Council on Education 2016). The availability of funding, such as the National Student Financial Aid Scheme (NSFAS) for South African students, has fuelled the massification of HEIs. Unfortunately, Singh and Shawa (2021, p. 122) established that students misuse NSFAS. Nonetheless, because of the availability of funding, low-calibre students are enrolled when the country adopts the massification of higher education (Singh & Shawa 2021, p. 122). Academics endure educationally weaker students who are being imposed upon them by the government and management of HEIs (Singh & Shawa 2021, p. 138).

Conversely, based on a study conducted in Cameroon, Mve (2021, p. 196) concedes that ballooned classes and packed lecture rooms in African universities are a result of many students passing secondary school and obtaining university entry qualifications each year. To such students, the doors of the university are opened. Mve (2021) further admits that (Njeuma et al. 1999, cited in Mve 2021):

> [O]ne of the main drivers of massification and increasing enrolments in Cameroon higher education is the highly increasing number of the population attending and completing secondary schools in the country. (p. 196)

□ Limited resources

Mass education has led to an acute shortage of textbooks, computers and library space. Because of the limited number of books, students face a situation where one book is shared among several students. 'This has proved to be a challenge as it defeats the whole purpose of prescribing textbooks which students cannot access' (Kobla et al. 2018, p. 26). In most universities, library resources are overstretched, and most institutions are unable to provide enough computers for students.

Universities are faced with the challenge of enrolling many students against scarce or limited resources. Evidently, 'the open-door policy has been adopted and continues to be implemented in an environment plagued by the crisis of financial, physical, and human resources' (Mve 2021, p. 199).

Faced with the challenges of insufficient resources, inadequate facilities and a record of negligence, the higher education sector has been battling over the years to meet these ever-increasing challenges, leading to further institutional frustrations (Kapchumba 2019, p. 133).

☐ Infrastructure

Student accommodation has remained a hurdle for most universities that have experienced massification. Negligible numbers of new buildings have been erected, and most of the existing ones are inadequate for large numbers of students. Moreover, the existing structures have deteriorated significantly because of poor maintenance. 'This has resulted in outsourcing the services from nearby houses and restaurants and these have resulted in the provision of substandard products and services to the students' community' (Kobla et al. 2018, p. 25). This outsourcing of students' accommodation has further exposed students to thuggery; many students are robbed on their way to and from universities by the same communities that have offered them accommodation. There are several reports where students are waylaid and robbed of their cash and valuables like laptops.

Additionally, congested classrooms, shortage of resources, diminishing number of academic staff and low support for staff advancement characterise massification in HEIs (Tlali et al. 2019, p. 1566). As a result of massification, universities run with overcrowded and deteriorating physical facilities, insufficient equipment and instructional materials, as well as limited and obsolete library resources (Kapchumba 2019, p. 142). Consequently, this compromises the package of quality education received by students from universities.

☐ Staffing

Additionally, there is a discrepancy in the lecturer-student proportion as there are more undergraduates as compared to the available skilled academics (Kobla et al. 2018, p. 26). In an effort to meet the demands of massification, the average qualification for academics has been lowered significantly (Altbach 2008). This has resulted in the deterioration in the value of education being offered in the HEIs (Kobla et al. 2018, p. 26). There is no individual attention and there is no investment in technology in addition to a demoralised workforce (Tlali et al. 2019, p. 1567). The growing numbers have made it very challenging for sessions with students, as well as supervising students, and it has negatively affected the struggling students to be assisted timeously (Tlali et al. 2019, p. 1566).

Academic staff have had to adjust their instructional practices and search for innovative assessment approaches that might assist them in coping with large class sizes. There is thus pressure to find innovative ways of managing assessment (Msiza et al. 2020). Every time universities think of massification, they do not think of expanding the number of academic staff to teach the students. The few qualified academic staff in HEIs means that the present staff have to shoulder an increased teaching load because of the large admissions (NCHE 2010).

Some HEIs have ratios of up to 1:100. This has resulted in growing administrative duties and teaching loads for the staff, affecting their ability to

take part in research. It has also affected the teaching quality, the huge groups resulting in overcrowded lecture halls and, in some cases, abandonment of practicals and tutorials (Kapchumba 2019, p. 142).

☐ Funding

African universities' functionality mostly relies on government funding. Because of financial restrictions, the government's ever-diminishing purse perpetually struggles to fund university education. Some governments are reducing the amount of money being allocated to education colleges and universities (Kobla et al. 2018, p. 26). The rise in student admissions in higher education in Cameroon has not been successfully coordinated with university funding. The budget allotted to higher education is inadequate to help all the universities deal effectively with bulk enrolments. The tremendous fiscal challenges facing higher education have led to the predicament of physical and human resources (Mve 2021, p. 200). The higher education sector has thus suffered inadequate funding to deliver quality programmes.

☐ Massification as a burden to lecturers

Massification has led to academics teaching enormous groups of students. Much of their time is consumed in marking scripts and assessing students (Tlali et al. 2019, p. 1566). In a study conducted by Singh and Shawa (2021, p. 122) in South Africa, lecturers viewed, conceptualised and experienced massification as burdensome and an impediment to quality education delivery. In concurrence, Akalu (2016, p. 265) affirms that academics associate expansion with burdens, alienation, an increased workload and loss of autonomy for the professors. In most cases, the teaching of large classes does not promote good performance on the part of students (Mve 2021, p. 192).

Given the ever-expanding student admission, academics are battling to give constructive feedback. For this reason, universities often resort to the use of multiple-choice questions for evaluation (Msiza et al. 2020, p. 50).

As for the ZINTEC programme in Zimbabwe, 'the ratio for field lecturers is 1 : 50. The lecturers are recruited from among the ranks of successful secondary school teachers who join the programme on promotion' (Gatawa 1986, p. 103).

☐ The quality of graduates

Students that are products of massification are less competitive in the job market because they are usually viewed as poor-quality graduates (Mok & Jiang 2016). Higher education is an esteemed commodity in Africa and beyond. However, as more and more people seek this qualification, its value continues to diminish as the masses seek the training.

☐ Challenges of COVID-19 on massification of teacher-education

Because of the coronavirus disease 2019 (COVID-19) pandemic, most universities across the world have switched to virtual classes (Amemado 2020, p. 13). However, some challenges are still hindering e-learning in higher education. At African institutions, these mostly relate to network issues, lack of infrastructure and cost of data. Connectivity has severely affected online teaching delivery. Many students are from poor backgrounds and can hardly afford data. Where universities provide data, students suffer from remoteness outside of areas of network provision. Many students reside in remote rural areas where connectivity problems persist, even if the universities provide data. Another recurrent problem is that of power outages that affect networks. In some cases, there are more days without power, which has severely hampered the progress of connectivity.

In addition to the power cuts, many students do not have laptops or smartphones with which to learn online. Some universities have tried to support students by providing computers, but the challenge is massification. The numbers are too high for the sustainability of such programmes. COVID-19 restrictions, social distancing and lockdowns have also affected teaching, learning and assessment (Matei 2021, p. 142).

■ Findings and recommendations

Based on the literature review and autoethnography, there is a plethora of challenges facing African universities. The most critical challenge stems from the view that universities are springboards for escaping poverty. This view ascribes the attainment of wealth and subsequent upward social mobility as the ultimate goal of university education. Regrettably, students tend to value Euro-American epistemologies as emancipatory from the so-called 'dark continent', Africa. The coloniality that has remained endemic even after colonialism is the reason flagship universities such as the University of the Witwatersrand (Wits), Stellenbosch University, University of Cape Town, Makerere University, University of Zimbabwe and several others are overflowing with students from within and without the countries where those universities are located. Ndlovu-Gatsheni (2013, p. 10) clarifies the nuances between these two terms as follows: 'coloniality must not be confused with colonialism. It survived the end of direct colonialism'. The African citizenry wishes to occupy the spaces that were predominantly occupied by erstwhile colonisers during the oppression days. This gives the impression that Africans still view their former colonisers as emblems of erudition, success and respect. This coloniality has infiltrated most spheres of the education systems of African countries. It is common to find African parents struggling to enrol their children in seemingly white-dominated schools. A recent example is the Brackenfell High School incident in Cape Town, South Africa, where there was a clash between

the school community and the Economic Freedom Fighters (EFF) party on issues of exclusion of black children in a school-organised matric dance.

If all schools had been equal in terms of infrastructure, resources, human resources, teacher-pupil ratios, class sizes, enrolment, access to technology, et cetera, such scenes would be rare in Africa. The inequalities in schools have continued deepening the racial chasms.

From primary schools, parents squeeze their purses dry just to admit their children to a school that may be managed by white individuals. In South Africa's Gauteng and Western Cape provinces, the nation has witnessed sporadic fights where black parents wish to penetrate historically known white schools. White people, on the other hand, seem to increase school fees to astronomical heights in order to enjoy the privilege of exclusive education. This may have given birth to private or independent schools that charge exorbitant school fees. Many of these privately-owned schools have escalated the fees beyond the means of ordinary citizens. When learners go to these schools, the medium of instruction is most often English. African parents may assess the standard education of their children based on how their children speak English, hence the scramble for these privately-owned schools and institutions. This has been going on since the advent of the colonisers. Wealthy black Africans sometimes send their children to study overseas because they do not have confidence in their the South African education systems. Several politicians and the elite citizens of Africa are proud to send their children to study overseas. For instance, Bona, the daughter of the late former-president of Zimbabwe, Robert Mugabe, 'was deported from *Australia* while studying there along with seven other children of senior members of the Mugabe regime' (Bona Mugabe, n.p. 2022). This is symptomatic of African citizens who are ashamed of their self-image and denigrate their progeny – their Africanism.

The education policymakers in Africa have neglected their crucial role of emancipating themselves from Euro-American education hegemonic tendencies. The African leadership should begin to value Africa. They should begin to realign the matrices of epistemology with the African context. The existence of very poor villages and filthy-rich suburbs in the same country is an indication of endemic forms of coloniality. Africans need to totally transform the higher education system to be endogenous. We need to take pride in our education system and stop feeling sorry for ourselves. Africa must stop benchmarking its universities using popular European universities, such as Oxford, London (both in the UK) and many others. These European universities replicated themselves in Africa, transferring Eurocentric views that seem to have hypnotised Africans even after several years of political emancipation. This author argues that the quality of education is not necessarily lowered by the numbers enrolling at universities but is lowered by comparing our universities with the Euro-American universities. Our standards are benchmarked on Euro-American notions that seek to reinforce the yoke of coloniality. Students from

all walks of life flood universities mainly because of the universities' envisaged emancipatory magic. That is why even those students who hardly qualify for enrolment scramble for university degrees despite their poor secondary school results. After entering universities through their political cronies or shady connections, the result is that these students fail, repeat modules and overstay at university, thereby increasing the university population. If such students were to divert to vocational training institutions where they would do courses to enable them to tap into their talents and never bother universities, universities would be free to churn out quality students.

Besides, the greatest number of students who populate universities were born after independence and are from poor, underprivileged backgrounds. Such learners join the university with significantly lower knowledge in terms of exposure to technology. The learners may pass secondary school certificates through rote learning, where teachers spend half of the time forcing them to cram past examination papers. The result is that these learners will pass but will not perform any tasks outside of the secondary exit examinations. In addition, they join universities that hardly tolerate the use of African languages for communication purposes, let alone learning. The huge adjustment that these learners have to make invariably demoralises them and they either give up or endure failure for several years before they finally receive their first degrees. Here, this author argues that there is a huge knowledge gap between rural and urban pupils. The degrees of exposure vary considerably. The urban child has far greater exposure than the rural one. When these two groups of learners join a university where there is online tuition, rural pupils are faced with tremendous challenges. To begin with, they must adjust to urban life, shed off their rural backgrounds and assume urban citizenship. In most cases, this transition has seen many students losing their morals or even their studies because of territorial adjustments. The governments should endeavour to afford equal educational footing to both rural and urban children. The pedagogy of a rural child should be transformative. Rote learning, which focuses on examination question papers, should be replaced with discovery learning. This author argues that a learner who has passed a secondary exit examination is not necessarily likely to pass university modules. This author further argues that teachers should be retrained to produce an African child who will walk into the university with confidence. This author contends that, at the moment, secondary teachers are only teaching for examinations. This author has witnessed, as have others, learners who have reasonably passed secondary exit examinations failing dismally upon enrolment at university. There seems to be a gap that primary and secondary teachers must endeavour to close. This gap is responsible for poor performance. Additionally, the syllabi should be refocused to centre on marketing African education. For instance, instead of learning about the German Nazi-dictator, Adolf Hitler, in History classes, there should be a total transformation to focus on iconic African leaders. Instead of viewing Africans as consumers of Euro-American epistemology, the African continent should be a generator of its own knowledge that should compete in global spaces.

This author argues that the African continent should embark on a mega decolonial project. Elite citizens should not find themselves occupying spaces that were previously occupied by the oppressor. These neo-colonial tendencies have continued fostering class differences. It is high time victims of racial discrimination received attention. African governments must accommodate the previously excluded rural child. African leaders must consider distancing politics from education. The feeder ministry of primary and secondary schools should be upgraded in order to produce quality learners. When primary and secondary schools have learnt to produce quality learners, the universities will inevitably follow suit. This calls for a roundtable discussion between the departments of basic education and higher education and training. The governments must invest heavily in education by introducing cutting-edge technology in primary and secondary schools both in rural and urban areas. However, should there be a scarcity of resources, rural schools must be prioritised as they have always been disadvantaged. There must be massive energy generation capacities to accommodate the rural child who must also benefit from the Internet, online classes, et cetera. African governments must consider massive rural electrification projects to alleviate power challenges affecting rural schools because most African countries are predominantly rural. This suggests that governments should prioritise these communities whose disadvantages stretch from being the battlefields during the war of liberation.

This author further argues that ignoring the flagship universities as the epicentres of knowledge should be considered by most African countries. The sooner the prestige of these universities fades, the sooner Africa will realise its dream of generating its own knowledge. The universities should consider teaching students in local languages. Some Afrikaans communities in South Africa raise its children in Afrikaans. In many instances, the Afrikaans-speaking learner appears more intelligent than the English First Additional Language (EFAL) learner, mainly because the Afrikaans-speaker may seemingly be allowed to think and reflect in their language. In the case of African children, they must shed all knowledge accumulated from their mother tongue and struggle to conceptualise everything in English. This total transformation forces Africans to despise their background and willingly trade it for a more beneficial language, in this case English.

African universities must give birth to their own professors and must not allow flagship tendencies to define a professor. Academics must learn to love their own local languages. They must not view the use of local languages as a lack of erudition. This author has noticed at the university where this author is teaching that there is an acute shortage of PhDs in local languages, such as Setswana, IsiNdebele, isiZulu, et cetera. The shortage speaks to the unavailability of PhD promoters in those areas. What it means is that this status quo will remain much longer because there is no one to supervise PhDs in those areas. Universities must plough resources unreservedly into the promotion of indigenous languages in addition to using them as mediums of instruction.

The Department of Basic Education (DBE) should address the unhealthy class sizes in some schools. When this author was assessing student-teachers during their teaching practice, this author got an opportunity to eye-witness some incredibly large class sizes. The student-teacher was teaching a crowd of 52 Grade 10 learners. Conversely, one would have expected smaller groups, especially because of the health risks attached to crowded classrooms in the age of the COVID-19 pandemic. Moreover, the DBE should embark on a transformative agenda for rural schools' infrastructure. It is appalling that several years after independence, there are children who still learn under trees or pole-and-dagga structures that do not resemble centres of knowledge-generation.

Many rural schools use 'open air classrooms'. Some are housed in dilapidated mud structures that put the lives of learners and teachers at risk as they can crumble and fall, especially on rainy or windy days. This uneven education terrain has created two types of learners; those whose schools prepare them for university education using laptops, tablets, smartphones and a series of other technological gadgets and those who struggle to buy a pencil, have to walk several kilometres to school and are under the tutelage of temporary teachers whose pedagogical skills are questionable. This phenomenon only serves as an indictment to the African governments whose manifestos enshrined a plethora of unfulfilled promises, such as equal education for all children. The most unfair part of this unevenness is that these two groups of learners will have to converge and learn under the same roof at university. In most cases, children from rural schools struggle to meet the basic technical knowledge required for a university student.

Contrary to the abject poverty experienced by a rural child, a child from an affluent school has the luxury of using a laptop, iPad, tablet, smartphone and other sophisticated gadgets from as early as kindergarten. By the time these children reach university, they will be several miles ahead of the children from disadvantaged backgrounds. The DBE should work toward destroying the wall of division between affluent and disadvantaged schools. The DBE must not force the affluent school to open their doors to all children, but rather it must elevate the disadvantaged school to the level of affluent schools.

Moreover, the DBE should introduce sports such as rugby, tennis and hockey to rural schools. I argue that these sporting disciplines may create several options and opportunities for secondary school graduates. Some might pursue various sporting careers instead of struggling with a university education which does not seem to be yielding the much-anticipated results of getting employment and subsequent success. This is likely to reduce the congestion at some universities because some pupils might join sports academies where they may dedicate their energy to shaping their sporting careers.

