Edited by
Charl C. Wolhuter

Raising the Impact
of Education
Research in Africa

Raising the Impact of Education Research in Africa

Cover: Designed by AOSIS. Created with the use of an image released under the Pixabay License which is free for commercial use and no attribution is required. The image is https://pixabay.com/en/drop-splash-drip-water-liquid-wet-3698073/.

Raising the Impact of Education Research in Africa

EDITOR
Charl C. Wolhuter

AOSIS

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 was subjected to rigorous two-step peer review prior to publication, with the identities of the reviewers not revealed to the author(s). The reviewers were independent of the publisher and/or authors in question. The reviewers commented positively on the scholarly merits of the manuscript and recommended that the manuscript be published. Where the reviewers recommended revision and/or improvements to the manuscript, the authors responded adequately to such recommendations.

Research Justification

The low demonstrable effect of education research done in South Africa in particular, and Africa in general, persists to be a problem in scientific records in the educational sciences. This scholarly collected work addresses this obstacle and focuses on recommendations from scholars in different sectorial categories in the field of education. Scholars from a variety of sub-fields within the educational sciences reflect on this particular matter, revisiting the history of research and research outcomes and offering informed recommendations based on in-depth investigation and analyses of aspects of the various discourses within the relevant sub-fields. The scope of the content of this collected work canters on the issue of the lack of scientific record concerning the scientific raising of the impact of education research. The book aims at making a specific contribution to the educational sciences by stimulating scholarly discussion as to how to increase the recording of the significance of educational research done in Africa, and in South Africa in particular, and to re-direct the research agenda into the direction of making more impact. Impact is conceptualised to mean both scholarly impact (that is being cited and being used as foundation for theory building and for further research) and practical impact (that is improvement of practice, of teaching and learning in education institutions at all levels). The target audience of this book is academic specialists and researchers in all fields of education in Sub-Saharan Africa.

Charl C. Wolhuter, Professor, Comparative Education, North-West University, South Africa.

Contents

THEME 1: Education Scholarship

Contents

THEME 2: Mathematics and Science Education

Contents

THEME 3: Education Policy, Teaching, Supervising and Learning at Higher Education Level

Chapter 8: Incorporating Active Teaching–Learning Strategies to Enhance Self-Directed Learning Within the Curriculum as Praxis: An Imperative for the 21st Century   151

Elsa Mentz, Roxanne Bailey, Marisa Verster & Betty Breed

**Chapter 11: Higher Education Tenure and the Associated
Scholarship Reward Practices in South Africa and the
United States of America**   **229**

Fulufhelo G. Netswera & Kristin Wilson

THEME 4: Comparative and International Education

**Chapter 12: Comparative and International Education:
A Tool for Powerful Global Impact Available to
South African Scholars**   **253**

*Charl C. Wolhuter, Matthew Thomas, Takalani S. Mashau &
Hennie J. Steyn*

Chapter 13: BRICS: A 'Road and Belt' for South African Researchers in Education to be Involved in Impact-Making Research

*Hennie J. Steyn, Charl C. Wolhuter, Deon Vos, Louw de Beer &
Ana Caanen-Ivanicki*

**Chapter 14: Researching Problems in Specific Contexts
Towards Making an Impact: Considering a Case of Book
Harvesting at a School in Kenya**   **309**

Peter M. Gathara & Lynette Jacobs

Abbreviations, Figures and Tables Appearing in the Text and Notes

List of Abbreviations

AAUP	American Association of University Professors
ACCC	Association of Canadian Community Colleges
ANA	Annual National Assessment
ASSAF	Academy of Science of South Africa
BOM	Board of Management
BRICS	Brazil, Russia, India, China and South Africa
BRICSNU	BRICS Network University
BRICSUL	BRICS University League
CAP	Changing Academic Profession
CAPS	Continuous Assessment Policy Statement
CHE	Council on Higher Education
CIA	Central Intelligence Agency
CIE	Comparative and International Education
CIES	Comparative and International Education Society
CRE	Christian Religious Education
DHET	Department of Higher Education and Training
EASA	Education Association of South Africa
ERIC	Education Resources Information Center
FE	Further Education
FET	Further Education and Training
FPE	Free Primary Education
GDP	Gross Domestic Product
HED	Higher Education for Development
HEI	Higher Education Institutions
HEQC	Higher Education Quality Commission
HEQSF	Higher Education Qualification Sub-Framework

HOD	Head of Department
HRE	Hindu Religious Education
IBPM	Integrated Building Performance Model
ICT	Information and Communication Technology
IEA	International Association for the Evaluation of Educational Achievement
INSET	In-Service Education and Training
IOT	Internet of Things
IRE	Islamic Religious Education
ISI	Institute for Scientific Information
IT	Information Technology
ITT	Initial Teacher Training
KCPE	Kenya Certificate of Primary Education
KCSE	Kenya Certificate of Secondary Education
KES	Kenyan Shilling
KESSP	Kenya Education Sector Support Programme
KICD	Kenya Institute of Curriculum Development
KNEC	Kenya National Examinations Council
KNUT	Kenya National Union of Teachers
MHTESTD	Ministry of Higher and Tertiary Education, Science and Technology Development
MOPSE	Ministry of Primary and Secondary Education
MRTEQ	Minimum Requirements for Teacher Education Qualifications
NCS	National Curriculum Statement
NDP	National Development Plan
NICE	National Institute for Community Education
NQF	National Qualification Framework
NRF	National Research Foundation
NU	Network University
OBE	Outcomes-Based Education
OECD	Organisation for Economic Cooperation and Development
OSD	Occupations Specific Dispensation
PGCE	Postgraduate Certificate in Education

PGDE	Postgraduate Diploma in Education
PIRLS	Progress in Reading Literacy Study
PISA	Programme of International Student Assessment
PSCBC	Public Services Coordinating Bargaining Council
PSET	Post-School Education and Training
PSY	Post-School Youth
RSA	Republic of South Africa
SACHES	Southern African Comparative and History of Education
SACMEQ	Southern and Eastern Africa Consortium for Monitoring Educational Quality
SACSCOC	Southern Association of Colleges and School Commission on Colleges
SAQA	South African Qualifications Authority
SD	Standard Deviation
SDG	Sustainable Development Goal
SIG	Special Interest Group
SMET	Science, Mathematics, Engineering and Technology
SoTL	Scholarship of Teaching and Learning
SSAUF	Staffing South African Universities Framework
STEAM	Science, Technology, Engineering, Arts and Mathematics
STEM	Science, Technology, Engineering and Mathematics
STI	Science, Technology and Innovation
SU	Stellenbosch University
SWOT	Strengths, Weaknesses, Opportunities and Threats
TAFE	Technical and Further Education
TALIS	Teaching and Learning International Survey
TIMSS	Trends in Mathematics and Science Study
TIQET	Totally Integrated Quality Education and Training
TSC	Teachers Service Commission
TVE	Technical-vocational Education
TVET	Technical and Vocational Education and Training
UCT	University of Cape Town
UFS	University of the Free State

UK   United Kingdom
UNESCO   United Nations Educational, Scientific and Cultural
              Organization
UNISA   University of South Africa
US   United States
USA   United States of America
USAID   US Agency for International Development
VE   Vocational Education
VET   Vocational Education and Technology
WCCES   World Council of Comparative Education Societies
Zim ASSET   Zimbabwe Agenda for Sustainable Socio-Economic
              Transformation

List of Figures

List of Tables

Notes on Contributors

Abbas M. Arani
Department of Education, Lorestan University, Iran.
Email: rie2000@gmail.com

Roxanne Bailey
Research Focus Area, Self-Directed Learning, North-West University, South Africa.
Email: roxanne.bailey@nwu.ac.za; ORCID: https://orcid.org/0000-0001-5326-274X

Johan J. Booyse
Department of Education Foundations, University of South Africa, South Africa.
Email: booysjj@unisa.ac.za

Betty Breed
Research Focus Area, Self-Directed Learning, North-West University, South Africa.
Email: betty.breed@nwu.ac.za

Ana Caanen-Ivanicki
Department of Educational Studies, Federal University of Rio de Janeiro, Brazil.
Email: aivenicki@gmail.com

Timely Chitate
Faculty of Business Administration, Solusi University, Zimbabwe.
Email: chitatet@solusi.ac.zw

Louw de Beer
Comparative Education, North-West University, South Africa.
Email: Louw.Debeer@nwu.ac.za

Corene de Wet
Open Distance Learning, University of the Free State, South Africa.
Email: dewetnc@ufs.ac.za; ORCID: https://orcid.org/0000-0002-5208-2963

Peter M. Gathara
Department of Educational Foundations, Kenyatta University, Kenya.
Email: mgathara@yahoo.com

Lynette Jacobs
Open Distance Learning, University of the Free State, South Africa.
Email: JacobsL@ufs.ac.za; ORCID: https://orcid.org/0000-0003-1582-5024

Divan Jagals
Curriculum Studies, North-West University, South Africa.
Email: Divan.Jagals@nwu.ac.za

Lida Kakia
Ministry of Education, Iran. Email: Lida.kakia@gmail.com

Augustine M. Karugu
Department of Educational Foundations, Kenyatta University, Kenya.
Email: mambokarugu@gmail.com

Takalani S. Mashau
School of Education, University of Venda, South Africa.
Email: takalani.mashau@univen.ac.za; ORCID: https://orcid.org/0000-0002-5890-2758

Elsa Mentz
Research Focus Area Self-Directed Learning, North-West University, South Africa.
Email: elsa.mentz@nwu.ac.za; ORCID: https://orcid.org/0000-0002-7267-080X

Fulufhelo G. Netswera
Business School, North-West University, South Africa.
Email: Fnetswera@gmail.com; ORCID: https://orcid.org/0000-0001-5382-4992

Rosalind L. Raby
Michael E. Eisner College of Education, Educational Leadership
& Policy Studies Department, California State University,
United States of America.
Email: rabyrl@aol.com; ORCID: https://orcid.org/0000-0002-
8980-8991

Amaria Reynders
Science for the Future, Faculty of Education, University of the
Free State, South Africa.
Email: reyndersa@ufs.ac.za

Ntlantla Sebele
Open Distance Learning, University of the Free State, South Africa.
Email: drnsebele@gmail.com

Hennie J. Steyn
School of Education, North-West University, South Africa.
Email: hennie.Steyn@nwu.ac.za

Matthew Thomas
Comparative Education and Sociology of Education, University
of Sydney, Australia.
Email: matthew.thomas@sydney.edu.au

Peter Tsvara
Faculty of Education, Solusi University, Zimbabwe.
Email: tsvarap@solusi.ac.zw

Edward J. Valeau
The ELS Group, Emeritus, Hartnell Community College District,
Emeritus, United States of America.

Cobus van Breda
Science for the Future, Faculty of Education, University of the
Free State, South Africa.
Email: vbredaj@ufs.ac.za

Berte van Wyk
Department of Education Policy Studies, Stellenbosch University, South Africa.
Email: bwyk@sun.ac.za; ORCID: https://orcid.org/0000-0002-2302-8714

Marisa Verster
Research Focus Area Self-Directed Learning, North-West University, South Africa.
Email: marisa.verster@nwu.ac.za

Deon Vos
Comparative Education, North-West University, South Africa.
Email: Deon.Vos@nwu.ac.za

Kristin Wilson
College of Education and Behavioral Sciences, Western Kentucky University, United States of America.
Email: Kristin.wilson@wku.edu; ORCID: https://orcid.org/0000-0002-6715-6232

Charl C. Wolhuter
Comparative and International Education, North-West University, South Africa.
Email: charl.wolhuter@nwu.ac.za

THEME 1

Education Scholarship

The Imperative for Raising the Impact of Education Scholarship in South Africa and Africa

Charl C. Wolhuter
Comparative and International Education
North-West University
South Africa

■ Introduction

There is a description of research and of the activity of scholars going around within the groves of academe and beyond which implies the 'reading [of] literature which no one had ever read, and rewriting it in books which no one will ever read' (General saying, author unknown, n.d.), and the following quip that

derogatorily depicts the careers of station of life of especially academics in schools or faculties of education:

> Those who can do it (mathematics, history of whatever science) do it.
>
> Those who cannot do it teach others to do it (i.e. they become teachers).
>
> Those who cannot teach others to do it, train teachers to teach it (i.e. they are teacher educators).
>
> Those who cannot train teachers to teach it, do research. (General saying, author unknown, n.d.)

More serious are accusations made by scholars active in other fields with regard to the sub-standard standing of the fields of education knowledge, education students and academics in the field of education, in particular. Such accusations are not only limited to the grapevine or corridors of academe but can be found in scholarly literature as well, right up to the pages of one of the most esteemed journals in the field. In an article published in *Educational Researcher*, David Larrabee (1998) dealt with this unpleasant phenomenon which academics in fields of education have to face from time-to-time. South African academics in the fields of education have also not escaped these negative judgements by their colleagues in other fields (e.g. cf. G3-Business Solutions 2005; Kannemeyer 1990; Van der Walt et al. 2010). One of the crises of identity in one of the scholarly fields of education, Comparative and International Education (CIE), has been identified as a lack of autochthonous theory construction (Wolhuter 2015a) (this problem of CIE is returned to later in this book) – and in this regard, CIE is by no means an exception in the set of fields of education scholarship.

Although raising the status and esteem (within as well as outside the education scholarly community) of the scholarly fields of education would demand constant assurance as to the academic rigour and depth of scholarly activity, it also requires constant attention to the impact which education research makes. A good amount of energy of education scholars in South African scholars has been recently devoted to the need for

ensuring academic depth and rigour in teacher education programmes, culminating in a set of articles in a Special Issue on Academic Depth and Rigour in Teacher Education Programmes of the Journal *Perspectives in Education* volume 34, number 1, 2016. This volume brings together a set of contributions from education scholars in South Africa, interrogating and reflecting on the aspect of the impact of education research in South Africa. Each chapter focuses on one sub-field or issue in education. The aim of this chapter is, firstly, to outline and clarify the concept of impact of research in education; secondly, to motivate the need or imperative for impact-making research in education; and thirdly, to discuss the main types of impact which education research can or should make.

■ Conceptual Clarification: What Does 'Impact' Refer to in the Sense of 'Impact of Research'?

The *Living Oxford Dictionary* gives the meaning of the word 'impact' as 'having a marked effect or influence' (Oxford Living Dictionary 2018). In order to answer the question what influence or effect, that is, impact education research should have, it may be best to turn to the definition and specifications as to what constitutes research.

Research is the way in which scientific knowledge is created (Wolhuter 2015b:149). Stoker (1969:1) defines scientific knowledge as 'methodically acquired, verified, systematized knowledge'. The first term in the definition implies that the researcher must give account of the method he or she is using, when conducting research. The scientific method consists of the following steps (Wolhuter 2015b):

- [*t*]he statement of the problem
- [*t*]he literature survey
- [*t*]he hypothesis formulation
- [*t*]he explanation of the research method

- [*c*]ollection of data
- [*p*]rocessing of data
- [*i*]nterpretation of data
- [*d*]rawing of conclusions
- [*w*]riting a research report. (p. 149)

From these research requirements, the kind of impact that research should make becomes clear.

The first step or requirement of research is the identification of a suitable research problem. This is a requirement in order for the researcher to answer the question as to the meaning or worth of doing the research, and to avoid the duplication of research or the useless spending of funds or time or energy. Research problems, in education in particular, can be one of these two types. It can be either a lacuna identified in existing scholarly literature or a problem in praxis, that is, a problem experienced by teachers, students, education planners, education managers or education administrators or any part of the community or society in its interrelationship with institutions and structures of education. From this first step in the research process, two kinds of impact are apparent, namely, impact on the body of scholarly literature and impact on practice.

The penultimate step in the research process is the drawing of conclusions. This step consists of five components. Firstly, the researcher should answer the research question by means of the data collected during the research or at least state the extent to which the data allow an answer to the research question. Then, secondly, the researcher should build the new knowledge which his or her research has yielded into the existing edifice of scientific knowledge or theory. As research is by definition – as was stated above by Stoker (1969:1) – 'methodically acquired, verified, systematized knowledge', the term 'systematized' means that the new knowledge produced by a research project cannot be left in isolation, to exist in limbo, but should be integrated into the existing body of knowledge. Thirdly, recommendations for the improvement of practice should be made (although that is

the ideal, many research projects, especially those of a theoretical-conceptual nature, do not lend themselves readily for the extraction of suggestions to improve practice). Fourthly, the researcher should then honestly state the limitations or shortcomings of his or her research. From this, the final component of the conclusion section will flow, namely, recommendations for further research. Thus, from the requirements of the conclusion section of a research project, two sets of impact are once again evident, namely, impact on practice and impact on the existing body of knowledge.

The final step in the research process is the writing up of the research project in a research report. Neglecting this means that the researcher is not true to the entire research industry in which he or she has spent time when busy with the research report. It is only by means of a research report that the researcher can manifestly contribute to the existing, growing corpus of scientific knowledge ('body of systematized knowledge') available to other scholars intending to embark on a research project. Withholding the results of a research project constitutes selfish behaviour on the part of the researcher and delays the progress of science. A research report not only is a report in the conventional sentence of the word but also can take on various forms – in increasing value attached to in the scholarly world – a research monograph, a book or book chapter, or an article in a scholarly (peer-reviewed) journal. Less prestigious (rightfully or wrongfully) fora to publish research results are in the popular media. Whereas the latter usually focuses (and the publication of which is justified in terms of) on the practical implications and impact of the research, the first is justified and judged in terms of both the practical impact and (and this usually much more) its impact in the scholarly world.

To summarise, when the impact of research is the subject, two main types of impact are included, namely, scholarly impact and impact on practice.

■ The Imperative for Impact-Making Scholarship, in Education in Particular

In the section above, it has been explained that from the exigencies of the research method the requirement for impact-making research emanates. But the need for impact-making research, in the fields of education scholarship in particular, emerges from two other sources as well, which (for the lack of more suitable terms) will be subsumed under the terms the neoliberal economic revolution and the social reconstruction role of education cum the societal-conscience function of the university.

In recent years and decades, governments have invested increasing amounts in research and development. Global spending on research and development has reached an all-time high of almost US$1.7 trillion per annum (UNESCO 2018). As part of the Sustainable Development Goals (SDGs), governments have taken initiatives to significantly increase public and private research and development spending as well as the number of researchers by 2030. This investment is related to the rise of knowledge economies and governments' attempts to make and to keep their countries globally competitive in this emerging knowledge economy. In the evolution of (national) economies, the following stages could be identified (Wolhuter 2017):

In most primitive [*stages*] or economies, a phase of hunting and gathering existed, [*that is, when*] hunting and gathering were the [*sole*] economic activities. After the Agricultural Revolution, which [*commenced*] in the 'Fertile Crescent' of the Middle East about 10 000 to 12 000 years ago, agricultural economies [*came to the fore*], where agriculture and/or other extractive industries, such as mining, fishing or forestry for trade and profit, became the [*basis*] of the economy. [*Then*], after the Industrial Revolution, which [*commenced*] in England from [*around*] 1760, industrial economies developed, where manufacturing became the [*mainstay*] of economies. Next, a [*stage*] of services, where services constitute the majority of economic activities, [*emerged*] in North America and Western Europe in the

twentieth century. [*Currently*], in the most advanced economies, a phase of a knowledge economy is dawning, i.e. an economy where the production and consumption of new knowledge has become the [*dynamo*] of economic development. (p. 21)

In South Africa too, the intention is to increase investment in research and development. In the 2014–2015 financial year, investment in research and development amounted to R29 billion (an increase of 8.1% compared to the preceding year), and according to the Minister of Science and Technology, the intention of government is to raise this to R60 billion per year by the year 2020 (Campbell 2017). It is reasonable that a return is expected for such a concentrated allocation of (scarce) financial resources, hence the call for relevant or impact-making research. This call for relevant or for impact-making research, in view of the emerging knowledge economies and the rising investment in research, has become more articulated with the rise of neoliberal economics, the dominant global economic ideology.

One of the most conspicuous phenomena in world history in the past two to three centuries was the rise of the nation-state. By the beginning of the 20th century, the nation-state has proved itself as a powerful factor on the world stage. However, the compelling force of the nation-state has been compounded with the transformation of the nation-state to a welfare-state during the first three-quarters of the 20th century (Redwood 1993:41–44). Welfare-state refers to a government or a public sector that takes responsibility to care for the individual citizen 'from cradle to grave', that is, the (almost) exclusive supply by the state or the public sector of a wide range of services such as health services, transportation, education, retirement provision and unemployment benefits. By the early 1980s, the Western welfare-state has appeared to be unsustainable. In 1990, for example, the public budget deficit in the United States of America (USA) had amounted to $200 billion. This deficit was growing at a rate of 8% per annum, and at the same time, public debt increased by 11% annually (Davidson & Rees-Mogg 1992:394). At this time, the coming to power of conservative governments in the USA

(Ronald Reagan and the Republicans in 1980), the United Kingdom (Margaret Thatcher and the Conservative Party in 1979), Western Germany (Helmuth Kohl and the Christian-Democratic Party in 1983) and elsewhere in Western Europe unleashed the neoliberal economic revolution. This revolution entailed an aggressive assault on the welfare-state by the principles of the free-market economy. After the Fall of the Berlin Wall, the countries of the erstwhile East Bloc also succumbed to the neoliberal economic revolution in the 1990s, followed suit by the countries of the Global South.

The neoliberal economic revolution was not limited to the economy, but affected many other spheres of society, including education. The principles of the neoliberal economic revolution, such as accountability, performativity, managerialism, the profit-motive and efficiency, were carried into education (Wolhuter 2015d). So widely are these principles now accepted unquestioningly that Torres (2015:41) postulates these as the new 'common sense' of beliefs in how education institutions should be managed.

It is in the wake of the neoliberal economic revolution that certain major changes are taking place in higher education. One of these is the call for relevance (cf. Wolhuter 2011a). No longer can the core business of universities be the unhindered pursuit for truth – now universities have to produce knowledge that is useful, while under performance management regimes academics are under increasing pressure to publish research with a demonstrable impact in the scholarly world.

It is not only from the demands of the hegemonic neoliberal economics (whatever moral judgement the scholar may harbour about this) that the call for relevance or impact-making emanates, but it also hails with equal strength from the (more humane or altruistic) societal reconstructionist or societal elevating role assigned to education and to universities in particular since the mid-20th century. For centuries, education was the preserve of the elite of society, and universities existed as 'ivory towers' at

the fringe of society, cut off from socio-economic realities (in the 17th century even the intellectual leaders of public debate, such as Rousseau, Montesquie and Voltaire, had no connection to universities). Then in the decades following the Second World War, a borderless belief in the power of education to effect any kind of desired social change took hold. Brezinka's (1981:2) description states that '[w]hen someone wants to do something for peace, he demands "peace education", [while] the person wanting to reduce the number of traffic accidents recommends "traffic education"'.

In South Africa, for example, in terms of official policy as well as public discourse and expectations, the education system is expected to attain the following societal objectives (Raby & Valeau 2018; Wolhuter 2015c):

- *Economic goals*: The eradication of poverty and the promotion of the country's economic productivity and development.
- *Social goals*: Building a society free of racial, gender and other forms of unfair discrimination, creating a socially mobile society and encouraging the removal of artificial hierarchies and abstractions in the way of progress.
- *Cultural goals*: Empowering people so that they can participate in the process of cultural expression.
- *Political goals*: Empowering citizens to take part in the processes of a democratic society, nation building – building a communal value system for a society characterised by democracy, equality, freedom, peace, justice, tolerance and stability.

The relations between education and societal outcomes in particular contexts are very complex and present a tall order to scholars, yet the attainment of these goals cannot be left to a trial-and-error strategy but should be guided by meticulous research.

Then, there is also the fact that one of the accepted functions of the university is to act as the social conscience of society (cf. Wolhuter 2012). As a (supposedly) autonomous institution of higher learning, the university is uniquely placed to critique

society and to point out any aberrations from noble ideals society may proclaim, such as pursuing equal opportunities for all, caring for the environment or of upholding human rights. Fulfilling this function too places scholars at universities under the obligation to conduct relevant research.

■ Scholarly Impact

Bibliometrics, the measuring of citation impacts of scholars and of publications, has grown into a formative and ever-expanding activity. This history commenced with Eugene Garfield (1925–2017) who founded, in 1960, the Institute for Scientific Information (ISI). This company began to accredit journals, and to measure and to publish on an annual basis, the impact statistics of articles published in the accredited scholarly journals. This pool eventually became known as the *Web of Science* journals and first became part of the scientific division of Thomson Reuters, before being sold, in October 2016, to Clarivate Analysis, an independent company with its headquarters in Philadelphia, USA. Currently, 14 000 journals are accredited and are part of the *Web of Science* journal pool. Every year the company calculates and publishes the impact factor and five-year impact factor of each journal (Friedman 2016):

> The impact factor of a journal for [*a*] given year is the number of articles published in [*the*] journal in the two preceding years divided by the number of [*times those*] articles [*were cited*] in [*the pool of journals in*] a given year. (n.p.)

For example, the 2017 impact factor of journal X will be the number of articles published in journal X during 2015 and 2016, divided by the number of times those articles were cited in the pool of Web of Science journal in 2017. The five-year impact factor will take the preceding five years instead of the preceding two years.

In the field of education, there are currently 436 journals in the *Web of Science* pool. By impact factor, the leading journal is the journal *Educational Researcher*, with an impact factor of 2.527.

South African education journals with *Web of Science* accreditation include the *South African Journal of Education* (impact factor 0.45), *Perspectives of Education* and *Education as Change*. However, some other general scholarly journals, which also publish education articles, such as *Tydskrif vir Geesteswetenskappe*, are also *Web of Science* accredited. The *Web of Science* grew to be the most prestigious pool of journals. However, there are other pools of accredited journals too – *Scopus* and *Scielo* being the two most salient, and they too calculate their own citation impact factors in their pools of journals.

Impact factors have acquired a wide range of usage. It is first of all an indication of the standing of a journal in the collection of journals (cf. Rodriguez et al. 2017); typically, a journal would publish its impact factor on its first page. Then, it is taken as an equally important index of the standing of a researcher (Saganuwan 2017 cited in Carnegie Institution of Washington 2018):

> The 'h-index' was [*formulated*] in 2005 as [*an indicator*] for [*measuring*] 'the importance, significance and broad impact of a scientist's cumulative contributions'. It takes into account both the number of an individual's publications and their impact on peers, as indicated by citation counts. (n.p.)