The electorates should hold the governments to account. It seems many African governments only succeeded in unseating the colonial masters to

subsequently occupy the colonisers' spaces. The governments should be forced to dismantle the colonial project, which is perpetuated by the current regimes. The #FeesMustFall movement recently witnessed in South Africa is an example of a step towards dismantling coloniality. Their genuine cry is that governments must fulfil the promises of free education. This free education should entail access to education for all, with no racial, tribal or xenophobic discrimination.

Moreover, universities should consider terminating teacher-training and relegating that responsibility to teacher-training colleges. Teacher-training colleges have the right environments for this purpose. This author has heard several people comparing university-trained teachers with those trained by colleges. It is generally agreed that teachers from colleges are better positioned to teach than their university counterparts. Colleges have a convivial atmosphere that reeks of nothing but teacher-training, its norms and values. Teacher-training colleges afford more classroom practice than the universities do – for example, student-teachers from Hillside Teachers' College, Belvedere College, United College and many teacher-training colleges in Zimbabwe allow student-teachers to go into schools and practise teaching for the whole year or a full school term of about four months, under the supervision of the school management teams that comprise heads of schools, their deputies, senior teachers and heads of departments. In addition, they receive regular visits from college lecturers. This is unlike institutions such as North-West University in South Africa, where student-teachers only spend four weeks in their teaching practice. It appears universities have brisk teaching projects whose agenda does not intersect with the production of fully-baked teachers. This author contends that such teachers have not been given adequate experience to appreciate various pedagogies which would enable them to teach confidently.

Lastly, governments should consider building universities in rural areas to service rural school communities. This might help to maintain the moral integrity of students who have to adjust their lifestyles upon enrolling at universities that are often found in metropolitans. Besides, this will decentralise the epistemology matrices and promote players from the rural scenes, especially agriculture and indigenous knowledge systems, to various knowledge-generation platforms. This may also transfer development from big cities and solve the problem of infrastructure, such as roads that have always been a nightmare for travellers moving to and from the countryside. When universities are built, roads and various infrastructures will be erected to service the university communities, thereby benefitting the areas where the universities are located in different ways. It will also drag business enterprises out of towns to less contested spaces in the countryside. Additionally, it will provide business opportunities for the rural folks; they will provide rented accommodation for students, provide culinary services to students and get

employment as general, ancillary and academic staff. An example of this model is the Lupane State University in Zimbabwe's underdeveloped Matabeleland North province. This model offers huge potential for developing rural areas. A proliferation of such universities will significantly reduce university enrolments across countries, thereby enhancing quality. Students in such universities will enjoy the privilege of studying in their own setup and culture.

■ Conclusion

In conclusion, the massification of higher education is symptomatic of coloniality and its agenda of ensuring that the colonial flag remains at full mast. The fact that everybody must have a university degree, even the clearly undeserving cases, confirms that monetary gain is attached to post-university education. To alleviate the challenges of mass education and to produce quality graduates, governments must focus on uplifting the standards of learners at primary and secondary schools, particularly the disadvantaged ones such as rural and high-density residential urban centres.

PART 3

Pedagogical empowerment of trainee teachers

Language as a right and language as a resource in multilingual South African higher educational institutions

Kufakunesu Zano
Department of Linguistics and Modern Languages,
College of Human Sciences, University of South Africa,
Pretoria, South Africa

◾ Abstract

The chapter examines the challenges encountered during language transformation in South African higher education institutions (HEIs) as well as how language as a right and language as a resource could be incorporated to address the language question adequately in higher education teacher-training. This is necessary because South African society is multicultural and multilingual and recent trends in language teaching in South African educational HEIs have focused on the widely held belief that a specific language incorporates aspects of culture. The relationship between language and culture is unambiguous because cultural factors influence language use, but language also creates culture. Furthermore, culture is not a fixed entity; there may be a variety of subcultures within mainstream culture and different

members of a cultural grouping may disagree on what constitutes mainstream and subculture. South Africa recognises 11 official languages and guarantees citizens the right to receive instruction in their native tongue. However, although this Constitution is powerful, it does not guarantee that linguistic principles shall be implemented in teacher-education in higher education. This chapter demonstrates how any government policy in language, as in other aspects of education, could be most effective when the user, in this case, higher education students and other stakeholders, is involved and participates in educational decisions, including those on the language of instruction and other linguistic repertoires to make teacher-training in South African HEIs linguistically responsive.

◼ Introduction

This book chapter examines the challenges encountered during language transformations in South African HEIs as well as how language as a right and language as a resource can be incorporated to address the language question in higher education teacher-training. The aim is to change existing negative views about using African languages as a medium of instruction in teacher-education in South African colleges of education and universities. This is required as South African society is multicultural and multilingual and current language teaching practices in South African HEIs have centred on the widely held view that a specific language integrates cultural components. Because cultural variables determine language use, but language also generates culture, the relationship between language and culture is complex. Additionally, culture is not static; within the dominant culture, there may be a range of subcultures and members of a cultural unit may dispute what comprises mainstream and subculture. The South African Constitution recognises 11 official languages and guarantees citizens the right to receive instruction in their native tongue. However, despite its strength, the Constitution does not assure that linguistic norms will be adopted in higher education teacher-education. This chapter demonstrates how the South African language policy, as in other aspects of education, strives to be arguably the most effective if the user, in this case, higher education students and other stakeholders, were to be involved and participate in educational decisions, including those on the language of instruction and other linguistic repertoires to make teacher-training in South African higher educational institutions linguistically responsive to them.

◼ Language: Definition and functions

◼ What is language?

Whatever else people do when they meet – whether they sing, discuss or contest – they converse. People exist in a world of words. We chat with our neighbours, colleagues, children and even strangers. We even communicate

face-to-face and over cell phones. Because of technological advancements, computers help in communication through Skype and other social platforms. We talk and are talked to almost every minute of our everyday lives and we even talk and are talked to in our nightmares. Also, we converse when no one is available to respond. Some of us have spoken aloud in our slumber.

We converse with our dogs and, occasionally, with ourselves. As with every other characteristic, language differentiates humans from other animals. To comprehend our individuality, one must first comprehend the character of human beings. According to the epistemology portrayed in many people's mythologies and faiths, language is the wellspring of human life and power. This could be the reason why in certain communities, a baby though celebrated, is similar to an inanimate object and not yet fully a human being. A 'full-human being status' is acquired by a youngster merely by the act of language learning.

Watson (1989) in Jeynes and Littell (2000, p. 24) identified three factors that make defining the entire language challenging: (1) proponents of the entire language dismiss a dictionary-style definition; (2) powerful feelings may arise among both supporters and opponents of the whole language, making sharing of information among the groups tough and (3) those who are the true experts in whole language, classroom teachers, have still not been satisfactorily exploited for their contribution. It will be impossible to determine the use, appraisal and presentation of this invention if the entire language is not explicitly specified (Watson 1989 in Jeynes & Littell 2000, p. 24).

The first important definition is, of course, De Saussure's explanation of language (1916). Saussure's conception of language is inextricably linked to his dialectic *langue* – parole. It considers *langue* to be a hierarchical system of symbols, whereas *parole* refers to the act of speaking or the physical expression of language (Repka 2020, p. 152). The use of symbols to communicate thoughts from the speaker to the listener is known as spoken language. The symbol is, certainly, the most important component in this formulation.

The term *sign*, like the term *language*, has a variety of definitions, but the one that is most pertinent here is a physical mark or occurrence that transmits information. It is a symbol for something else entirely. The linguistic sign (symbol) is defined by De Saussure (1966) as a two-sided entity. The linguistic sign, according to Saussure, is a combination of a notion and a symbol. For example, the sign 'tree' is a combination of the concept 'tree', a tall plant with a long trunk made of wood and the phonic sequence /tri:/.

Repka (2020) puts it as follows:

> The sound sequence is the *signifier*; the concept is the *signified*. It must be stressed that both the concept and the acoustic images are abstractions – the signifier is not the actual sound wave, not the physical event but the idea of a sound sequence, an image or a representation of such an event and the signified is not the tree, not a concrete plant but the idea of a tree, the representation of a class or category (p. 151).

Repka (2020) points out that the:

> [C]ombination of the concept and the acoustic image in the sign (symbol) is arbitrary, that is, there is an absence of any similarity between the form of a linguistic sign and what it relates to in reality. (p. 151)

In other words, according to Repka, 'the form of the sign is not conditioned by the piece of reality it refers to but it is a matter of convention'. That is why in English we say *table*, *tafole* in Sesotho and Setswana, in Shona *tafura* and isiZulu, *itafula*.

According to Mathesius (1975, p. 13), language is a system of symbols, a method of creative medium, embodied in clear communication as the sum of the prospects available to customers of the same linguistic community for information exchange through a speech at a specified moment, and recognisable from their realisations in specific proclamations. Then, according to Halliday (1979, p. 21), language is viewed as a technique of communicating what the human creature 'can do' in contact with other human beings by transforming it into what he 'can mean'. What he 'can say' (the lexicogrammatical system or grammar and vocabulary) is derived from what he 'can mean' (the semantic system) (Halliday 1979, p.21)'. As a result, thoughts are communicated in wordings, which are then re-encoded into sounds.

■ Functions of language

Loosely speaking, any language solely serves one function – communication. However, a closer analysis will confirm that any language has several purposes that shape human behaviour.

□ Functions of language – Cook (1990)

In addition to the range of possible language functions, according to Cook (1990, p. 26), any language serves many purposes, which include the function of referring to something else. Any statement that is intended to transmit messages is referred to be this. It is a clear purpose of language, as it is when words are employed to describe things or realities. Next is a directive function of a language in a bid to get someone to do something. Such language function is commonplace in commanding, inviting, warning, requesting, advising and instructing, as in, 'please, may I leave the house?'

Furthermore, according to Cook (1990), language has a phatic function implying the part of communication that opens the line of communication. This is prevalent in cell phone conversations when the network is bad when an interlocutor says, 'please, hold on, my network is playing the usual tricks'. Besides, language plays a poetic function, which dwells on how the code is used. It focuses on the message for its sake, say in an advertising slogan like, 'Finger lickin' good (KFC)'. Additionally, Cook (1990) identifies the metalingual

function of any language, indicating that any language talks about its features and is relevant, say, in translation, when a word is used in a special way or to bring awareness to the pattern itself to elucidate or restructure it. An example of this is as follows: What does this word here mean? This part is the 'medulla oblongata'. Lastly, Cook (1990) reports that any language has a contextual function indicating what is being spoken of and what is being referred to. A context is a key from which the object of communication is drawn, as in, 'now, let's retrace what we covered yesterday and link that to today's work'.

☐ Functions of language – Mullaly (2007)

Mullaly (2007, p. 76–79) defined various linguistic roles that are discussed shortly. Language is used as a means of communication by people. This function is used in a range of contexts, at varying tiers and for a range of functions, including scientific communication, commercial communication, interpersonal relationships and cultural communication. Moreover, language is a tool for individuals to integrate and adjust so that they can live together in a community, such as the probity of their job in an organisation. Furthermore, it has a social control role for managing communication so that those who are participating in it can understand one another. Additionally, language is a tool for self-understanding. It is critical to first recognise and define one's circumstances when developing one's character. One should be able to discuss one's prospects and flaws, virtues, aptitude and willpower, to mention a few.

Mullaly (2007) further states that language is a means of expressing oneself. Language can be used to communicate in a variety of ways, ranging from the most basic to the most sophisticated or challenging. A simple expression such as, 'I was worried about you' can express concern or care. In addition, language is a tool for communicating with others. To ensure good communication, it is necessary to comprehend others as well as oneself. In equal measure, language is a tool for logical reasoning. The ability to think rationally enables one to organise a notion or thought explicitly, thoroughly and conceptually through thinking inferentially, objectively, causally or chronologically.

Similarly, Mullaly (2007) reports that language aids in the development of intelligence. Intelligence is the capability to process words, sentences, paragraphs, persuasion, description, analysis or exposure using language connected with language functions and to employ a range of language appropriately to generate ingenuity in multiple ways. Character is formed through language. Language intelligence assists one in creating a stronger character and seeing one's strengths and prospects. Language develops a career. The process starts with lifelong practice and then moves on to self-development (intelligence based on new experiences instead of having to learn). Finally, language allows for new forms of originality. Language is a means of expressing ideas that can lead to the development of logical

thinking in all of its forms. The progression corresponds to the advancement of intellectual potential. Talents may create fresh inventiveness as a result of schooling.

Literature overview

Language in education policy in South Africa

With the arrival of independence in 1994, the new administration set out to address historical injustices, aiming to implement the necessary social, political and neoliberal policies to re-enter the world market (Potgieter & Anthonissen 2017). In South Africa, language reform has long been a contentious topic tied to nation-building, social integration and civil liberties; as a result, when the democratic state took office in 1994, it established a language policy to tackle these challenges.

As an example of such a constitutional instrument, the South African language policy is cited; the latter is often productive, and it is constantly changing and transforming. It has been suggested elsewhere that the processes of concession that resulted in the foundation of a young state were instrumental in the development of a new language policy (Ngcobo 2009, p. 181), which has had disastrous ramifications for the language policy's enforcement in South Africa.

As a result, according to Beukes (2009), appropriate legislative and other steps were taken with the aim of operationalising language policy processes, with milestones ranging from the *Pan South African Language Board Act* (1995) and the Minister of Arts, Culture, Science and Technology's Language Plan Task Group (1996) to the *National Language Policy Framework* (NLPF) published in 2003. In addition, the government developed several support mechanisms aimed at ensuring policy enforcement, such as the National Language Service (NLS) in 1994 and the Pan South African Language Board (PanSALB) in 1996 – a statutory language planning body to oversee affirmative action – both of which were established in 1994.

The Constitution (Republic of South Africa [RSA] 1996), in Section 6(1), recognises 11 languages as the official languages of the country. As a result, nine indigenous South African languages were also included, together with the former two official languages, English and Afrikaans. The Constitution (RSA 1996) further obliges a positive responsibility upon the state that authorises the state in:

Recognising the historically diminished use and status of the indigenous languages of our people, the state must take practical and positive measures to elevate the status and advance the use of these languages (s. 6.3).

Additionally, Section 29(2) states the rights of citizens 'to receive education in the official language or languages of their choice in public educational institutions where that education is reasonably practicable'. There is also a provision in Subsection 5 for the creation of the PanSALB to promote and create conditions for the development and use of (RSA 1996):

- all official languages
- the Khoi, Nama and San languages
- sign language.

Language in Education Policy (LiEP) is meant to promote additive and functional multilingualism, sociolinguistic as well as cultural integration (DoE 1997). The LiEP anchors on an educational system or model of structured bilingual education found in dual-medium (also known as two-way immersion) programmes (DoE 1997, p. 1). The result of this language policy is that two or more languages will be perceived and used as languages of learning (LoL) for all learners in the country (DoE 1997, p. 13).

For the scope of this chapter, the following provisions of the LiEP are of significance (DoE 1997):

- The new LiEP is conceived as an integral and necessary aspect of the new government's strategy of building a non-racial nation in South Africa. It is meant to facilitate communication across the barriers of colour, language and region while at the same time creating an environment in which respect for languages other than one's own would be encouraged.
- The underlying principle is to maintain language(s) while providing access to and the effective acquisition of additional language(s). Hence, the Department's position that an additive approach to bilingualism is to be seen as the normal orientation of our LiEP. (p. 1)

☐ Successes of language in education policy in South Africa in brief

Like any educational programme launched in any country, LiEP has its share of successes and failures. The successes and failures of LiEP could be societally grounded, institution-based or nationally driven.

To begin with, the LiEP has its share of positives. According to Bamgbose (2003, p. 7), after dialogue and analysis, the NLPF of South Africa was published in 2003, and it is usually recognised as being more developed than those of numerous African states. When referencing implementation challenges in African states, Kamwendo (2006) observed that on paper, the *Language in Education Policy* is hugely compliant with the Language Plan of Action that was mooted by the then Organisation of African Unity (OAU) – to which many African governments have paid lip service. Furthermore, and perhaps most crucially, the Constitution of South Africa places great

importance on the advancement of previously oppressed African languages, requiring the government to take actual and meaningful steps to improve such cultures (Beukes 2009).

Failures of the language in education policy in South Africa

The LiEP implementation is laden with challenges. There is a belief and anxiety, according to Murwamphida (2008), that African indigenous languages need suitable scientific language and terminology for teaching key disciplines like Natural Sciences and Mathematics. Because African languages are not commonly taught in schools, they are suffering from the effects of industrialisation and modernisation (Naudi 2005). The South African Languages Policy (1996) allows people to participate in social and religious activities in their native languages. One sad fact is that this would not be mirrored in practice: politicians and corporate experts do not provide services to citizens in one's preferred language, even as the law demands.