The definition of the index is that a scholar with an index of *h* has published *h* papers each of which has been cited in other papers at least *h* times (Carnegie Institution of Washington 2018):

> [*Its inventor*], Jorge Hirsch (UC-San Diego) [*contends*] that a 'successful scientist' will have an h-index of 20 after 20 years; an 'outstanding scientist' will have an index of 40 after 20 years; and a 'truly unique individual' will have an index of 60 after 20 years or 90 after 30 years. (n.p.)

Not surprisingly, impact factors are widely used by universities to assess their academic staff for appointment and promotion (cf. Gruber 2014).

With the rise of the industry of university rankings (cf. Shin, Toutkoushian & Teichler 2011), impact factors have acquired

another lease of life. Publication output and scholarly impact of academics attached to a university are accorded heavy weight in determining the rank of a university. Of the two oldest and well-known ranking systems, The Shanghai Academic Ranking of World Universities is based on the following six criteria (Academic Ranking of World Universities 2011):

1. [*n*]umber of alumni who are Nobel Prize Winners and Field Medal Winners (10%)
2. [*n*]umber of staff who are Nobel Prize Winners and Field Medal Winners (20%)
3. [*n*]umber of highly cited researchers, as selected by *Web of Science* (20%)
4. [*n*]umber of articles published in *Nature* and in *Science* (20%)
5. [*n*]umber of *Web of Science* articles published (20%)
6. [*p*]er capita number of *Web of Science* articles published relative to the size of the university (20%). (n.p.)

The ranking done by the *Times Higher Education Supplement* is based upon the following five measures (The World University Rankings 2011):

1. [*a*]n international survey amongst academics (40%)
2. [*a*]n international survey amongst employers (10%)
3. [*r*]atio of students per academic (20%)
4. [*c*]itations in scholarly journals per academic staff member (20%)
5. [*p*]ercentages of international academic staff and students (5% each). (n.p.)

Further to these uses, citation impact statistics have been used to map scholarly fields (e.g. Brookes & Stewart 2016) and to conduct equity studies (e.g. gender equity in research, cf. Opesade, Famurewa & Ebelechukwu 2017).

■ The Scholarly Impact Factor of South Africa's Education Scholars

The impact factor of South African researchers tends to be low. Research by South African scholars of education is no exception. Two publications in recent years have focussed on aspects of

South Africa's education researchers' scholarly impact. In the first publication, Wolhuter (2011b) investigated:

> [*T*]hrough a citation analysis of articles published in the South African Journal of Education from 2000 to 2010. The citation impact (nationally as well as internationally) was found to be low. The international impact [*registered*] has been particularly [*low*], both quantitatively (in terms of the number of citations) and qualitatively (in terms of the standing of the publications in which this research does get cited, seen in the context of the hierarchy of scholarly publications). (n.p.)

Of the 506 articles published in the *South African Journal of Education* during the period 2000 through 2010, 17 were authored by scholars outside South Africa and therefore excluded from the study. The 489 articles written by South African researchers had in total 222 international citations from January 2010 to December 2010 (Wolhuter 2011b):

> Most international citations appear in book chapters (55 citations), theses (15 citations) and research reports (8 citations). Of the citations in journals (total: 178 citations), most are in non-ISI indexed journals (143 citations); and amongst those in ISI indexed journals (35 citations), only one citation was in the top 25 journals [*(by impact factor)*], [*namely, in Language Learning*]. [...] The [*publication concluded*] that certain topics of research in South Africa fail to break through to the international arena at all, such as research on the current restructuring of education in South Africa. Research that was cited most often in international journals dealt with research methodology, creativity and entrepreneurship education, beliefs and perception studies, and language-in-education in South Africa. (n.p.)

In the second publication, Wolhuter (2015c) investigated:

> [*T*]he scholarly impact of knowledge generated as part of doctoral studies in the field of education in South Africa. The transition rates of the 97 doctoral theses completed in the various fields of education in South Africa in 2008 into peer-reviewed articles and chapters in scholarly books, as well as the citation impact of these theses, were studied. (n.p.)

The results of this research confirmed the statement as to the low impact of education research in South Africa (Wolhuter 2015c):

> It was [*concluded*] that the transition rates of these theses to journal articles and book chapters were [*meagre*], as was their citation impact. Eighty-three of the 97 theses did not [*yield*] any

kind of publication, 70 out of the 97 made no citation impact and 65 theses neither transferred to an article or a book chapter, nor did they receive any citation. (n.p.)

The reasons for this poor show of South African research, specifically education research, on the scholarly impact count are manifold. Some of these causes, interrelated to each other, will be highlighted here. To commence with, the publication output of South African academics is rather low, and hence, the basis from which impact can proceed is small. The last international survey of the academic profession, the Changing Academic Profession (CAP), found that amongst the 23 countries in which the survey took place, South Africa occupied the last place when it came to the research output of academics. In the 3-year period up to the CAP survey, South African academics have published on average 3.66 articles or book chapters, compared to 10.1 and 9.8 of their counterparts in Hong Kong and Japan, respectively (Wolhuter et al. 2010:206). The low levels of funding available for education research in South Africa and the resultant small-scale scope of most research projects in education (cf. Deacon, Osman & Buchner 2009) are other reasons for the low research output. Finally, the excessive cluster of managerialism and institutional and national higher education politics which South African academics are subject to and which distract them from carrying out their research briefs should be mentioned (cf. Wolhuter et al. 2011).

■ The Practical Impact of Education Research in South Africa

'[The] field of Education research [in general] is [worldwide] notorious for not going over into improvement of education practice' (cf. Levin et al. 2013; Wolhuter 2018). Farrell, Manion and Rincón-Gallardo (2017:63–64) list an entire set of findings made by research on learning theory and other aspects of schools in the past decades, which failed to find their way into practice in

Chapter 1

schools worldwide. Leading cognitive psychologist, David Olson, published the following verdict (Ohlson 2003):

> For some time I have been struck by the fact that whereas the psychological understanding of children's learning and development as made great strides [...] the impact on schooling as an institutional practice has been modest if not negligible. (p. xi)

While, lamentably, little research has been done on this facet of education research in South Africa (i.e. impact-making), indications are that South Africa too is no exception to this rule. This too can be traced back to a number of causal factors. Once again, the small-scale and uncoordinated nature of a number of education research in South Africa and the relatively low levels of funding have been pointed out as factors hampering forceful practical impact (Muller & Hoadley 2013:171–178). Teaching, scholarship and publication (from textbooks for student teachers to research monographs and articles and book chapters) in fields of education in South Africa have a long history of dealing with education isolated from the social and economic realities of the country (Steinberg, 1987 in Wolhuter 1994). Education, at the historically Afrikaans and the historically black universities in particular, was long practised as part of the humanities, and not as a social science, placed solidly in philosophical frameworks, continental phenomenology in particular, which contributed to the sense of being cut off from societal realities. This applies even to a field such as Comparative Education – a lodestar (amongst South African academics) such as the book by Stone (1983) who offered a frame for Comparative Education wholesale taken over from Dutch Calvinist philosopher, Dooyeweerd, and applied to the field of Comparative Education. There is always, in all parts of the world, a trend that governments are not apt to take advice from education scholars, but select findings in scholarly publications fitting in with predetermined beliefs and decisions. South Africa is no exception to this, as De Wet and Wolhuter (2007) show with the illustration of the two cases of the issue of mother tongue as language of learning and teaching,

and the introduction of Outcomes-Based Education in South Africa. There is also the observation that while in the pre-1994 era there was a host of progressive education scholars critical of the policies of the South African government of the day, these voices became largely silent after 1994 (cf. Weeks et al. 2006). Finally, mention should be made of the disastrous effect of the rising cult of managerialism at South African universities. Not only do increased administrative burdens and committee obligations discourage academics from research, but the long and discouraging processes of getting research projects approved and getting ethical clearance also hinder academics who are eager in doing research. On the ethical clearance problem, national legislation makes it well-nigh impossible to conduct research with minors as subject, having a particularly negative effect on conducting education research with impact-potential, as probing experiences and views of learners are virtually out of bounds.

■ Conclusion

The impact of research activity carried out and published within the scholarly fields of education in South Africa is by all accounts very paltry. This pertains both to scholarly impact and impact on practice (improvement of teaching and learning in classrooms, of school effectiveness or practical improvement at education system level). While reasons are not hard to find, such as the underfunding of education research or the growing cult of managerialism at South African universities, making the obvious recommendations here, such as rolling back managerialism or increasing fund for research, will, in view of the contextual realities in South Africa, also have no impact. What can be done to pursue the line of recommendations made in the two cited publications on scholarly impact of education research done in South Africa (Wolhuter 2011a, 2014) is to do in-depth research on particular sub-fields of education and research on specific critical issues in South African education and explore possibilities for

impact-making research. This is the objective of this publication, which originated at the 2017 Annual Conference of EASA (Education Association of South Africa) held at Khaya Ibhubhesi, under the same theme. This volume offers selected papers presented at that conference, supplemented by chapters by education scholars on the impact-making aspect of selected areas of research, zooming in on selected aspects of education and education scholarship in South Africa, highlighting the impact-potential of further research in those areas.

If this volume will in some way contribute to make researchers of education in South Africa more aware of the need to attend to the impact-making side of their research endeavour, it would have served its purpose.

■ Summary

This introductory chapter outlines the imperative for raising the impact of education scholarship in Africa in general, and South Africa in particular. Research methodology as well as contextual realities (without resigning wholesale to the impact of neoliberal economics on higher education and on scholarship) dictates that scholars take the impact of their endeavour seriously. The concept of research impact is explored and found to consist of two major subsets, namely, scholarly impact and impact on practice. On both of these, the score of South African scholars of education is low. Easy solutions can be proffered but these are not attainable. The best that can be recommended to address the challenge is to drill down deeper to the situation and research on specific issues and in specific fields of education scholarship to look for ways to raise impact within the unique situation of each of these. This is the objective of the chapters that follow in this volume.

Leading the Way to Impact-Making Research: The Role of Comparative International Perspectives in Research on Leadership in Education in South Africa

Charl C. Wolhuter
Comparative and International Education
North-West University
South Africa

■ Introduction

From the mid-20th century, a feverish expansion of education took off in all parts of the world, a project that has not yet run out of momentum. As governments and individual households alike spend large proportions of their resources on education, motivations for this investment in education range from the view that education is the most important instrument to effect modernisation of societies or to bring about economic growth, to the contention that the best way to stamp out social evils, such as drug abuse or violence, is education. There is an unshakeable belief in education as the panacea for all societal ills. Leadership is critical for the success and survival of all forms of organisations, such as schools (Zvavahera 2013:2). The effect, or outcome, of education will depend on the quality of leadership in educational institutions, as has been confirmed by research (see, e.g. Hallinger & Heck 2011:149–150). Leithwood et al. (2006) claim that leadership explains about 5% – 7% of the difference in learner achievement across schools (Bush et al. 2010). There is not a single documented case of a school successfully turning around its pupil achievement trajectory in the absence of talented leadership (Leithwood et al. 2006:5). Bush et al. (2010) identify lack of leadership as one of the contributing factors in poor achievement levels in many South African schools, which is a major problem in South African education.

The aim of this chapter is to defend the thesis that research into educational leadership presents an opportunity for South African scholars in the field of Comparative and International Education (CIE) to pursue a research agenda with the potential to make a demonstrable impact on South African schools.

The article commences with the defence of a statement that leadership constitutes the one pivotal place in the South African education system where a difference to the quality of the entire education project can be made. Then, the concept of 'educational leadership' is clarified, and an expanded (from the conventional) conceptualisation of the term is suggested where the education

system, the societal context and the international context in which the school is situated are duly acknowledged. Subsequently, salient features of the South African context are highlighted. The focus of research of the scholarly field of CIE is then explained, followed by a critical discussion of the state of this field in South Africa. In conclusion, a CIE research agenda for research pertaining to educational leadership, opening the opportunity for impact-making, is suggested.

■ Leadership as Latent Factor in Enhancing Quality of Education in South Africa

It can certainly be said that it is commonplace to assert that the South African education system is not at a satisfactory level – in both the scholarly (cf. Wolhuter 2014a) and public discourse (cf. Masondo 2016) such allegations (and frequently stronger adjectives than 'non-satisfactory') are heard in both scholarly and public. Results of international test series in which South Africa has participated confirm the worst verdicts found in the (public and scholarly) discourse. Seventy-five countries took part in the 2915 TIMSS (Trends in Mathematics and Science Study) test series. Learners from South Africa came second-to-last in the mathematics test with an average score of 376 (Singapore, which came out on top, had an average score of 618, and the median score of the test was 500) (Mullis et al. 2017). The poor performance and low quality of South African education and (many of its) schools are attributed to a wide range of causal factors, depending on the scholar or commentator. However, the societal factor or the education system are often singled out as the scapegoats. Societal contextual factors thus blamed may include the poor financial position of parents, the lack of social capital. Education system factors singled out include poor and inefficient provincial education administration structures (which, for example, fail to deliver textbooks on time to schools), inadequate infrastructure and physical facilities at schools or

teachers not sufficiently committed or adequately educated for their work. While these factors are, at least at school level, those which parents, teachers or learners cannot change by means of a pen stroke, one determining factor of school success that can go a long way to mediate, mitigate and even obviate or – in cases of impressive ingenuity – capitalise from debilitating contextual factors, is that of school leadership. However, this factor has thus far escaped the amount of attention given to other factors. For example, in widely read and cited publications analysing South African education and schools and the poor performance thereof, such as Balfour (2015), Bloch (2009) or Wright (2015), no attention is given to leadership. Before the main features of the South African context will be unpacked, the concept of leadership will first be elucidated.

■ School Leadership: Conceptual Clarification

A wide array of definitions of leadership exists. Helmrich (2015) enumerates 30 different definitions of leadership, which emerged when the newspaper *Business News Daily* surveyed business and public leaders on this concept. Similarly, an impressive range of theories on leadership can be found.

The earliest beginnings of a theory of leadership can be traced to the Great Man Theory, which crystallised in the 19th century. This theory was expatiated on, expounded and popularised by Thomas Carlyle in his book *On Heroes and Hero Worship and the Heroic in History* (1849). This theory contends that the history of humankind is the history of great people, that is, a very few great people have shaped history. Furthermore, what made these people great is innate, that is, they were born with the quality of greatness, and this quality cannot be learnt or taught. What exactly it was that made them predestined to be great, Carlyle did not spell out.

Trait theories are more refined than the Great Man Theory; they link leadership with certain personality traits, such as extroversion, adjustment or intelligence. The pioneer of trait

theories on leadership was Francis Galton, who explained his theory in his book *Hereditary Genius* (1884). Trait theories plugged into the rise of personality psychology in the first half of the 20th century. In 1948, Ralph Stogdill published a review of 124 studies and surveys that had appeared in print between 1904 and 1947. Researchers in these studies identified characteristics such as initiative, social dominance and persistence as general qualities of effective leaders. However, from these studies, no common list of specific leadership traits could be produced. In fact, not only did Stogdill fail to identify a common list of leadership qualities, he also uncovered a number of inconsistent findings; it was this inconsistency in the findings that made Stogdill reject trait theories of leadership (Stogdill 1948).

However, even in the 19th century, the Great Man Theory, and its refinement in the form of trait theories, met with rival views. In 1860, Herbert Spencer, an English philosopher, disputed the Great Man Theory, by asserting that heroes in history are simply the product of their times and that their actions are the result of social conditions. This difference in views on leadership was echoed in a major debate about history, namely, whether the course of history was being shaped by the actions of a few great people (Carlyle was one of the advocates of this view of history), or, as Spencer contended, are such great people the product of their societies, where their actions would be impossible were it not for the social conditions that had been created before their lifetime?

Spencer also maintained that different situations call for different traits. Theories such as that of Spencer are referred to as situational theories of leadership.

Other theories of leadership include behavioural theories, such as the theories of David McClelland and Kurt Lewin, and transactional theories, such as the theory of Bernard Bass. These theories regard the essence of leadership to be the way the leader interacts or communicates with subordinates or followers. David McClelland's theory of leadership revolved around motivation. According to him, great leaders are different from

other people, in that they motivate the people working under them, and great leaders succeed in imbuing an organisation with a sense of mission. The job of an effective leader is to stimulate employees to push themselves and accept personal responsibility to meet or exceed demanding performance targets (www.scribd. com). It is to create organisations where people go above and beyond the call of duty, where people are highly committed to delivering extraordinary results. In other words, in McClelland's view, great leaders systematically create highly motivated, high achievement-aroused organisations (Spencer 2016).

In 1939, Kurt Lewin and his co-workers (Lewin, Lippit & White 1939) distinguished three leadership styles, namely, an autocratic leadership style, a democratic leadership style and a *laissez-faire* leadership style. Autocratic, or authoritarian, leaders communicate clear expectations of what needs to be done, when it should be done and how it should be done, and they do not tolerate interference in this from those that they expect to follow them. Democratic, or participative, leaders, while they (may also) provide guidance, allow the group or the followers to offer input and to decide what to do, how to do it and when it should be done. *Laissez-faire*, or delegative, leaders have very little involvement in decision-making themselves, where they pretty much leave matters to their followers.

Bernard Bass (1985) conceptualised a leader as a person who succeeds in inspiring followers or employees, getting them to identify with the needed change and to work with commitment towards the vision that is set. According to Bass's conception, the leader serves as an idealised role model for their followers. Through a set of mechanisms, a leader can increase the motivation of their followers. These mechanisms are (Bass 1998; Bass & Steidlmeier 1999):

- emphasising intrinsic motivation and positive development of followers
- raising awareness of moral standards
- highlighting important priorities

- fostering higher moral maturity in followers
- creating an ethical climate (shared values and high ethical standards)
- encouraging followers to look beyond self-interest and to the common good
- promoting cooperation and harmony
- using authentic, consistent means
- using persuasive appeals based on reason
- providing individual coaching and mentoring for followers
- appealing to the ideals of followers
- allowing freedom of choice for followers. (n.p.)

To synthesise, the lack of preciseness of the Great Man Theory hardly renders it useful for the formulation of a definition of leadership. The fact that trait theories could not identify the traits constituting leadership disqualifies these theories too. Common elements between transactional and behavioural theories' conceptualisations of leaders are that of a shared vision, which the leader manages to get their followers to buy into.

From the angle of research on *educational* leadership, the objection can also be brought in that these definitions (hailing from theories defining leadership with inspiration, motivation and successful selling of a vision) focus exclusively on the leader or at most on the leader and subjects (and then subjects are depicted fairly passively too, merely in the role of receptors of the leader's vision). In a recently published interrogation and investigation of the concept of a school leader, a case was made that the work, including the leadership role, of a school is determined or shaped by a host of things outside the school (Wolhuter, Van der Walt & Steyn 2016). The factors outside the school perimeter impacting on the work of the principal can be subsumed under the two terms: education system context and societal context. The societal context consists of the geographical, demographical, social, economic, political and religio-philosophical context, stretching from the immediate catchment area of the school to the international or global context.

Therefore, in this article, the following definition of educational leadership, developed by Griffiths University (Australia) educational leadership scholar Neil Dempster (2009), will be used as a working definition:

> School leaders, understanding and accommodating the contexts in which they operate, mobilise and work with others to articulate and achieve shared intentions to enhance learning and the lives of learners. (p. 22)

■ South African Educational and Societal Context

What follows is an overview of the main features of the education system and societal contexts in which South African schools find themselves.

■ Education System Context

At least five interrelated features of the South African education system are impacting forcefully on the operation of schools (cf. Wolhuter et al. 2018). Firstly, since 1994, the education system has been the scene of a stream of incessant, apparently never-ending changes. Stability appears to be ever evasive. Education policy and education Acts are still constantly changing and no end seems to be in sight. New provincial administrations were created, and new management and administrative styles were established. Secondly, contradictory to the declared principle of decentralisation, proclaimed as policy after 1994, principals and teachers are subjected to a battery of stifling, very narrow prescriptions, which often draws a line through any semblance of respect for professional autonomy. Thirdly, politicians to whom education is entrusted, as political leaders in the country in general, often descend into populism, out of a quest for survival. Fourthly, the interminable changes and unconsidered, irresponsible outbursts of populism create policy uncertainty, and fifthly, schools have fallen victim to the cumbersome, dispiriting bureaucracy, administrative

incompetence and dysfunctionality which have come to characterise large parts of the civil service.

■ South African Societal Context

☐ Geography

Being located in the temperate or middle latitudes means that South Africa has for the most part mild temperatures. However, temperature extremes can occur, albeit for short spells, namely, hot mid-summers (in the coastal, especially the eastern coast coupled with high humidities making for a high level of discomfort) and cold temperatures in mid-winter. Torrential winter rain coupled with strong winds can make the operation and travel of children to school in the Western Cape a problem, as can summer afternoon thundershowers in the highveld, Mpumalanga and KwaZulu-Natal. The absence of a system of reliable, safe and regular public transport means that the transport of learners to and from school can be quite a challenge, not only in sparsely populated rural areas (and here especially the Northern Cape comes to mind) but also in urban areas.

☐ Demography

The average population density in South Africa is relatively high, 46.3 people per square kilometre (Statistics South Africa 2017). The population density ranges from 785.2 persons per square kilometre in the Gauteng (province with the highest population density) to 3.3 persons per square kilometre in the Northern Cape (province with the lowest population density) (Statistics South Africa 2017). While a large percentage of the country's population is urbanised (65. 8% in 2017, CIA 2017), in many parts of rural South Africa (particularly the ex-homelands) the population density is high. The spread-out nature of cities, because of the penchant of middle-class South Africans to stay in stand-alone houses with large gardens, however, results in many learners not staying within walking distance of schools and

that combined with the fact that in most middle-class households both parents work full-time and the absence of public transportation constitutes a huge challenge. In line with what occurs in other parts of the world, such as Hong Kong, for example (Ng 2010:27), seeking better schools for their children has long been identified as a noticeable vector in the South African demographic movements (cf. Wolhuter 2000). In the 2018 school year, schools in the Gauteng Province admitted 101 585 learners from outside the province (i.e. with residential addresses or parents outside Gauteng) in their schools and 22 924 from outside South Africa (these numbers have increased from, respectively, 77 702 and 12 344, a mere 2 years before, in 2016) (Govender 2018:1).

☐ Economy

While the World Bank classifies South Africa (based on per capita gross national income) as an upper-middle income country, inequality (measured by the Gini index) is the second highest in the world (Krishnamurthy & Wolhuter 2017). Unemployment is high (27.7%, 6.21 unemployed [Trading Economics 2018]) and widespread poverty occurs; 16.6% of the population lives on less than the equivalent of US$1.90 per day, and 34.7% on less than US$3.20 per day (the international poverty lines) (World Bank 2017).

☐ Social System

Two salient characteristics of the South African social context, each of which places schools and educational leaders before particularly severe challenges, are diversity and the extant lack of social capital. An indication of the cultural diversity is the occurrence of 11 official languages in the country, not one of which can even remotely claim to be the home language of the majority of South African citizens (cf. RSA 2018). Furthermore, according to official census statistics, there are almost a million (to be precise, 828 258 or 1.6% of the census counted population)

speaking a home language other than one of the 11 official languages (RSA 2018). On top of this, there are an estimated 3–6 million illegal immigrants in South Africa (cf. Anonymous 2009), and surely, it could be assumed that most of them do have a home language other than the 11 official languages. Apart from linguistic diversity, there is also diversity with respect to every other aspect of culture (the religious aspect is discussed below), and other kinds of diversity, for example, the economic inequality mentioned above, are very visible too. An indication of the lack of social capital is the concern about rising high-levels of crime in the country.

☐ Politics

In the discussion on the education system context above, mention was made of the political context of policy uncertainty and threatening, destabilising populism and problems with administrative incompetence. To these should surely be added the problem of a lack of accountable governance (where no one takes responsibility or is held accountable for failures or aberrations), which can be traced back to, *inter alia*, an electoral system whereby representatives are appointed by party structures rather than directly by the electoral corps, and a governing party which still wants to live off a liberation dividend. Finally, the deep penetration of corruption, nepotism, cronyism and patronage, which characterise the government of the day, should be mentioned (cf. Olivier 2017; Pauw 2017).

☐ Religion, Life and Worldview

While 81.2% of South Africans describe themselves as Christians, this statement should be qualified (Pew Research Center 2016). Firstly, the Christians are divided amongst many denominations, and this division corresponds to a significant extent with the racial divide (cf. Wolhuter 2016:108–109).

Under religion and life and worldview, some more comments should be made. Firstly, religious diversity as part of general

cultural diversity (as discussed above under the social system) should be mentioned. Secondly, the Bill of Human Rights, which is part of the Constitution of South Africa, and the education authorities' interpretation thereof limit the practice of religion in schools (cf. Van der Walt, Potgieter & Wolhuter 2010). Thirdly, the questionable political leadership in the country and the lack of social capital (discussed above) leave the country and the nation with a moral vacuum.

The cumulative impression of the above-discussed education system and societal contexts of South Africa is one which is in many respects very debilitating and challenging for schools to operate in. Yet, at the school level, this context is a given for the school community (teachers, learners, parents). What is pivotal is the role of leadership in responding, mitigating and even capitalising on these contextual factors impacting on schools in innovative and inspiring ways (cf. Wolhuter et al. 2018). The question is still where does CIE fit into this picture?

◼ Comparative and International Education

◼ What is Comparative and International Education?

Comparative Education can be defined as having a three-in-one perspective on education (Wolhuter 2015; Želvys & Wolhuter 2014):

- [*a*]n education *system* perspective
- [*a*] contextual perspective
- [*a*] comparative perspective. (n.p.; *emphasis in original*)

Comparative Education focuses on the education *system*, for example, the South African education system or the Japanese education system. Where scholars in the field of Comparative Education investigate a teacher or a classroom, it is always within the framework of the education system.

The focus of Comparative Education is broader than just the education system *per se*. The education system is studied within its societal context and is regarded as being shaped by, or as being the outcome of societal forces (geographic, demographic, social, economic, cultural, political and religious). Once again, when scholars in the field investigate a particular school, classroom, teacher or principal, it is in interrelationship (of that school, classroom, teacher or principal) with the education system in which the school is embedded and which in turn lies in the fold of a particular societal context.

Finally, Comparative Education does not contend with studying one education system in its societal context in isolation. Various education systems, shaped by their societal contexts, are compared and hence the comparative perspective. On the level of the particular school or class, Comparative Education will entail the comparison of more than one school or class from the same or different education systems, in their contexts. From such comparison, regularities in societal-education system interrelationships and in societal context-education system-education institution/education role player (teacher, learner or principal) become revealed.

■ Significance of Comparative Education

The value of Comparative Education lies in furthering an understanding of the interrelationships between education system and context, and also of the interrelationship between an institution of education or role player in education (e.g. a teacher, a learner or a principal) on the one hand, and on the other hand, the education system and societal contexts in which the role player or institution is operating. Such an accumulated stock of knowledge can be a valuable source for the improvement of practice (i.e. education practice, such as teaching or leading a school) and for educational planning. Not only can teachers and principals thus learn from the innovations and experiences of other teachers, schools, principals or countries, but the

Comparative Education literature also helps them to reflect on issues of concern in their own classrooms and schools, such as diversity, conflict and peace, teaching approaches, curriculum approaches, classroom organisation and the like (Hayhoe, Manion & Mundy 2017:2; Kubow & Blosser 2016; Planel 2008).

■ Current State of Comparative Education

In contrast to the above stated lofty ideals of CIE, a few remarks about the current state of Comparative Education should be made. These relate, firstly, to its fixation on paradigms and theory and, secondly, to its equally strong feature of concentrating on the national education or nation-state as principal unit of analysis.

Since the 1970s, the field has been characterised by a proliferation of the number of paradigms and of scholars, each one advocating and elaborating his or her preferred paradigm (cf. Wolhuter 2008, 2015). However, in recent years, leading comparativists have lamented that the fixation on paradigms resulted in CIE losing sight of its actual subject of study, and indeed risk becoming irrelevant to educational developments in the world (e.g. see Psacharopoulos 1990; Weeks et al. 2006). There is also the feeling that, in the wholesale purchasing of postmodernism, and its *everything can go* philosophy, Comparative Education has lost its moral compass (see Welch 2013:46).

Despite the world trend of the nation-state losing its once omnipotent status, and of the locus of power moving in two opposite directions, towards regional and global units on the one hand, and on the other hand, to decentralised and local structures and to the individual, the nation-state and the national education system remain the dominant unit of analysis and considerable scope exists for also embracing these other smaller and larger units (cf. Wolhuter 2008). Indeed, in suggesting lines for the future expansion of the field, calls have been made for the development of research on units other than the nation-state, including the school and individual actor

(teacher, principal, student) levels (cf. Bray & Thomas 1995; Heymans 1979; Schneller & Wolhuter 2011; Stenhouse 1979; Wolhuter 2008). But then it should be mentioned, with the rise of the school-based and effective schools movements over the past 30 years, that a not-insubstantial body of research in the field was done on these topics. It is about these topics that the next section of the chapter will focus.

■ The School Improvement Movement and Comparative Education

During the 1960s and 1970s, there developed amongst education scholars an interest in improving schools, that is, taking a holistic approach to schools in an effort to improve education, instead of focusing on the individual teacher and his or her teaching or training. This interest proved to be sustained and in the 1980s and 1990s corresponded to a number of movements in education, namely, the effective schools movement, the trend towards decentralisation of education and the rise of school-based management, the comprehensive school reform movement, the rise of school choice and privatisation policies (and its variants such as school voucher systems, or the rise of Charter Schools in the USA) and finally the standards and accountability movement (for an overview of these movements, cf. Anderson & Sivasubraniam 2017). Many of these trends can in turn be traced back to societal trends shaping 21st century society worldwide, such as decentralisation, the demise of the once omnipotent nation-state and democratisation and the neoliberal economic revolution (cf. Wolhuter 2014b). While each one of these has generated a body of comparative research, most of these research has been done by the World Bank or by scholars outside the field of Comparative Education and published in journals other than Comparative Education journals (cf. Anderson & Sivasubraniam 2017; Wolhuter 2008). While this is a wholesome development, to be welcomed, the problem with these topics never getting to the centre stage of Comparative Education is that research on these topics and recommendations for

improvement of practice following such research then do not get the benefit of the agile scrutiny of school-education-system–societal context interrelationships, the area of expertise of scholars in the field of Comparative Education.

■ Leadership and Comparative Education

The very recent rise in scholarship in educational leadership and the concomitant rise in interest in leadership training for principals likewise have seen some (though by no means many) publications on comparative perspectives (e.g. Magno 2013), but thus far the scholarly community of Comparative Education has eschewed this area. Before spelling out the obvious opportunity, in this regard for Comparative Education to contribute to impact-making potential research, the position of Comparative Education in South Africa will first be surveyed.

■ Comparative Education at South African Universities

Comparative Education emerged suddenly in terms of Departments of Comparative Education, academics teaching the subject, and as part of teacher education programmes and postgraduate courses in Education at South African universities during the 1960s and continued to expand as forcefully till the very end of the 1980s (cf. Wolhuter 1994).

While strongly present as a teaching discipline and in terms of infrastructure at South African universities (Departments of Comparative Education and academics occupying themselves exclusively in the field of Comparative Education), all was not well. Research activity was very low, and the presence of South African comparatists internationally (in publications, international projects and conferences) was virtually nil. This could be traced back to at least two factors. Firstly, education in South Africa as a discipline had a long tradition to be practised at universities as a self-contained unit, cut off from the social and

economic and political realities of the country (Steinberg 1987). Secondly, from *c.* 1960 to *c.* 1990, South Africa was the object of an international academic boycott isolating the academics from their counterparts abroad (cf. Harricombe & Lancaster 1995). This not only had a severe negative effect on research activities but also meant Comparative Education curricula remained stuck in pre-1960 mode and did not reflect what took place in the field internationally after that date.

As fast as its rise was, as sudden as was the downward trajectory after 1994. In line with the post-1994 government's policy of introducing Outcomes-Based Education (or competency-based education), the government laid down new norms and standards for teacher education programmes. These programmes were to be built around seven roles (or competences) required of a teacher, with no apparent place for Comparative Education (cf. Wolhuter 2010). Stand-alone courses of Comparative Education disappeared from one teacher education programme or postgraduate education programme after the other. While Comparative Education was since then subsumed in courses such as 'Human Rights and Education' or 'Education and Development', the problem is, as Maseman (2008:n.p.) states, that 'Comparative Education then flows a mile wide but an inch wide'. Students are not introduced, much less versed, in the potential and scope of Comparative Education and the Comparative Education method.

Yet, Outcomes-Based Education informed requirements for teacher education programmes were also discarded. On 19 February 2015, the Minister of Higher Education and Training proclaimed the Revised Policy on the Minimum Requirements for Teacher Education Qualifications (Department of Higher Education and Training 2015). This Policy Statement specifies that 50% of credits of teacher education programmes should consist of modules in the phase or subject area specialisation of the student, and 40% of credits should be in Foundations of Education (such as Philosophy of Education, History of Education and Sociology of Education), general pedagogy (instructional science) and situational learning (learning in specific

situations, such as classrooms, schools and in the community). The remaining 10% is left to the judgement of the particular teacher education institution. This new space of 40% credits for Foundations of Education courses opens new scope for Comparative Education to be resuscitated.

Moreover, the first-level postgraduate qualifications, the Post-Graduate Diploma of Education and the Honours Bachelor of Education Degrees, the purpose of which is to strengthen and deepen the educator's knowledge in a particular field of education (Department of Higher Education and Training 2015:41–42), makes it possible to create such qualifications specialising in educational leadership. It is expected that the call to provide education for school principals and aspiring school principals will soon see a mushrooming of Honours and of Post-Graduate Diploma in Education courses and students in the educational leadership specialty. Indeed, the University of South Africa, the largest university in the country, has commenced with a Post-Graduate Diploma in Educational Leadership and Management, and it contains a module named 'The education system and school management' with the aim and content (UNISA 2018):

> To gain insight into the education system and the place of the school in regional and national systems of education; the South African school system; critical issues in educational provision and school management. (n.p.)

This module and its content is not atypical of the curriculum of the new Post-Graduate Diploma in Educational Leadership at South African universities. However, heartening as it is to see a conceptualisation of educational leadership that reaches beyond the school fence, the description of the content and aims of the module does not even remotely cover the full scope of Comparative Education.

■ Conclusion

Comparative Education as a field of teaching and in terms of infrastructure at universities had a roller coaster ride in

South Africa after its meteoric rise in the sixties and seventies of the previous centuries, followed by its equally fast fade less than two decades later. As regards research proficiency, it had not much to boast about in its fat years of the 1970s and 1980s. In terms of new ministerial prescriptions for initial teacher education, it is set to return on the teaching front. The need widely felt in the education system, of leadership education for school principals, and the nascent Post-Graduate Diploma in Educational Leadership opens new vistas for the field of Comparative Education, in terms of teaching and research. Principals are situated in an education system context and societal context with big challenges, and while they cannot alter this context, with innovative, ingenious leadership these challenges can be mitigated, neutralised and even converted into a source of strength. It is here that scholarship and teaching of Comparative Education can come into play, by placing principals and schools' dealing with contextual challenges on the research agenda and also in teaching programmes. What should be done, however, is to broaden the narrow conception of Comparative Education dealing only with education systems (nationally and internationally) to also embrace the field's concern with school-level inquiries and with school-context interrelationships. As many of the contextual challenges South African principals face are by no means unique to South Africa, the opportunity for South African scholars is here to make an impact not only on local practice but also in international publications.

■ Summary

This chapter defends the thesis that research into educational leadership presents an opportunity for South African scholars in the field of CIE to pursue a research agenda with the potential to make a demonstrable impact on South African schools. The article commences with the defence of a statement that leadership constitutes the one pivotal place in the South African education system where a difference to the quality of the entire education project can be made. Then, the concept of 'educational

leadership' is clarified, and an expanded (from the conventional) conceptualisation of the term is suggested where the education system, the societal context as well as the international context in which the school is situated are duly acknowledged. Subsequently, salient features of the South African context are highlighted. The focus of research of the scholarly field of CIE is then explained, followed by a critical discussion of the state of this field in South Africa. In conclusion, a CIE research agenda for research pertaining to educational leadership, opening the opportunity for impact-making, is suggested.

Fifty Years of Graduate Teacher Education in Kenya: Reflections on the Past, the Present and the Future

Augustine M. Karugu
Department of Educational Foundations
Kenyatta University
Kenya

Peter M. Gathara
Department of Educational Foundations
Kenyatta University
Kenya

Corene de Wet
Open Distance Learning
University of the Free State
South Africa

■ Introduction

In the current curriculum debate in Kenya, most discussion has centred on proposed reforms in primary and secondary school education (Jwan 2017; Kabita & Ji 2017). For nearly 40 years, very little has been said about teachers and their education (cf. Kabita & Ji 2017; Kenya Institute of Curriculum Development [KICD] 2016). Yet, teachers are the ultimate implementers of the proposed school curriculum (Kabita & Ji 2017). Two statements regarding teachers, in the context of the ongoing debate on curriculum reform in Kenya's schools, have been made by the Secretary General of the Kenya National Union of Teachers (KNUT). Speaking at a primary school, William Sossion said that (Rono 2016:n.p.), 'before the government reviews the education curriculum, it should invest in training and build capacity amongst the teaching profession'.

Later, in the same month, Sossion (2016) wrote an article for the *Daily Nation* entitled 'Education reforms incomplete if the welfare of teachers is left out'. He (Sossion 2016) argued that:

> [*W*]hile curriculum specialists, administrators and institutions spend hours developing curriculum, it is the teachers who know best what it should look like. After all, they work directly with the learners. To create a strong curriculum, teachers should play an integral role at every step of the process. (n.p.)

The importance of the participation of well-trained, knowledgeable teachers in curriculum development, reform and implementation is thus acknowledged by KNUT. The importance of high-quality teacher training that will equip future teachers to act as developers and implementers of school curricula in Kenya, as stressed by the Secretary General of KNUT, necessitates a study into teacher training in this African country. This chapter seeks to:

- Trace the starting point of the Bachelor of Education (B.Ed.) degree in the British education system and point out key issues that have been raised about it. This is important, because the Kenyan education system was borrowed from the British system.

- Discuss the development of graduate teacher education in Kenya.
- Make recommendations for the improvement of the training of graduate teachers in Kenya.

■ The B.Ed. Degree Programme in the British Education System

Kenya was a British Colony and Protectorate from 1920 until 1963. The transformation of the former East Africa Protectorate into a British Crown Colony (1920) resulted in the establishment of Kenya. It is therefore understandable that the British education system had and still has an influence on education in Kenya. It is for this reason that it is important to give a brief overview of graduate teacher training in the United Kingdom (UK).

The involvement of British universities in the training of teachers may be traced way back to the 1890s. The introduction of the B.Ed. degree for teachers is, however, more recent. Recommendations by the Robbins Report (1963:n.p.) 'resulted in the introduction of the B.Ed. degree'. This report was in favour of 'an all graduate teaching profession' in the UK. The consequence of this particular recommendation was the upgrading of teacher training colleges to degree-awarding colleges of education. Having acquired new status, the colleges of education went ahead to launch university-validated B.Ed. degrees. The Robbins Committee recommended that the B.Ed. degree should combine academic and professional courses in teacher training (Robbins Report 1963).

Nearly a decade after the Robbins Report, the James Report (1972) made additional recommendations on graduate teacher training in the UK. The James Committee, appointed by the Secretary of State for Education and Science, had the following three important points of departure (James Report 1972):

1. [e]xamine what should be the content and organisation of courses to be provided

2. [*e*]xamine whether a proportion of intending teachers should be educated with students who have not chosen their careers or chosen other careers
3. [*f*]inally, examine in the context of the first two points above the role of colleges of education, polytechnics, further education institutions and universities in teacher training in the UK. (n.p.)

The James Committee (cf. The James Report 1972) agreed with the recommendations of the Robbins Report (1963) in certain aspects but differed in others with regard to the B.Ed. degree. Similar to the Robbins Committee, the James Committee was in favour of an all graduate teaching profession. Unlike the Robbins Report, the James Committee recommended awarding the Bachelor of Arts (Education) instead of the B.Ed. The James Report was of the view that professional training of teachers should be organised in three cycles – pre-service higher education, professional training and in-service training. Although most of the recommendations of the James Report were accepted, the one-on-four-year B.A. (Ed.) was rejected. Instead, the government endorsed a 3-year ordinary degree (B.Ed.) that incorporated both the content on areas of specialisation and professional courses. There was, however, the opportunity for some students to proceed to the fourth year for an honours B.Ed. degree.

By 1968, all 21 UK universities offering teacher training agreed to offer B.Ed. degrees; however, just seven universities were willing to offer 'classified honours degrees'; three others offered 'unclassified honours degrees' and eleven offered general, ordinary or pass degrees. The first B.Ed. degrees were conferred in 1968. While the number of students enrolling for this degree remained small, the number of students proceeding to the fourth year was even less – in 1972, less than 10% of third-year students extended their studies to a fourth year (Keating 2010a).

The four-year honours B.Ed. degree attracted criticism with respect to course content and quality. In Scotland, the B.Ed. was, for example, criticised on the grounds that it was overly academic and therefore unhelpful to prospective teachers (Marker 1996).

It was for this reason that the James Report (1972) had recommended that it be turned to an in-service degree for teachers. The rather limited popularity of the B.Ed. degree was in further decline towards the end of the 1970s. The decline has mainly been attributed to the prerequisite that all graduate teachers must have professional and content (areas of specialisation) training. This requirement created Council for National Academic Awards (CNAA)-validated Postgraduate Certificate in Education (PGCE) courses in competition with those offered by universities' Departments of Education. The consequence of this was that the B.Ed. lost its already limited market share. In addition, the B.Ed. was perceived as a second-class Initial Teacher Training (ITT) degree for less academically inclined students. Numerous English Higher Education Institutions (HEIs) stopped offering B.Ed. in the 1990s and preferred to offer other bachelor's degrees that had qualified teacher status. HEIs and students perceived the undergraduate ITT route as inferior to the PGCE model. What emerges is that the UK has both B.Ed. and B.A. or B.Sc. with PGCE teacher training programmes. Colleges of Education and Polytechnics mostly offer the B.Ed. degree. Universities, on the contrary, offer the B.A. and B.Sc. degrees followed by PGCE. Most B.Ed. students are trained to teach in primary schools, while students with a B.A. or B.Sc. degree followed by a PGCE teach in secondary schools (Keating 2010b; McNamara & Ross 1982). The debate in Britain on graduate teacher training has mainly revolved on the relationship of balance between school-based teaching and academic courses provided by HEIs, including universities (cf. Keating 2010b).

■ Graduate Teacher Education for Primary School Teachers in Kenya

During the mid-19th century, European Christian missionaries introduced formal teacher education programmes in Kenya. The rapid expansion of the mission and the so-called bush schools necessitated the establishment of training programmes for primary school teachers in Kenya. These programmes were

replications of the early 19th century Canadian and Western European teacher training models (Kafu 2011; Katitia 2015). Until the 1950s, the majority of teachers in Kenya, especially primary school teachers, were either untrained or of low grades. According to Nyankanga et al. (2013:83), teacher training was 'not organized at all [...] [and] [...] there were large numbers of small colleges scattered across the country'. In an effort to improve the standard of Kenyan teacher education, the Kenya Institute of Education was established, and the number of teacher training colleges were consolidated to 18 (Nyankanga et al. 2013). In their quest to improve the standard of primary school teachers, the Ministry of Education in Kenya also attempted to train primary graduate teachers on the model recommended by the James Committee in Britain. According to the James Committee's recommendations, the second-year would largely consist of school-based training of licensed teachers. These teachers would be (James Report 1972):

> [R]eleased for the equivalent of not less than one day in a week for attendance at a professional 'centre' or 'professional institution'. Teachers completing this year would then be 'registered teachers'. (p. 70)

In the Kenyan situation, the Ministry of Education advertised a B.Ed. degree (primary education option). Applicants were required to be serving primary school teachers who had a secondary school certificate with at least two principal passes. As part of their practical training in the university's faculties of education, the students were attached to a primary school teachers' college and a nearby primary school. The students were expected to attend professional classes in the two institutions for at least three days a week. After completion of their degree studies, the teachers were to be posted in primary schools. The Kenyan model borrowed from the British did not work. The first graduates of the B.Ed. degree (primary school option), despite having been highly qualified in terms of academic and professional training, found themselves 'misfits' in the education system. They were not accepted back in primary

schools on the ground that the Teachers Service Commission (TSC) policy did not allow employment of graduate teachers in primary schools. Most of these teachers eventually had no choice but to go teach in secondary schools, for which they were ill prepared.

Currently, primary school teachers are trained at 21 public primary school teacher training colleges and about 70 private colleges (Nyankanga et al. 2013). In 2016, the KICD (2016) recommended that after the completion of a diploma programme with 2160 h of course work and 1080 h of internship, students will be awarded either a Diploma in Education in early years or middle school (depending on their field of specialisation). It therefore seems as if graduate teacher training for primary school teachers is still not on the cards in Kenya (cf. Buchere 2009).

■ Graduate Teacher Education for Secondary School Teachers in Kenya

The introduction of graduate teacher education programmes in Anglophone countries of Africa can be traced back to recommendations by the Commission of Post-School Certificate and Higher Education in Nigeria, or else called the Ashby Commission. This commission presented its report in 1960 where it proposed, amongst other things, the introduction of an undergraduate degree in education in all Nigerian universities, which was to be called B.A. (Education). This was to address the acute shortage of graduate teachers in Nigeria (Asiwaju 1972). The Ashby Commission furthermore recommended that the course of study in the proposed teacher education includes the sustained study of three or more major school subjects at the university level, and this was to be accompanied by pedagogical studies and teaching practice taken during the university vacations (Solaru 1964). These recommendations were implemented by Nigerian universities, such as the University of Nigeria and the University College of Ibadan (Fafunwa 1974).

Similar teacher training programmes were transplanted to other Anglophone countries. Tanzania, for example, introduced the education component in both their B.A. and B.Sc. degree programmes at the University College Dar-es-Salaam in 1964 (Furley & Watson 1978), with the first batch of student teachers graduating in 1968. This was a 3-year course that combined academic study with professional training. In the first year, students studied three subjects, one of which was Education. In the second and third years, they continued with the two main subjects with education as a subsidiary subject. Two sessions, each lasting 6 weeks of teaching practice, were done during the long vacations (Furley & Watson 1978).

After the First World War (1914–1918), there was a growing demand for secondary school education in Kenya. Yet, by 1961 (two years before independence), Kenya had just 6400 learners enrolled at secondary school level (only 2% of the potential age group requiring this level of schooling). The few new secondary schools that were established after independence relied on the services of expatriate teachers and a few Kenyans who had trained at the Makerere College in the neighbouring Uganda (Modiba & Simwa 2011).

It was only after independence that deliberate efforts were made by the government to establish a local institution that attended specifically to the preparation of indigenous secondary school teachers. Two secondary school teacher training colleges were established during the late 1960s, namely, the Kenyatta University College and the Kenya Science Teacher College. In response to the growing demand for teachers trained in technical subjects, the Kenya Technical Teachers College was established in 1977 (Kafu 2011; Katitia 2015; Modiba & Simwa 2011).

As early as 1966, the University College of Nairobi started training graduate secondary school teachers in order to meet the high demand for graduate teachers in the 1960s and early 1970s. The B.A. or B.Sc. (Education Option) programme was expected to produce persons with a teaching qualification in 3 years.

This was cheaper and less time-consuming than asking students first to finish the B.A. or B.Sc. course and then admitting them for a 1-year Postgraduate Diploma in Education (PGDE) programme. The Kenyan government's policy was that 50% of the students enrolling for B.A. and 33% of those enrolling for B.Sc. should also take the education option in addition to the courses in academic subjects and thus end up with an academic degree incorporating teaching qualifications. The education component did not affect the degree programme, because a student could fail in the education course or drop it altogether and still obtain a degree for the academic subjects, that is, B.A. or B.Sc. The latter was a major shortcoming of the B.A. or B.Sc. (Education Option); it was difficult to plan the production of teachers with certainty as holders of such degrees were under no obligation to join the teaching profession. Indeed, very few joined the teaching profession; most of them found employment in other sectors.

In Kenya, the PGDE programme for teacher training is as old as the B.A. or B.Sc. (Education Option) programme. The aim of this programme was to provide professional training for those who had already obtained their academic degrees, including those who received their basic degrees overseas and wanted to become teachers. In those early years, the government encouraged the holders of B.A. and B.Sc. degrees to take up teaching and undertook to pay them 80% of the basic salary of untrained teachers, while pursuing their courses at the University College of Nairobi. This did not bear the expected results as the number of graduates who decided to return to the university for the PGDE course in any 1 year was very low. The government could therefore not project, with certainty, the production of teachers through this programme. It was for this reason that the government transformed the B.A. or B.Sc. (Education Option) qualification into the B.Ed. professional degree qualification in the 1970s (Kafu 2011; Katitia 2015; Modiba & Simwa 2011). The B.Ed. is a concurrent degree combining both academic and professional courses. All university-level teacher education presented at the University College of Nairobi was later moved

to its constituent college at Kenyatta University (Modiba & Simwa 2011). It was hoped that the introduction of the B.Ed. programme in 1972 at the Kenyatta University College and the University of Nairobi would solve the shortcomings experienced in the B.A. or B.Sc. with the education degree programme. The B.Ed. programme was seen as the only way of planning and projecting the teacher training at the university level because its structure was such that an education component was part and parcel of the whole degree course. Those students who failed education or one of the academic subjects could not qualify for the B.Ed. degree. Each student had to take education and teaching subjects, thus making three subjects, each with equal weighting for three years. In addition, the education component had a practical aspect of teaching practice. The first batch of such B.Ed. graduate teachers graduated from the University of Nairobi in 1975. Since then there has been a continuous and increased production of B.Ed. graduate teachers from public universities, such as the Kenyatta University College, the University of Nairobi and the Universities of Maseno, Egerton and Moi. Several private institutions of higher education also prepare secondary school teachers through the B.Ed. programme. The serious shortage of teachers experienced in the 1960s and 1970s has even changed into an oversupply and thus unemployment of qualified teachers in the country (Modiba & Simwa 2011).

Modiba and Simwa (2011) note that:

> [*T*]here has been a general scarcity of literature on the B.Ed. programme in Kenya since its inception [*and*] that the void has been filled only by a study conducted by the University of Nairobi. (p. 291)

The University of Nairobi's Deans' Committee, chaired by J.K. Koinage, was primarily concerned with the qualitative problems of the past and present programmes of graduate teacher education in Kenya. Amongst its terms of reference was to examine concerns on the inadequacy of the preparation of B.Ed. graduates in terms of academic subject content and the

- [*p*]romotion of learner-centred and reflective pedagogical approaches cognisant of the 21st-century learner. (p. 21)

The report additionally makes recommendations for each of the three teacher education levels in Kenya. The KICD (2016) recommends the following regarding the training of secondary school teachers:

- [*t*]raining should be offered as an integrated B.Ed. programme or postgraduate diploma
- [*t*]he number of hours for a B.Ed. integrated content or academic programme should be 252 hours per teaching subject (each candidate should study two teaching subjects) and a practicum of 2160 h
- [*t*]hose opting for postgraduate studies must have two teaching subjects acquired in the first degree. (p. 27)

Currently, the most popular B.Ed. specialisations are Arts and Sciences. The two key components of the course are the subject teaching content and the professional component. The professional component includes psychology, education foundation areas, curriculum and instruction, and education management. The degree will only be awarded if the student passes teaching practice (Nyankanga et al. 2013).

The secondary school curriculum mainly prepares students for the Kenya Certificate of Secondary Education (KCSE) examinations. In Form one and two, secondary school learners are exposed to a wide range of subjects. At the end of Form two, however, they are expected to select and do, at most, eight subjects in which they are prepared for KCSE examination at the end of Form four. The subjects are selected from a cluster of five groups. These are (Pioneer School 2004):

- *Group 1*: English, Kiswahili and Mathematics, which are compulsory for all learners.
- *Group 2*: Biology, Physics and Chemistry.
- *Group 3*: History and Government, Geography, Christian Religious Education (CRE), Islamic Religious Education (IRE), Hindu Religious Education (HRE) and Social Education and Ethics.