In the same vein, Ogutu (2006) adds:

> The parents of the school going children conclude that English is the language of education and thereby social-economic advancement. It is therefore of more use to their children than the African language, which is only useful at home. English is seen as the key to economic empowerment and progress. Pupils and parents seem to believe that basic education in English, rather than their mother tongue, will give them the upper hand in schooling and thereafter a better hand in the job market. (p. 51)

The LiEP encourages schools to pursue a range of techniques for multilingualism, as the fundamental idea is to maintain the home language and promote the use of additional language(s) (DBE 1997). However, according to Heugh (2008, p. 361), an inclusive strategy for bilingual education was 'torpedoed' under the 'pretence of language rights', which saw the technique as a racially discriminatory form of linguistic separatism, and thus 'parallel and equitable advancement of 11 languages, along with English and Afrikaans, independently, was not only a pointless task; it fostered a breach to English, whenever in hesitation option'.

Many other reasons have hampered a strong dedication to bilingual education, including what Mda (2004) refers to as a lack of power on the part of the government. Most of these have much to do with teacher-education and training, where instructional practices are antiquated; teachers' theoretical knowledge is untenable; teachers themselves are not competent enough in the languages they teach; the dilemma of constrained resources and materials in classrooms has not been addressed, particularly when it comes to resource sharing in large classes (Heugh 2008; Mda 2004). Given these enormous limits, it appears improbable that learning environments will become forums for debate and regeneration (Dixon & Peake 2008, p. 78).

According to Dixon and Peake (2008, p. 78), when parents' voices are considered, the default position in English becomes even more entrenched. Allowing parents to participate in the establishment of school language policies while preventing the dissemination of knowledge about the intellectual advantages of studying in the mother tongue is detrimental. Parents consciously choose English as their children's medium of instruction in schools because they feel that the sooner youngsters master the language, the better.

According to De Klerk (2002), English's cultural and economic power is thought to promote class inequality and employability. The work of McKinney (2007, p. 6) with Johannesburg's youth and Rudwick (2004, p. 159) with the Zulu youth in Umlazi demonstrates the uncertainty that young people have towards English and African languages. For many, being regarded as preferring English to their mother tongue or losing their mother tongue leads to marginalisation from a variety of social networks. This decision is made more difficult when educational discourses that place a premium on English proficiency label pupils as successful or failing as early as primary school. Insufficient alignment between the state's declared language policy and the reality in the classrooms is attributed to failures linked to using African languages. Desai (2001, 2003) agrees that there is a discrepancy between high-level policy decisions and instructional strategies at the local level in recognising linguistic diversity as the reality in the classroom does not mirror their intended objective and English's monopoly continues.

To reiterate the above fact, Bilchitz et al. (2016) evaluate the preceding two decades and provide extensive commentary on the Constitution's successes and faults. Despite being incisive and sceptical, the authors show sympathy for the government's failure to comply with the Constitution's call to nurture the 11 official languages. Despite constitutional provisions aimed at empowering historically minoritised African languages, English has spread and now controls the majority of public spaces (Bilchitz et al. 2016):

> [*W*]hile the designation of 11 official languages may appear to be indicative of the sacrifices made to bring everybody together, English has effectively become the country's major language, and it is maintained in the majority of official documents and events. (p. 78)

To combat this, Brenzinger (2017, p. 50) argues that in the market-driven South African society, English is the preferred language because of worldwide expectations for effective communication. Fluency in English is a need for progression in the South African school system and is also a criterion for success in the workplace. As a result, improving English abilities among the non-mother-tongue-speaking majority of South Africans is widely regarded as a key concern in all phases of formal schooling.

According to Holmarsdottir (2005), South Africa's language policy shift caused a spike from two to 11 recognised official languages (DoE 1997; RSA 1996). In principle, the amendments in the legislation provide a different set of

living conditions for African languages in South Africa than they did previously in history. The use of various indigenous languages as resources in the construction of a democratic society appears to signal a desire to change the balance of power amongst language groups. To prevent one language group from dominating another, the South African Constitution's framers opted to make all 11 of the country's major languages equitable and formal but without detailing how this would be implemented.

Despite this, the then-Minister of Education, Pandor (2006), confessed that the government's LiEP had not been executed persuasively so far. In terms of higher education, she acknowledged that certain establishments had adopted structural language policies but admitted that the government's suggested 'long-range strategy' to accomplish its LiEP had been abandoned (Pandor 2006).

According to Brenzinger (2017) and Bilchitz et al. (2016), the new Constitution itself gives justifications for ignoring the language rules. In Chapter 1, Section 6.3(a), the national government and provincial governments may use any distinct official language for government, considering usage, practicality, expense, regional circumstances and the balance of the tastes and aspirations of the population as a whole or in the province in question but the national government and each provincial government should be using at least two official languages.

On a regional scale, the 11 official languages are limited to at least two, and local authorities can operate in only one language. According to Brenzinger (2017, p. 50), financial restrictions, organisational aversion to transform, pragmatic explanations such as the access and quality of teaching and learning resources and qualified personnel, and parents' preferences for media of instruction, to name a few, have all been raised as pretexts for nonadherence with legal language provisions.

Regardless of LiEP's limitations, there is no other way to alter a profoundly unequal and divided society but through it. The bulk of South Africa is emancipated through the usage of African languages. There will be no meaningful reform of the country until African languages are prioritised in higher educational institutions.

◼ Language policies in higher education in South Africa

There can be no democracy, no effective service delivery, no effective policing, no effective education through the medium of languages that many do not speak [...]. (Kaschula 2013, p. 8)

Alexander (2007a, 2007b) reported that until home language education is recognised, there will be no improvement in the standard of education for the majority of South Africans; only if public educational standards on the continent are based on the individuals' mother tongues rather than foreign

languages, as they are now, all attempts to develop a platform for poverty eradication will be pointless (Alexander 2007b, p. 3).

In South Africa, higher education, such as other industries, has been under impetus to reform (Van der Merwe 2016). According to Badat (2009, p. 456), transition entails the collapse of current social structures, organisations, policies and procedures, as well as the emergence and establishment of something significantly new. During apartheid, colleges were 'colour coded', suggesting that particular universities were designated to distinct ethnic groups through the extension of *University Education Act of 1959*. Education was designed in such a way that it kept different races apart. Those classified as coloured, black or Indian were not granted the opportunity to receive the education that would help them enter into elevated skilled trades as whites were (Van der Merwe 2016). Thus, post-1994, the purpose of change in this domain was to overcome the inequities that black students in higher education faced in attaining equality of rights, resources and educational quality (Odhav 2009, p. 38).

According to Akoojee and Nkomo (2007), the 1997 Education White Paper sets the tone for higher education transformation by asserting that South Africa's challenge now is to service a perfect society, address compelling public demands and react to changes and possibilities (Akoojee & Nkomo 2007, p. 390). The issues that would inevitably emerge as a consequence of the institutes' language variety were not initially a worry for school personnel. Without a knowledge of the language codes that govern academic contexts, access to higher education is impossible.

☐ *Language Policy Framework for Public Higher Education Institutions*

The *Language Policy Framework for Public Higher Education Institutions* is based on the following constitutional and legislative provisions:

- The constitutional provisions in respect of language in education, especially Sections 6; 29(2); 30; and 31(1) (a) of the *Constitution of the Republic of South Africa Act 108 of 1996*.
- The *South African Languages Draft Bill of 2011*.
- The Government Notice (No. 383, Vol. 17797) on language policy in (school) education of 14 July 1997.
- The legislation guaranteeing the academic autonomy of HEIs. (The *Higher Education Act 101 of 1997*, especially s. 26–33.)
- The recommendations concerning language policy in higher education as contained in the Organisation of African Unity's *Language Plan of Action for Africa of 1986* and in the *Harare Declaration of March 1997*.
- The *Language Policy for Higher Education of 2002* (LPHE) was designed and proclaimed by the Minister of Education in 2002 (Ministry of Education 2002; Council on Higher Education [CHE] 2001, pp. 1–20).

Multilingualism is among the six core principles that must be fostered via the educational processes. They make the following points, among others (CHE 2001):

> In the field of language, we want to foster two fundamental values: firstly, the benefit of studying in the language one knows best, or mother-tongue education, and secondly, the encouragement of multilingualism. We assert that an instructionally solid approach to learning begins with a mother-tongue foundation. We also feel that explicit government backing and leadership are required for multilingual communication. (p. 3)

The African renaissance ethos mandates that consideration be paid to the adoption and application of African languages in particular. The obvious fact is that no genuine discussion about Africa's rebirth can take place without the complete flourishing of African languages. In terms of their conventional research and development function, HEIs are obligated to take the lead in this area.

This statute emphasises the relevance of higher education in the development of multilingualism. Offering dual-medium delivery alternatives at the postgraduate level is a recent trend in multilingual settings. This usually involves a combination of the mother tongue (first language) and English, and it has a bigger impact on some areas than others, such as natural science, engineering and technology. As a result of South Africa's colonial history, there is a significant chance that African languages (other than Afrikaans) may never be classified as languages of teaching (LoT) at the postsecondary level. This implies that the overall education sector will be dependent on English as a second or third language for years, with perhaps more devastating results than we already have. As a result, in the face of English's growing dominance in global trade and communication, it is critical to provide the groundwork for the employment of African languages as teaching languages at all levels of the system, no matter how long that takes (CHE 2001).

☐ Report on the use of African languages as mediums of instruction in higher education 2015

The Department of Higher Education and Training (DHET) has taken many steps to track progress and assess how well institutional practices align with government legislation. The Ministerial Advisory Panel, which was founded in 2012 and whose work culminated in the publication of the report on the use of African languages as mediums of instruction in higher education, is the most recent effort. There has been very little advancement in researching and harnessing the capacity of African languages in promoting access and success in HEIs, as evidenced by this document many before it (DHET 2015).

The Panel's report, which was published in 2015, made recommendations and one of them was a call for the review of the 2002 LPHE. According to the research, the policy has flaws that make it difficult for HEIs to apply it effectively. Lack of coercive procedures incorporated into the policy, shortage of support from the government to promote the policy's execution and lack of specific guidelines within the policy on how multilingualism is to be realised within higher education are some of the problems mentioned (DHET 2015).

The report also voiced fears that the policy's language and philosophies were outdated and out of step with new developments in the post-school education and training (PSET) system. A major impediment to the development and usage of indigenous languages at the university level has been identified as a dearth of conformity with the Department of Basic Education's (DBE's) curriculum and language policy. As a result, there was a need for the DHET and the DBE to work together to ensure the institutional utilisation of local languages from the elementary school to the tertiary level.

Finally, the importance of relationships between universities (as guardians of knowledge) in the development of languages was emphasised, as was support for African language departments at institutions. As a result, this policy framework aims to solve the aforementioned issues and supersedes the 2002 LPHE.

For policy implementation, monitoring and evaluation, the report states that to guarantee alignment with this policy framework, institutions must adopt or amend their language policies. The policies must be accompanied by implementation plans, which must be evaluated yearly to ensure that progress is being made in meeting the DHET criteria. By a certain deadline, the plans must be presented to the DHET. The strategies must also be adaptable to the concerns of growing linguistic abilities in many domains. This is to ensure that language proficiency is not utilised as a criterion for admission to any South African university (DHET 2015).

To allow the implementation of this policy framework, the DHET will develop and execute a finance model. Before funds can be made available, universities will have to present language development plans for approval by the DHET. The DHET will establish and distribute action plans with the universities that will explain the basis for selecting institutional plans. Institutions will alter and submit plans that were not approved during the evaluation year in the following year (n + 1).

The DHET will create and implement a monitoring tool, complete with indications that will track progress. Institutional inspections will be made as needed as part of the regular monitoring process to address the obstacles to the execution of short- and long-term language development programmes. This policy framework came into effect from 01 January 2022.

Language policy and planning in South Africa

As those responsible for implementing South Africa's linguistic laws are learning, philosophical endorsement of the advantages of multilingualism may not confirm its adherence in practice. Neither constitutional authority nor appeals to it have much weight. Society's linguistic habits evolve, change and metamorphose into powerful social and linguistic influences that are only partially responsive to institutional reforms.

It is becoming increasingly important to be able to decide where to make such interventions and where the most efficient regions of influence are. To provide it, we must accept the fact that these three language attitudes, language as a problem, language as a right and language as a resource, exist side by side dynamically in most cultures and are anchored in real situations with varying degrees of credibility.

According to Hult and Hornberger (2016, p. 29), in 1984, Richard Ruiz set forth three orientations to language planning: language as a problem, language as right and language as a resource. Since then, the perspectives have only grown in strength, reaching the status of a framework in language policy and planning (LPP). Any policy document or national policy scenario may tilt toward one or more of the groupings.

It is still a helpful instrument for analysing South Africa's higher education language learning policies. For this chapter, the thrust is to promote multilingualism in South African HEIs, I will exclude language as a problem that anchors on a monolingual ideal and assimilationist mindset (Evans & Hornberger 2005, p. 94), in which linguistic diversity is a threat to national unity which is best achieved with a single, common language (Ruiz 1984).

Language as right orientation

The nature of language as the right orientation is compensating, although with different theoretical underpinnings. It aims to compensate for language disparities via judicial processes (Hult & Hornberger 2016, p. 35), as with the *Language Policy Framework for Public Higher Education Institutions* (2002) and a report on the use of African languages as mediums of instruction in higher education (2015).

McNelly (2015) and Ruiz (1984) define language as a right in terms of personal, human and constitutional rights. The freedom to speak and keep one's ancestral language is included in the concept of language as a personal right. Language as a human right refers to an individual's right to be free of prejudice in their preferred language, just as they would be free from discrimination because of race. Language is a crucial aspect in gaining access to a society's life chances, such as job, primary health care, jurisprudence, voting, education and the media (Ruiz 1984, p. 22). Likewise, multilingualism

in South African higher education aims to facilitate individual empowerment and national development by furthering the balanced use of official languages, guaranteeing that all South Africans have the right to practise their language rights by using the official language(s) of their preference in a number of situations (CHE 2001).

Language as a right is about the right to use one's language(s) in communal life activities and the right to be free from language discrimination (Crawford 1998, pp. 62–63). Language is linked to personal liberty (Ruiz 1984, p. 22). Specific language rights in a polity may also be framed with international charters, conventions, covenants, declarations or treaties such as the European Charter for Regional or Minority Languages or the United Nations Declaration on the Rights of Indigenous Peoples. Similarly, the *Language Policy Framework for Public Higher Education Institutions* (Ministry of Education 2002) anchors on the Organisation of African Unity's Language Plan of Action for Africa of 1986 and in the Harare Declaration of March 1997.

Language is extremely vital for multilingual minority groups striving to sustain their distinct category and national heritage, which can be difficult to do when they are disadvantaged, excluded or discriminated against. Linguistic minority entitlements are a human rights mandate to accomplish global collaboration in solving world economy, sociocultural as well as to promote and encourage respect for human rights and fundamental freedoms for all, irrespective of skin colour, sexuality, language or religious doctrine (UN News Centre 2014). South Africa respects linguistic rights as enshrined in the United Charter. In 1994, it was re-admitted to the United Nations (UN) following its transition into a democracy.

Bilingualism and bilateralism are the language goals of two-way dual language bilingual education programmes (Cummins 2000). Even the report on the use of African languages as mediums of instruction in higher education (DHET 2015) in South Africa emphasises the role of higher education in promoting and creating conditions for the development of historically marginalised official South African languages, as well as the Khoi, Nama, San languages and Sign Language.

The educational programmes and related objectives that follow from a language as right orientation may vary depending on where rights fall along and how they are implemented in practice (Baker 2001, p. 370). Key questions that emerge from the language as a right orientation are:

- What personal freedoms are associated with language?
- What positive language rights are promoted?
- Are language rights granted directly by legislation that explicitly focuses on language or indirectly by legislation that focuses on equal access to other rights or opportunities?

- For whom are language rights granted (that is, which individuals or groups)?
- What intertextual references are there to international charters, conventions, covenants, declarations or treaties? (Hult & Hornberger 2016, p. 37).

☐ Language as a resource

Language as a resource regards multilingualism and cultural diversity as valuable and fully compatible with national unity (Ruiz 1984). Speakers of minority languages, in the case of South Africa – Khoi, Nama and San are viewed as a source of specialised linguistic expertise that is beneficial to themselves, their communities and society as a whole rather than as agents of division. Thus, it is an inclusive perspective in which linguistic diversity benefits everyone in society, not just linguistic minorities (Cummins, Chow & Schecter 2006, p. 299). As a result, the *Constitution of the Republic of South Africa Act 108 of 1996* was passed in South Africa, affirming the progressive ideals of human decency, justice and autonomy (RSA 1996).