- *Group 4*: Home Science, Art and Design, Agriculture, Woodwork, Metal Work, Building and Construction, Power Mechanics, Electricity, Drawing and Design, Aviation Technology and Computer Studies.
- *Group 5*: French, German, Arabic, Music, Accounting, Commerce, Economics and Typewriting, with office practice. (n.p.)

B.Ed. students should thus keep the above clusters in mind when selecting the two teaching subjects to be included in their B.Ed. studies. Both the Deans' Committee (University of Nairobi 1979) and the KICD (2016) emphasise the importance of teachers' subject knowledge.

The major employer of teachers in the country, the TSC, in 2008 tightened its employment regulations for employment of graduate teachers. The regulations, as set out by Lengoiboni (2008) in a letter to the Registrar of the Kenyatta University, state that:

- The commission will employ teachers who are qualified and able to teach two subjects within the existing school curriculum.
- As the commission's employment policy is demand driven and highly competitive, the university as a producer should strive to conform to the needs of customers.
- PGDE holders must have studied relevant teaching subjects at undergraduate level. (n.p.)

The letter additionally states that graduates who upgrade the content of their second teaching subject will be considered for employment by the TSC. Further, teacher training students are required to take a total of eight units recommended by the TSC in geography, mathematics, chemistry or physics (Lengoiboni 2008).

The TSC does not guarantee employment to those who may decide to comply with the above requirements. The requirements will likely lead to the death of the PGDE. The PGDE was started to give a chance to people who originally did not have the calling to become teachers and had studied for, or joined, other professions. The regulations may cut off those who later in life may want to change their current profession and become teachers (Lengoiboni 2008).

Over a period of 50 years, graduate teacher education in Kenya has grown from its humble beginnings at the University College of Nairobi (B.A. or B.Sc. [Education Option]) to a full-fledged B.Ed. degree presented at numerous private and state universities throughout the country. Whereas graduate teacher education in Kenya initially struggled to supply enough secondary school teachers to the ever-growing demand for teachers after independence, there is currently a need for teachers who will be able to successfully teach the new school curriculum and take learners into the 21st century (Jwan 2017; Kabita & Ji 2017).

■ Discussion and Recommendations

Despite this emerging African state's quest to free itself from the shackles of colonialism, it is still influenced by the UK's model for teacher training. Notwithstanding this influence, educational leaders in Kenya realised the importance of Kenyan institutions of higher education taking on the responsibility of training teachers. The graduate programme for primary school teachers was aborted as a result of the TSC's policy that graduates may not teach in primary schools. The preceding exposition of 50 years of graduate programmes for secondary school teachers highlights the need for education planners, government and teacher training institutes to strike a balance between demographic realities (supply and demand of teachers) and the need to train high-quality teachers that are well-grounded in professional subjects such as Psychology, Pedagogy and Education Management and have school subject-specific knowledge.

Local and foreign governments, international organisations and philanthropists invested large sums of money in Kenyan education. Ojiambo (2009:148), however, found that 'the corresponding educational indicators in school participation and achievement have been on the decline signifying limited returns on investment'. He lists the two 'critical challenges' that may be linked to teacher graduate training, namely, declining gross

enrolment rates at secondary schools and declining relevance of education. While the blame for these challenges may not be placed solely on the shoulders of graduate teachers and universities training teachers, it seems as if the latter are not preparing future secondary school teachers efficiently to ensure that the youth can contribute to national growth. Enhancing the quality of graduate teacher training is however not enough to improve the professional quality of secondary school teachers. Lessons can be learnt from the success of the in-service education and training (INSET) of primary school teachers in enhancing primary schooling in Uganda (cf. Hardman et al. 2011).

The recommendation by the University of Nairobi (1979) and KICD (2016) research reports that the content of the secondary school curriculum should be studied in the B.Ed. programme is currently more pertinent than ever (Modiba & Simwa 2011). There are large numbers of unemployed B.Ed. graduates and yet some secondary schools continue to experience a shortage of staff in certain subjects. The rise in unemployed university graduates over the years has reversed the situation that was obtained in the 1960s and 1970s. Currently, it is B.A. and B.Sc. graduates and others who are seeking professional certification and qualifications so that they can participate in the domain of teaching as trained teachers. In the past, they were attracted with salary incentives to join teacher training; now, they sponsor themselves by paying fees. The current intense competition for admission to teacher training programmes, as well as the excess of trained teachers, creates the perfect opportunity for restructuring teacher training programmes, as well as the selection of only the top candidates for the different programmes.

Apart from the changes that have been triggered by the TSC employment regulations, there is a need to review the B.Ed. degree curriculum. The recommendations made by the Deans' Committee of the University of Nairobi (1979) and the KICD (2016) are relevant (cf. Modiba & Simwa 2011). One of the recommendations made by the Deans' Committee and KICD was that the core curriculum be related to what is taught in schools. Probing the coherence

between a Kenyan university and a school programme for History and Government, Modiba and Simwa (2011) found that students are equipped with relevant knowledge and teaching practices. A need for more research on the coherence between subject-specific core curricula taught at universities and school programmes for specific subjects is necessary.

Any review of a B.Ed. programme needs to take into account the subject clusters offered to secondary school students. Apart from the compulsory subjects, it is important to identify the most popular choices made by most secondary schools and prepare teachers for these subjects accordingly. As it is a requirement that B.Ed. students study two teaching subjects offered in Kenyan secondary schools, it is recommended that one of these two subjects be from the compulsory subject category offered in secondary schools. This change will make B.Ed. graduates more marketable and relevant to the needs of secondary schools as well as ensure that secondary schools are not understaffed in the compulsory subjects (mathematics, English and Kiswahili).

The issue of providing adequate time for both the academic and professional preparation of B.Ed. graduates has been a recurring debate around the restructuring of the B.Ed. degree (Koech Report 2000). When the course took three years, the suggestion was made to extend its duration to four years. The extra year was expected to give the students additional time to study both academic and professional subjects at greater length. Even when the duration of the B.Ed. degree programme was extended to four years, this issue was not tackled. Instead, the extra year that was introduced appears to have been taken by university common units (Kenyatta University Calendar 2001–2003). It may be argued that universities lost the opportunity, provided by the switch to the 8–4–4 education system, to restructure the B.Ed. degree programme. The 2017 extensive reform of Kenya's education system to a 2–6–3–3–3 system, coupled with curriculum reforms, provides yet another opportunity for universities to reform their B.Ed. programmes (Abuya 2017).

The critical shortage of teachers in Kenya is a thing of the past. This avails education planners and universities to rethink teacher education programmes. Karugu (2007) suggests that Kenyan universities reintroduce consecutive B.A. or B.Sc. degree programmes followed by a PGDE. According to Karugu (2007), the conditions that led to the introduction of a B.Ed. degree in the 1970s and the abandonment of the B.A. or B.Sc. with education option, namely, a serious shortage of secondary school teachers in Kenya, no longer exists. The time is also right, especially against the background of the introduction of a very ambitious curriculum for schools (cf. Jwan 2017) and the leeway regarding the supply and demand for teachers, to reintroduce graduate teacher training for primary school teachers. Well-grounded theoretical, subject-specific and practical insights will equip future teachers to face the challenges that the new curriculum may present with confidence.

The tendency of teacher education graduates not entering the profession is not a Kenyan, but a worldwide phenomenon (Rots, Aelterman & Devos 2014). Cognisance should thus be taken of findings from a Belgian study on the reasons why teacher education graduates enter the profession, such as high level of mentor support during their studies, high-quality graduate studies and individual students' positive disposition towards learner-centred teaching and learning (Rots et al. 2014). All of the aforementioned factors can easily be addressed in Kenya's graduate teacher education programmes.

This study has exposed the dearth of sound research on graduate teacher training in Kenya (cf. KICD 2016; University of Kenya 1979). National and international researchers should grab the opportunity to research the new school curriculum (Jwan 2017) and its influence on the training of teachers (KICD 2016). Researchers should moreover investigate the intricate balance between supply and demand; evaluate the quality of professional and subject-specific teacher training modules, as well as the programmes per se; and research and development mentorship programmes for students (and teachers), as well as INSET

programmes for teachers. The feasibility of the reintroduction of graduate studies for primary school teachers should also be investigated.

■ Conclusion

Fifty years ago, the challenge that Kenya faced was that of acute shortage of graduate teachers. Graduate teachers were desperately needed in both community-funded *Harambee* and government secondary schools. Over the years, this challenge was overcome as evidenced by the large number of unemployed graduate teachers in Kenya. The fact that the country has a surplus of graduate teachers is a sufficient justification for calling for extensive reforms of graduate teacher education programmes offered at Kenyan universities. Such reforms should be based on sound and continuous research on, amongst other things, the influence of demographic variables on the supply and demand of teachers, the balance between professional and subject-specific training of teachers and the possible reintroduction of graduate studies for primary school teachers.

■ Summary

The development of graduate teachers' education in Kenya is discussed against the background of a short overview of the origins of the Bachelor of Education (B.Ed.) degree in the UK. The chapter highlights the evolvement of graduate teacher education for secondary school teachers from a B.A. or B.Sc. (Education Option) to a B.Ed. degree over a period of 50 years. Graduate teacher education in Kenya has grown from its humble beginnings at the University College of Nairobi to a full-fledged B.Ed. degree presented at numerous private and state universities throughout the country. The chapter emphasises the necessity for government, education planners and teacher training institutes to work together and to strike a balance between demographic realities (supply and demand of teachers) and the

need to train high-quality teachers who are well-grounded in professional subjects and have school subject-specific knowledge. This study has exposed the dearth of sound research on the training of graduate teachers in Kenya. This study suggested that the current and future teacher education and reforms be grounded in trustworthy and continuous research on, amongst other things, the new school curriculum and its influence on the training of teachers, as well as the impact of demographic realities on the supply and demand of teachers.

Impact-Making Research in Higher Education in South Africa

Berte van Wyk
Department of Education Policy Studies
Stellenbosch University
South Africa

■ Introduction

A cursory excurse of impact-making research in higher education in South Africa leads me to pose several questions, then to analyse key trends to determine what impact is made with respect to changes in the country since 1994. A key question arising is, 'What is higher education as a field of scholarship?' Notably there has been a displacement of 'tertiary education' with the concept of 'higher education' and this chapter explores how this displacement impacts on the continuing reconfiguration of the research agenda.

■ What is Higher Education (As a Field of Scholarship)?

The question arises, what is 'higher' about higher education? Higher education implies that it is not the same as, for example, school education, which is termed primary and secondary education in South Africa. Yet, there is an objection that higher education deserves no special educational attention on its own account. This objection rests on the assumption that higher education is a sub-species of education and that whatever is said in general about education must hold for higher education as well. I support the reverse argument offered by Barnett (1990:6). He argues that far from the idea of higher education being a subset of general educational ideas, the concept of education is itself part of the concept of higher education. It follows that the concept of higher education is not exhausted by talk of 'education'.

To answer the question, 'what is higher education?', or to rephrase it as 'what is the purpose of higher education?', I turn to the Council on Higher Education's (CHE) publication entitled *South African Higher Education Reviewed: Two Decades of Democracy*, which (with reference to South Africa's National Plan of 2011) states the following (CHE 2016):

> Universities play three main functions in modern society. Firstly, they are responsible for the education and training of professionals and high-level human resources for the wide range of employment needs of the public and private sectors of the economy. The second function of higher education is to produce new knowledge and find new applications for existing knowledge. In a country such as South Africa this knowledge task is about innovation and application, local and global, and about knowledge that equips people for a society in constant social change. Thirdly, higher education provides opportunities for social mobility and simultaneously strengthens equity, social justice and democracy. In the globalising knowledge society, higher education becomes increasingly important. (p. 17)

This description of higher education eludes to its three main functions which provide a clear link to society. It provides a very

sophisticated description of scholarship as knowledge production although it fails to specifically mention the scholarship of teaching. It further underlines the importance of higher education to both the private and public sectors of the economy. In a way, it shifts the discourse from universities as ivory towers to the marketisation of higher education. This is emphasised when the CHE (2016:10) emphatically concludes that the character of higher education has changed. It is obvious to me that this change comes from a move from an elitist to a mass higher education system. Specifically, some changes resulted from the democratisation of the country. Notably, the demand for skilled labour placed additional demands on higher education to produce graduates ready for the workplace. This gave rise to partnerships with the business sector to fulfil these demands. Universities experienced this change in character in terms of higher demands for graduates in fields such as natural sciences, health sciences, commerce, engineering and technology. As a result, some traditional fields such as theology, foreign languages and the humanities were adversely affected. Academics are all too familiar with the tensions that arose from the diminishing value attached to the humanities – which touches upon the teacher education programmes that are so vital to the education system of the country.

■ History and Current State of Higher Education in South Africa

The Van Wyk De Vries Commission of Inquiry into Universities of 1974 was the last apartheid commission which made reference to 'universities' in South Africa. This commission provided insights about how the university was conceptualised at that time. The commission (see CHE 2004:23) concludes that universities provided advanced learning, inculcated certain qualities of character in the student, prepared students to practise a profession and instilled standards of good citizenship. However, the relationship of universities to (apartheid) society was highly particularised in legal and policy terms. The CHE (2004) further

reports that legally speaking, each university was a 'corporation' founded by an act of Parliament – meaning that its functions were prescribed and could be terminated by the state. At the same time, in policy terms, a university was 'an independent sphere of societal relationships' (separate from the spheres of the state, religion and other spheres), meaning that *for as long as it existed*, the state could not interfere directly in its affairs. Neither could the university interfere in the affairs of the state by, for example, rejecting the state's designation of it for a particular 'race' group. This state arrangement resulted in universities catering for national groups such as people of mixed race, Indians, Africans and white people. During this period, students could only be admitted to an institution earmarked for a different race by special permit from the apartheid state.

In an attempt to familiarise myself with trends relating to higher education discourses in South Africa, I started to reflect on key publications in recent years. One such publication is the CHE (2004) document entitled *South African Higher Education in the First Decade of Democracy.* What is useful for the purpose of this study is that the final chapter of this publication crystallises key observations and themes and identifies key challenges for the future; it comments on key policy processes and initiatives and identifies three distinct periods. The *first period* of policy activity from 1990 to 1994 was associated principally with 'symbolic policy-making'. The *second period* from 1994 to 1998 focussed on framework development. A *third period* of policy-making began in 1999 and focussed on implementation (CHE 2004:233).

Since the 1996 discussion, documents (see National Commission on Higher Education 1996) started to displace the concept 'university' and refer exclusively to 'higher education'. Since then, all laws and official policies refer to 'higher education'. The shift from apartheid to a democratic state brought about a new set of challenges for higher education. To this end, the CHE (2004:2) notes that higher education in South Africa faced a double transformation since 1994, and as such faced a dual

challenge. Firstly, there is the challenge which emanates from the historical context (particularly apartheid) and this has to do with achieving social equity, economic growth and development, and building and consolidating democracy. Secondly, there is the influence of global developments such as addressing the challenges of globalisation and the competitive global economy, and enabling South Africa to participate in, and engage with, this global order in a proactive way.

It is significant to note that discourses in the 21st century on university education in a democratic South Africa continue to refer to 'higher education'. Even the reference 'tertiary education', which referred to universities, colleges and technikons, is no longer used. Reasons for this displacement can be traced to two issues (amongst others) that continue to dominate the landscape of higher education in South Africa, namely, the transformation of the university *vis-à-vis* that of society in South Africa and the Africanisation of the university in South Africa. Briefly, the latter reconceptualises the role of the university in terms of the Africanisation of higher education and focuses on some African value systems such as *ubuntu*, respect and compassion. *Ubuntu* can be considered as the most abiding principle of value in African thought and system of morality. Africanisation can be further conceptualised in terms of the distinct cultures at play towards African self-construction, social reconstruction and world construction. Over the last few years, this debate intensified with a focus on decolonisation of higher education. More about that later.

The CHE (2004:238) provides a contextual analysis and identifies three pertinent dimensions relevant to the contemporary and changing context within which South African higher education transformation takes place – namely, globalisation, inequality and poverty – and the concept of higher education itself. My reading of these dimensions indicates that HEIs worldwide had to adapt to the lucrative market of attracting foreign students as a new stream of revenue. This trend necessitated institutions to market themselves in new ways and to be innovative in offering programmes that

address skills shortages across the globe. In the case of South Africa, historical inequalities play a major role in universities' ability to enter the new knowledge production era after 1994. This is evident in the fact that the top 5 out of the 26 universities (Stellenbosch, Cape Town, Pretoria, KwaZulu-Natal and Wits) in South Africa are producing a very high number of graduates and research output.

The CHE (2004:238) provides a contextual analysis and identifies three pertinent dimensions relevant to the contemporary and changing context within which South African higher education transformation takes place. Firstly, globalisation – of communications, of trade, of production, of culture – as defining features of the epoch. Secondly, inequality, poverty and injustice remain rife in the world, and fault lines between the rich and the poor continue to deepen within and between countries. Thirdly, the CHE states that higher education itself is increasingly subjected to the pressures of transnationalisation, marketisation and commodification, as those seeking new sources of profit see higher education as a multi-billion-dollar industry independent of sovereign national purposes. The CHE (2004:238) further notes that higher education and its institutions exist at the intersection of state, market and civil society, each with its specific, varied and different expectations and demands.

Universities did not escape the effects of the social transformation of the country after 1994. By the process of social, economic and political reconstruction in 1994, it was clear that mere reform of certain aspects of higher education would not suffice to meet the challenges of a democratic country aiming to take its place in the world. Ten years later in 2004, the CHE observed that a rather comprehensive transformation of higher education was required, marking a fundamental departure from the sociopolitical foundations of the apartheid regime. The CHE (2004:16) posits that despite the inherited problems and challenges it faces, higher education – and public higher education in particular – has immense potential to contribute to consolidating democracy and social justice, producing critical intellectuals,

developing knowledge, and expanding and improving the economy.

■ Reconfiguring the Research Agenda

It is useful to see what the international research agenda is all about and to see whether we are on par with international developments. I refer to Teichler (2005) who provides an overview of four thematic research areas in higher education, which could be called 'spheres of knowledge':

- *Quantitative–structural aspects*: for example, access and admission, elite and mass higher education, diversification, types of HEIs, duration of study programmes, graduation, educational and employment opportunities, job prospects, income and status, returns for educational investment, appropriate employment and mobility. Economists and sociologists tend to address these aspects most frequently.
- *Knowledge and subject-related aspects*: for example, disciplinarity versus interdisciplinarity, studium generale, academic versus professional emphasis, quality, skills and competences, use of competences, over-qualification, relationships between teaching and research, and curricula. These areas are often addressed by experts from education as well as various sub-disciplines that address science (history of science, sociology of science, etc.); aspects; higher education and work; fields of knowledge, teaching and learning; institutional decision-making and research; management of HEIs; higher education and developments in Europe. (n.p.)

Teichler (2005) suggests that sociology and history can contribute to all four spheres, psychology notably to the second and third, or economics to the first and fourth. Or, in reverse, person- or teaching and learning-related aspects could be best understood by linking the theories and factual knowledge of education, psychology and sociology. He further states that individual research projects, even if they transgress the borders of a single discipline, are often in the domain of single spheres of knowledge as quoted above. He argues that the most interesting

and fruitful research projects transgress the borders of the individual spheres of knowledge as well. For example, research on the relationships between higher education and the world of work is more fruitful if it is not confined to single spheres of knowledge, but rather to both the quantitative–structural and the substantive aspects of study and the world of work.

A major publication relevant to this chapter is the CHE's follow-up publication in 2007 (CHE 2007) entitled *Review of Higher Education in South Africa: Selected Themes*; it is an edited collection of research papers which analyse key trends in South African higher education in the context of international developments. These papers provide succinct research-based analyses of six major issues in the process of transformation and restructuring of the higher education system:

1. public funding
2. governance
3. information and communication technologies
4. institutional culture
5. access
6. change.

The introductory chapter of this document summarises the key claims, major findings and conclusions of the papers and points out areas for further research (CHE 2007:2), namely, that the report touches on funding, governance, technology, institutional culture, access and change. It is not coincidence that funding is on top of the list.

So, why is funding such a major concern? There has been a gradual reduction of state subsidies to higher education in this country. The same happened all over the world with the result that many institutions were forced to reconfigure their programmes. We also saw over the last few years that lack of funding for students led to protests and some institutions had their academic programmes disrupted. Students protested about the high cost of studying and an inadequate bursary system. The #FeesMustFall campaign called for the scrapping of registration

fees, for no increase in tuition fees, for free education and for costs related to books and accommodation to be scrapped. Notably, this call by students resulted in at first a government agreement with institutions not to increase the tuition fees. Government had to undertake to fund institutions for the loss of revenue. This arrangement led to a short-term solution that was not sustainable because of the overall funding formula for higher education. The surprise announcement by former President Jacob Zuma in 2017 that there will be free higher education again highlighted the necessity of a new funding formula. Viewed against other urgent needs of the country such as health care, basic education, housing and job creation, the question arises whether free higher education should be a priority.

Funding affects access to higher education. Here I want to distinguish between two forms, namely, physical and epistemological access. There has been considerable progress made since 1994 in terms of physical access, and many (black) students who were previously denied now gained access. This objective of a democratic country has been achieved. However, the real challenge relates to epistemological access, which can be understood as the ability to successfully deal with disciplinary knowledge. Harold Herman (1998:41) cautioned that uncoordinated open admissions and affirmative action policies could lead to massive enrolments of educationally disadvantaged students, which may create unforeseen problems if the needs of students cannot be addressed in the teaching and learning programmes of universities. Wally Morrow identified 'epistemological access' as a need of students. One of the difficulties around epistemological access is the task of enabling students to become participants in and users of a shared disciplinary practice that is initially beyond their reach (Bak 1998:207). The challenge is that students need to acquire the language (the grammar, images, rules and logic) of the specialist practice. Physical access to an institution will be more meaningful if the issue of epistemological access is addressed, which will eliminate the undesirable presence of mass failures by students from previously disadvantaged communities. As the

statistics demonstrates, HEIs need to pay much more attention to epistemological access. The recent pronouncement of free higher education will not have the desired effect if epistemological access is not addressed.

My view is that real access depends on both forms. Without referring to statistics, and also from my experience as a lecturer, black students in general perform worse with than their white counterparts. This can be attributed to several factors. School background certainly plays a major role, as students from poorer schools come underprepared to higher education. The issue of language is a critical factor, as many black students are not academically proficient in the languages of instruction (English and/or Afrikaans).

Let me briefly reflect on another pointer for further research identified by the CHE in 2007. The question of institutional culture received much more scholarly attention after 2007, and there have been repeated calls for a change in institutional cultures. This was again part of the #FeesMustFall campaign, as students protested over cultures which were not accommodating to all. The historical legacy of this country meant that there are only two academic languages (English and Afrikaans), which can be third or even fourth languages for many black students. Language carries cultural meanings and can be exclusionary depending on the culture of an institution. On top of that, academic language is a further barrier. My own research indicates that it is an under-studied concept despite many calls for change to the cultures of institutions. It is thus a very challenging exercise to change institutional cultures. To this end, Delanty (2001:151) argues that exercising cultural choices, whether in institutions or the broader public, is generally characterised by a high degree of complexity and abstractness, and because of this, 'reality is rarely directly experienced'. It may also be the experience of most higher education practitioners that most institutional change patterns are more often than not chaotic, paradoxical, inconsistent and sometimes simply outright elusive (Samoff 2005:122). Institutional culture as a social construct, embedded in a very

definite historical context and purpose (Louw & Finchilescu 2003), is usually taken for granted and continues to be played out in an 'invisible manner' (Steyn & Van Zyl 2001). To refer to a specific case, the Higher Education Quality Commission (HEQC) (2007:14) recommended that Stellenbosch University (SU) develops a comprehensive strategy to transform its institutional culture based on an investigation of the role that different structures and behaviours play, including the role of the language of communication at departmental and senate meetings, in the introduction of and in the resistance to change. Such a strategy should include opportunities for the SU staff and students to be involved in debates and activities that encourage respect for diversity and human rights in the context of democratising society. To address this, the institution embarked on various initiatives. There remains much more to be done to change institutional cultures to become more democratic.

More on access, in 2017, the Statistician-General for Statistics South Africa, Pali Lehohla, commented that black students in universities are not doing as well as they did in the 1980s. In my response I stated that the statistics prove that there is no longer a problem with physical access to higher education for black students. However, those students who are not performing well do not have an adequate understanding of 'theories of knowledge'. It can be argued that matric is not an adequate preparation for higher education studies. It is also true that a larger number of black students come from school environments which have not adequately prepared them for university life. Research conducted at the University of the Western Cape indicates that matric results are not a reliable indicator of university success; it is more reliable from 70% and above. Academic progress in higher education requires different sets of necessary and sufficient conditions. While passing matric is a necessary condition for access to higher education, it is not sufficient. Also, we need to keep in mind that many black students do not study in their mother tongue, but in their second or third language, and then need to develop the necessary academic language proficiency to succeed. Therein lies the challenge for success.

There is now a new focus on decolonisation in South Africa. Needless to say, discourses on decolonisation of higher education have to take into account the effects of colonialism. It is, therefore, useful to briefly analyse what colonialism entails. It can be regarded as a Europeanisation of the world. Coloniality is a related concept and can be understood as a system that defines the organisation and dissemination of epistemic, material and aesthetic resources in ways that reproduce modernity's imperial project. In other words, coloniality represents the spaciality (expansionist control of lands), ontoepistemic racism (elimination and subjugation of difference) and geopolitics of knowledge production (epistemic violence) that are constitutive of modernity (Maldonado-Torres 2007). As a general rule, white misunderstanding, misrepresentation, evasion and self-deception on matters related to race were required for conquest, colonisation and enslavement.

In the colonised world, normative distinctions were made with regard to space, personhood and society. There are two dimensions associated with this norm, namely, the epistemological and the moral, and the discourses on decolonisation of higher education should be explored in relation to these norms. There is a need to adopt a historically conscious, Gadamerian approach to explore what Charles Mills (1997) refers to as the actual historically dominant moral or political consciousness and the actual historically moral or political ideals, in an effort to recognise their past and current influence and power and to identify their sources. Following Gadamer, we must analyse what was wrong with colonialism, what is wrong with higher education currently and what can be done to decolonise higher education. To my mind, decolonisation research requires a reconceptualisation in which we explore critical questions on themes such as conceptions of education (what should our aim be in education?), curriculum (what shall students study?), pedagogy (what does it mean to be a teacher and to teach?), knowledge (what is knowledge and what is it for?) and ethics (what morals, values, virtues shall we teach to students?). I agree with the CHE (2004) that transformation

attempts in South Africa since 1994, focusing on increased and broadened participation, responsiveness to societal interests and needs, and cooperation and partnerships in governance, already provide a conceptual bridge to an exploration of decolonisation of higher education.

■ Practice Impact

There are many factors that impact on the ability of the system to perform. The CHE (2016:43) recognises major difficulties in achieving the fundamental building blocks of learning, which impacts not only on throughput rates in higher education but also on the development of the human capacity to realise the development goals of the country as a whole. The CHE (2016:36) also refers to the impact of a schooling system in which science and mathematics appear to be weak which result in a perceived poor production of graduates ready to advance the knowledge economy. Further, the CHE (2016:31) also notes the impact that the three steering mechanisms – funding, planning and quality assurance – had on the ability of institutions to ensure the quality of their core functions.

Higher education is a very costly system throughout the world, and there is a constant interest in how research impacts on society. With regard to the European context, Teichler (2005:465) comments on the close links between research on the one hand and policy and practice on the other hand, and the fuzzy borderlines between the researchers, consultants and practitioners. He states that this ensured a broad interest, opportunities of funding and chances of practical impact, but it also endangered solid academic quality and an often fruitful distance from the frequently changing public debates.

The impact is dependent on access because if more people have access to higher education, they will go back to their communities and be leaders and role models. Diversity of people brings new insights, perspectives, experiences and research projects.

■ Conclusion

There is certainly not a lack of research which impacts on society. The challenge, rather, is that academic research findings are expressed in language related to the disciplines and then published in journals, books, master's theses and doctoral dissertations. Generally, these publications are read widely within the academic community, but academic language does not make the research accessible to the broader society. As a result, the impact of the research is much less at the sites of research. What can be done to improve impact? One way to do this is by simplifying the research and communicating it in language which people can readily understand. HEIs can also create fora where researchers can meet with communities in the latter's environment, and where there is engagement about the research in a more relaxed setting. Researchers can then work with communities to ensure that implementation is monitored and takes place accordingly. Research should also be published in simpler forms in community newspapers. If this is done, the ivory-towerism of HEIs may be broken down, and society may develop a new-found trust in higher education.

■ Summary

This chapter explores a range of complex issues at play in discourses in higher education in South Africa, and it examines publications and policy pronouncements, and identifies key challenges facing higher education after 24 years of democracy. My review of major trends indicates that a number of issues such as skills and training, transformation, globalisation (neoliberalism, transnationalism, marketisation and commodification), institutional culture, knowledge and the knowledge-driven economy, equity and access, race and racism, institutional autonomy, Africanisation, funding, technology, governance, academic freedom and decentralisation are focus areas. In an attempt to develop a deeper understanding of some of these challenges, this chapter reflects on the following:

- what is higher education (as a field of scholarship?)
- the displacement of 'university' with 'higher education'

- history and current state of higher education in South Africa
- reconfiguring the research agenda and practice impact
- drawing some conclusions on the theme.

I explored the complex issues in the context of the broader social, economic and political reconstruction of the country.

THEME 2

Mathematics and Science Education

An Evaluative Study of a Family Math Programme that Forms an Integral Part of a Mathematics Module for Intermediate Phase Students

Cobus van Breda
Science for the Future
Faculty of Education
University of the Free State
South Africa

Amaria Reynders
Science for the Future
Faculty of Education
University of the Free State
South Africa

Corene de Wet
Open Distance Learning
University of the Free State
South Africa

■ Introduction

The purpose of this chapter is to report on an evaluative study of a Family Math programme that forms part of a mathematics module for Intermediate Phase students at the University of the Free State (UFS). Attention will be given to students' evaluation of generic aspects of the programme, that is, aspects that are not influenced by, for example, the proficiencies of the facilitators and the students' personal experiences during the contact sessions. We will argue that the results of an evaluative study on a Family Math programme that forms part of a module for Intermediate Phase students may have an impact on future pre-service training programmes in South Africa. A positive evaluation of the programme may inadvertently address South African educators' lack of mathematical content and pedagogical knowledge, as well as raise learners' attainment in mathematics. This evaluative study may thus have a positive impact on Intermediate Phase students' knowledge of mathematics and on future approaches to the teaching and learning of mathematics.

During 2012–2014, 18 schools in the Free State Province participated in a pilot programme of the I triangular model strategy. This strategy involved members of the UFS's Science for the Future (S4F) staff, educators and parents. UFS staff trained educators at the university's Bloemfontein campus. Apart from integrating the Family Math project activities into the curriculum, it was also expected that the educators conduct training sessions for parents in the Family Math activities at their respective schools in the local community. The latter enabled parents to become involved in their children's mathematics teaching and learning at school (Van Breda & Reynders 2017). Van Breda and Reynders (2016) compared the Annual National Assessment's (ANA) results of Grade 3 mathematics achieved by the participating schools in 2014 with the 2012 and 2013 ANA results. Between 2012 and 2014, the average number of participating schools increased from 35.38% to 60.51%. An evaluation by the South African Institute for Distance Education

(SAIDE) (2007:1) found that the Grade 2 Family Math intervention programme that was:

> [/]mplemented across a range of primary schools in the provinces of Gauteng, Limpopo and Mpumalanga [*has had a*] highly significant positive effect on the mathematical understanding of young children over the course of the year's intervention programme. (p. 1)

With regard to the Grade 5 Family Math programme, the SAIDE (2007:1) study found that there has been 'some positive effect on the mathematical understanding of children'. While the above-mentioned researchers highlight the success of Family Math programmes, others are either concerned about the dismal mathematical content knowledge of primary school teachers in South Africa (Venka & Spaul 2015:121–123) or emphasise the need to combine 'mathematical and teaching knowledge […] to encompass both subject content knowledge and mathematics-specific pedagogical knowledge' (Pournara et al. 2015:2).

In recognition of the successes of the Family Math programme in South Africa, and to improve student educators' content and mathematics-specific pedagogical knowledge, the Programme Director of S4F and the Head of the School of Mathematics and Science Teaching at the Faculty of Education of the UFS decided to expose Intermediate Phase students to the principles of Family Math. They argued that this exposure would enhance students' knowledge of mathematics and expose them to 'constructivist and hands-on methodologies in the teaching of Mathematics for children with different learning styles' (Van Breda & Reynders 2016:1–2). Since 2016, second-year Intermediate Phase students at the UFS have enrolled for the MTBI 2503 module and are exposed to the principles of Family Math during six compulsory contact sessions. Students are also invited to participate in a community service learning project. During 2016, a group of volunteering MTBI 2503 students prepared and conducted non-formal Family Math sessions in a group context with learners from schools in the local community. During these sessions, each student facilitated a hands-on mathematics activity. The S4F facilitators accompanied the students who were assessed

according to predetermined criteria (rubric). Each group had to attend a reflection session (feedback on presentation) after the session at the school. These sessions provided students with an opportunity to expand and deepen their insights on Family Math principles and practices, as well as serving as a Student Service Learning initiative.

It was decided by the key role players, that is, the Programme Director of S4F, Head of the School of Mathematics and Science Training and the facilitators, that the Family Math component of the MTBI 2503 module should be subjected to continuous and rigorous evaluation. Rigorous research-based evaluation of teaching and learning practices is an important prerequisite for improving students' learning (Cai et al. 2017:118). We therefore conducted an evaluative study of the Family Math component of the MTBI 2503 module at the conclusion of the first cohort's study year. This evaluative study focussed on the following aspects:

- students' evaluation of generic aspects of the programme
- students' experiences of the hands-on approach during contact sessions
- the impact of (some) students' participation in a Family Math service learning component session with learners from schools in the community, on the students' view of the programme.

This chapter will report on findings pertaining to the students' evaluation of the Family Math training programme *per se*, as well as the content and training outcomes, the course materials and assessment.

■ Family Math

Since the beginning of the 21st century, S4F at the UFS has acted as a regional centre for coordinating and managing Family Math and Family Science projects. Reflecting on these projects (Itumeleng Community Trust n.d.):

Family Math is a [*sub-programme*] of the EQUALS Programme at the Lawrence Hall of Science, University of California in Berkeley

and Family Science is a project of the Portland State University in Portland. (n.p.)

Furthermore, Van Brede and Reynders (2016) also mention how:

Since the inception of the programme in South Africa, numerous community, as well as formal training workshops which include parents, learners, community leaders, educators, subject advisers and student educators have been conducted in the Free State, Northern Cape, Kwazulu-Natal, Eastern Cape, Western Cape, Gauteng and even Zambia. (p. 2)

Webb and Austin (2009) further add that:

[*The Family Math*] programme, which has operated in South Africa since 1996, is an adapted version of the American forerunner, but similarly aims at dispelling negativity towards Mathematics and encourages learners, parents and other family members to translate new experiences and concepts into workable solutions through discussions and the use of hands-on, minds-on, process-orientated and inquiry-based activities. (p. 31)

The Family Math and Family Science programme presented by the UFS is about (Van Breda & Reynders 2016):

- [*e*]nabling educators and parents, through training sessions, to implement the CAPS curriculum in mathematics and science
- [*e*]ngaged learning, thus raising mathematics and science literacy levels amongst young children through everyday experiences in and around the home
- [*d*]eveloping learning and teaching materials that are suitable as well as affordable for use in the formal classroom situation and in parent workshops in the local community
- [*c*]onstructivist and hands-on methodologies in the teaching of Mathematics and Science for children with different learning styles. (pp. 1–2)

Since 2016, second-year Intermediate Phase students at the UFS who enrolled for the MTBI 2503 module are exposed to Family Math during six compulsory contact sessions. During the Family Math training sessions, students take part in various hands-on activities in pairs or in small groups. It is expected of all students to be actively involved in all the activities, because it gives the students a sense of how learners will experience and benefit

from the specific activity (hands-on, as well as minds-on). A selected group of students are also given an opportunity to do a related service learning component. The main aim of the Family Math training sessions for student educators is to expose them to real-life and hands-on mathematics teaching and learning. In order to achieve this aim, the *Orientation Guide* states that students (Reynders 2016):

> [*W*]ill have to engage with hands-on Family Math activities during training sessions and conduct a Family Math session with learners in the community (only a selected group of volunteering MTBI students). (p. 2)

According to the *Orientation Guide*, students should, at the end of the training sessions and community engagement, be able to (Reynders 2016):

- [*i*]dentify, organise and manage a Family Math activity in a mathematics concept(s)
- [*i*]ndependently manage and conduct a Family Math session in the community (only selected volunteering MTBI students)
- [*e*]xplain how everyday experiences and readily available material in and around the home can be utilised to raise the math literacy levels amongst young children
- [*d*]emonstrate how to apply components of a Mathematics content-based language strategy
- [*p*]ractise a constructivist approach when conducting a Family Math activity session. (p. 5)

After the completion of the training sessions of this non-examination programme, students who attend all six training sessions receive certificates.

■ Research Methodology

■ Research Method

Embedded in positivism, this evaluative survey used a self-constructed questionnaire to gather data. Survey instruments have been identified as being the most important data collection tools in outcomes measurement and evaluation (Fitzpatrick,

Sanders & Worthen 2012). Items in the questionnaire relied heavily on existing programme evaluation questionnaires (Fitzpatrick et al. 2012). Some of the items were based on the learning outcomes of the programme. The developer of the questionnaire (third author) furthermore entered into lengthy discussions with the Programme Director of S4F and the Head of the School of Mathematics and Science, Faculty of Education at the UFS, to determine their perspectives on the Family Math programme for MTBI 2503 students, their expectations of the evaluative study and their views on the future of Family Math as an integral part of the MTBI 2503 module. They also acted as critical readers in the development of the questionnaire. Insights gained from the discussions were incorporated into the questionnaire.

The questionnaire contained 60 statements using a 5-point Likert scale, with anchors of (1-point) 'strongly disagree' to (5-point) 'strongly agree'. These statements were clustered into 10 subsections, namely, the Family Math training programme *per se* (three statements), the content of the Family Math training programme (seven statements), Family Math training outcomes (four statements), Family Math course material (eight statements), assessment (one statement), contact sessions (nine statements), teaching and learning (10 statements), the facilitators (11 statements), personal experiences (five statements) and views about contact time (two statements). This chapter will report on data from the first five subsections. Although these five sections focus on the generics of the programme, the other five subsections centre on the particularisation of the programme by the staff of the S4F and the personal experiences of the UFS students.

The adaptation of existing programme evaluation questionnaires enhanced the reliability and validity of the instrument (Meadows 2003). The internal reliability of the questionnaire was checked by calculating the Cronbach's alpha coefficient. The overall Cronbach's alpha coefficient for the rated responses was calculated to be 0.9049, with the average inter-item co-variance equal to 0.0863, which indicated that the responses had a high level of reliability.

The data were captured by an experienced typist and were checked for accuracy. The data were analysed with the STATA IC11 software, using the mean score as a measure of centrality and the standard deviation as a measure of spread, to summarise the data.

■ Sample

Table 5.1 gives a summary of the sample. Arguing that students who successfully completed the Family Math training programme would have insight into all aspects of the programme, only the 155 students who completed the programme were invited to take part in the study. We however concede that students who had discontinued their studies may have had a critical stance towards the programme. Logistical problems, such as the October 2016 student riots at the UFS and the consequent closure of the campus, and the possibility that some of the students who had discontinued their studies were no longer registered students and may have departed from Bloemfontein also motivated our decision to limit our study to the 155 students.

The questionnaires were distributed in October 2016 during a ceremony celebrating the completion of this programme and the handing out of certificates. Students were asked to return the completed questionnaires to one of the facilitators. Although most of the questionnaires were returned, the 2016 student unrests

TABLE 5.1: A summary of the sample.

MTBI course language	Number of MTBI 2503 students who enrolled for Family Math	Number of students attending all Family Math sessions and received a certificate	Number of students who completed the questionnaire	Number of students who took part in the Family Math Service Learning component
English	114	91	74	45
Afrikaans	73	64	59	21
Total	187	155	133	66
Percentage of 155 students	-	-	85.2%	42.6%

delayed and may even have prevented some of the students from completing and returning their questionnaires. Of the 155 questionnaires handed out, 133 were returned. Two respondents completed only the first two pages, while another student completed only the first four pages. Still, we included the responses that were given by these three respondents for the parts that they completed.

The majority of the respondents (107) were female students and 26 were male students. In terms of the highest school Grade in which they took the subject mathematics, 35 had discontinued mathematics after Grade 9, 17 had taken it up only to Grade 10, 6 had taken it up to only Grade 11, while 70 had taken it up till Grade 12. Five respondents did not respond to this item on the questionnaire.

■ Ethical Considerations

The study adhered to the principles of ethical research. Letters introducing the study were handed to potential respondents. Respondents' anonymity and integrity were respected. Respondents were asked to complete an informed consent form. 'The respondents were informed that the process was completely voluntary and that they could withdraw at any stage during the process' (De Wet & Jacobs 2013:n.p.). 'They received no financial or other reward for taking part in this study' (De Wet & Jacobs 2014:n.p.). Permission for this study was obtained from the Principal of the School of Open Distance Learning, the Director of S4F and the Head of the School of Mathematics and Science. Ethical clearance for the study was granted by the Ethics Committee of the Faculty of Education, UFS (UFS-HSD2016/0611).

■ Results

The purpose of this chapter is to report on students' evaluation of the following aspects of the Family Math programme:

- the training programme in general
- the content and training outcomes of the programme

- the course materials
- assessment.

The average score provided by all respondents on the aforementioned generic aspects related to the training programme was 4.4989, with a standard deviation of 0.7697, indicating that they experienced the programme as very constructive. The aggregated mean scores on the different generic aspects of evaluation are presented in Table 5.2.

Although all scores are very positive, there seems to be less satisfaction with the assessment and the course material than with the other aspects.

The items that fall under each generic aspect of the programme (Table 5.2) are presented in Table 5.3 (statements in each of the aspects ranked from the highest to the lowest).

The particular statement that the respondents were most positive about was 'the study material was available on time', with a mean value of 4.8473, followed by 'I was satisfied with the course material provided to me' (M=4.7939) and 'the content of the Family Math training programme was organised' (M=4.7594). The item that received the lowest score was 'additional course material was placed on the Internet or blackboard' (M=2.6641). The second lowest score was 4.3759, in response to both the following statements: 'at the end of the training sessions I was able to practise a constructivist approach when conducting a Family Math activity session' and 'at the end of the training sessions I was able to demonstrate how to apply components of

TABLE 5.2: Summative statistics on the various generic aspects of the evaluation.

Aspect	*N*	Mean	Standard deviation
Training programme in general	133	4.6466	0.5104
Content of the programme	133	4.6156	0.3641
Training outcomes	133	4.4568	0.4538
Course material	131	4.3814	0.4057
Assessment	130	4.2923	0.9437
Combined	133	4.4975	0.3104

TABLE 5.3: Statistics on the evaluation of the Family Math programme for Intermediate Phase students.

Statements	M	SD
Training programme in general		
I am satisfied with the standard of the Family Math training programme.	4.7143	0.5011
I am satisfied with the choice of Family Math activities included in the training programme.	4.6992	0.5073
The programme is relevant to my future as an Intermediate Phase teacher.	4.5263	0.8667
Content of the programme		
The content of the Family Math training programme is well organised.	4.7594	0.4291
The content of the sessions is understandable.	4.7293	0.6170
The content of the different activities provides the opportunity to develop skills.	4.6767	0.5007
The content of the sessions is based on current, up-to-date information.	4.6591	0.5069
The contents of the different activities in the contact sessions are linked up well with one another.	4.5758	0.5941
There was a link between the different activities and the student training outcomes.	4.5414	0.6217
The contents of the different activities in the different sessions do not overlap (i.e. same content is not duplicated in different sessions).	4.3636	0.8673
Training outcomes		
'At the end of the training sessions I was able to identify, organise and manage a Family Math activity in a learning situation to convey (a) specific Mathematics concept(s)'.	4.5865	0.5094
'At the end of the training sessions I was able to explain how everyday experiences and readily available material in and around the home can be utilised to raise the Math literacy level amongst young children'.	4.4887	0.5452
'At the end of the training sessions I was able to practise a constructivist approach when conducting a Family Math activity session'.	4.3759	0.5587
'At the end of the training sessions I was able to demonstrate how to apply components of a Mathematics content-based language strategy'.	4.3759	0.5980
Course material		
The study material was available on time.	4.8473	0.3611
I was satisfied with the course materials provided to me.	4.7939	0.4246
The layout and design of the study guides were appropriate for my level.	4.7328	0.5088
The study guides were a valuable aid to learning.	4.7231	0.5285
The course material did not create harmful stereotypes (e.g. men are leaders [school principals], women followers [post level 1 teachers]).	4.6077	0.6287
The material provided balanced activities to stimulate my skills.	4.3692	0.7690
The course material reflected the multiracial and multicultural nature of our society (e.g. examples or illustrations of people from different language and/or racial groups were included).	4.3000	0.8226
Additional course material was placed on the Internet or blackboard.	2.6641	1.3508
Assessment		
I was satisfied that there was no formal assessment for the Family Math training programme.	4.2923	0.9437
M, mean; SD, standard deviation.		

a Mathematics content-based language strategy'. It should, however, be noted that these statements, with the exception of the statements on the placing of additional course material on the Internet or blackboard, still scored above the point of neutrality (i.e. 3-point).

We then analysed the difference in responses of different groups within the sample of students.

Students had the opportunity to attend the classes in the language of their choice (Afrikaans or English). Table 5.4 presents comparative summative statistics of students who took the classes in the language of their choice.

Based on the mean score, the Afrikaans group indicated that they were more satisfied with the programme in general, the

TABLE 5.4: Summative statistics for the English and Afrikaans language groups.

Overview of programme	n	M	SD	T	p
Training programme					
English	74	4.6441	0.5359	0.0623	0.9504
Afrikaans	59	4.6500#	0.4812		
Combined	133	4.6466	0.5104		
Content					
English	74	4.6088	0.3281	0.2396	0.8110
Afrikaans	59	4.6241#	0.4076		
Combined	133	4.6156	0.3641		
Outcomes					
English	74	4.4865#	0.4550	0.8448	0.3997
Afrikaans	59	4.4195	0.4535		
Combined	133	4.4568	0.4538		
Course material					
English	72	4.4646#	0.3744	2.6526	0.0090*
Afrikaans	59	4.2798	0.4223		
Combined	131	4.3814	0.4057		
Assessment					
English	71	4.1972	1.0504	1.2636	0.2087
Afrikaans	59	4.4068#	0.7904		
Combined	130	4.2923	0.9437		

M, mean; SD, standard deviation.
#Group with the highest mean score.
*$p \leq 0.05$.

content of the training programme and the assessment, than the English group. The English group's score for the outcomes of the training programme and the course material used was higher than that of the Afrikaans group. The latter difference is statistically significant, with a *p*-value of 0.0090.

Table 5.5 presents the comparative summative statistics of the views of females and males.

The results in Table 5.5 show that the female students who participated in the study were notably more positive about all aspects of the training programme, with a higher mean score on all five aspects of the training. The differences are statistically significant in terms of the training programme in general (*p* = 0.001), the content of the programme (*p* = 0.024) as well as the assessment during the programme (*p* = 0.0066).

TABLE 5.5: Comparative summative statistics for the different gender groups.

Overview of programme	*n*	M	SD	*T*	*p*
Training programme					
Female	106	4.7233#	0.4327	3.5821	0.0005*
Male	27	4.3457	0.6697		
Combined	133	4.6466	0.5104		
Content					
Female	106	4.6515#	0.3616	2.2917	0.0235*
Male	27	4.4744	0.3451		
Combined	133	4.6156	0.3641		
Outcomes					
Female	106	4.4882#	0.4477	1.5922	0.1138
Male	27	4.3333	0.4651		
Combined	133	4.4568	0.4538		
Course material					
Female	105	4.4033#	0.4132	1.2476	0.2144
Male	26	4.2927	0.3680		
Combined	131	4.3814	0.4057		
Assessment					
Female	104	4.4034#	0.8305	2.7636	0.0066*
Male	26	3.8462	1.2229		
Combined	130	4.2923	0.9437		

M, mean; SD, standard deviation.
#Group with the highest mean score.
*$p \leq 0.05$.

TABLE 5.6: A comparison of the responses of the respondents who took part in the service learning component of the programme and those who did not take part.

Overview of programme	N	M	SD	T	p
Training programme					
Yes	66	4.6768#	0.4528	0.6747	0.5010
No	67	4.6169	0.5633		
Combined	133	4.6466	0.5104		
Content					
Yes	66	4.6224#	0.3680	0.2149	0.8302
No	67	4.6088	0.3629		
Combined	133	4.6156	0.3641		
Outcomes					
Yes	66	4.4886#	0.4671	0.8027	0.4236
No	67	4.4254	0.4417		
Combined	133	4.4568	0.4538		
Course material					
Yes	65	4.4038#	0.4290	0.6277	0.5313
No	66	4.3592	0.3834		
Combined	131	4.3814	0.4057		
Assessment					
Yes	64	4.2188	1.0461	0.8743	0.3836
No	66	4.3636#	0.8346		
Combined	130	4.2923	0.9437		

M, mean; SD, standard deviation.
#Group with the highest mean score.
$*p \leq 0.05$.

Next, we compared the responses of those who took part in the service learning activities (Yes) with those who did not (No). The results are displayed in Table 5.6.

As can be seen from Table 5.6, the respondents who took part in the service learning activities indicated a more positive view on all the aspects of the programme, except for the assessment. None of these differences was, however, statistically significant.

Table 5.7 gives a summary of the respondents' evaluation of the programme according to their highest level of mathematics at school.

At face value, it seems that those who had progressed further with mathematics in school (Grade 11 or Grade 12) were more

TABLE 5.7: Respondents' evaluation of the Family Math programme according to their highest level of mathematics at school.

Overview of programme	n	M	SD	F	p
Training programme					
Only up to Grade 9	35	4.4762	0.6431	1.86	0.1404
Only up to Grade 10	17	4.6471	0.4162		
Only up to Grade 11	6	4.8333#	0.4082		
Up to Grade 12	70	4.7048	0.4629		
Combined	128	4.6406	0.5168		
Content					
Only up to Grade 9	35	4.5929	0.4081	0.99	0.3987
Only up to Grade 10	17	4.4965	0.4383		
Only up to Grade 11	6	4.7617#	0.2660		
Up to Grade 12	70	4.6316	0.3310		
Combined	128	4.6091	0.3664		
Outcomes					
Only up to Grade 9	35	4.3429	0.4581	1.07	0.3637
Only up to Grade 10	17	4.5000	0.5229		
Only up to Grade 11	6	4.4167	0.3764		
Up to Grade 12	70	4.5071#	0.4463		
Combined	128	4.4570	0.4580		
Course material					
Only up to Grade 9	34	4.3374	0.4058	0.48	0.6968
Only up to Grade 10	16	4.3144	0.5065		
Only up to Grade 11	6	4.4817#	0.4120		
Up to Grade 12	70	4.4071	0.3915		
Combined	126	4.3801	0.4094		
Assessment					
Only up to Grade 9	34	4.2059	0.9138	0.74	0.5309
Only up to Grade 10	16	4.3125	1.1955		
Only up to Grade 11	6	3.8333	1.6021		
Up to Grade 12	69	4.3768#	0.8419		
Combined	125	4.2960	0.9506		

Source:
M, mean, SD, standard deviation.
#Group with the highest mean score.
*$p \leq 0.05$.

positive than those who had discontinued mathematics earlier. Although the group with the highest opinion of the different aspects has been indicated in Table 5.7, none of the differences was statistically significant.

■ Discussion

In this section, we focus on some important aspects of students' evaluation of the generic aspects of the Family Math programme that form part of the MTBI 2503 module for Intermediate Phase students at the UFS. We begin with the students' evaluation of specific statements pertaining to different generic aspects of the Family Math programme. Then, we discuss the possible influence of language, gender, students' participation in the service learning component of the training programme and the influence of their level of mathematics at school on their evaluation of the programme. These discussions will move beyond a narrow discussion of these variables and will attempt to place the results within the broader context of, for example, the influence of gender and language on the teaching and learning of mathematics. We end the chapter with an overall conclusion.