It is, in the end, an additive approach in which languages are not placed against one other in a battle between a minority language and a majority language; rather, speakers' ability to develop competent bilingualism in both a national language and another language is considered as beneficial (Hult 2014, p. 169; Skutnabb-Kangas 2000, p. 50). The social, cultural, economic and geopolitical potential of a country is boosted when its population has well-developed linguistic repertoires that include the national language as well as minority languages and other modern languages (Ruiz 1984, p. 27). To that end, the orientation includes both the creation and expansion of new multilingual resources as well as the conservation (or language maintenance) of existing resources (Ruiz 1984, p. 26).

As a resource, language favours pluralism over homogeneity. Language is a precious asset for society, and it can be leveraged to develop financial and cultural linkages between them. It can help solve the conflicts that develop when debating language as a problem and a right. Using language as a resource to frame talks about the necessity of bilingual education could be beneficial to both dominant and minority populations (Ruiz 1984). Language as a resource allows individuals and groups to play a greater role in world politics and the world economy (Ruiz 1984). Equally, the Constitution thus places an obligation on the state to take practical and positive measures to develop, elevate the status and advance the use of indigenous languages, recognising their historically diminished use and status to achieve the aspiration of Section 29(2) of the Constitution and ultimately ensure that 'all official languages must enjoy parity of esteem and must be treated equitably' (Section 6 [1], [2] and [4] of the Founding Provisions) (RSA 1996).

Language is a vital aspect and means of expression of identity and it encourages acceptance and solidarity among people as a resource (Baker 2011; Ruiz 1984). The ideals of coexisting among many languages, cultures, interests and ideologies guide a multicultural society. The power allocation in a diverse society takes individual needs into account. The importance of language in developing and maintaining a pluralistic society cannot be overstated.

Language is a resource that allows people from various parts of the globe to interact with one another. Culture's philosophy and ideals are reinforced and strengthened by language (Darder 2011). Evidence suggests that bilingualism is a valuable benefit. Multilingual and biliteracy development lead to higher achievement across the curriculum and greater utilisation of a country's human capital (Baker 2011). Biliteracy and bilingualism also improve self-esteem, personality and a good attitude towards education, all of which lead to enhanced societal cohesion and pleasure.

The continuing expansion of language as a resource aids language policy advancement across the globe, promoting the use of bilingual education (Ruiz 1984). In sum, language is both a personal resource and a national resource. A critical question that follows, then, is how the concept of resource is framed. Fundamentally, linguistic resources are different from natural resources. As Ruiz (1983) explains:

> We can leave the oil in the ground, and it will still be there to use in a hundred years; the more we use it, and the more we use it unwisely, the less we have of it later. Just the opposite is true of language and culture. The more we use these, the more we have of them; but the longer we neglect their use, the closer we are to extinguishing them. That has already happened for some languages, and we may be starting to see the consequences. The world will one day end, but the overriding cause is more likely to be a shortage of human resources like language and culture than a shortage of physical resources like coal and oil. (p. 65)

Educationally, a language as resource orientation is advanced through programmes that support additive language learning. The South Africa LiEP (1997) anchors on additive bilingualism, albeit its implementation is questionable. Likewise, South African higher education is mandated by law to advance multilingual practices. By connecting with instructional strategies that support the advancement of career bi/multilingualism, it becomes critical to adopt language as a resource in South African higher education. Such programmes may be designed specifically for linguistic minorities, as in enrichment and developmental bilingual education or indigenous language nests or for both linguistic minorities and dominant majorities, like two-way immersion bilingual education with additive language learning as a core objective.

■ Conclusion

It appears that a lot of variables are at play in South Africa, resulting in English becoming the preferred language. In saying this, the English language's influence should not be overestimated, nor should its naturalised status as a dominant language be downplayed in terms of how academics and parents are colonised by it. Teachers and parents appear to be unable to access a variety of paradigms, each with its own base of information on language development and viewpoints about and appreciating languages apart from English. If this is the case, HEIs must be provided with options so that they can make meaningful, knowledgeable crucial decisions in cooperation with parents. This also necessitates the avoidance of inadequate narratives by the learners when they speak. It is also definitely high time to stop whining about a failed national language policy and start looking into what HEIs are perpetuating versus their constitutional obligations.

One of the major steps is to consider the language policies legislated by the South African government upon the attainment of independence. This chapter has demonstrated that higher education curriculum policies are enacted by the government of the day following the government's national interests. One of the aspects that determines the success of a language policy is political persuasion on the part of policymakers and implementers. Even Desai (2006, p. 110) believes that her experience working in language policy for a few years has shown her that skilled professionals can attempt to sway the procedure, but their performance is mostly based on their role in shaping political players.

South Africa is a multilingual country. This chapter argues that instead of viewing language as a problem, it should be viewed as a right and a resource. In addition, the chapter emphasises that inclusion refers to equal weightage to mother-tongue education as well as effective English access for students in higher education. Nonetheless, unless there is universal consciousness of the necessity of learning in one's original language, the principle will not gain a foothold in people's hearts and minds, and no personal views or behaviours will develop. Language planning as an advertising strategy could help multilingual South Africa escape its language teaching and learning trap by fixing policy missteps and ensuring the economic and environmental wellness of African languages in higher education in South Africa.

Alternative multimodal assessments in English teacher-training modules

Louise Olivier
Research Unit Self-Directed Learning,
Faculty of Education, North-West University,
Mahikeng, South Africa

■ Abstract

Many stakeholders in the educational landscape had to cope with multiple challenges since the start of the coronavirus disease 2019 (COVID-19) pandemic. However, even before the pandemic, teachers and learners had to adapt to multiple changes in literacy education because of constantly changing digital learning environments. Also, as is evident from the use of sources from the past 20 years, incorporating multimodal assessment in literacy and, especially, English classrooms is not new. The power relations between teachers and learners are also changing as learner agency and voice are becoming more necessary and relevant regarding literacy teaching and assessment practices in English classrooms. This chapter aims to illustrate how multimodal assessments can be used in English teacher-training in the

African context to address many inequalities in the ever-growing digital divide that can benefit all stakeholders in coping with 21st-century literacy challenges.

■ Introduction

Worldwide and in South Africa, the educational landscape is constantly changing and expanding, especially because of digital influences that affect the ways in which knowledge, meaning-making and literacy are accessed, processed, produced, assessed and shared by teachers and learners (Carstens 2012, p. 12; The New London Group 1996, p. 60; Walsh 2009). As all levels of educational delivery (basic and higher education) are referred to in this chapter, the generic terms *learners* and *teachers* will be used throughout the chapter.

Burke et al. (2013, p. 42) state that teachers must widen their 'definitions of literacy and pedagogical practices.' Hung, Chiu and Yeh (2013) call for a 'reconceptualisation of literacy'. In the digital age, the notion of text has changed significantly (Farías, Obilinovic & Orrego 2007, p. 182).

In this chapter, it is proposed that literacy pedagogy in English preservice training modules must adapt to these changes. According to Eutsler (2021), the growing use of digital texts in homes and classrooms highlights the importance of including preservice teachers in activities that address different modalities of literacy. If this is not done, it can have long-lasting pedagogical implications for learners and teachers, as Walsh (2009) declares:

> We are in a time of transition with new theories and new pedagogy evolving while at the same time newer forms of digital communication are emerging. There are arguments that classrooms are in danger of becoming redundant unless significant changes are made to curriculum and assessment practices. (p. 2)

Cope et al. (2011, p. 84) highlight the need for new literacy practices and the assessment thereof and state that 'what we do in schools under the rubric of literacy, and particularly what we measure in our literacy assessments, has not caught up with these profound changes'. Albahlal (2019, p. 146) also remarks that the English language curriculum is no longer sufficient to equip students for work and life in today's rapidly changing technological environment.

Traditionally, literacy assessment in language classrooms focused mostly on print-based media and reading and writing (Hung et al. 2013; Kress 2010) restricted to decoding and encoding (Hung et al. 2013). Furthermore, printed text and written language dominate language classrooms and push 'the teaching of visual images and multimodal elements to the periphery of the literacy curriculum' (Serafini 2015, p. 412). Lim, Towndrow and Min Tan (2021) state that literacy is no longer limited to writing and reading language-based texts only; students must also develop multimodal literacy in order to meet the digital age's communication needs. Serafini (2015, p. 412) also states that students are increasingly presented with multimodal texts that incorporate

visual pictures and a range of design elements rather than texts that rely solely on textual words. Regarding contemporary assessments in English, Lawrence and Mathis (2020) proclaim that:

> Current literacy assessments are focused on a single mode of meaning-making (reading and writing, whether oral or written) and assume that literacy and language are 'fixed systems' – comprised of discrete skills that can be taught and measured in isolation. This validation and privileging of a single mode of assessment is most culpable in children labelled 'At-risk', falling significantly behind those without this label. Many informal, multimodal assessments endeavour to give a more complete picture of children as literate beings. (p. 135)

Some case studies have been conducted in educational contexts where English is used as a language of instruction, as a subject and as an additional language in conjunction with multimodal pedagogical practices (Early & Kendrick 2020). Examples of these case studies include:

- a focus on acquiring new literacies (Adoniou 2013)
- deepening reading comprehension (Cummins et al. 2006)
- support in developing writing (Early & Kendrick 2020)
- writing of family narratives (Early & Marshall 2008)
- writing of fan fiction (Jwa 2012)
- fostering self-directed learning (Kajee 2011; Kendrick, Chemjor & Early 2012; Kendrick, Early & Chemjor 2013; Kendrick et al. 2006)
- critical thinking and problem-solving (Kendrick & Mutonyi 2007)
- focusing on linguistic and cultural diversity (Lotherington & Chow 2006)
- exploring community practices of narrative (Lotherington et al. 2008)
- providing familiar resources for disadvantaged learners (Marshall & Toohey 2010; Naqvi 2008)
- out-of-the-classroom literacies of learners (Newfield & Maungedzo 2006)
- constructing multimodal texts (Potts & Moran 2013; Stein 2000, 2007; Stein & Newfield 2006; Vasudevan, Schultz & Bateman 2010; Yi & Hirvela 2010).

In Africa, sociocultural aspects of literacy have been investigated to an extent. Early and Kendrick (2020) state that matters of educational equality, social justice and privilege have piqued the interest of language educators who are embracing a broader view of communication. Early and Kendrick (2020) also question:

> [7]he pedagogic practices that act as gatekeepers and/or effectively bar students from drawing on the full range of their meaning-making potential, questions that are sharpened when viewed through a multimodal lens. (n.p.)

Norton and Toohey (2011) highlight how producing multimodal texts allows learners to engage and validate their cultures, identities and literacies.

The role of the learner and the voice of the learner should become more prominent in literacy education. Malaguzzi (1998, p. 3) mentions that 'the child has a hundred languages... but [the school and the culture] steal the ninety-nine'. Many proponents of multimodal pedagogy highlight the role of the learner and

encourage teachers to involve learners in multimodal assessments. Bearne (2003) is of the opinion that learners:

> [D]eserve to be given the key to translating their inner text making into coherent communication by explicit discussion of variations in the structure, purpose and effects of multimodal as well as written texts. (pp. 99)

The importance of individual learner access, choice and opportunity in literacy education is highlighted by Harste (2000):

> Every instance of making and sharing meaning is a multimodal event involving many sign systems in addition to language [...] When we limit ourselves to language, we cut ourselves off from other ways of knowing [...] Children whose strength is not language are denied access. Children whose strength is language are not given opportunities to extend their knowing and thereby develop new ways to communicate with themselves and others. (p. 4)

The literacy needs of preservice teachers and their potential learners must be foregrounded. Many students at various educational levels are exposed to multimodal texts outside of classrooms than in literacy classrooms (Serafini 2015, p. 420; Walsh 2009, p. 2). Serafini (2015) makes an important statement:

> As students spend more time in digital and online environments, we need to accommodate the strategies and skills they will need to make sense of the complex, multimodal texts they encounter there. It would be a shame if the strategies students utilise to make sense of the complex texts in their lives are left outside the classroom door. (p. 420)

■ Theoretical framework

The theoretical lens through which this chapter is viewed is based on multimodal social semiotics theory, systemic functional linguistics (SFL), multimodal literacy theory and critical multimodal literacy theory. According to the multimodal social semiotics theory (Kress 2009, p. 38), systems of assessment have mainly focused only on speech and writing for learning and meaning-making. Kress (2010) demands that more contemporary semiotic modes are included in forms of communication.

Systemic functional linguistics (Halliday 1978; Shin, Cimasko & Yi 2020; Unsworth 2014) can also be used to inform a shift to and inclusion of multimodal composition in the digital age as language structures have developed (and continue to develop) in response to the meaning-making tasks they assist within the culture in which they are utilised (Unsworth 2014, p. 379).

Furthermore, this chapter is viewed from the multimodal literacy theory (Kress 2010; Serafini 2015). According to Serafini (2015), multimodal literacy is a:

> [P]rocess of generating meanings in transaction with multimodal texts, including written language, visual images, and design features, from a variety of perspectives to meet the requirements of particular social contexts. (p. 413)

Regarding this theory, 'text in isolation is deemphasised and additional modes of communication are considered, such as vivid, life-like illustrations and movement' (Eutsler 2021).

This chapter is also guided by the critical multimodal literacy theory. Critical multimodal literacy, based on critical literacy (Anderson & Irvine 1993; Crafton, Silvers & Brennan 2017; Freire & Shor 1987; Shor 1992), is also important for this chapter as literacy cannot be separated from social action and power relations. It also highlights the importance of integrating multiple modes for meaning-making. More importantly, it promotes learner agency, culture, identity and voice (Ajayi 2015). Critical multimodal literacy ties in with Fisher's (2005, p. 92) concept of *literocracy*, which connects democracy and literacy where learners have choices of and input into their literacy practices to help equalise the use of various modes for expressing their ideas.

Regarding their literacy needs, Crafton et al. (2017) remark that learners 'can take action, make a difference, and change what they feel is not working within their classroom, the school, or their community and beyond'. Albers (2007, p. ix) states that we need to create and support learners 'who are agents of text rather than victims of text'. Crafton et al. (2017) also note that we must comprehend the link between language and power, as well as the fact that language is a cultural resource that can be utilised to test or sustain dominant structures. Literacy must be defined more broadly once this critical perspective is included in literacy activities.

◼ Literature review

◼ Multimodality

This chapter specifically relates to multimodal assessment and, by implication, the theoretical foundation of multimodality. The concept of *multiliteracies* links closely to multimodality. The New London Group promoted the idea of a move away from a singular literacy to the concept of multiliteracies, especially in terms of technology, multimodality and the recognition of cultural and linguistic diversity (Cope & Kalantzis 2000; The New London Group 1996). Cope and Kalantzis (2000, p. 5) state that multiliteracies expand the idea of traditional literacy as it 'engages with the multiplicity of communications channels and media' and 'with the increasing salience of cultural and linguistic diversity'. Furthermore, according to Oozeerally, Ramma and Bholoa (2020) multimodality is a fundamental characteristic of multiliteracies.

The concept of multimodality also has its roots in social semiotics and, ultimately, functional linguistics (Bezemer & Kress 2016; Jewitt, Bezemer & O'Halloran 2016) and it relates to the use of more than one mode of communication. The work by Halliday (1978), in terms of social semiotics, underpins multimodality. In a similar way in which grammar is used to make

meaning in language, so can the concept be extended to other semiotic modes. In this regard, *semiotic resources* are used and they are defined by Van Leeuwen (2005) as:

> The actions and artefacts we use to communicate, whether they are produced physiologically – with our vocal apparatus; with the muscles we use to create facial expressions and gestures, etc. – or by means of technologies – with pen, ink and paper; with computer hardware and software; with fabrics, scissors and sewing machines, etc. (p. 3)

Consequently, the scholarship on multimodality often relates to language and, specifically, *meaning-making*. In this regard, Wong (2019) contends that all meaning-making is, in fact, multimodal, as different modes are employed in order to convey meaning. In this process, semiotic resources are employed in a specific and contextualised way. Kress and Van Leeuwen (2001) also note the commonality between the semiotic principles as meaning is created across different modes. Semiotics concerns the use of signs and within the context of multimodality, signs (1) involve a relation where form and meaning are arbitrarily motivated, (2) are shaped by the environment in which they occur and (3) hold the potential for meaning-making affordances (Bezemer & Kress 2016). These signs are made by means of a specific mode.

A central concept in multimodality is *mode* and according to Bezemer and Kress (2016, p. 18) this relates to 'socially shaped, culturally available material resources' that often co-occur in ensembles. Moreover, the concept of a *semiotic mode* is defined by Bateman, Wildfeuer and Hiippala (2020) as:

> [*A*] constellation of practice within a community of users that enables meaning constitution in a manner co-describable at the following three abstract semiotic levels, all of which are individually and specifically necessary for the determination of each and every semiotic mode: (i) a deformable perceptible materiality, potentially involving multiple sensory channels (canvas), (ii) a classification (paradigmatic) of formal units and structures (syntagmatic), which defines the material deformations that are pertinent for the semiotic mode, and (iii) a level of discourse semantics that provides dynamic mechanisms for the abductive construction of discourse structures assigning contextual interpretations to the form classifications deployed. (pp. 318–319)

Another important element of multimodality is the process of *design*. Different modes can be used as a means to design learning environments (Bezemer & Kress 2016). The idea of designing for learning in a multimodal sphere can even be extended to embodied teaching (Lim 2020), in which the teacher can utilise multimodal semiotic resources for pedagogy. Design and multimodality are also highly relevant for assessment. According to Bezemer and Kress (2016, p. 106), 'modes constrain and make possible demonstration of learning' and 'sign-making/design is always based in part on the sign-maker's assessment of the affordances of (available) modes and their aptness for the semiotic task at hand'.