Results of this study highlight the respondents' positive evaluation of the generic aspects of the Family Math training programme; the average score provided by all respondents on the 23 statements was 4.4989, with a standard deviation of 0.7697 (Table 5.3). From the individual statements, logistics seems to be paramount for the students who took part in this study; the individual item that scored the highest (The study material was available on time), as well as the item that scored the lowest (additional course material was placed on the Internet or blackboard), has to do with the availability of course material. What may seem as insignificant administrative trivialities to some people, that is, the timely availability of material, as well as the layout of the course material (cf. Table 5.3), compared to the academic quality of the course material, may have a profound influence on students' attitude towards a programme. It is therefore important that programme developers strike a balance between logistic imperatives and academic quality. The finding of this study, namely, that students' attitude towards a programme is often influenced by the availability and aesthetics of the course material, is confirmed by a previous research (Xiao 2017).

The students' positive evaluation of the training programme in general (M=4.6466), content of the programme (M=4.6156) and training outcomes (M=44568) attest to their positive attitude towards the training programme. While their evaluation of the programme material is, to some extent, a reflection of the efficiency of the S4F staff (see previous paragraph), their evaluation of the above-mentioned three generic aspects has limited logistical or administrative implications. This implies that the Family Math programme developed by the UFS' S4F staff for Intermediate Phase students can be replicated at other universities. The success of the Family Math programme and the need for future educators to be grounded in the theories and practices of this hands-on approach to mathematics make the replication of the Family Math programme for Intermediate Phase students countrywide an imperative.

In three of the five constructs, the students who attended classes presented in Afrikaans were more positive in their evaluation of the constructs than students who preferred to attend classes presented in English (Table 5.4). In one of the two constructs in which the English group scored higher than their Afrikaans counterparts, namely, course materials, the difference was statistically significant. These mixed results imply that the language preference of the students did not play an important role in their evaluation of the programme's generic components. This eases the transferability of the training programme to both English and dual-medium universities.

Giving students the opportunity to study Family Math in the language of their choice (English or Afrikaans) may have a positive impact on their success as Intermediate Phase educators. According to the social constructivist perspective, first-language speakers find themselves in a sociocultural context other than their daily context when they are in the mathematics classroom, because the language, as a key concept in culture, now becomes 'mathematics language'. This can affect learning (Duit & Treagist 1998). When the learners' language of teaching and learning differs from their home language, the challenge becomes even

greater for educators. Naudé, Pretorius and Vandeyar (2003) found that limited language proficiency impacts learners' readiness for mathematics instruction. To enhance and support the mathematics teaching and learning in the Family Math programme, a Mathematical Language component, as part of the content-based language learning strategy, has been integrated into the Family Math programme. The Mathematical Language component is based on the language skills that are required for the teaching of English or Afrikaans Home Language in the Intermediate Phase. This may empower future Intermediate Phase educators to support learners in their understanding of mathematical concepts in their preferred medium of instruction (either Afrikaans or English).

Mathematics has stereotypically been seen as a male domain. Unpacking this view, Brandell and Staberg (2008:505) state that mathematics is often seen as 'more important for the future work of boys, showing the structurally gendered labour market'. Boys are furthermore perceived to like challenging work more than their female counterparts. The negative aspects of mathematics are perceived to impact female students more than the male students. Girls are more likely to find mathematics boring and difficult compared to boys. A research conducted by Sarouphim and Chartouny (2017:62) amongst Lebanese learners repudiated the stereotypical view on the gender differences between males and females regarding mathematics. Their study found 'no significant gender differences in either achievement or attitudes toward Mathematics'. An extensive review of research on gender and mathematics in Australia and New Zealand (Vale & Bartholomew 2008) has shown that there are few differences in mean scores for achievements and attitude towards mathematics. While the aforementioned studies highlight a change in the gender dynamics of attitudes towards mathematics and a repudiation of 'the view that Mathematics is a male domain' (Kaiser & Sriraman 2012:n.p.), this study has shown that female students are more positive about all aspects of the Family Math programme than their male counterparts. The finding of this

study, namely, that female students evaluate the programme more positively than their male students, may possibly be ascribed to the classroom practices followed in the Family Math training programme. The facilitators endeavour to create a safe environment ensuring fairness, minimising the differences between students and scaffolding the learning of mathematics through guided discussions and modelling. Vale and Bartholomew (2008) found that the above-mentioned teaching processes have a positive influence on females' engagement with and attitudes towards mathematics. The positive evaluation of the programme by female respondents will hopefully motivate them to inspire their future learners, both boys and girls, to excel at mathematics.

'A number of [South African] teacher education programmes include a service learning' component (Bender & Jordaan 2007:n.p.; Petker & Petersen 2014:n.p.). Service learning 'combines the academic curriculum of the discipline and the student with service to, or in, a community' (Petersen & Osman 2013:6). Researchers (cf. Bender & Jordaan 2007) have found that service learning can foster student educators' engagement with the profession; enhance their self-esteem, their leadership and mentorship abilities; and increase their respect for and understanding of diverse communities. In addition, Petker and Petersen (2014:125) found that service learning strengthens students' ability to apply what they have learnt to the 'real world'. With these positives in mind, the staff of S4F invited MTBI 2503 students to take part in non-formal Family Math sessions in a group context, with learners from schools in the local community. These sessions gave students the opportunity to expand and deepen their insights into Family Math principles. It is therefore understandable that students, who were part of the service learning component, were more positive in their evaluation of the programme than the non-attendees (Table 5.6). Despite the fear that service learning will take up space in an education training programme, we agree with Petker and Petersen's (2014:125) view that the positives outweigh the negatives.

The service learning component should ideally become a central part of the Family Math programme.

We looked lastly at the possible impact of the students' level of mathematics at school with their evaluation of the Family Math programme. In all the constructs, except the one on assessment, the students who progressed further (grades 11 or 12) in school were more positive than those who had discontinued mathematics earlier. Learners who struggle with mathematics at school level usually discontinue the subject and take the less demanding option of mathematics literacy. According to the Centre for Development and Enterprise's (CDE) (2014:3) report on statistics that illustrates the decline in the percentage of learners who wrote Grade 12 mathematics compared to mathematics literacy in South Africa, in 2010 and 2012, 48.41% and 24.99% Grade 12 learners took mathematics, respectively, compared with 51.58% and 75.57% of learners who took mathematics literacy for the same period, respectively. The students who discontinued their mathematics study at school often, as is the case with some of the Intermediate Phase students at the UFS, find themselves enrolled in a (compulsory) mathematics course. The sample of students who took part in this study illustrates the aforementioned dilemma clearly; 27.34% of respondents took mathematics up to only Grade 9 (Table 5.7). Researchers identified 'pre-university mathematics skills as a major factor in these students' retention and mathematics success' (Lake et al. 2017:222). It is therefore understandable that students with an inadequate background in mathematics learning will find the Family Math programme more challenging than those with a sound or at least adequate understanding of mathematics. Failure may inadvertently result in negativity and a more critical stance towards the compulsory programme. It is important that the facilitators and developers of the Family Math programme make special provision for the needs of students with very basic mathematics skills. If this is not done, these students will, later on, become uninspiring mathematics educators who lack subject content knowledge (CDE 2014).

■ Conclusion

In an innovative way, S4F staff at the UFS adapted the well-established and researched principles of Family Math to improve Intermediate Phase students' mathematics knowledge and inspire them to become innovative educators. The S4F unit at the UFS gives new meaning to Family Math. While the Family Math programme was originally designed to empower parents to support their children, students are now taught how to utilise Family Math principles and practices to teach their future learners. Research on the success of the Family Math triangular model strategy (2012–2014) prompted the adaptation of the programme to form an integral part of a mathematics module for Intermediate Phase students. Although we do not claim that the aforementioned Family Math programme will be the panacea for the crisis in learners' performance in mathematics or educators' lack of subject knowledge in South Africa, it is at least a step in the right direction.

This study probed the first cohort of students' evaluation of the generic aspects of the programme. The study found that the first cohort of Intermediate Phase students at the UFS, who were exposed to the Family Math programme, were extremely positive in their evaluation of the generic aspects of the programme. The average score provided by all respondents to the 23 statements was 4.4989. The study also revealed that the language of instruction of the students (Afrikaans and English), the respondents' level of mathematics at school and involvement in the service learning component have little influence on their evaluation of the programme. In only one of the aforementioned three variables, namely, language, a statistically significant difference was found between the Afrikaans and English groups regarding one aspect, namely, course material (Table 5.4). However, it seems as if gender plays an important role in the students' evaluation of the generic aspects of the programme. Female students were more positive than their male counterparts in all five aspects of the programme. The differences were statistically significant in three of the five aspects (Table 5.5).

The aim of this study was to report on the evaluation of generic aspects of the Family Math training programme for Intermediate Phase, that is, aspects that may, in theory, be transferable to other educator training institutions or mathematics programmes for educator training. It is therefore cautiously recommended that, in light of the positive evaluation of generic aspects of the programme and the dire need of knowledgeable mathematics educators countrywide, all South African educator training institutes should investigate the feasibility of incorporating Family Math principles in their mathematics modules. Our recommendation arises from an acknowledgement of the limitations of the study. Only 133 respondents from a single cohort of students from a single South African university took part in the survey. We furthermore utilised an un-standardised, self-constructed questionnaire. Despite these limitations, we believe that our study results can create an awareness of the utilisation of Family Math principles to strengthen students' and their future learners' understanding of the complexities of mathematics.

The results of this study will be used to improve the programme. An action research approach will be followed to continuously and rigorously research and improve the programme. Although this study researched students' evaluation of the programme, it is important that future studies additionally investigate the short- and long-term impact of Family Math programme on the achievement of learners studying under the tutelage of Family Math alumni. Future research should therefore also be conducted amongst the alumni of the 2016 and future Family Math students, as well as their learners. If we listen to the voices of the practising mathematics educators and their learners, we will be able to address their problems and only then will be able to ascertain the impact of the programme and our research on practice.

■ Summary

Since 2016, second-year Intermediate Phase students at the UFS's Faculty of Education who are enrolled for a mathematics

module are exposed to the principles of Family Math during six compulsory contact sessions. This chapter reports on the results of an evaluative survey on the generic aspects of the Family Math training programme. A self-constructed questionnaire was used to gather data. The study found that the respondents experienced the programme as very constructive. The study also found that the language of instruction used during contact sessions (Afrikaans and English), their level of mathematics at school and their involvement in the service learning component of the programme had little influence on their evaluation of the programme. It seems, however, that gender played an important role in students' evaluation of the programme. Female respondents were more positive than their male counterparts in all aspects of the programme. It is recommended that, in light of the positive evaluation of the generic aspects of the programme and the dire need of knowledgeable mathematics educators countrywide, South African educator training institutes should investigate the feasibility of incorporating Family Math principles into their mathematics modules for Intermediate Phase students.

Examining the Impact of Science, Technology, Engineering and Mathematics (STEM) in Zimbabwe's High Schools

Peter Tsvara
Faculty of Education
Solusi University
Zimbabwe

Timely Chitate
Faculty of Business Administration
Solusi University
Zimbabwe

Johan J. Booyse
Department of Education Foundations
University of South Africa
South Africa

■ Introduction

Science, Technology, Engineering and Mathematics (STEM), previously Science, Mathematics, Engineering and Technology (SMET), is an acronym that refers to the academic disciplines of science, technology, engineering and mathematics. The term is typically used when addressing education policy and curriculum choices in schools to improve competitiveness in science and technology development (Gerlach 2012). Education, particularly STEM education, has been seen as a tool for servicing the developmental needs of society. Ministry of Higher and Tertiary Education, Science and Technology Development (MHTESTD) Minister, Professor Jonathan Moyo; Chief Whip in the Office of President and Cabinet, Misheck Sibanda; Kwekwe Polytechnic Principal, Joice Mbudzi; Zimbabwe Institution of Engineers President, Tendai Kapumha; and other education philosophers, who believe this, according to Moyo (2015 cited in Gadziray et al. 2016:22) and *New Zimbabwe News* (2016), feel that the social, political and economic world outside the school can be changed, if not completely, then partly, by introducing STEM education in the content of education. Many countries in the world have introduced STEM education as part of the formal school system but the most debated issue, particularly at high school level, has been the purpose of STEM education (Gadzirayi et al. 2016). According to the Deputy Minister of MHTESTD (New Zimbabwe News 2016), STEM is the hot blood of the Zimbabwe Agenda for Sustainable Socio-Economic Transformation (Zim ASSET) (Zim ASSET 2013), and with it, Zimbabwe will rewrite its future. Achievement of Zim ASSET is not only interconnected with but is also heavily dependent on the country's ability to embrace and unpack the intrinsic value of a STEM-driven system of education. New industries are envisioned to evolve from STEM by providing new skills for the citizens of Zimbabwe in the future, although its proponents acknowledge that the STEM initiative is not geared to solve today's problems but to plan for the advancement of human capital for industrialisation. Therefore, the rationale for this chapter is to determine the impact of STEM

education in its conceptualisation and application in high schools. It also looks at access to quality STEM services for high school students, capacity of service delivery systems in view of the STEM needs, the use of allocated resources in STEM education and pedagogy for improving STEM learning outcomes.

STEM 'education programs at the [high] school level serve numerous purposes'. 'The purposes range from' developing meaningful economic and/or entrepreneurial development; improving industrialisation and cutting down expensive imports; providing little skill training aimed at students acquiring (Connections Learning 2011; Education Council 2015; Gadzirayi et al. 2016):

> [C]ore subject knowledge as well as skills of collaboration, critical thinking and problem solving, providing individuals with occupational skills for employment in specific jobs or a cluster of jobs, to enhancing general education. (n.p.)

The socio-economic future of Southern Africa as a whole lies in the region's ability to embrace STEM education as the main drivers of economic development. This has been necessitated by the fact that the economic growth of countries like South Africa in the 21st century has been driven by the nation's ability to both generate ideas and translate them into innovative products and services. STEM education is an integrated, interdisciplinary approach to learning that provides hands-on and relevant learning experiences for students. Thus, STEM teaching and learning goes beyond the mere acquisition and transfer of knowledge. It engages and equips students with critical thinking, problem-solving, creative and collaborative skills, and ultimately establishes connections between the school, workplace, community and the global economy. In Zimbabwe, STEM education is set to revamp the whole education system by pursuing (Gandawa 2016a):

> [A]mongst others, the deepening of cloud computing, big data analytics, robotics, synthetic biology, pharmacogenetics, nanotechnology, renewable energy systems, 3[D] and 4D printing technologies, and artificial intelligence, towards the realisation of the ZimASSET vision and beyond. (n.p.)

The growing concern 'for a workforce that is multi-skilled and capable of learning new skills more rapidly has changed the traditional purpose of' Zimbabwean education to STEM with the notion of systematising the nation (Mupinga, Burnett & Redmann 2005:76). The severe brain drain the country has experienced since 2007 has led the country to envision a paradigm shift, hence the introduction of STEM education in high schools. Developing countries like Zimbabwe have embraced the notion of STEM but it is not clear whether the purpose of the programme will support students up to the university level. However, it is the purpose of this chapter to determine the context in which STEM education is being conceptualised and applied in Zimbabwean high schools by considering whether it is a mere access point to quality STEM services for Zimbabwean children in high schools, capacity of service delivery systems in view of the STEM needs, and the use of allocated resources in STEM education.

■ Overview of STEM Education in Zimbabwe

The education system in Zimbabwe can be described as follows (Onguko, Abdalla & Webber 2012):

> Zimbabwe [*currently*] follows a 9-4-2-3 system of education, [*that is, 9*] years of primary education, 4 years of secondary education, 2 years of Advanced level [*schooling*] and 3 years of [*college/ university*] education. (n.p.)

STEM education is available for the two years of advanced-level schooling with the hope that it will be available through to university. STEM in Zimbabwe came from a long range of policy developments which started with Zimbabwe's overall *Science, Technology and Innovation (STI) Regulatory Framework* which had a number of key policy documents that included the *Research Act of 1986* and its subsequent amendments, the *Science and Technology (S & T) Policy of 2002*, the *Biotechnology Policy of 2005*, the *Biotechnology Act of 2006*, the *Information and Communication Technology (ICT) Policy Framework of 2006* and Zimbabwe's economic blue print 'Zim ASSET' for 2013–2018.

STEM can also be traced back from UN initiatives of 2008 which many countries adopted in 2009 but Zimbabwe adopted it under Higher and Tertiary Education, Science and Technology Minister Professor Jonathan Moyo's euphoria in 2015 (Zhou 2016). According to Chitate (2016:n.p.), STEM came from the Government of Zimbabwe's initiative and pronouncement in 2012 of the 'Second Science, Technology, and Innovation policy' framework which [was geared] to empower students with the cutting-edge skills that [would] see them participate actively in both local and global economies.

STEM education is confined to advanced-level students in Zimbabwe because the economic situation in the country does not present a conducive learning environment for success. There is a dearth of infrastructure that supports sciences and mathematics. There are few laboratories in schools that support the STEM initiative (Gadziray et al. 2016):

> The major problem here in Zimbabwe is lack of focus. Today there is much noise about STEM but come two years down the line, this will be history. No one will be ta[/]king about this. Moreover, there are also issues related to a poor economy […] and poor planning. (p. 2)

Major data received during the research indicated that there is a shortage of laboratories, equipment, chemicals and other paraphernalia associated with STEM education in the country. There is a shortage of STEM teachers, and also what is emerging is that there is currently an artificial shortage of STEM teachers as the majority have opted to look for work in the diaspora.

Every high school in Zimbabwe is supposed to offer STEM subjects (Science, Technology, Engineering and Mathematics), and the school decides the subject combinations to offer. The Zimbabwean Ministry of Primary and Secondary Education (MOPSE) is supposed to be responsible for the implementation of STEM education in schools, while the MHTESTD oversees the funding and promotion of STEM education in general.

Although a lot has been said in recent times about STEM education in Zimbabwe, not much scientific research has been conducted on establishing the context in which STEM education

is delivered, identifying the challenges faced in the delivery of STEM education, investigating opportunities for the enhancement of STEM education and identifying the magnitude of STEM research in Zimbabwe. According to Chitate (2016; cf. Mberi & Phambili 2016), the MOPSE, following the presidential speech that was delivered in 2013, was forced to rethink the national school curriculum. 'The Ministry subsequently undertook an update (*sic*) review of the [aforementioned] curriculum in October 2014 which [led to] the production of the "Zimbabwe Curriculum Blueprint 2015–2022"' (Chitate 2016:31). The centrality of STEM in the new curriculum, according to MOPSE (Chitate 2016):

> [*W*]as that the Zimbabwe education system would have to temper the STEM [*subjects*] with the Arts and Heritage Studies resulting in the STEAM [*subjects*] (Science, Technology, Engineering, Arts and Mathematics) becoming the drivers of the economy. (p. 31)

In marked contrast to this position of MOPSE, the MHTESTD saw STEM rather than STEAM (Science, Technology, Engineering, the Arts and Mathematics) as the panacea for the economic challenges in the country. According to Ncube (2016:5), the government in a bid to push Zim ASSET agenda rolled out the STEM education through the MHTESTD sidelining the MOPSE. Faced with this dilemma, the government through MHTESTD encouraged (Mberi & Phambili 2016):

> [*P*]upils who took their 'O' level examinations in 2015 and attained Grade 'C' or better in Mathematics, Biology, Physics, and Chemistry to take up a combination of STEM subjects at 'A' level. (n.p.)

The move was against the MOPSE, and according to Katongomara (2016), more than 4000 students registered for the programme by February 2016.

'As was noted earlier, there [is a] policy dissonance in the two ministries (MHTESTD and MOPSE) regarding the disciplines that should be studied to [industrialise] the country' (Chitate 2016:n.p.). Apart from this, MOPSE expressed unpreparedness to the 2016 intake of STEM given the situation that the country had

lost the majority of its science teachers through brain drain as well as the state of some of the high schools in rural and peri-urban areas in the country (Chitamba 2015:21). According to Chere (2015:7), 'learning facilities are, as well, limited, most particularly in the new resettlement areas created by the ongoing historic land reform programme that began in 2000'. This has seen former white 'farm houses and tobacco barns' converted into satellite schools, some of which became high schools offering STEM subjects. Because of this strong background, this study sought to pursue research gaps in STEM education in Zimbabwe's high schools.

■ STEM Goals in Zimbabwe

'Schools form a critical part of a broader STEM education' in Zimbabwe because it is the springboard upon which national economic turnaround hinges on (Education Council 2015:6). The school system has (Education Council 2015):

> [*A*] responsibility to ensure that all young [*Zimbabweans*] have [*acquired*] a fundamental level of STEM literacy that enables them to engage with, and succeed in, the world beyond the school gate. (p. 5)

Building foundational STEM knowledge needs to start somewhere, and in Zimbabwe, it has started with the 'A' level but it needs to be taken down to start from early childhood and continue throughout primary and secondary schooling. According to Moyo, the then-Minister of Higher and Tertiary Education, Science and Technology Development (Moyo 2015 cited in Gadzirayet al. 2016:14; New Zimbabwe News 2016), schools have the opportunity to foster and nurture young people's curiosity towards STEM, and they can use this opportunity to:

- [*d*]evelop deeper engagement and learning
- [*e*]nsure all students finish school with strong foundational knowledge in STEM and related skills
- [*e*]nsure students are inspired to take on more challenging STEM subjects

- [*i*]ncrease student's STEM ability, engagement, participation and aspiration
- [*i*]ncrease teacher's capacity and STEM teaching quality
- [*s*]upport STEM education opportunities within school systems
- [*f*]acilitate effective partnerships with tertiary education providers, business and industry
- [*b*]uild a strong evidence base. (n.p.)

■ High School Infrastructure in Zimbabwe

High school infrastructure is regarded as one of the key components of a successful education system. Since their attainment of independence in 1980, Zimbabwe has successfully constructed and established 8179 schools across the country, and as a result in 2013, 3 994 773 students have enrolled in both primary and secondary schools. The distribution of schools in Zimbabwe is primarily based on the following policies:

1. no primary school child shall walk more than 5 km to reach his or her school
2. no secondary school child shall walk more than 10 km to reach his or her school.

However, the major bone of contention is that measuring the performance areas in planning and management of infrastructure in Zimbabwe is not clearly defined. Although there are some set of indicators and protocols to measure infrastructural effectiveness, there is no blanket standardisation of methodology for assessing the effectiveness of school infrastructural development. For the purpose of this study, the researchers replicated the Integrated Building Performance Model (IBPM) to assess the state and effectiveness of school infrastructure in Zimbabwe. The IBPM was adopted by Thuba Makote Programme initiated in 2002 by South African government, and it proposes that the assessment of school infrastructural performance is defined in terms of three focus areas:

- *People*: To ensure effectiveness, school infrastructure should ensure that its people, the primary facility users, are

comfortable, healthy and productive and their human rights are totally upheld.
- *Physical infrastructure*: It should be a well-functioning and well-performing infrastructure, for example, secure buildings to ensure health and safety, low operating costs, spatial and resource efficient.
- *Programme*: The available infrastructure should support the activities that they are required to accommodate and service. For instance, school buildings should ensure that the current curriculum and preferred models of teaching and learning can be accommodated effectively.

The major thrust of 'Sustainable Development Goal (SDG 4) is to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all' (Gadziray et al. 2016:n.p.). This SDG is achievable only if the drivers of quality education are put in place of which school infrastructural development is one of them. Considering that 70% of Zimbabwe's population lives in the rural areas, one can justify that there is high demand for education in general. Despite the greater demand for STEM education in the rural areas of Zimbabwe and improvement in net enrolment ratio, the issue of infrastructure is a hindrance to the progression of SDG 4 by 2030. More precisely, education infrastructure in rural Zimbabwe is in a deplorable state, especially the 700 satellite schools in former commercial farms. Inappropriate classrooms in the form of tobacco barns or chicken runs have epitomised the learning environments. According to Gadziray et al. (2016):

> A case study published by *Newsday* on 12 August 2015 shows that 'Watershed primary school in Mangwe District, Matabeleland South recorded a low pass rate of 10% due to inadequate classroom facilities.' (p. 26)

However, the government of Zimbabwe has recently entered into a partnership agreement with the Chinese government to promote the construction of secondary and primary schools across the country.

Apart from constructing schools, the existing secondary schools need continuous monitoring and maintenance. In as

much as the government has embarked on STEM to promote and encourage students to enrol on STEM subjects at 'A' level, the current state of infrastructure in schools should be assessed to ascertain the feasibility of the programme. On analysing data provided by MOPSE annual statistical report (2013), it was found that 90% of Zimbabwe's schools are located in rural areas. Considering the general state of infrastructural development in the rural areas, it is crystal clear that majority of rural schools have hardly any or dilapidating facilities, some of which warrant demolition as they pose a threat to teachers and students. For the effectiveness of quality education and success of STEM, schools should have well-equipped classrooms, laboratories, libraries, staff rooms and toilet facilities to spare children from adverse health and safety implications. According to a research carried by Zvavahera (2015), 90% of schools in Makoni District do not offer science subjects because of unavailability of laboratories.

Although a lot has been said in recent times about STEM education in Zimbabwe, not much scientific research has been done on establishing the context in which STEM education is delivered, identifying the challenges faced in the delivery of STEM education, investigating opportunities for the enhancement of STEM education and identifying the magnitude of STEM research in Zimbabwe. This study sought to pursue research gaps in STEM education in Zimbabwe.

■ Statement of the Problem

In Zimbabwe, STEM education was introduced in January 2016 in high schools. These schools catered for 35% of secondary schools in the country. Following the announcement by the Minister of Higher and Tertiary Education, Science and Technology Development to commence STEM classes on the opening day of Lower 6th classes by the first school term of 2016, the Minister of Primary and Secondary Education, Dr Lazarus Dokora, provincial education officers, district education officers, heads of schools

and teachers were left with no choice but to implement a defective, ill-conceived and unproductive programme. What boggled the minds of these people was the fact that there was no (Dokora 2015a):

> [B]aseline survey to inform the introduction of STEM and neither [*was*] there a clear implementation policy, let alone a committee on STEM education working to create a joint national strategy for implementation. (n.p.)

The staff to implement STEM in high schools were the same trained professionals who were baffled by the minister's announcement amidst unpredictable salaries from the government. It is against this background that this study seeks to examine the impact of STEM education in Zimbabwe's high schools.

■ Purpose and Objectives of the Study

The study sought to examine the impact of STEM education in Zimbabwe's high schools as perceived by heads of schools, teachers and students. Specifically, the study is aimed to (Gadziray et al. 2016):

- [*d*]escribe the status of STEM education and the context in which it is delivered
- [*i*]dentify the challenges faced in the delivery of STEM education as perceived by the Heads of Schools, Heads of Departments, teachers and students
- [*f*]ormulate recommendations on strategies that can form the basis for evidence-based policy improvements on STEM education in Zimbabwe's high schools. (n.p.)

■ Operational STEM Conceptual Framework

In this study, STEM is taken to mean Science, Technology, Engineering and Mathematics disciplines, a pedagogical approach, a people's value system and a way of life. This desk research looked at the STEM policy position, curriculum choices

and industry roles in STEM education. STEM is viewed as a key driver of economic growth, especially in the primary economic sector.

■ Methodology

The population for this study consisted of programme implementers (heads of schools, heads of departments and teachers) and students. Data on the impact of STEM education in Zimbabwe were collected from a range of participants as mentioned earlier on. Individual interviews and focus group discussions were conducted in order to determine the official purpose of STEM education as conceptualised in policy documents, access to quality STEM services for the Zimbabwean child, capacity of service delivery systems in view of the STEM needs, the use of allocated financial resources in STEM education and strategies for STEM strengthening and pedagogy for improving STEM learning outcomes. On the research participants, the first category of participants was selected from three conveniently sampled high schools where focus group discussions were conducted with Lower 6th students who were the first recipients of STEM education. Another focus group discussion was focussed on STEM teachers, that is, those teachers who were fortunate enough to become the first teachers to teach STEM subjects in 2016. The average size of each of these focus groups was six participants (teachers or students) per school. Furthermore, individual interviews were also conducted with heads of schools and heads of departments of the same three sampled schools. The opinions were gathered from schools in Makoni District, Manicaland Province, Zimbabwe.

■ Interviews

Structured interview guides were prepared for the three categories of participants who were sampled purposively. The three categories were STEM teachers, STEM heads of departments and STEM heads of schools of the sampled schools.

These interviews were organised in such a way that they captured the information as depicted from the research objectives and research questions of the study. The major concern for having these interviews was to determine, from officials who were tasked with the implementation of STEM education, the context in which STEM status is being conceptualised as applied by heads of departments as well as heads of schools, and the challenges they are facing emanating from documents on STEM policies on gender, disabilities and access to learning materials. Again, interviews were designed to extract information conditions of STEM teaching, STEM learning materials and STEM infrastructure.

■ Focus Group Discussions

Structured focus group guide was prepared for STEM students (Lower 6th) and STEM teachers sampled from the three high schools. This guide was designed in the same way as interviews so that they became in sync with the research objectives and research questions of the study. This guide contained questions probing the status of STEM education and the context in which it is delivered by the teachers. Furthermore, discussions with teachers who teach STEM subjects provided information about the strategies teachers are using when teaching STEM, thus reducing the possible shortcomings of STEM education. They also looked at the general information about STEM education as published in public documents.

■ Reflexive Notes

This was done in order to understand the context in which STEM status is being conceptualised by both teachers and students in general. Reflexive notes were also aimed at determining the extent to which STEM education monitors the status of STEM teaching, learning materials and school infrastructure. Reflexive notes 'review refers to seeking facts, general information on a topic, historical background, study results, etc., that have been published or exist in public documents' (Bais 2016:21).

This information was obtained from the following sources amongst others:

- MHTESD and MOPSE planning documents
- parliament debates
- BUSE baseline reports
- high school documents.

◼ Results and Analysis

Education in Zimbabwe is viewed as the engine to current economic turnaround which is needed for economic emancipation in the country's development. In Zimbabwe, the aim of STEM education is 'to stimulate the generation of scientific and technological capabilities in all sectors of the economy, and thereby unleash the power of science and technology for national development' (Xinhua News Agency 2003). STEM education is, therefore, an attempt (Gadzirayi et al. 2016):

> [*T*]o transform the typical teacher-centred classroom by encouraging a curriculum that is driven by problem-solving, discovery, exploratory learning, and require students to actively engage a situation in order to find [*solutions*]. (n.p.)

The policy document for STEM education is coming through an upgrading of the Science and Technology Policy of 2005 which was 'updated to take into account new technological developments and address new national challenges that emerged around' 2012 (Government of Zimbabwe 2012). Zimbabwe now is moving towards mainstreaming STEM in its education system so that it can drive its economy hinged on science and technology as evidenced by the following policy pronouncements (Gadzirayi et al. 2016). During a parliamentary debate in October 2015, the Deputy Minister of Higher and Tertiary Education, Science and Technology Development, Godfrey Gandawa (2016a), said (Dokora 2015b):

> We have realized it as a problem that we only emphasize science and mathematics when pupils are now in secondary schools and therefore we will not be able to produce engineers, scientists, electricians

and so on because science and mathematics is required in those particular fields and those are the ones that develop the nation. It is in the best interest of the country that we make sure that every student who is enrolled in university has an appreciation of science and mathematics. The knowledge economy therefore, requires us to make sure that we create new industries and allow certain industries to die. We are actually going further to say, we are going to direct our universities to reduce the number of enrolment in terms of social sciences and humanities and increase our sciences, engineering and mathematics. It will take us a very long time because we have low uptake in our engineering and science courses in universities. As a Government, we are saying that these subjects that drive the economy and shape the future of a student must be compulsory. You must have science and mathematics. In 2014, the Ministry of Primary and Secondary Education launched the Teacher Capacity Development Programme, and I spoke about it here. It is underway and I am stocking it with an additional 2 500 teachers by the end of the year so that we have 5 000 teachers studying those disciplines. Under the new curriculum thrust, the Zimbabwean Cabinet is said to have agreed that Government must work at retention allowances for the mathematics, science and technical vocational teachers. (n.p.)

When the Minister of Higher and Tertiary Education, Science and Technology launched STEM education in 2016, identifying literacy and knowledge of key disciplines as the cornerstone of schooling for young Zimbabweans, he acknowledged that schooling should support the development of skills in cross-disciplinary, critical and creative thinking, problem-solving and digital technologies which are essential in all 21st-century learners. One of the school headmasters who was interviewed lamented that:

Reversing the trends in STEM performance will take time and effort across the country. Building young people's engagement in STEM is bigger than schools and what happens in the classroom. Education systems alone cannot overcome the pervading cultural norm that it is acceptable to be 'bad at mathematics' or 'not a numbers person'. (Zimbabwean Headmaster, Male, 2016)

From the Headmaster's point of view, there are many factors that affect student engagement in STEM. Underlying this are the views of the broader community and parents in particular – about the relevance of STEM, and the approach to the teaching and

learning of STEM from the early years and continuing throughout schooling. Connected to this is the way industry articulates the importance of STEM-related skills that extend beyond traditional STEM occupations.

Another school Headmaster revealed that:

> There is a general perception that students shun science and mathematics subjects yet the real issue is that there is no infrastructure that supports sciences especially laboratories and libraries in rural high schools. (Zimbabwean Headmaster, Male, 2016)

On elaboration, it was revealed that most laboratories and libraries in these schools are poorly equipped, and hence, they do not support STEM initiatives as promulgated by the government. Again, learning environment for sciences is not conducive because of the economic situation in the country.

Heads of departments and teachers when interviewed on increasing teacher capacity and STEM teaching quality had the following to say:

> Quality teaching is the key to lifting student engagement and performance in STEM education. Teachers need to be equipped with the skills and confidence to support STEM learning. The rapidly changing nature of technology, and the importance of real-world approaches to science education, makes this particularly challenging. Evidence suggests that some secondary school teachers lack confidence in teaching science and mathematics, particularly where they have limited expertise in these content areas. (Zimbabwean Heads of Departments and teachers, male and female, 2016)

On another note, one of the STEM teachers echoed lack of national collaborative actions which she mentioned as, 'Explore options for a minimum level of numeracy attainment for all students to demonstrate before leaving school, with a focus on proficiency levels over time' (Zimbabwean STEM teacher, female, 2016).

Increase the recognition of the subject load of advanced STEM subjects and encourage the uptake of advanced courses, for example, through university entrance bonus point schemes.

Because of lack of sound economic backbone, Zimbabwean high schools will not achieve anything with STEM. One of the teachers gave the following reasons:

> The government of Zimbabwe is failing, (1) to collect and develop online exemplar teaching modules, in partnership with university and industry, and (2) to assist in the delivery of best practice STEM teaching, including a focus on, for example, using coding to develop mathematical thinking and solve real-world problems, addressing identified weaknesses in numeracy arising from student performance, supporting the key progress points in the learning of mathematics and science, delivering project-based learning for STEM, using engineering and technological challenges to provide real-world context for projects, supporting the introduction of STEM concepts in the schools in general, establish a STEM professional learning exchange, in partnership with universities and industry, [and] to support schools and school systems by sharing best practice and identifying areas to help boost teacher confidence and capacity in the primary and secondary years, for example in STEM subject content, data analysis and programming. (Zimbabwean STEM teacher, undisclosed gender, 2016)

Another teacher who teaches STEM subjects in high school expressed that:

> To sum up the state of school infrastructure in Zimbabwe is long overdue for improvement and should be aligned to the STEM education, so that STEM education is accomplished by 2030. The low pass rates especially in the rural areas are directly linked to inadequacies in the infrastructural facilities which promote effective STEM education delivery and pose as a threat to both teachers and students involved in STEM education because some schools offer classes under the trees or in tobacco bans which compromises the quality of education. In this information era, the world is dynamic and changing at a faster rate which needs access to Internet to catch up, but the majority of Zimbabwean schools have limited access to computers and Internet facilities which compromises research and dynamism. (Zimbabwean STEM teacher, undisclosed gender, 2016)

A head of department for the STEM subjects posits that:

> There is a dearth of talents in the area of STEM Teachers as brilliant 'A' and 'O' level students opt for other professions other than teaching. For example, a BSc Student specializing in Physics, Chemistry,

> Biology and Mathematics would be a lower pointer at 'A' level. The high pointers would opt for professions such as medicine, engineering etc. The teaching profession has lost steam and hence no intelligent/talented student would opt to be a teacher. (Zimbabwean Head of Department, undisclosed gender, 2016)

The above comment reveals that although the government is claiming to be training more than 5000 teachers for STEM, currently there is a shortage of STEM teachers. What has emerged is that the majority of teachers who trained in science and mathematics subjects left the country to look for work in diaspora as echoed by Chimbodza (2012).

From the focus group discussions done by Lower 6th students who were involved in this study, the following perspectives were revealed:

- Career guidance on STEM education was never done during our 'O' level time.
- STEM education was hinged on payment of fees for students doing STEM subjects without looking beyond the needs for fees.
- Negative attitudes were observed from some students towards learning sciences. Some of the interviewed students indicated that they did not opt for Science subjects because of the fear that they might fail the subjects because of scarcity of resources for STEM education.

■ Conclusion

'There was no single document that spelt out the official purpose of the [STEM] education program in Zimbabwe's high schools' except pronouncements by the minister, Jonathan Moyo (Mupinga et al. 2005:81). In addition, the statements of objectives in the STEM subjects' syllabi followed the conventional science and mathematics syllabi and became (Mupinga et al. 2005):

> [*U*]nclear, provided mixed messages, and were confusing on the exact purpose of the program. At the moment, the exact purpose of the [*STEM*] education program in Zimbabwe's high schools is not well defined. (p. 81)

Therefore, the MOPSE in Zimbabwe (Mupinga et al. 2005):

> [N]eeds to spell out the desired purpose of the program, check and correct the mixed messages, as well as provide policy documents that clearly spell out the purpose of the [*STEM*] education program in high schools. In addition, once the desired purpose has been spelt out, there is [*the*] need to direct adequate resources toward the desired purpose rather than focusing on the payment of school fees only. (p. 81)

■ Recommendations

The results from this study are important for the future and smooth operation of the STEM education programme in Zimbabwe. In particular, the following recommendations should be done to make headway for STEM in Zimbabwean high schools:

- developing sound programme purpose as outlined in the policy documents of other countries with the interpretation of the programme implementers can help adjust the direction of the programme
- measuring differences in interpretation of policy documents may reveal mixed messages or lack of clarity in the official documents
- measuring the perceptions of the different programme implementers can help identify what group of STEM education professionals is out of line and needs in-service training.

■ Summary

This chapter examines the impact of STEM education in Zimbabwean high schools. One perspective on STEM suggests that 'those who ignore STEM will indeed run out of wealth of relevant knowledge, skills and natural resources before they themselves run out of life, both personal and societal' (Gandawa 2016b). STEM education serves numerous purposes ranging from creation of and facilitating access to advanced scientific and technological opportunities and skills, linking the frontiers of the Internet of Things (IOT) through funded entrepreneurship for country's future generations of wealth creators. This study

examined the impact of STEM as outlined in curriculum documents and as perceived by the teachers and students. Data were collected from policy documents and teachers of STEM subjects, HODs, heads of schools and students using interviews and focus group discussions. Lack of clarity and differences between the purpose as viewed by ministry officials and teachers and that in the official documents were found. The study recommended that the MOPSE:

1. take a position on STEM
2. check and put in place appropriate policies to correct the mixed and over-emphasised messages regarding STEM
3. mobilise and direct resources towards the STEM programme.

Metacognitive Sentience for Impact-Making Research in Curriculum Studies: Mathematics Education as Case in Point

Divan Jagals
Curriculum Studies
North-West University
South Africa

■ Introduction

■ Background and Problem Statement

To understand the constructs that emerge from the holistic education movement, the identified meta-themes as foci of educational research, and to join them together within the field of curriculum studies, a broader understanding of their role in the movement towards holistic education is necessary, which in turn would require some consensus in terms of the conceptual overlaps between these ideas. Not only this but also theorisation is needed about their unique conceptual relationships. What follows is a discussion based on these relations to show the emergence of a research focus that educators and educationists can apply to design, develop and implement the curriculum in a way that will adhere to their own particular teaching and learning perspectives (Pratt 2002), yet still remain cognisant of the guidelines and principles offered by these focus points towards holistic education. One claim that is made in this chapter is that these seemingly diverse research constructs share the quality of metacognitive sentience, a term conceived here to refer to the condition in which research elaborates on research problems and findings in the field of curriculum studies to master and support the holistic nature of education in South Africa by sensing the importance, inclusion and/or absence of metacognition within the curriculum.

The characteristics of the holistic education movement are outlined in Table 7.1.

In spite of the movement towards holistic education, not all is well on the South African education front. It is argued here that issues in the curriculum are symptoms of an underlying problem with the Philosophy of Education in South Africa. Take, for example, the numerous problems in the public as well as the private sphere that show a decline in standards of knowledge, reduced criteria for social promotion and a general distrust in the quality of education. Major issues such as illiteracy, school decline and school dropouts are reflections of this dualistic problem, namely, that the deeper

TABLE 7.1: Comparison between holistic education and mechanistic curriculum.

Ideological questions that the curriculum theorists can ask	Mechanistic curriculum	Holistic curriculum
Content (What do we teach?)	Interdisciplinary skills, values and knowledge that are fragmented, systemic with the development of thought and focussed on different subject disciplines in a static predetermined curriculum	A transdisciplinary approach to the integration of skills, values and knowledge that is holistic with the development of intelligence focussed on human knowledge in an open, dynamic curriculum
Method (How do we teach?)	Following a scientific–dogmatic reductionist model in academic disciplines with a mechanistic psychology that emphasises superficial behaviour based on the mechanistic science of Descartes, Newton and Bacon	Following a secular–spiritual and integral model in an inquiry-based approach and perennial psychology to establish profound changes in awareness based on the cutting-edge science of Bohm, Prigogine and Pribram
Assessment (How do we test?)	Based on bureaucratic organisations of logical-mathematical intelligence with a summative assessment focus within a paradigm of simplification	Content assessment – tests and examinations are refined with a formative assessment focus across a variety of intelligences (e.g. kinaesthetic, aesthetic and spiritual) within a paradigm of complexity

theory and philosophy that drives education and the overarching curriculum models and policies that promote an education utopia are not on par with the social and political transitions that are taking place in the country. Part of this dismal scenario is the murky view on what the curriculum is, who it should cater for and what it should do (Dillon 2009), followed by a force to develop holistically metacognitive awareness and enhancing self-directed learning characteristics (Jagals & Van der Walt 2018). Then there is also the need for a bridge, or a conceptual bridge at least, to cross from the mechanistic to the holistic view as these seem to be two different polarities of education. Based on this reasoning, it seems that South Africa is not on the road to a holistic education approach as the pendulum of curriculum development keeps swinging back to a mechanistic approach, as the discussion that follows shows.

In addition to the holistic movement, some background to the education system of South Africa is also needed to evaluate

the movement in this country. Table 7.2 offers an overview of the shape of the current Continuous Assessment Policy Statement (CAPS) curriculum employed. The particular examples that follow include the content area taken from the CAPS for school Mathematics offered by the South African Department of Basic Education (SA DBE).

In light of the context described above, this chapter offers a discussion to inform about the research conditions under which the curriculum is designed, developed, implemented and evaluated (either mechanically or holistically). The discussion is based on the notion of the underlying sentience of metacognition, a logic sentiment that is located within the metacognitive ideology within the curriculum (for an elaboration on this ideology, refer to Jagals & Van der Walt 2018). In the sections that follow, examples of research conducted on the constructs

TABLE 7.2: The shape of the South African curriculum.

Education Band	Phase	Grades and Ages	Type of School	Mathematics Curriculum: Content Areas
General Education and Training (GET)	Foundation	Grades R–3 Ages 6–10	Primary	1. Numbers, Operations and Relationships 2. Patterns, Functions and Algebra 3. Space and Shape (Geometry) 4. Measurement 5. Data handling
	Intermediate	Grades 4–6 Ages 9–14		
	Senior	Grades 7–9 Ages 13–17	Primary: Grade 7 Secondary: Grades 8 and 9	
Further Education and Training (FET)	Further Education and Training (Excluding FET colleges)	Grades 10–12 Ages 15–19	Secondary	1. Functions 2. Number patterns, sequences and series 3. Finance, growth, and decay 4. Algebra 5. Differential calculus 6. Probability 7. Euclidean geometry and measurement 8. Analytical geometry 9. Trigonometry 10. Statistics

Source: SA DBE 2011 (as summarised by Jagals & Van der Walt 2018).

of metacognition, self-directed learning, holistic education, the unique education philosophies and approaches within the context of the South African curriculum, metacognitive sentience is conceptualised as a sense of knowledge and regulation of the self within the holistic education movement. Examples of the metacognitive sentience can include the notion of planning, monitoring and evaluation that is fostered throughout the curriculum (or a lack thereof), as well as knowledge of the self, knowledge of others, as well as the task and the strategies to know (Efklides 2011; Flavell 1979). The following research questions serve as an outline for this discussion:

- What are the dominant constructs of educational research focus in curriculum studies?
- What is the nature of the relationship between the *focus* of education research and the *direction* of curriculum studies in the context of mathematics education?
- How do the constructs of educational research focus in curriculum studies inform metacognitive sentience as an emerging component of the holistic education movement?

To answer these questions, the discussion is conceptualised and applied to samples of research on the constructs of worldviews, self-directed learning, spirituality and metacognition within the context of curriculum studies in South Africa.

■ Overview of the Literature on Curriculum Studies

The emergence of a relation between the state, education and the purpose of the curriculum has been researched extensively (Becker & Du Preez 2016). What we ought to take into consideration in education is the usual humdrum that 'every child matters', followed by the so-called 'no child left behind movement', or a 'learner-centred approach'. Even so, worldwide, there seems to be a different ideological movement rising, as if education's dogma is in a different direction. Surely, the constant rise of illiteracy statistics, amongst other issues (Ferry 2013), seems to be accommodated by

the emergence of young people without certificates or qualifications for job opportunities. Furthermore, the high number of reported serious incidents in educational establishments can only be a sign of things to come. What then is the ultimate foundation of a vision of education for the world? Contradictory to the introduction's sentiment, we find ourselves in the midst of a counter-culture that turns school culture outmoded, accompanied by the myth of self-constructing knowledge and the belief that motivation precedes hard work (Ferry 2013). Curriculum studies can serve as an indispensable tool for education to transform society and the 21st century ideas that surround its structures. The sustainability issues threatening civilisation are complex with increasing interdependence and multifaceted nature therefore demanding the coordination of, and cooperation between, education within the public as well as within the private sphere.

Firstly, a brief description of the construct of curriculum studies is given, together with a discussion on the link between metacognition, self-detected learning and worldviews within a holistic education context. This is followed by a discussion on the nature of the relationships between these constructs and their implications for future research.

■ Development of the Defining Concept of Curriculum Studies

Schwab (1983) conceptualised the term curriculum as follows:

> Curriculum is what is successfully conveyed to differing degrees to different students, by committed teachers using appropriate materials and actions, of legitimate bodies of knowledge, skill, taste, and propensity to act and react, which are chosen for instruction after serious reflection and communal decision by representatives of those involved in the teaching of a specified group of students who are known to the decision makers. (p. 240)

Other definitions imply a change in how the curriculum is viewed owing to a change in the accommodation of the changing needs in education. In ancient Rome and Greece, for example, masters and

scholars (teachers) instructed their followers (students) on what to read, as a form of incidental education. During the Renaissance period of the mid-1500s and early 1600s, education became more formal and organised. It was during the same time that scientists such as Copernicus, Kepler and Galileo made rapid advances to understanding the mechanics of the universe. These mechanistic views are further refined by Isaac Newton and seem to be the guiding template for education throughout the last century. More formal definitions of curriculum were developed later. The development of the concept of curriculum as a field of study, or curriculum studies, is mainly influenced by the worldview of the curriculum theorists. Figure 7.1 shows these prominent theorists as premodern theorists, modern theorists and postmodern theorists.
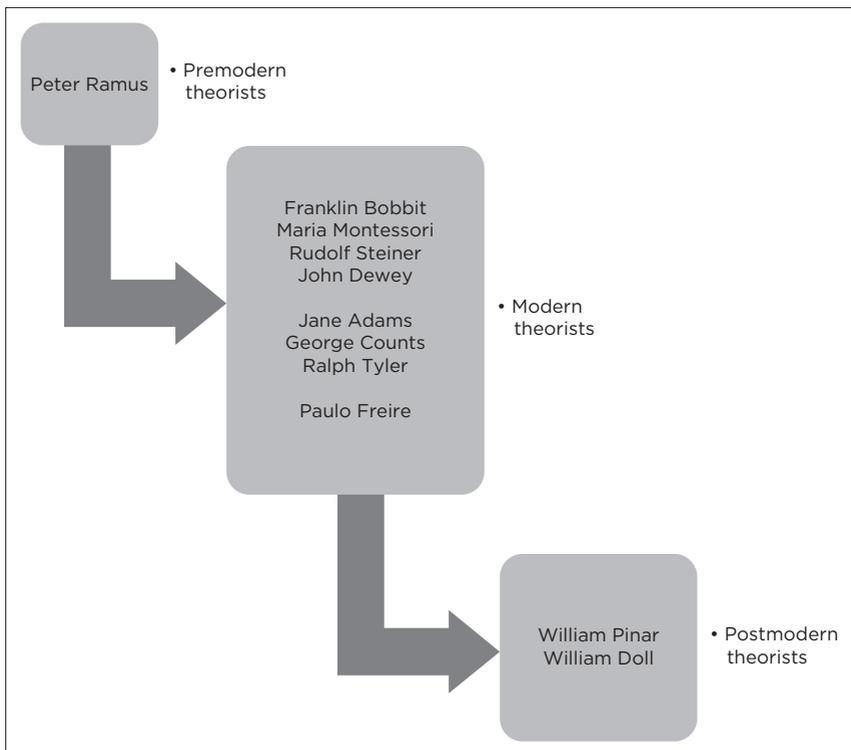
Source: Adapted from Du Preez 2014.
FIGURE 7.1: Influencing worldviews of prominent curriculum theorists.

Based on the transition from one worldview to another, it is apparent that the definition of curriculum will change. Li and Kulm (2009) define the curriculum studies as the attempts:

[*T*]o reveal the expectations, processes and outcomes of students' school learning experiences that are situated in different cultural and system contexts […] further studies of curriculum practices and changes are much needed to help ensure the success of educational reforms in the different cultural and system contexts. (p. 709)

Breault and Marshall (2010) explain that:

[*F*]or more than a century, curriculum scholars produced new working definition of curriculum creating the field's definition largesse. However, definition do[*es*] not come from curriculum scholars alone: every pedagogue, parent, pundit, policy maker and politician has one too. Today's conflicting definition reflect the different vantage points from which curriculum is engaged with as well as different philosophies and foci regarding the relationship between schools and society […] the multiplication of curriculum definitions is not an urgent problem to be solved, but rather a state of affairs to be acknowledged as inevitable. (p. 179)

■ Curriculum Studies Research in the Context of South Africa's Mathematics Education

From both media and research reports, South Africa continues to struggle to compete against other countries for success in education. Even after nearly 20 years of democratic freedom, there still exists separation amongst functional and dysfunctional schools. This separation does not reflect a democratic ideology, and one gets the sense that the non-appearance of metacognition within the curriculum creates a shadow space for curriculum studies through the emergence of metacognitive sentience. Some brief examples follow to elucidate this claim.

■ Current and Future Directions of Curriculum Studies

Recent research in curriculum studies seems to require different ways of thinking about teaching and learning. In attempting to make teaching and learning more holistic, we need to prepare a new generation of self-directed teachers for this new era. Many educators have discovered the value of metacognition (Schoenfeld 1992); however, what is still lacking is the creation of a culture of thinking, and that is the best way to develop one's metacognition.

■ The Traditional, Transitional and Transformational Curriculum

There are different movements in the South African education system, each with a particular context, content and specific requirements from the teacher and the learner. These movements are mainly the effects of different educational beliefs, political activities and paradigmatic alterations that have moulded the education landscape. Figure 7.1 contains a narrative of this movement starting with the traditional education system before 1996, which is before South Africa became a democratic country.