Multimodality has become a relevant aspect of the learning and teaching context and, consequently, relevant literacies have also been highlighted. In this regard, Weninger (2021) makes the following observation:

> Multimodality and multimodal literacy have been researched as a goal of literacy education, as well as a foundational aspect of the semiotic activities of classrooms and instructional materials that aim to promote learning. (pp. 133–134)

Hence any discussion around multimodal assessment would also require cognisance of literacies that would support such activity on the side of both teacher and learner.

■ Multimodal assessments

There are many advantages in utilising multimodal assessments. The term *assessment* derives from the Latin *assidēre*, which implies 'to sit by' (AHD 1996, p. 111). Many proponents of multimodal assessments propose that learners become part of the assessment processes (Tan et al. 2020, p. 101). In this way, power is shared equally between teachers and learners as the latter can contribute to their academic communities and society at large and be better prepared for their future careers.

In an age of massification (Msila 2006, p. 82) and diverse learner populations (Sankey, Birch & Gardine 2010, p. 853) in South African universities, social justice is also an aspect that can be addressed to provide learners with alternative multimodal assessments so that all learners can attain mastery in literacy as not only one assessment mode is used (Archer 2014, p. 106; Baldwin 2016, p. 168; Bali & Mostafa 2018, p. 228; Sackstein 2015). This ties in with socially just assessment (Montenegro & Jankowski 2020). According to Baldwin (2016, pp. 5–6), expanding the way we view literacy affords all learners access to the symbolic capital required to flourish in our increasingly globalised world, especially individuals from disadvantaged language origins and those with limited access to 21st-century technology.

Multimodal assessments also help learners to develop *metaliteracy* (Mackey & Jacobson 2014) skills that can help them to participate in *convergence culture* (Beard 2012), where old and new media collide and where the lines between consumers and producers merge. This ties in with the concept of *renewable assessments*. The concept of renewable assessments or, as originally termed, renewable assignments is also of importance and they can be described as assignments that assist both individual learning and new or better open educational materials that help the larger community of learners in the long run (Wiley & Hilton 2018, p. 137).

Renewable multimodal assessments produced by students can also contribute to decolonising the curriculum (Olivier 2020, p. 20) and providing learners with opportunities to apply the philosophy of Ubuntu through their

own interpretation and application of literacy practices. Through contributing to disciplinary knowledge in the African context with African voices with renewable multimodal assessments that can be reused and shared freely, learners can be empowered to see themselves as experts and even scholars as 'each member of the community learns with and from each other as well as contributing resources to the learning community' (Rothkrantz 2016, p. 2).

Multimodal assessments promote more flexible (Bali & Mostafa 2018, p. 228), versatile (Gilakjani, Ismail & Ahmadi 2011, p. 1322) and personal learning for learners' varying learning styles (Sankey et al. 2010, p. 853; Weeks 2018). Multimodal assessments can also improve self-directed learning for both teachers and learners (Erben, Ban & Castañeda 2009; O'Brien, Chlochasaigh & Ó'Ceallaigh 2019; Sert & Boynuegri 2017).

Multimodal assessments also encourage learner engagement, intrinsic motivation and even enjoyment in making their learning and assessment relevant for pedagogical and professional purposes (Bali & Mostafa 2018, p. 228; Beard 2012; Lopez-Gil & Molina-Natera 2018). Multimodal pedagogy can help learners acquire creative, critical, digital and collaboration skills necessary to be successful in the 21st century (Early & Kendrick 2020; Grigoryan 2018, p. 212; Gulecoglu 2018, p. 120; Ntelioglou et al. 2014; Wyatt-Smith & Kimber 2009, p. 70). Albahlal (2019, p. 152) states that innovation and learning skills, information, media and digital literacy skills, as well as work and life skills, must all be clearly integrated into the 21st-century classroom. As a result, schools in general, and particularly English language classrooms, should equip students with processes and practices aimed at developing and acquiring skills such as collaboration, creativity, critical thinking, initiative, media literacy, self-direction and cross-cultural and social cognisance.

There are, however, many hindrances in incorporating multimodal assessments. Although many teachers assume that learners are digitally literate (Leu et al. 2004), many learners are not proficient when it comes to multimodal digital tools for pedagogical purposes. Considine et al. (2009, p. 472) propose that learners should be taught to 'access, analyse, evaluate, and effectively communicate in a variety of forms including print and nonprint texts'.

It is not only learners who need guidance with multimodal assessments. Lack of training and knowledge for assessing multimodal texts are also relevant to teachers (Chandler 2017, p. 3; Grigoryan 2018, p. 209; Gulecoglu 2018, p. 116; Summers, Szabo & Ingram 2018, p. 153; Tan et al. 2020, p. 97). Many learners and teachers can also experience fear and anxiety if they must work with unfamiliar technologies (Beard 2012; Tan et al. 2020, p. 101). Furthermore, physical access to computers, networks, software and licensing are also among the problematic features for many learners and teachers worldwide, and in South Africa in particular (Grigoryan 2018, p. 209; Statistics South Africa 2017).

Digital tools to assist teacher-directed techniques with the goal of increasing the quality of lecture materials and presentations are used by many teachers (Papageorgiou & Lameras 2017, p. 134). However, there exists a gap between multimodal teaching and learning and multimodal assessments (Curwood 2012, p. 234; Tan et al. 2020, p. 97). Some teachers make use of multimodal formative assessments but do not feel comfortable including high-stakes summative multimodal assessments (Ross, Curwood & Bell 2020). Many teachers appear to be at ease with intertextual composition, even with the finished outputs. However, when it comes to evaluating procedures, we appear rather uneasy (Yancey 2004, p. 90).

Empirical and anecdotal evidence indicates that some teachers also do not know how to design and assess multimodal texts in their curricula (Gulecoglu 2018, p. 113; Tan et al. 2020, p. 101; Yi & Angay-Crowder 2016). One of the main reasons why teachers do not want to assess multimodal texts is because they do not have adequate experience and knowledge about multimodal literacy, concepts, metalanguage and grammar of modes other than writing and writing rubrics (Chandler 2017; Cloonan 2011, p. 1; Jewitt et al. 2016, p. 20; Macnaught 2018, p. 144; Serafini 2015, p. 419; Shin et al. 2020, p. 1; Unsworth 2014, p. 379).

■ Multimodality in English classrooms

English can no longer be managed in classrooms as 'all-inclusive single literacy' and 'treated as a simple linguistic skill' (Albahlal 2019, pp. 145, 149). Rather, Albahlal (2019, p. 149) proposes that English instructors must understand the dynamic and adaptable character of literacies that cover topics such as culture, multimedia and technology. In turn, the English classroom should be a setting addressing the rising diversity and integration of diverse forms of meaning-making, where the textual interacts with the aural, behavioural, spatial and visual.

In many English classes, knowledge is still mainly assessed through using the traditional essay. Bickford (2015, p. ii) states that the traditional essay 'coerced into cognitivist conventions by the fear of appearing uncritical, preserves the hegemonic colonial mindset when it suppresses the clear, direct, and relatable voice of the student or scholar'.

Language instructors must establish sufficient teaching techniques for modern literacy demands as well as suitable assessments that can properly reflect and quantify students' literacy performance in connection with the multimodal character of current texts (Hung et al. 2013). Furthermore, English teachers need to design authentic and problem-solving assessments that learners will need and be able to use in the future outside of the English classroom (Albahlal 2019, p. 149).

When incorporating multimodal assessments, DeVoss, Eidman-Aadahl and Hicks (2010) propose that learners should be taught critical skills that will enable them to see digital technology as a tool for understanding political and social settings – functional skills that will help them better grasp how to manage technology and rhetorical skills so that they may pick the best mode to communicate their thoughts and ideas.

Some examples of multimodal assessments in the English classroom can include writing hypertexts and hyper stories and using images with text when writing hybrid essays. Blogs, comics, graphic novels, illustrated novels, games, podcasts, videos and websites can also be used in multimodal assessments (Frost, Myatt & Smith 2009; Serafini 2015, p. 420).

In conclusion, Albahlal (2019) remarks that:

> English language learners need activities based on new technological tools and semiotic forms that can offer them opportunities for the development of both standard language proficiency and digital literacy and 21st century skills. Multimodal practices such as instant messaging, social networks, digital storytelling and media redesigning should be used to teach and learn English so that students can engage in creative manipulation of popular cultural and textual artefacts. (p. 150)

Just as with any type of assessment, English teachers must ensure that the multimodal assessment aligns with the specific learning outcomes (Fjørtoft 2020). For learner success, English teachers should choose appropriate multimodal assessments so that learners from all backgrounds and with various digital skills can benefit (Montenegro & Jankowski 2017, p. 5).

■ Recommendations

In this section, recommendations for multimodal assessments in the English classroom to develop and support learners' literacy in the 21st century are provided. However, other subjects can also benefit from incorporating multimodal assessments in the curriculum.

■ The pendulum swings

Privileging alphabetic text as the main mode of assessing literacy in English classrooms across the world has been challenged by the exposure of learners' everyday lives to multiple modes of literacy representation (Curwood 2012, p. 233). Being a literate learner in the 21st century is no longer confined to being able to read and write printed texts. New literacies can be taught and assessed through multimodal tasks and assessments that include audio, visual and digital elements. English teachers must therefore keep investigating, challenging and incorporating new literacies and multimodal assessments into the curriculum to support learners with the dynamic and ever-changing nature of the literacy landscape in the 21st century (Ryu & Boggs 2016).

According to Serafini (2015, p. 420), we must broaden our analytical lenses while also widening students' interpretative tools and repertoires to assist the growth of literacy in our classrooms. Liu (2014, p. 8) also mentions that we have to 'set out to exploit the new territory of creative space and the potential of multimodality in cultivating democratic, transparent, equal, participatory, and emancipatory educational assessment ecologies'.

English classrooms should aim to create a holistic literacy environment where traditional and multimodal texts and assessments 'involve listening, reading, viewing, talking, and interacting with texts and with others' (Walsh 2009, p. 14).

■ It takes a village

Incorporating 21st-century skills for English language learning using multimodal assessments is not only the responsibility of the teacher. It is important that all stakeholders (including learners, teachers, parents, school administrators, university administrators and the community) provide input and constantly communicate the importance and relevance of multimodal pedagogy and assessment (Albahlal 2019; Ryu & Boggs 2016).

All stakeholders should also focus on the affordances that multimodal assessment provides regarding the social justice aspects of literacy. According to Crafton et al. (2017), multimodal assessment aids 'teaching for social action, cultural critique, and for democracy, inside and outside of school'.

Ryu and Boggs (2016) also mention that schools and parents should stop focusing on marks and high-stakes standardised tests and only using traditional teaching and assessment methods in English classrooms. This is because of the ongoing technological advances and diverse texts that learners negotiate and create meaning in and outside the English classroom. To support learners to move beyond traditional literacy practices and to obtain lifelong skills needed in an ever-changing society, 'it is the responsibility of schools and teachers to recognise social changes and promote individual learning needs' (Ryu & Boggs 2016).

In higher education, preservice teachers should also be supported and be offered differentiated and transparent assessments to help empower future learners with their own learning (Montenegro & Jankowski 2017, p. 8).

In conclusion, Jantjies (2020) remarks that COVID-19 has demonstrated that technology is no longer a luxury but rather an essential component of the educational process. A wide range of elements must be addressed, such as teacher-training, computer and internet access and economic and social issues faced by learners, teachers and the wider community.

■ Learn, unlearn and relearn

According to Toffler (1990), the 'illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn'. Many qualified teachers and preservice teachers need training and retraining to incorporate and integrate multimodal assessments in the English curriculum to facilitate the acquisition of their own and their learners' 21st-century skills. Curwood (2012, p. 233), for example, states that teachers must 'acquire new orientations to time, space, performance, creativity, and design'. According to Pettis (2002) and Sert and Boynuegri (2017), it is a teacher's own responsibility to improve their digital skills to support learners with multimodal assessments.

Although evidence indicates that learners' literacy skills can be improved through multimodal assessments, many teachers resist including multimodal assessments in their curriculum (Fjørtoft 2020, p. 3). Therefore, many researchers have pleaded over decades for formal support through mandatory teacher-training (D'Agostino et al. 2016; Eutsler 2021). Gulecoglu (2018, p. 120) also proposes that teachers need a change in attitude towards multimodal assessments. Jantjies (2020) suggests that suitable digital skills training should be made a requirement in all teacher-training education programmes at colleges, universities and universities of technology. While several provinces have implemented digital training programmes for both trainee and in-service teachers, it is time for a coordinated national effort to guarantee that all teachers are proficient in digital technology and teaching. Even in resource-constrained situations, digital teaching and learning may become pervasive with the correct training and support.

To truly grasp multimodality and to then implement it in the English curriculum redesign, teachers need a clear conceptual understanding of *design* (Walsh 2009, p. 13). In turn, this can support learners with multimodal assessment design, as Magnusson and Godhe (2019) explain that multimodal assessments can inspire learners to incorporate multimodal design processes in their assessments. This will, in turn, rely on how well teachers know how to teach, formulate and communicate assessment outcomes, instructions and criteria. Teachers could consider the following aspects when designing multimodal assessments and criteria for rubrics (Hafner & Ho 2020): creativity, delivery, genre, language, modal interaction, originality, organisation and variety.

Serafini (2015) believes that:

> Teachers' lack of knowledge concerning the visual structures and design features of multimodal texts is a challenge that needs to be addressed. If we want teachers to have the knowledge to support students' interpretations of visual images and multimodal texts, this knowledge needs to become part of teacher education classes as well. University course work in literacy education too often focuses on reading

and writing printed text in the same way elementary classrooms have traditionally done. In reading methods courses or courses in children's literature, teachers can gain exposure to concepts and analytical approaches that are associated with literary theory, art and design theories, semiotics, and media education, in addition to traditional theories of reading that focus on written language. (p. 420)

It is therefore clear that teachers need to embrace and employ multimodal assessments not only for learners, but also for themselves.

■ Voices and choices

From the literature review, it is evident that literacy in the 21st century 'extends beyond learning only standard English and print-based representational modes' (Ryu & Boggs 2016). If teachers continue to ignore the need for multimodal assessments, they appropriate the 'rights and responsibilities on several important intellectual and social dimensions, and, unwittingly, limit students' sense of rhetorical agency to the bandwidth of their own interests and imaginations' (Selfe 2009, p. 618).

As learners are already productive meaning-makers and producers of knowledge outside of the English classroom, especially in digital online environments, their insights in a dialogue with teachers could greatly contribute to the successful integration of multimodal assessments (Nouri 2018). According to Hafner and Ho (2020, p. 12), teachers and learners must work together through the whole design process 'so that students receive an appropriate amount of scaffolding to develop multimodal communicative competence and digital skills required in their 21st century social lives'. Learners can even be encouraged to participate in creating assessment criteria for multimodal assessments (Tan et al. 2020).

Furthermore, marginalised and minoritised learner voices can be recognised and heard using multimodal assessments (Montenegro & Jankowski 2020, p. 9; Ryu & Boggs 2016). According to Tran (2019), learners could also be provided with creative control regarding making their own choices regarding the mode of their assessments. In this way, teachers can provide learners 'another level of respect, trust, and an openness to experimenting with assessment methods' (Tran 2019, p. 169).

■ Practice what we teach: Dos and don'ts

After a thorough review of the literature on multimodal assessments, the following suggestions are made, which can be incorporated into English teacher-training modules. However, they are generic enough so that other subjects can also use them as a guidelines to implement and design multimodal assessments.

☐ Don'ts

- Do not give learners multimodal assignments that you are not able to do yourself. If you design an assignment or assessment, try to do it first. By placing yourself in the shoes of the learners, many pitfalls can be eliminated before the assessments are given to students.
- Do not assume that your learners are tech-savvy and are able to complete any multimodal tasks or create multimodal artefacts without any support. For example, many learners know how to access and consume videos and images, but may not know how to produce them. Many learners also do not know how to engage critically with digital sources and assessments.
- Do not just use technology for the sake of technology. Always align the module outcomes with the technology, teaching and assessment.
- Do not only use multimodal assessments for teaching purposes and formative (informal) assessments. Develop multimodal summative (formal) assessments to achieve mastery.
- Do not suffer in isolation if you do not know how to design multimodal assessments. Explore what has already been done. But do not just copy and use it as is. Contribute to the multimodal dialogue by designing assessments and rubrics and sharing them online.

☐ Dos

- Determine the needs, literacy abilities and expectations of the learners when designing multimodal assessments.
- Research the latest trends in the field of language education and design multimodal assessments that will support learners in their future jobs.
- Multimodal assessments should be grounded in rhetorical principles. Just as with writing print-based essays, learners should have a good understanding of the audience, context and purpose regarding the assessment, as this will assist them in making their choices.
- Sequence, scaffold, demonstrate and model examples of the multimodal tasks that you expect students to create. This will prepare and support learners with their multimodal assessments.
- Use semiotic mapping for brainstorming for the planning stages of the multimodal assessments.
- Ensure that learners are aware of the goals, criteria and outcomes of the multimodal assessments so that they can make informed choices.
- Provide support in the various stages of preparing, drafting and editing the multimodal assessments.
- Give feedback in the mode that the learners chose. For example, if learners choose a video, give feedback in a video. If they made an infographic, give your feedback in an infographic.

- Develop multimodal rubrics and share them freely online.
- Provide students with the appropriate terminology. Many teachers do not use multimodal assessments because they do not have the metalanguage to design these types of assessments. In Appendix 9.1 is a list of vocabulary compiled from the resources used in this chapter and based on a list provided by A MODE (2022) that can help teachers with the metalanguage of multimodal assessments that can be used to design multimodal assessments and rubrics. This list can be expanded into a multimodal assessment glossary for English teachers.
- Be flexible and offer choices to learners. In this way, more learners can be accommodated regarding their learning styles and assessment preferences.
- Include the student voice and ownership by engaging learners in setting assessment criteria for the multimodal tasks.
- Ensure that students see the relevance and transferability of the multimodal assignments. This can be done by addressing real-world issues. Furthermore, the relevance for future use in professional environments should also be highlighted.
- Encourage peer support and peer assessment in the spirit of Ubuntu.
- Provide multiple reflection opportunities for learners to explain their rhetorical choices and demonstrate their multimodal vocabulary. Especially use 'why' questions such as: why did you choose this mode? Why did you include sound at this point?
- Regarding multimodal composition, teach learners to focus on not only *what* is being said but *how* it is being said.
- Teachers should continuously sign up for training and professional development related to multimodal pedagogy and assessment to empower themselves and, eventually, their learners.

■ Conclusion

The way literacy has been viewed, practised and assessed has changed dramatically, especially because of constant technological changes in the educational landscape. This calls for all stakeholders in English language teaching (ELT) to acquire additional skills to cope with all the challenges in the digital age. It is therefore proposed that multimodal assessments and pedagogical practices are adopted and embraced in English teacher-training modules. In rethinking educational practices, assessments can be made more equitable to accommodate varying learning styles and needs.

Employing multimodal assessments in English classrooms is not a new phenomenon. However, many teachers do not want to employ multimodal assessments because they have not had adequate training. This then results in them not knowing how to design multimodal assessments and rubrics and thus not implementing them in their classrooms. This is problematic for the

learners, as in the real world they are expected to produce multimodal texts in various formats one day in their future employment.

Continued discussions regarding multimodal assessments are necessary for change to take place. And change must take place. In the 21st century, English teachers can no longer train to only teach basic reading and writing in classrooms. Society and the world demand that learners are competent in more modes of communication and literacy practices. The importance of multimodal assessments also came to the fore during the recent COVID-19 pandemic, where many teachers had to switch to online teaching and were forced to use multimodal assessments. Therefore, to better prepare teachers, multimodal assessment training should be included in the curriculum to ensure that both teachers and learners can thrive in face-to-face and online literacy environments.

In this chapter, the aim is thus not to propose that traditional language-based and print-based assessments should be totally replaced. Teachers can, for example, use mixed modalities and even pair them with print. Multimodal assessments in English teacher-training modules should be explored, and all learners should be provided with additional choices and alternatives to demonstrate their literacy skills. The role of the learner and learner agency and voice also need to be included in the dialogue regarding multimodal assessments.

■ Appendix 9.1: Metalanguage for multimodal assessments

affordance	alignment	ambient noise/sounds	arbitrariness	arrangement
audience	author	body language	cognition	coherence
colour	composition	context	contrast	conversation analysis
design	discourse	drawing	embodiment	emphasis
ensembles	ethnography	facial expression	film studies	framing
functional linguistics	gaze	genre	gesture	hand gestures
highlighting	image	implied author	interest	intersemiotic relations
kineikonic	language	layout	linguistics	materiality
media studies	medium	metaphor	multimodality	mode
music	object	organisation	proximity	repetition
rhetoric	rhetorical situation	semiotics	semiotic resources	shapes
sign	silence	social semiotics	sound effects	space
system network	timescale	tone	transduction	traversal
typography	volume	writing		

Pedagogical empowerment of newly qualified Physical Sciences teachers

Washington T. Dudu
Deputy Dean: Research and Innovation,
Faculty of Education, North-West University,
Mahikeng, South Africa

Kgomotsego B. Samuel
Research Unit Self-Directed Learning,
School of Mathematics, Sciences and Technology Education,
Faculty of Education, North-West University,
Mahikeng, South Africa

Motlhale J. Sebatana
Research Unit Self-Directed Learning,
Faculty of Education, North-West University,
Mahikeng, South Africa

■ Abstract

In this qualitative study, the authors explored teaching and learning strategies employed by beginning Physical Sciences teachers transitioning from higher education institutions (HEIs) to secondary schools. The aim was to reinforce their classroom pedagogical competencies in promoting 21st-century skills

when utilising problem-based learning (PBL) while teaching the particulate nature of matter for their self-directedness. The social interdependence theory (SIT) guided this study as the theoretical framework. This study adopted a case study research design specifically, a single case of two beginning Physical Sciences teachers from two secondary schools in the North West province, South Africa. Data were collected by means of an open-ended questionnaire, a reflective portfolio and semi-structured interviews. The data were analysed manually using Saldaña's (2009) model and Smith et al.'s (2001) assessment rubric. The main findings show that Physical Sciences teachers possess limited pedagogical competencies when they enter the teaching profession as employees of the Department of Basic Education (DBE) from HEIs. As such, this study recommends continuous, intensified teacher development training for beginner teachers in order to expose them to the use of PBL as a 21st-century teaching skill for their self-directedness.

■ Introduction

This study focused on strengthening two Grade 10 beginning Physical Sciences teachers' classroom pedagogical competencies to promote 21st-century skills for their self-directedness in utilising PBL in the teaching and learning of the particulate nature of matter (PNM) through a teacher professional development intervention (PDI) programme. There are concerns regarding the pedagogical competencies of beginning teachers coming from HEIs. According to Van Tonder (2021), beginning teachers who enter schools from HEIs should be recalibrated for various reasons, such as the success of the schools they teach in, their own professional growth and their learners' *desired* performance. Beginning teachers refer to newly qualified educators from HEIs who join the teaching profession and have less than four years of teaching experience (Arends & Phurutse 2009, p. 1). Early years of teaching are challenging for teachers as they transition from HEIs into the classroom space (Björk et al. 2019; Harju & Niemi 2019). According to Noguera and McCluskey (2017), beginning teachers struggle with putting the theory they learned in HEIs into practice. These might be because of the argument by Mentz and De Beer (2020, p. 163), who state that HEIs 'are often too theoretical, with not sufficient integration between theory and practice'. This chapter argues that challenges associated with beginning teachers, including those who teach Physical Sciences, may persist unless their classroom pedagogical competencies are reinforced.

Mentz and De Beer (2020) conducted a qualitative study in Finland with five teacher educators and three student-teachers from one HEI, including three school student-teacher mentors. On the contrary, this chapter focused only on beginning teachers with less than four years of teaching experience. Through interviews and cultural-historical activity theory

(CHAT) as their research lenses, some main findings from a study by Mentz and De Beer show that: student-teachers see themselves as having a strong calling to becoming professional educators who will be creative practitioners, sharing their expertise, instilling an attitude for learning, modelling their values and communicating effectively with all stakeholders (learners, mentor teachers, parents and teacher educators). These findings are interesting; however, they may not be feasible in the South African context. In the USA, Lee et al. (2007) conducted a study which developed and employed a rubric to help assess 24 beginning secondary science teachers' PCK, focusing on two categories: Knowledge of student learning and knowledge of instructional strategies. On the contrary, the interest of the current study is two beginning teachers' pedagogical strategies. The findings of their study showed that beginning Science teachers lack PCK, which might be because of HEIs having a minimal impact on the beginning teachers' development of pedagogical competencies. Lee et al.'s study findings might be related to this study in a way.

> [*T*]eachers' pedagogical competencies relate to the ability to manage teaching and learning; this includes planning, production and transmission of knowledge, the construction of subjectivity, and the learning of values and beliefs, as well as evaluation of learning outcomes. (Łukasik et al. 2018, p. 21)

Another definition is by Madhavaram and Laverie (2010), who see pedagogical competencies as

> [*T*]he ability of an individual to use a coordinated, synergistic combination of tangible resources (e.g. instruction materials such as books, articles, and cases and technology such as software and hardware) and intangible resources (e.g. knowledge, skills, experience) to achieve efficiency and/ or effectiveness in pedagogy. (p. 5)

In this study, pedagogical competencies are seen as the science teacher's ability to produce and transmit planned content knowledge and skills by selecting and employing necessary resources using an effective teaching and learning strategy. In this study, while content knowledge refers to the content of PNM, skills refer to 21st-century skills, and an effective teaching and learning strategy relates to PBL. The PNM is a fundamental topic required to understand subsequent topics in school Chemistry (Sebatana & Dudu 2022). The topic of PNM includes concepts such as the three states and changes of matter, properties of substances and kinetic molecular theory, to name a few (Özmen 2011, p. 1115). In this chapter, PNM focuses on the illustrations of matter as well as phase changes, substances and kinetic molecular theory. The PNM is an abstract topic and presents multiple teaching (to science teachers) and learning (to science learners) challenges (Harrison & Treagust 2002; Kirbulut & Beeth 2013). Strengthening beginning science teachers' pedagogical competence in utilising PBL has undoubtedly manifested in their self-directedness.

There is widespread concern surrounding teachers' self-directedness (Mentz & Van Zyl 2016, p. 79). According to Raemdonck, Thijssen & De Greef (2017):

> [S]elf-directedness in work-related learning processes is a characteristic adaptation to self-directed-work-related learning processes that is to steer and take responsibility in diagnosing learning needs and setting goals, choosing, and implementing appropriate learning strategies and evaluating and adjusting the learning process. (p. 404)

Self-directedness identifies with three pillars, namely, skills, motivation, and self-belief (Gavriel 2015, p. 3). The beginning teachers might be motivated and believe in themselves to implement PBL and promote 21st-century skills if their pedagogical competencies are strengthened. Self-directedness depends on teachers (Verster, Mentz & Du Toit-Brits 2018):

> [T]aking initiative, with or without the help of other people, to diagnose own learning needs, formulate learning goals, identify resources, choose and implement appropriate learning strategies, and evaluate learning outcomes. (p. 2830)

However, beginning Physical Sciences teachers might not be able to take initiative without the help of others, identify learning and learning resources and implement appropriate learning strategies as they are still fresh from HEIs. Evidently, self-directedness is integral to self-directed learning (SDL) (Du Toit-Brits 2019, p. 6). According to Morris (2019b, p. 640), SDL 'empowers adults to adapt to fluid and complex social contextual changes – rendering it an essential competence for living and working successfully in our modern world'.

According to Knowles (1975):

> [S]elf-directed learning in its broadest meaning describes a process in which individuals take the initiative, with or without the help of others, (1) in diagnosing their own learning needs, (2) formulating learning goals, (3) identifying human and material resources for learning, (4) choosing and implementing appropriate learning strategies and (5) evaluating learning outcomes. (p. 18)

Individuals who are afforded SDL in this ever-changing world where the workplace and profession often change because of economic instability are most likely to adapt by learning more for personal development (Aoki 2020). Self-directedness is expected from professionals for efficiency in the workplace (Ahmad et al. 2019, p. 1). Brockett and Hiemstra (1991) argue that self-directedness is context-specific and should be considered at each learning opportunity. Therefore, in this chapter, self-directedness refers to the teacher's ability to explore, choose and implement innovative teaching and learning strategies such as PBL while teaching a particular topic such as PNM. The assumption is that the short teacher PDI on PBL may stimulate beginning Physical Sciences teachers' pedagogical competencies to promote 21st-century skills for their self-directedness. Teacher PDI is a 'structured professional learning activity that aims to bring about changes or improvements

in teachers' practices to improve learners' learning' (Bates & Morgan 2018, p. 623). This study recognises beginning Physical Sciences teachers as professionals who must be self-directed for successful teaching and learning. Science teachers' self-directedness in teaching and learning allows them to provide quality teaching for quality learning and promotion of 21st-century skills among their learners (Guglielmino 2013; Smith 2017).

'Twenty-first-century (learning) skills are outlined as a set of abilities that students need to develop to succeed in the information age' (Grimus 2020, p. 130). A strong understanding of the content knowledge alone is not enough; therefore, learners also need to master 21st-century skills (Wan-Husin et al. 2016). The 21st-century skills that this study focused on included collaboration, communication, creativity and critical thinking. Collaboration can focus on the quality of the group outcome and its process of measuring the group's success (Collazos et al. 2007). To accomplish a high level of collaboration, roles in the group must be defined and learners must be provided with explicit instructions on how to share responsibility and evidence of interdependence. Aker and Pentón-Herrera (2020) posit that in the real world today, professionals must communicate information and collaboratively learn with and from one another. The ability to communicate and collaborate is important because students are required to be part of the community. Solutions are often designed and implemented by people who are creative and able to think critically (Al Kandari & Al Qattan 2020, p. 554). Grimus (2020) defines critical thinking as the ability to think clearly and rationally to analyse and combine acquired information to develop own interpretations, learning and critiquing facts. Critical thinking is triggered by working on a problem through collaboration and reflection (Kamin et al. 2001). According to Brown (2018, p. 42), 'critical thinking pertains to the ability to apply cognitive thought to new or known information'. Creativity is defined as offering new perspectives, generating novel and meaningful ideas, raising new questions and devising novel solutions to ill-defined problems in specified contexts of value (Morris 2019a). These skills are referred to as the 4Cs.

Problem-based learning is a viable teaching and learning strategy for promoting self-directedness, deep understanding of the content (i.e. PNM in this study), and the appropriation of 4Cs (Dixit et al. 2021; Simamora, Sidabutar & Surya 2017). According to Akçay (2009):

> [P]BL is an influential way for inquiry-based learning in which learners use an authentic problem as the context for an in-depth investigation of what they need and what they ought to know. (p. 26)

'For science teachers, PBL fosters an environment conducive to developing the characteristics required for effective science teaching of all students (e.g. critical thinking, reflection, communication and collaboration)' (Cone 2014, p. 164). In this chapter, PBL is seen as the best teaching and learning strategy for promoting conceptual understanding of science and acquisition of the

4Cs amongst the learners. Although PBL was originally coined for medicine education (Barrows & Tamblyn 1980; Cone 2014), it can be utilised across all disciplines (Jing & Tong 2018), including education for any school subject (Delisle 1997). Problem-based learning provides learners with the opportunity to reflect on their daily real-life experiences (Ansarian & Teoh 2018). Primarily, the goal of PBL as a teaching and learning strategy is to enhance small-group learning by solving PBL problems (De Graaf & Kolmos 2003; Hung, Jonassen & Liu 2008). Furthermore, PBL promotes learners' development of skills such as: flexible knowledge; effective problem-solving skills; SDL skills; good collaboration skills and intrinsic motivation (Hmelo-Silver & Eberbach 2012). The PBL has the following characteristics: structured problem-oriented, learner-centredness, self-directedness, self-reflectiveness and assumption of different roles by both the teacher and learners (Barrows 1996; Hung et al. 2008). The role of the teacher is to coach, encourage, think and enquire for deeper levels of understanding (Etherington 2011). During PBL, learners are active participants in solving problems, self-directed in structuring their own learning and developing the 4Cs (Cylen & Yiğitalp 2016). Learners take up different roles, such as being the group leader, scribe and only group member; however, each member in the group has an opportunity to present the solution to the rest of the group with the supporting material (Ansari et al. 2015). The teacher is the facilitator and is responsible for designing and identifying complex and vague problems, thus encouraging the learners in a group to inquire about them (Ali 2019).

South African science teachers avoid implementing PBL in their classrooms because of various challenges such as time constraints and lack of PBL knowledge (De Beer 2017; Jacobs, De Beer & Petersen 2016; Sebatana & Dudu 2021). There is growing attention on the successful implementation of PBL in basic education settings; however, there are issues surrounding the designing of PBL problems (Hung 2014). According to Dolmans et al. (2005), other challenges surrounding successful implementation include too well-structured problems which do not challenge learners, teachers who are too directive, hindering learners' independence and interdependence, and dysfunctional PBL small groups. One of the challenges of PBL implementation is teachers' resistance because of being accustomed to other teaching and learning strategies (Li 2013; Yarnall & Ostrander 2011). Another challenge with PBL implementation is teachers' lack of understanding of PBL (Naji et al. 2020). 'The effectiveness of PBL has been widely recognised and documented' (Li 2013, p. 176). The advantages of implementing PBL, specifically in Chemistry education, include (Ceker & Ozmali 2016):

> [*A*]ssistance to develop teamwork skills within groups; assistance to develop problem-solving skills; promoting long-life learning and remembering; help to build individual learning skills; help to achieve collaborative learning skills; help to build positive motivation; helps learners to build communication skills; and that PBL helps learners increase their skills of using resources. (p. 198)

Teacher PDI 'is one of the best ways for improving the quality of teaching and learning in schools' (Zhukova 2017, p. 101) and strengthening beginning teachers' pedagogical competencies (Astuti et al. 2019; Azhar & Kayani 2017). In extension, this study argues that strengthening pedagogical competencies may result in teachers' self-directedness. Professional development intervention is the most influential instructional leadership mode for sustained improvement of teaching and learning (Lai & Cheung 2015). Moreover, Vlasenko et al. (2019, p. 1893) advocate the expansion of beginning teachers' initial and further training outside the classroom. In South Africa, the DBE does not have formal structures, policies and strategies for supporting beginning teachers (Arends & Phurutse 2009, p. xi). Fry (2010) argues that some beginning teachers may be frustrated without a teacher PDI and fail to deliver content knowledge to their learners. Selvaratnam (2011) recommends that PDI:

> [S]hould be conducted for teachers to increase their competence in intellectual skills and strategies. Universities in each province should be entrusted with the task of conducting workshops in that province because many workshops will generally be needed to ensure the acquisition of intellectual abilities. The progress of teachers must also be continuously monitored. (p. 7)

A quasi-experimental study by Iwuanyanwu (2019) examined the entry-level capability of 106 beginner science and technology teachers, which showed potential benefits to conducting a PDI for beginner teachers. In Saudi Arabia, Alqahtani (2020, p. 18) argues that despite attending PDI programmes, Science teachers 'continue to rely heavily on traditional teaching methods and do not spend enough time interacting with their students'. In the KwaZulu-Natal province, South Africa, Aidoo et al. (2016) investigated the effect of PBL on students' achievement in Chemistry and their results showed that PBL is an effective way of teaching and learning Chemistry. Arevalo and Ignacio (2018) conducted a study in the Philippines to determine if 21st-century skills such as digital age literacy, inventive thinking, effective communication and high productivity were significant drivers of students' science achievement. In Ghana, Kuyini et al. (2016) revealed 163 teachers' pedagogical competencies as important to their teaching in inclusive classrooms. Using a quantitative research approach, they found that adapting instructional materials and behaviour management were important competencies. They also established that teachers identified the availability of teaching materials, supporting teachers and receiving more training on pedagogical competencies as key support resources that will enhance their effectiveness in the classroom to support students' learning. Arguably, the results of their study show that strengthening teachers' pedagogical competencies enhance teachers' self-directedness as teachers were able to support learners' adapting instructional materials effectively.

Botha and Rens (2018) conducted a qualitative study in South Africa with 100 beginning teachers and contextualised their experiences of reality shock

by applying the 'ready, willing and able' model of 2004 developed by Shulman and Shulman. Arguably, their (Botha & Rens) study is related to self-directedness as it revolves around the beginning teachers' preservice learning at academic and emotional levels. It translates their practice into their being ready, willing and able once they accept a full-time teaching position. The findings of their study show that some beginning teachers were not ready for teaching practice such that they were overwhelmed by the responsibility to transform and promote skills within their learners, felt unprepared in terms of their pedagogical knowledge, were frustrated with the number of classes to teach and were doubtful if HEIs had fully prepared them for academic and emotional realities of teaching. The findings in a study by Botha and Rens reflect that beginning teachers' self-directedness is at its lowest and so are their pedagogical competencies, concurring with the current study's findings.

Problem statement

The HEIs are under increasing pressure to ensure that they produce self-directed teachers (Rasheed, Humayon & Awan 2016, p. 102). Chaaban and Du (2017, p. 345) indicate that there is a great concern over the training and pedagogical knowledge of beginning teachers. Chaaban and Du argue that the degree programme's duration at the HEIs is not enough to equip teachers with the necessary pedagogical skills. The major problem lies in the hiatus between the training of science teachers and real classroom practice. 'An alarming number of novice teachers do not fully make this transition after they complete their training, but rather leave the teaching profession in their first years of work' (Qadhi et al. 2020, p. 118). Therefore, this chapter aims to support beginning Physical Sciences teachers by strengthening their pedagogical competencies to promote 21st-century skills for their self-directedness.

Research question

The research question guiding this study was as follows: *How can beginning Physical Sciences teachers' pedagogical competencies be strengthened to promote 21st-century skills for their self-directedness in utilising problem-based learning while teaching the particulate nature of matter?*

Theoretical framework[5]

The SIT was used as a theoretical framework. The SIT is defined by Johnson and Johnson (2009) as the shared influence between individuals in a small group. The SIT is primarily associated with collaboration, small-group learning and co-operative learning. Previously, SIT was successfully implemented in

5. Facets in this section of the chapter represent a reworking of Sebatana and Dudu (2021).

education (Johnson & Johnson 1974, 2009). Problem-based learning is one of the learning approaches with a theoretical foundation premised on SIT (Torre et al. 2016). As the tenets of PBL are aligned with the broader philosophy of SIT (Shimizu et al. 2021; Torre et al. 2016), the authors of this chapter considered it appropriate to incorporate PBL as a conceptual construct of SIT.

In this research, a small-group learning approach was used during a PBL teacher professional development (TPD) programme and the implementation of PBL in the classroom, taking a leaf from Johnson and Johnson (2009). They reported the success of SIT when implemented in the field of education. According to Johnson, Johnson and Smith (1995), when applying SIT:

> [7]he teacher ought to see a teaching-learning situation in terms of six principles: (1) Knowledge is constructed and extended by learners; (2) the learners are actively involved in constructing their own knowledge; (3) the teacher's effort must be aimed at developing and enhancing learners' skills; (4) education is a personal transaction among the learners, between the learners and the teacher and work given; (5) creating a conducive and co-operative atmosphere facilitates active mastery of concepts; (6) considerable teacher training and continuous refinement of skills and procedures. (pp. 8–10)

An exploration of the schools of thought on the core model of SIT yielded a two-dimensional realisation: on the one hand, positive interdependence (co-operative) and, on the other hand, negative (competitive) interdependence (Deutsch 1949, 1962; Johnson & Johnson 2003; Jongman 2017). Positive interdependence entails one member's actions fostering another member's goals to reach common goals in a small group (Johnson & Johnson 2019, p. 45). Each group member assumes a key role so that the success of the group work is based on whether everyone succeeds in their role (Johnson & Johnson 2019; Li 2017). The SIT gives a broad concept of SDL that results from collaboration. In contrast, negative interdependence occurs when one group member's actions impede the attainment of joint goals of a small group. Negative interdependence acknowledges the fact that learners working in a small group do not always approach a given task collaboratively and may view it as competition instead (Hartmann et al. 2017, p. 633). This chapter was significantly influenced by positive interdependence. Problem-based learning implementation requires that every group member contributes towards a common goal. This is achieved by requiring that each learner in the group assumes a key role – such as the leader, scriber and researcher – which ultimately contributes to group work.

■ Methodology

■ Research design

The qualitative research method was employed to determine how two beginning Physical Sciences teachers' PBL implementation promoted

creativity as a 21st-century skill in the learners while teaching PNM after a TPD intervention. An exploratory qualitative case study approach was utilised. A limitation of case studies which also applies to this study is that the findings cannot be generalised but may be explored within similar contexts (Baxter & Jack 2008).

■ Site selection, sampling technique and sample

The study was conducted in one of the four districts of the North West province, South Africa, because of its proximity and accessibility to the researchers. Purposeful sampling was utilised to identify study participants who possessed the knowledge being sought (Etikan, Musa & Alkassim 2016). Pseudonyms were utilised to protect the confidentiality of the participants in this study. The participants were named Faith (25-year-old female) and Bella (29-year-old female). At the beginning of this study, Faith had two years of teaching experience and possessed a Bachelor of Education Degree (BEd) with a specialisation in Physical Sciences and Life Sciences, and Bella had three years of teaching experience and possessed a BEd with a specialisation in Physical Sciences and Mathematics. Both Faith and Bella were teaching at government secondary schools. Faith was teaching Physical Sciences to two Grade 10 classes of 27 learners each. During PBL implementation, Faith divided her learners into five groups, where three groups had five members and two groups had six members. As for Bella, she was teaching Physical Sciences to one Grade 10 class of 41 learners which she divided into seven groups (where six groups had six members and one group had five members) during PBL implementation.

■ Data-generation instruments

The data-generation instruments used in this study include a self-developed open-ended questionnaire, portfolio and individual semi-structured interviews. Open-ended questions were used first (November/December 2019) to generate the participant's background data which were analysed using Saldaña's (2009) analytical framework to ensure an effective TPD which is tailor-made to the participants' needs as suggested by Darling-Hammond, Hyler and Gardner (2017). A one-day PBL TPD programme was conducted (January 2020) to enhance the use of PBL to promote 21st-century skills. This study aimed to promote the teaching and learning of PNM, so that beginning teachers' pedagogical competencies are strengthened. After attending the TPD programme, participants were required to implement PBL and compile a portfolio documenting PBL observations in their classrooms (January to March). 'Portfolios provide rich information regarding the curriculum and its implementation'

(Alabdelwahab 2002, p. 45). The portfolio consisted of various sections; however, this study only focused on: Content knowledge being taught, PBL implementation (PBL process and teachers' and learners' roles), instructions adapted to meet diverse learners, 21st-century skills observed and reflections and professional development. Some of the interview questions were adapted from the Cheng et al. (2010, p. 1157) self-directed learning instrument (SDLI), while others were self-developed by researchers (post-PBL implementation, March 2020) to explore the participant's views, perceptions and experiences. Examples of items from the SDLI are 'can your learners connect new knowledge with their own personal experiences? Explain' and 'explain how your learners evaluate their own learning outcomes'.

■ Teacher professional development intervention[6]

A one-day PDI on PBL, PNM and 21st-century skills was presented (January 2020) for all the teachers who participated in the larger project, including Faith and Bella. The purpose of this programme was to enhance the use of PBL by beginning Physical Sciences teachers to promote 21st-century skills while teaching PNM. The teacher-participants were given a PBL problem (see Figure 10.1) to work on, which they had to use during the implementation of PBL to promote the 4Cs. The Chemistry content for this problem was aligned with the *Curriculum and Assessment Policy Statement* (CAPS), which is the South African national curriculum document. It was further properly planned and aligned with the Annual Teaching Plan (ATP) 2020 (DBE 2011): the content of the problem was for term 1 (January to March) when the PBL was implemented. Finally, for the PBL activity, the participant was shown how to assess learners' work using Golightly's (2013) assessment rubric.

Problem: Chemistry of Matter and Materials (particulate nature of matter)

The central heating in your home during the winter season is the cooking stove. You realised that you could warm your kitchen by turning on the stove and keeping the oven door open. During summer evenings it is hot and you cannot open windows due to mosquitos flying into the house. Some of your classmates are of the opinion that you could cool your kitchen by leaving the refrigerator door open. However, your parents disagree with your classmates' views. You discussed this with your Chemistry teacher, after which they decided that you had to solve this problem in your PBL groups. You have to do research and inform the rest of the class of your findings regarding the above-mentioned problem.

Source: Adapted by Sebatana and Dudu (2022; cf. Sebatana and Dudu 2021c).
FIGURE 10.1: Problem-based learning problem.

6. Facets in this section of the chapter represent a reworking of Sebatana and Dudu (2021).

■ Data analyses

Saldaña's (2009) model was adopted for the data analysis. The transcribed data from open-ended questionnaires, some of the contents of the portfolio and the interviews were coded. Additionally, the Interstate New Teacher Assessment and Support Consortium (INTASC) performance standards evaluation rubric adapted from Smith et al. (2001) was used to evaluate teachers' portfolios. Smith et al.'s (2001) rubric had 10 INTASC principles to be evaluated, which this study modified and reduced to four INTASC principles, namely, content knowledge being taught, PBL implementation (PBL process), instructions adapted to meet diverse learners and 21st-century skills observed. However, two INTASC principles were combined for the purpose of coherence under the data presentation and discussion section. Other principles which had nothing to do with the study's aim were dropped. An example of such a principle is 'partnerships with school and community' (see Appendix 9.1).

The participants' portfolios were evaluated according to data sections inside the portfolios based on the four INTASC principles as follows: (4) clear, convincing and consistent evidence; (3) clear evidence; (2) limited evidence and (1) no evidence. Finally, the indication checklist was adapted based on the modified principles. Clear, convincing and consistent evidence was considered to mean that the overall proficiency on a particular INTASC principle was highly satisfactory, and no evidence was considered when there was no information submitted on a particular INTASC principle. The unique aspect of this study was twofold: implementation of PBL in aiding the teaching of PNM and promotion of 4Cs specified in this study by beginning Physical Sciences teachers; this is, therefore, what the portfolio reflected by means of INTASC principles. To ensure the reliability of the data, two researchers evaluated the teacher-participants' data independently and a consensus was sought for the open-ended questionnaire responses and each INTASC principle.

In this research, the trustworthiness of data was safeguarded through an audit trail, which is a strategy for checking confirmability and credibility (Korstjens & Moser 2018). The audit trail entailed providing a complete set of notes on decisions made during the research process, research team meetings, reflective thoughts, sampling, research materials adopted, the emergence of the findings and information concerning the data management. Credibility refers to research participants' involvement in the research findings to ensure the results of the research are true or credible (Yilmaz 2013, p. 320). In this research, the authors were involved in the field for a prolonged period, verified their interpretations with their participants and showed a process of learning. Confirmability means that the findings and the interpretations made from findings do not derive from the imagination or emotions of the researchers but are clearly linked to the generated data (Liamputtong 2013). In this research, this was achieved by applying SIT – themes were created from theory which guided the analysis and discussion, thereby validating the

interpretations made from the findings. Also, verbatim quotations were used to support the data.

Results and discussion

This section presents and discusses results in line with the research question of this study. The rationale for this study was to strengthen two Grade 10 beginning Physical Sciences teachers' pedagogical competencies in promoting the 4Cs for their self-directedness in utilising PBL while teaching PNM.

Pre-TPD results and interpretations

An open-ended question guide was administered to capture participants' knowledge of teaching and learning strategies introduced to them during teacher-training in HEIs, and PBL knowledge in promoting the 4Cs while teaching PNM before a TPD programme. Figure 10.2 is a screenshot of Faith's

6. Explain the teaching approaches that were introduced to you during your studies to become a professional teacher in order to deliver science content effectively.

– LEARNER-CENTERED APPROACH
– PROBLEM-SOLVING APPROACH

7. Explain how satisfied are you with your teaching approaches?

PARTIALLY SATISFIED. MOST LEARNERS ARE NOT INDEPENDENT THINKERS. APPLYING LEARNER-CENTERED APPROACH IS CHALLENGING SINCE LEARNERS CANNOT COMPREHEND.

8. What is your understanding of Problem-Based Learning?

QUESTIONS ARE PRESENTED TO LEARNERS AS PROBLEMS. LEARNERS ARE GIVEN OPPORTUNITY TO EXPLORE THE PROBLEM-BASED SCENARIO AND ESTABLISH PRO SOLUTIONS TO SOLVE A PROBLEM.

Source: A screenshot of Faith's responses, published with appropriate permission from Faith, the authors and the institution.
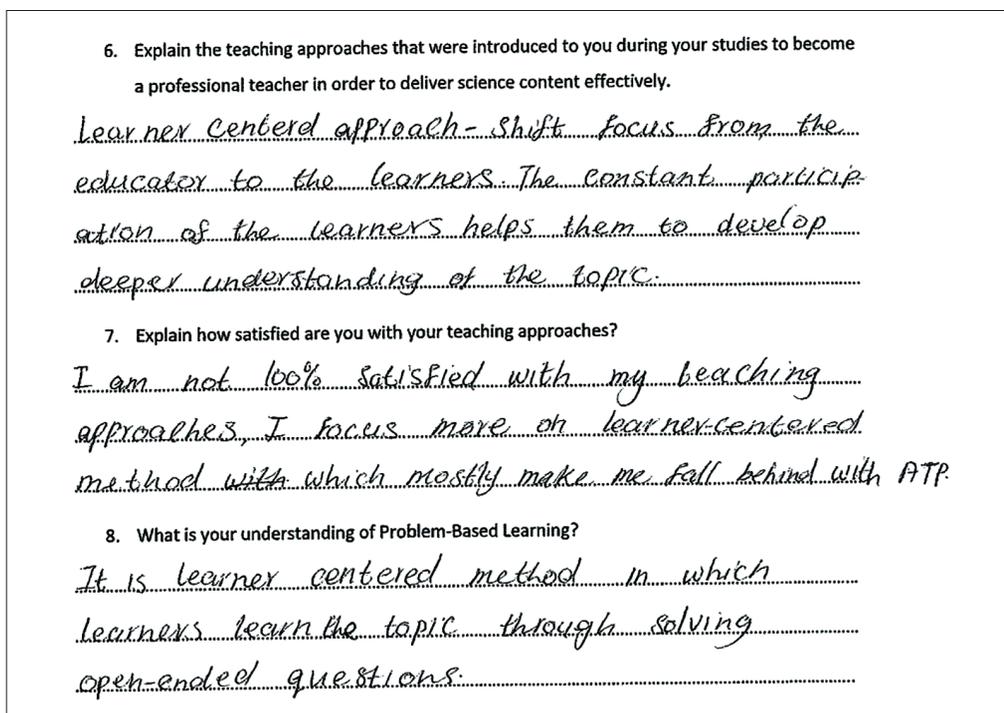**FIGURE 10.2:** Screenshot of Faith's responses.

responses regarding teaching strategies she was introduced to during teacher-training at the HEI.

Figure 10.2 shows Faith's satisfaction regarding utilising those teaching strategies, including her knowledge of PBL. Faith also mentioned that she has no prior utilisation of implementing PBL in the teaching and learning of PNM. Regarding 21st-century skills knowledge, Faith mentioned 'computer skills and integration of multimedia.'

Figure 10.3 is a screenshot of Bella's responses regarding teaching strategies she was introduced to during teacher training at the HEI.

Figure 10.3 shows Bella's satisfaction regarding utilising those teaching strategies, including her knowledge of PBL. Bella also mentioned that she has no prior utilisation of implementing PBL in the teaching and learning of PNM. Regarding 21st-century skills known, Bella mentioned 'technology literacy, critical thinking, media literacy and problem-solving'.

As shown in Figure 10.2 and Figure 10.3, both Faith and Bella were introduced to the 'learner-centred' and problem-solving approaches. Notably, Faith and Bella stated that they were dissatisfied with the teaching strategies they employed in their classrooms. Faith argued that she was not satisfied as

6. Explain the teaching approaches that were introduced to you during your studies to become a professional teacher in order to deliver science content effectively.

Learner centered approach - Shift focus from the educator to the learners. The constant participation of the learners helps them to develop deeper understanding of the topic.

7. Explain how satisfied are you with your teaching approaches?

I am not 100% satisfied with my teaching approaches, I focus more on learner-centered method with which mostly make me fall behind with ATP.

8. What is your understanding of Problem-Based Learning?

It is learner centered method in which learners learn the topic through solving open-ended questions.

Source: A screenshot of Bella's responses, published with appropriate permission from Faith, the authors and the institution.
FIGURE 10.3: Screenshot of Bella's responses.

learners were not independent during teaching and learning. Interestingly, Faith argued that utilising learner-centred approaches was challenging. It is difficult to explain this finding, but it might be because learners are 'not independent thinkers' as she suggested. On the other hand, Bella was not satisfied with her pedagogy because of time constraints which resulted in her failing to complete the expected syllabus coverage. Although these findings differ from those by Mentz and De Beer (2020) in Finland, they are consistent with those of Lee et al. (2007) in the United States of America (USA) and Botha and Rens (2018) in South Africa, who established that beginning teachers lacked pedagogical skills and were underprepared to teach as their teaching skills were at the novice level. During training at HEIs, it is evident that both teacher-participants were trained or taught learner-centred strategies. Although Faith and Bella highlighted no prior utilisation of PBL, their understanding of PBL concurs with that of other scholars (De Graaf & Kolmos 2003; Hung et al. 2008). Regarding 21st-century skills known by beginning teacher-participants, Faith did not mention any skill(s) this study aims to promote. Nevertheless, Bella mentioned critical thinking. It is difficult to explain this finding; however, it might be because 21st-century skills were not introduced to the participants during their HEI teacher-training. Therefore, these skills were emphasised during the teacher PDI programme.

■ Post-teacher professional development results and interpretations

The data from the portfolio and interviews are presented concurrently for corroboration and data triangulation. The results are presented in the order of the INTASC principles, as outlined in the rubric as mentioned under *data-generation instruments*. It is important to note that portfolio sections that informed each principle were not scrutinised in isolation but were interwoven and corroborated by other data generated from other portfolio sections and instruments used in this study.

■ Content knowledge being taught[7]

According to the rubric, this principle is shown by the following: clear illustration of the central concept(s) being taught (PNM), understanding of the content knowledge (PNM) and CAPS curriculum goals and understanding of the teaching-learning situation (context). The indication checklist for this principle was drawn from both participants' lesson plans and similar PBL problems (Faith and Bella). Both participants' content knowledge, lesson planning and use of similar PBL problems during the TPD were considered satisfactory.

7. Aspects in this section of the chapter represent a reworking of Sebatana and Dudu (2022).

Both participants in this study showed clear, convincing and consistent evidence of PNM content knowledge. This finding corroborates the argument of Botha and Reddy (2011), who observed that most beginning teachers are content driven but struggle to translate the content they possess into practice.

◼ Problem-based learning implementation (problem-based learning process and teachers' and learners' roles) and instructions adapted to meet diverse learners

Faith's portfolio provided clear, convincing and consistent evidence of PBL implementation (criterion score of 4). Faith presented the PBL problem to the learners and allowed them to work in groups. This arrangement adheres to the PBL approach's requirements. Regarding facilitation, Faith constantly checked her learners' progress, guiding learners' thinking and assisting learners with some of the questions asked. Faith oversaw her classroom and maintained good discipline among her learners. The learners understood their role during implementation; this is also supported by the learners' work. Faith understood how learners must learn and develop during PBL implementation. It is evident that learners were provided with the learning opportunity and an environment adhering to the PBL approach supporting learners' cognitive development in terms of content, as well as social and personal development regarding 21st-century skills.

Faith firstly grouped the learners and went through the problem with them, outlining what was expected of them. The teacher asked the learners to choose a group leader and scribe within their groups. The learners started with discussions attempting to answer the problem. There were disruptions in some groups. Learners managed to formulate lesson objectives, draw solutions and evaluate their work for recommendations. As the topic was not new to the learners, they completed the work in the one-hour period. Faith's data are clear and consistent, convincing that she understood learners' diversity, guided learners and brought different perspectives to learners' discussions, therefore scoring 4.

Bella's portfolio provided limited to no evidence about her understanding of how learners learn and develop during the PBL implementation. The score of 1 is justified by Bella's partial understanding that learners should learn and develop through groups. However, Bella did not provide a learning opportunity and environment that adheres to the PBL approach in terms of the number of learners within PBL groups. Bella divided her learners into four groups (three groups of ten members and one group of 11 members). The teacher's role description, learners' roles description and learners' report indicate that Bella failed to adhere to the PBL approach. The numbers that learners were divided into violated the aspects of the PBL approach. Furthermore, the

learners did not have roles. It is evident that Bella did not facilitate the PBL implementation.

Bella stated:

'I divided learners into four groups. After giving learners the problem, I explained it; then I discussed what they were expected to do. The learners identified the lesson objectives from their textbooks and previous work. When I was igniting a discussion with one group, other groups were making noise. I decided to let them work on their own, but the learners were not disciplined. The learners did not finish the work during the 1-h period. I told learners to take the task home so that each one of them could contribute. The following, I demanded learners to complete their task since I would take the work anyway.' (Bella, teacher-participant, July 2020)

Therefore, Bella scored 1 because of the lack of facilitation and guidance provided to the learners and bringing multiple perspectives to learners' discussions. The findings of this study are consistent with those of Kuyini et al. (2016), who established that being able to adapt teaching strategies strengthens teachers' pedagogical competencies, thus, enhances their self-directedness. Moreover, these findings agree with Aidoo et al.'s (2016) findings which showed that PBL promotes science academic achievements and 21st-century skills.

■ Twenty-first-century skills observed

During the TPD intervention programme, the importance of collaboration was discussed, and participants worked in a group where there was a group leader and a scribe. *Collaboration* was highlighted in the *Curriculum and Assessment Policy Statement* (CAPS) document, where it is stated that the national curriculum aims to produce learners who can: work effectively as individuals and with others as a member of a team to achieve a common goal and organise and manage themselves and their activities responsibly and effectively. It is worth mentioning that both beginning teachers indicated to have observed the collaboration 21st-century skill according to the 21st-century skills observation template in the portfolio submitted. Generally, the teachers commented that their learners could work cooperatively in the PBL groups.

Regarding critical thinking, only Faith observed that *critical thinking* was promoted during PBL implementation. However, Bella's data show that this skill was not promoted. Faith's comment is difficult to grasp as her comment is that critical thinking was 'fair'. During the interview, Faith's response to the question, 'How would you describe utilising PBL in teaching PNM?', was:

'[/]t (PBL) is a good experience for the learners because they get to make sense of the content they are learning in the classroom. Especially with the PBL problems that you had given us, the learners got the idea and were able to relate the content with real-life experiences; things they already knew. I could see that it was fascinating for them (learners), the smiles on their faces as I was observing them solving the problem.' (Faith, teacher-participant, July 2020)

Communication is one of the 21st-century skills this study aims to promote and was emphasised during the TPD programme and highlighted in the CAPS document. The national curriculum of RSA aims to produce learners who can: communicate effectively using visual, symbolic or language skills in various modes; and demonstrate an understanding of the world as a set of related systems by recognising that the problem-solving context does not exist in isolation. It is worth noting that the topic of PNM may require visual, symbolic representations and language skills to communicate and demonstrate ideas. Communication is a skill that was observed by both teacher-participants during PBL implementation.

In response to the interview question, 'How could you tell that 21st-century skills were enhanced on your learners while utilising PBL?', Bella specified:

'The only skill that was there was communication because learners were talking and interacting with one another even though they were making noise. I do not think any other skill was promoted other than communication.' (Bella, teacher-participant, July 2020)

This study considered that creativity is a skill that is difficult to observe and promote and that it is inseparable from critical thinking, and anticipates that implementation of PBL in the teaching of PNM can promote creativity. The CAPS document states one of its aims as producing learners who can identify and solve problems and make decisions using critical and creative thinking. As mentioned in the conceptual framework, creativity involves offering new perspectives, generating novel and meaningful ideas, raising new questions, and bringing novel solutions to problems that are defined in specified contexts of value. As in the PBL process, creativity allows learners the freedom to make mistakes while thinking divergently rather than accurately. Faith is the only participant who observed creativity skills. In observing creativity amongst her learners, Faith only commented that it was 'good'.

When asked, 'How could you tell that 21st-century skills were enhanced on your learners while utilising PBL?' Faith responded by saying:

'As much as I was facilitating and guiding the learners, they were always ahead, and they were not afraid to make mistakes. And like I mentioned, their interest and energy for the task were high.' (Faith, teacher-participant, July 2020).

◾ Reflections and professional development

Faith noted the following in terms of reflection:

'The learners were actively participating, showing interest and excitement. PBL brought life and fun to the Physical Sciences classroom. The group leaders were helpful in maintaining discipline in the classroom. But the learners took more time than it would normally take to complete this topic using the teacher-centred method because this topic requires a practical experiment. I also got to know the

learners more, engaging with the learners on more like a personal level fulfilled me; I started reflecting on the effectiveness of my teaching.' (Faith, teacher-participant, July 2020)

Faith's challenge was that he found PBL time-consuming. Faith scored 3, as the challenge experienced during implementation was teacher-related. Nonetheless, the evidence was clear. During the interview, Faith still complained about time.

Regarding reflections, Bella mentioned the following:

'The classroom experience I had was not the same as the experience I had during the intervention. I do not know what I did wrong because I can tell that PBL is a good approach. I think I need workshops regarding PBL to boost my confidence. The learners were making noise within their group, PBL was not effective. I do not think they grasped anything. I also think if I had a smaller number of learners, it could have been better.' (Bella's, teacher-participant, July 2020)

The challenges stated by Bella included a lack of discipline and time. PBL was not properly implemented by Bella, resulting in a score of 1; there is limited evidence showing the proper implementation of PBL. Bella expressed the same challenges during the interview. In scoring, each item's response was allocated 1, 2, 3 or 4 from 'no evidence' to 'clear, convincing and consistent evidence', respectively. A high score (maximum = 24) is taken to mean that, to a large extent, an overall level of proficiency in PBL implementation by the teacher is clear, convincing and there is consistent evidence, and a low score (minimum = 6) means there is no evidence of an overall level of proficiency of PBL implementation by the teacher. Faith said: 'Truly speaking, mostly I stick to my old teaching approach. But sometimes, in some topics, I will use PBL.' Bella said:

'Before the workshop, I only focused on completing the curriculum as outlined by the ATP. After the workshop, I can reflect on my teaching. But I think my teaching will still be the same for a while.' (Bella, teacher-participant, July 2020)

This finding corroborates with Alqahtani (2020), who argues that sometimes PDI does not help as most teachers continue to rely on their old approaches whether or not they are satisfied with those approaches.

As argued by Astuti et al. (2019), this study showed that beginning Physical Sciences teachers' pedagogical competencies could be strengthened to promote 21st-century skills for their self-directedness in utilising PBL while teaching PNM after a PDI. As mentioned earlier, teacher PDI enabled beginning Physical Sciences teachers to implement PBL, which strengthened their pedagogical competencies for their self-directedness in the teaching and learning of PNM. It can also be inferred that beginning Physical Sciences teachers' pedagogical competency as a skill was strengthened. Furthermore, the beginning teachers were motivated to believe in themselves to implement PBL and promote 21st-century skills, thus promoting their self-directedness.

However, the findings of the current study do not support the previous research where Mentz and De Beer (2020) established that beginning teachers are self-directed, creative, conductive and promotive. Although these results differ from those of Mentz and De Beer, they are consistent with those of Aidoo et al. (2016), Botha and Rens (2018), Kuyini et al. (2016) and Lee et al. (2007).

■ Conclusion

It is the view of the authors of this study that the findings of this study corroborate previous research findings by Iwuanyanwu (2019). As such, PDI for beginning teachers is crucial in strengthening their pedagogical competencies for self-directedness. Physical Sciences being a gateway subject forms a foundation for all engineering fields which have a high contribution to the country's economy. There is therefore a need to recalibrate teacher-training to include and emphasise both content and pedagogy. In turn, teachers who have to provide such a foundation might be well-informed and prepared in both the subject matter and pedagogical knowledge. Recalibrating teacher-training to include both content and pedagogy might inform the involvement of beginner Physical Sciences teachers in PDIs that might allow them to understand PBL, its role and its importance, thereby equipping them with the necessary skills to build the kind of learner envisaged by CAPS. Furthermore, the findings of this study have shown the possibilities to implement PBL by beginning teachers who lack PBL knowledge, especially with the intention to promote the 4Cs while teaching Chemistry (PNM). The authors of this study recommend the administration of a PDI programme for Physical Sciences teachers that targets the planning and designing of PBL problems, the promotion of teaching and learning strategies which enhance the 21st-century skills of the sciences learners, and the implementation of PBL in the teaching and learning of other topics in Chemistry. As mentioned earlier, the findings (prior knowledge of the beginner Physical Sciences teachers regarding PBL, PNM and communication and critical thinking 21st-century skills) of this study may not be generalised but can be explored within similar contexts.

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Chapter 1

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Chapter 10

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Index

In light of the increasing interest in and call for the introduction in higher education of new technologies to meet the needs of today's tech-savvy generation of students, *Recalibrating teacher training in African higher education institutions: A focus on 21st-century pedagogical challenges* provides an exciting resource that guides the reader through various challenges that African higher education is facing today. Relevant findings curated by researchers include the use of qualitative methodology, literature reviews and autoethnographic observations, while representing African educational scholarship, mainly focused on teacher training. The authors take a look at education broadly in its social, political, and ethical aspects, discussing such contemporary phenomena as distant and online learning and teaching, postcolonial challenges to pedagogy, the intrusion of the neoliberal discourse of economy to education, and many others.

Prof. Dr Wojciech Kruszelnicki, Department of Social Sciences, Faculty of Pedagogy, University of Silesia, Katowice, Poland

Each chapter in this book offers insights into how a pandemic can dictate a change in pedagogy. After reflecting on the destruction that a pandemic can cause to an educational system, the authors inspire hope in the reader by demonstrating, through research, how life in the classroom can still continue, but under a new normal. The authors show through research-based evidence the resilience of the human soul in the face of calamities by adopting forward-looking educational pedagogy. This book's chapters offer practical research-based pedagogy that demonstrates humanity's spirit of survival against the onslaught of hostile and ever-changing situations and environments.

Prof. Vitalis Nyawaranda, Department of Languages and Arts Education, Faculty of Education, University of Zimbabwe, Harare, Zimbabwe