By conducting a simple Google Scholar online search with the key words 'Curriculum Studies' and 'South Africa', and with the searches custom-arranged within the identified periods, Table 7.3 can be compiled. The purpose of this table is to show what the research emphasis was during the particular movement in South Africa's education system. The keywords or phrases in the second column are sampled from the examples of sources in the third column. The purpose of the keywords or phrases is to show what the focus of educational research activities was during this period.

■ The traditional curriculum

Before 1996, South Africa's Department of Education was decentralised according to a code of race (e.g. black people,

TABLE 7.3: Research emphasis during the movements in South Africa's education system.

Movement in South African Education System	Alignment with mechanistic and/or holistic education
Pre-1996: The Traditional Curriculum **Context:** Pre-1994 – different decentralised Departments of Education (white people, Indians, people of mixed race and black people). **Content:** Syllabus-type curriculum; content clearly specified with two levels of mathematics, namely, one for furthering studies at tertiary-level and one for learners who choose four subjects for further studies. **Teacher:** Traditional textbook-based talk and chalk, teachers unqualified or under-qualified, meaning some teachers teach with Grade 8 as the highest qualification. **Learner:** Recipient of knowledge and tests and exams; performance-oriented. **Language of learning and teaching:** Afrikaans and/or English. **1994–1996 Interim curriculum:** Centralised Grade 12 examination, based on previous curriculum.	Curriculum reconstruction in postcolonial Africa identity politics Critical pedagogy Multicultural discourse Curriculum reform.
1997–2004: The Transitional Curriculum (1): Outcomes-based Education Curriculum **Context:** Post-1994; Curriculum 2005 (Curriculum 2005) was an outcomes-based curriculum launched and implemented since 1996–1997; centralised education approach; the ideology, content and pedagogical approach contrasted strongly with the design principles in previous and later curricula. The curriculum was open-ended; unresourced or under-resourced schools, such as schools in deep rural areas with no electricity. Schooling from ages 7 to 15 or through Grade 9 is compulsory. **Content:** Design principle: learner-centred and activity-centred and resource intensive; no clear guidelines of activities, facilitating activities or content; standards described what a learner should know and can do; not very directive and complex to implement; content not clear. The role that language plays in expression, development and contestation of mathematics is emphasised (DoE 1997): advancement of multilingualism. **Teacher:** Facilitator of learning; design and develop activities for the specific needs of learners in his/her classroom. Challenges: unqualified or under-qualified teachers; not trained adequately for Outcomes-Based Education. Solution: teachers get opportunity to further qualifications and resources to be provided by Department of Education. **Learner:** Work effectively as individuals and with others as a member of a team; solve and pose problems; language is important. Learners' under performance in international (TIMSS) and national assessment is a great concern. In 2002, owing to wide criticism and challenges, this curriculum was revised.	Action research In-service programmes for teachers Autonomy and accountability of the teacher Curriculum theory.

TABLE 7.3: (Continues...): Research emphasis during the movements in South Africa's education system.

Movement in South African Education System	Alignment with mechanistic and/or holistic education
2004–2011: The Transitional Curriculum (2): National Curriculum Statement (NCS) **Context:** Under-resourced schools **Content:** Curriculum reconstructed – simplified the outcomes statement and implemented in 2004. Design principle – elements of teacher-centred approach; more guidelines provided; however, content still not clear; basic skills emphasised, content knowledge and Grade progression added. **Teacher:** More direction about content and assessment; unqualified or under-qualified teachers; teacher overload; teachers not trained adequately in Outcomes-Based Education. Government and Department of Education provide opportunities for teachers to further or improve their qualifications. **Learner:** Underperformance in international assessments but performance in national assessments (Grades 1–6 and 9) and Grade 12 seems to have increased. Considerable wide criticism of various aspects of implementation.	Integrating indigenous knowledge with the school curriculum Continuing teachers' professional development Reproduction of social class inequalities curriculum alignment and globalisation Attitudes towards the use of computers in primary and secondary schools.
2012–present: The Transformational Curriculum: CAPS (Current Curriculum in South Africa, Also Called the Revised National Curriculum Statement [RCNS]) **Context:** About 20 years of democracy; learners still underperforming in mathematics assessments. **Content:** Syllabus-type curriculum; increasingly filled with subject content and clearly specified order of teaching the topics in each Grade; provides brief summary of the principles underlying the approach; examples to clarify and descriptions of cognitive demand are provided in detail; performance-oriented but not how and when to integrate skills in subject content. **Teacher:** The type of teacher envisioned not mentioned; teachers are left minimum choice for creativity, are provided with lesson plans; traditional textbook-based talk and detailed directions for tests and exams. **Learner:** The learner's role has shifted from a participant in the learning process and a negotiator of meaning to a recipient of predetermined knowledge; tests and exams: performance-oriented; turned back to technical, traditional teaching and learning.	Addressing inequality in mathematics performance Teacher professionalism in post-apartheid Mobile seamless learning Features of schools in multiple deprived communities Consciousness and the experiences of information processing.

Source: Adapted from Jagals and Van der Walt 2018.

people of mixed race, Indians and white people), where each race was allocated to its own department of education. The curriculum was a temporary syllabus-type between the years of 1994 and 1996, an amended form of the 1983 national curriculum. Each Grade 12 learner wrote the same examination papers (Engelbrecht & Harding 2008). Between 1994 and 2014, the various development–implementation–revision cycles required the education policy to systematically change (SADBE 2011).

■ The transitional curriculum

After the first democratic election in 1997, Curriculum 2005 was implemented and diverged from the traditional curriculum in terms of its philosophy, content and educational approaches (Grussendorff, Booyse & Burroughs 2014). This curriculum was based on the outcomes-based education (OBE) model which promoted learner-centred, activity driven education and the integration and application of content across disciplines (Grussendorff et al. 2014). This system allowed for a transition towards more emphasis on satisfying various life-roles, mastery learning and time permissible for quality teaching and learning experiences.

Teachers acted as facilitators of learning, where learners were required to be metacognitively competent. The importance of this construct as an implied curriculum incentive also featured across different academic publications in the field of mathematics education. The aim was 'to emancipate learners and teachers from a content-based mode of operation' (Botha 2002:5). Furthermore, a holistic set of outcomes was advocated towards developing the whole child. What was lacking in this transitional curriculum is adequately trained teachers.

■ The transformational curriculum

The South African Department of Education supported the radical shift in education to implement the CAPS curriculum,

without considering a more gradual change. One could say that the transformed curriculum is what was seen as the ideal curriculum for South Africa, at that particular moment. Despite the emphasis on knowledge, the current curriculum seems to be more focussed on teacher centredness, as a rigid shift from the outcomes-based models on which the transitional curriculum was based. The following aspects of what makes a quality curriculum are important. Firstly, a curriculum requires a planned and systematic phase, followed by an inclusive and a consultative phase led by curriculum specialists. The curriculum development process should also be seen as a cyclical process where these phases are constantly being monitored to ensure that the curriculum is sustainable. What seems to be lacking in CAPS is the emphasis on metacognition as a conscious skill which can be taught (Jagals & Van der Walt 2018). This necessitates more research into the field of consciousness in the curriculum; a theory of sentience, for that matter, is emerging.

■ Constructs emerging from research emphasis

In addition to the narrative of research emphasis during the movements in South Africa's education system, Table 7.3 also demonstrates the emergence of constructs in a holistic education movement. These constructs are discussed below.

■ Worldviews

I begin the argument with reference to the four skills of Schoenfeld (1992) for this awareness:

1. the individual's knowledge
2. the use of strategies
3. the monitoring of performance
4. the belief system of the individual's level of success. (n.p.)

These skills link closely with what Flavell (1979:n.p.) refers to as 'metacognition', or being aware of the nature of one's own and

others' knowing. Also, the argument is underpinned by the educator ideologies identified by Ernest (1993), including an industrial trainer who does not promote this metacognitive thinking, a technological pragmatist who does not necessitate a belief in one's own success, nor does the old humanist view leave a sense of wonder about one's own knowing. We are left with either a progressive or public educator, who has the potential to create opportunities for play and discovery, and debate the needed knowledge or skills (Jagals & Van der Walt 2018). Both these ideologies seem promising for what the current curriculum in South Africa offers, yet the element of one's thinking in the curriculum is only vaguely implied or absent in the curriculum documents. Jagals and Van der Walt (2018) further argue that without much conviction, any means or promises that can dissolve this mood of metacognitive dis-sentience is welcomed. Further initiatives in this theme of educating include the fostering of 21st century skills, such as metacognitive awareness, self-directed learning, holistic education and the underpinning ideologies of the educator as philosophical views on education. The fact is that all the statistical figures for the South African education system are showing warnings signals, a sign of things to come.

Olthuis (1985) explains worldviews as 'visions of life'. Bishop and Van der Walt (2010) define a worldview as a framework of fundamental considerations which give context, direction and meaning to our lives. It is an essential ingredient in society and it justifies our actions. It is a comprehensive unified system of thought. A worldview is a framework of fundamental beliefs of which one is actively aware of. Some examples include traditionalism, modernism, postmodernism and an integrated worldview. Issues in education usually have its roots in the collision between the ideas on which these worldviews are based. We can hypothesise (assume) that issues exist because of conflicting worldviews.

■ Spirituality

In addition to Knowles's publication on self-directed learning in 1975, Knowles makes a remarkable statement in *The Adult*

Learner (1973): '[T]he individual is an energy system with modifiable intelligence, and possesses an inertial guidance for self-feedback and motivation, and this is in continuous activity' (Knowles 1973:103). This statement does not only suggest spirituality's link with self-directed learning but also implies that metacognitive awareness of this capacity to self-transcend is needed. Although there are many definitions for spirituality, for the purpose of this research it will be defined in light of the work by White (1996) as that:

> [*W*]hich fosters higher forms of human consciousness through the expression in aspirations, moral sensibility, creativity, love and friendship, response to natural and human beauty, scientific and artistic achievement and physical activity, selfless love and a quest for meaning and for values by which to live. (p. 34)

On a basic level, this definition relates to Knowles' (1975:19) definition involving '(ii) diagnosing their learning needs'.

◼ Metacognition

As metacognition is generally seen as the awareness and directing of one's own cognition, it includes cognition about skills, strategies and feelings (Efklides 2011). Metacognitive experiences therefore occur when the cognition (e.g. knowledge about problem-solving strategies) is controlled (Legg & Locker 2009:473). 'Metacognitive awareness refers to reflecting on understanding and regulating knowledge. It needs the willingness, freedom, energy, and time to expose ourselves to the exotic, move around [...]' (Schraw & Moshman 1995:185; Jagals & Van der Walt 2018). Students have to be enabled to engage and experiment with reality, in order to develop this power. From these examples, there seems to be a strong parallel between awareness and improved learning in an environment that promotes self-directed learning.

◼ Self-directed learning

All educators and education 'professionals are now expected to be self-directed learners, in which they take responsibility and

own initiative to direct their learning activities' (Sandars & Walsh 2016). The subject or theme of self-directed learning has received much attention during the past five decades. According to its pioneer, Malcolm Knowles (1975), self-directed learning is a broad term for:

> [*A*] process by which (i) individuals take the initiative, with or without the assistance of others, in (ii) diagnosing their learning needs, (iii) formulating learning goals, (iv) identifying human and material resources for learning, (v) choosing and implementing appropriate learning strategies and (vi) evaluating outcomes. (p. 19).

Yet, this general use of the term 'self-directed learning' has recently started to provoke educationists and researchers to (re)-conceptualise the term for themselves in a more coherent and applicable sense.

The work of Knowles, Holton and Swanson (2012:64), for instance, reflects on the persistent confusion surrounding the meaning of 'self-directed learning'. Thereby, uncertainty remains as to what the conceptual, theoretical and methodological nature of self-directed learning is, and how it can be theorised about to facilitate quality classroom experiences and deep learning that this process envisages. In particular, it is regarded as a process (Knowles 1975), concept, characteristic or theory across different research domains. As a result of this, doubt can be created regarding what is meant by self-directed learning and result in epistemological turmoil if the ontological and methodological nature of self-directed learning is not clear or at least philosophically grounded in a particular argument, paradigm or theory. Take, for example, a case where English (2000) explains that self-directed learning is a strategy that assists in the development of one's spirituality. Other examples that also rise from such inconsistent understandings about the nature of self-directed learning include:

- distinguishing between what is conceptual and contextual about self-directed learning
- the importance of its theoretical and even pre-scientific assumptions and propositions

- the self-reflective language through which self-directed learning is assessed in research instruments
- the anticipated overarching goal(s) of choosing to implement and foster self-directed learning in one's own teaching and learning, to name but a few.

Considering the notion that self-directed learning is characteristic, then, of learners who excel in lifelong learning, even in non-academic environments (De Beer & Mentz 2016), it seems indispensable to understand and negotiate the meaning and true nature of what it means to become self-directed, and what this process entails for education.

Against this backdrop, there is another, almost parallel, emergence in education theory, policy and practice that considers the embracing of human wholeness through a holistic educational paradigm (Miller 2005). 'Holistic education attempts to nurture the development of the whole person, including the intellectual, emotional, physical, social and aesthetic, and spiritual qualities' (Stern 2017:n.p.). Such a vision on wholeness moves away from a mechanistic, interdisciplinary, systemic and quantitative dimension of learning towards a more encompassing, holistic, transdisciplinary, integrated and internally quantitative and qualitative style. In this sense, holistic education becomes a 'pedagogy of compassion' and requires creativity, spiritual activity and soul in the holistic learning process. These ideals would require of teachers to educate and model wisdom instead of information (Moore in Miller 2005). To do so, a variety of teaching and learning mechanisms could be employed whereby the following serve as a mere list of examples from past research:

- Japanese Lesson study practice in undergraduate courses whereby pre-service teachers plan, deliver and refine lessons cooperatively
- the infusion of a pedagogy of play – borrowed from the Latin conception of *homo ludens*.

It then becomes apparent that both self-directed learning and holistic education need to be intertwined in the 21st Century

classroom, whereby it transcends learning experiences beyond the self, to become lifelong learners who can adjust to the changing environment. Such ideas would require a very active and individualised idea, or philosophy rather, with which to communicate the processes and the necessary support for self-directed learning. This is not only true for the enhancement and fostering of self-directed learning capacities of the individual but also for the conceptualising of the term itself and rationale for its use.

Research into the conceptual relationship between holistic education and self-directed learning is therefore necessary to gain more clarity about the nature and meaning of the term 'self-directed learning', and how the application of the self-directed learning process can synergise a deeper form of self-learning. This necessitates a philosophy to capture the essence of the 'self' in learning and how this self transcends into becoming 'self-directed'. Such a philosophy would aim to understand the nature of self-directed learning through its overlapping qualities of metacognitive awareness and particular worldview, and to interpret (holistic) education models and ideas in its research methodology, theoretical frameworks and practical strategies. The project then aspires to resolve this conceptual turmoil proclaimed by self-directed learning's epistemology by proposing a self-transcendent philosophy of self-directed learning.

Self-directed learning has the potential to cultivate spiritual development (English 2000). The term 'self-directed learning' can allude to a variety of aspects, such as accepting accountability for planning, monitoring or evaluating one's progress. Self-directed learning can also manifest as individuals frequently learn in association with others, in that learning is built cooperatively. Self-directed learning encourages self-advancement in the individual and focusses on expanding self-comprehension and mindfulness.

Collectively, the concepts discussed above inform the development of a conceptual framework, illustrated in Figure 7.2.
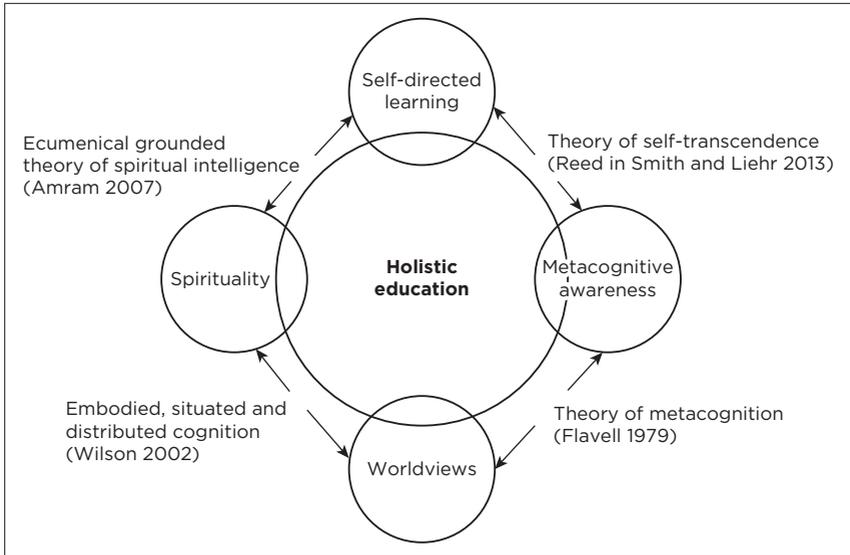
FIGURE 7.2: Preliminary conceptual framework.

The framework depicted in Figure 7.2 serves as a broad outline of the preliminary conceptual–theoretical framework and acts as a preliminary framework in the sense that the overarching themes of metacognition, holistic education and self-directed learning that have emerged from the discussion above will remain consistent. However, possible refinements are anticipated in each of the themes as further developments in the literature will evolve the framework proposed here. The framework is contextualised in, and by the Cultural Historical Activity Theory, seeing the curriculum and educational research as a culturally responsive activity. These dimensions are also suited to the theory of self-transcendence's notion of capacities (Reed 2014) as well as the ecumenical grounded theory of spiritual intelligence's sub-themes of directedness, awareness and transcendence (Amram 2007) to go beyond the individually directed self into an interconnected system of wholeness. The perspective of 'embodied cognition' is that cognitive procedures reflected upon through metacognitive

awareness are expressed by means of the body's communications with the world outside the mind (Wilson 2002).

■ Holistic education

A holistic approach to education welcomes teachers and students to learn by looking inside themselves in ways they can become aware of alternative forms of understanding. This includes the broadness and profundity of expressing and collecting ideas as a comprehensive way of learning. It suggests, as Knowles (1973:n.p.) wrote, that 'all education is self-education'. According to Huitt (2011), such an approach will require that all domains of self and learning become united, where the self and self-views are central to education:

> [*W*]ithin a multi-level sociocultural context – where family, school, religious organisations and friends, as well as the connections amongst them, provide the most direct influence on one's development, but that development is also influenced by larger social and cultural force – [*one of self-directedness*]. (n.p.)

■ Metacognitive sentience as an emerging focus in curriculum studies

In the theory of sentience (see Clark [2000] for a full disclosure on the theory), the environment, context or ontological state (i.e. space and place) provides the edifice in which experiences are structured. A space for unique developments within the education landscape can be found in South Africa, with its rich cultural and historical diversity. Similar to other countries, South Africa also developed a school system to meet the needs of a changing social order. Yet, there seems to be a struggle for a common curriculum in secondary education as this curriculum has its history in the first wave of curriculum theory which was empiricism, passed the heyday of idealism and turned towards an empirical constructive view. The meta-themes that have emerged from research across these periods have prepared the ground for the emergence of a new proposed research focus: metacognitive sentience. The theory of sentience explains that there exist different systems of mental

representations and that these representations are brought forward by consciousness of sensory qualities (e.g. see and feel) as well as understanding of these qualities. With regard to metacognitive sentience, if the educator is aware and has knowledge of the components of metacognition, that is the planning, monitoring and evaluating capacities, he or she can look out for these particular skills within the curriculum material. If these skills can be fostered in the classroom by means of the available curriculum (or not), then it suffices sensory or visible quality of metacognition. This includes the observation of metacognitive behaviours, as in the case of Jagals and Van der Walt (2016a). Efklides (2011) also reports on metacognitive skills of *feeling of knowing*, thereby referring to the feeling of metacognition being included (or left out) of the curriculum research. This includes overlooking new or valuable concepts that could (have) inform(ed) research in education, that was not previously available, as in the case of exploiting metacognitive networks by Jagals and Van der Walt (2016b).

In essence, metacognitive sentience is a philosophical theory of the underlying components of metacognition that one becomes aware of as visible or invisible, implied or explicitly implied, within the curriculum. This provides lens-like manifestation of theory that is needed within curriculum studies. The conceptual and theoretical frameworks discussed here support this claim and extends the theories of Pribram and Bohm (Joye 2016) to the field of education research in curriculum studies. This new proposed notion of metacognition can be observed with case examples as outlined in Table 7.4.

TABLE 7.4: Exploring metacognitive sentience as an emerging research focus with different tools.

Metacognition				
Metacognitive knowledge	Metacognitive (self-) regulation	Metacognitive awareness	Metacognitive transference	Metacognitive locale
Holistic education				
Affect	Intellectual and cognitive	Spirituality	Aesthetic Corporal	Social
Self-directed learning				
Concept	Process	Theory Model	Construct	Characteristic

Table 7.4 shows meta-themes of metacognition, holistic education and self-directed learning as emerging trends in curriculum studies. These meta-themes constitute sub-themes or categories, each on its own qualities. The meta-theme of metacognition consists of categories of metacognitive knowledge, metacognitive or self-regulation, metacognitive awareness, metacognitive transference and metacognitive locale. The meta-theme of holistic education comprises the categories of affect, cognitive, spiritual, aesthetic, corporal and social domains. The meta-theme of self-directed learning is reported on in such categories as being a concept, process, theory, model, construct and/or characteristic.

When applying, for instance, metacognitive awareness to research into spirituality using self-directed learning as a theory, unique education philosophies can serve as research tools or act as examples of research lenses through which the sentience of metacognition can be explored. What then emerges from this framework is the notion of the application of metacognition in holistic education towards the development, understanding and enhancement of self-directed learning across different locales. The locale serves as the space of social structure or environment which is the cornerstone of the theory of sentience (Clark 2000). This emergence is on par with the research trends and educational research foci as depicted in Figure 7.2 and Table 7.2. Towards a transformational curriculum, teachers' professional development, mobile seamless learning, consciousness and the experience of information processing, features of schools across communities and the addressing of inequality of the curriculum, all can be well researched through the sentience of metacognition.

South Africa is a country where equity, democracy and liberty are promoted in and through education – where everyone has the right to learn, regardless of gender, ethnicity, culture or language background (Jagals & Van der Walt 2018). Conditions refer to those elements that researchers focus on during their research and imply the circumstances under which the research conducted in curriculum studies are done. These could be particular values in the constitution or aims of the school policy.

These are examples of trends in the field of curriculum studies, particularly with an overarching interest which alludes to an ever-changing landscape.

Table 7.4 shows how the themes emerged from research in education. It is therefore suggested that these themes and sub-themes be scrutinised within the categories of research for impactful research in curriculum studies.

■ Conclusion

Educational research activities, particularly in the field of curriculum studies in mathematics education, are generally considered to contain key answers to research in the field. These answers are sought by curriculum theorists, developers and implementers. Learners have to be competent 21st century global citizens who demonstrate creativity, flexibility, adaptability, problem-solving and critical thinking. Aligning curriculum around skills necessary for employment in a global market place is very important. Educational research activities, such as those drawn in this chapter, have assisted as samples of research in the field to show what necessary foci have already been addressed. What has emerged from this chapter is a new conception of the need of metacognition research that has ideologically (Jagals & Van der Walt 2018) been overlooked. In this regard, the chapter offered a separation between the mechanistic and holistic education movements and elaborated on the particular movement South Africa's school curriculum fits in. This seemed to have changed on the grounds on which research tries to address particular public and political needs. The chapter conceptualises an emerging ideology of metacognitive sentience, a form of education ideology which justifies and directs future education and research initiatives by means of its focus, or lack of it, on metacognition and facets thereof.

A theory–practice relationship in curriculum studies is extended in terms of the holistic education movement, and the constructs that have emerged as meta-themes of research foci.

The construct of metacognition deserves considerable attention in the holistic approach, which is currently less amiable in the CAPS curriculum. The construct of holistic education also received more international attention, than in South Africa's public schools. The characteristics of self-directed learning, although explored in many occasions and contexts, seem to drive towards an enhancement rather than conceptualisation, and thus research in self-directed learning has diverse accounts of what this term means (characteristic, process, model, theory, etc.). What is important is that researchers should align their focus with these priorities. Not only will this lead to internationally competitive, transformed and representative research but also popularise mathematics as an attractive, applicable and accessible field to enhance scientific literateness and awaken awareness in sought after careers.

■ Summary

The context of South Africa's curriculum has seen profound changes over the last half of the century. Owing to these, the focus of research in curriculum studies has shifted from a linear and mechanistic view on education as an activity towards a more holistic approach to the design and implementation of the curriculum to proclaim education as a holistic experience. The intent of this movement is to establish quality education for all through refinement and adjustment to teaching and learning. As such it seems that this movement from a mechanistic towards a holistic education paradigm gives rise to some meta-themes of educational research foci. Some examples of these meta-themes include the rise of awareness regarding the worldviews in the Philosophy of Education, the fostering of Educational Psychology through development of self-directed learning characteristics, the integration of human rights and diversity in education through the inclusion of spirituality in education and the mediation of metacognition during cooperative, collaborative and problem-based learning, within blended learning environments. The constructs of worldviews, self-directed learning, spirituality and metacognition, all in some way, resemble examples

of research focus across the field of curriculum studies. Although they are by no means the only constructs being researched, each plays a mediating role in the shaping of holistic education of the country and, in turn, creates new areas for research and serves here as broad categories. The decision to concentrate on these particular constructs is because they exemplify a dominant role in curriculum studies research, as explained further in this chapter. As the field of curriculum studies is too broad to provide specific examples across all domains and subject areas in one chapter, impact-making principles and guidelines for educators and educational researchers are offered here in the context of mathematics education as a key area of interest.

THEME 3

Education Policy, Teaching, Supervising and Learning at Higher Education Level

Incorporating Active Teaching–Learning Strategies to Enhance Self-Directed Learning Within the Curriculum as Praxis: An Imperative for the 21st Century

Elsa Mentz
Research Focus Area Self-Directed Learning
North-West University
South Africa

Roxanne Bailey
Research Focus Area Self-Directed Learning
North-West University
South Africa

Marisa Verster
Research Focus Area Self-Directed Learning
North-West University
South Africa

Betty Breed
Research Focus Area Self-Directed Learning
North-West University
South Africa

■ Introduction

The skills and competencies necessary to cope in the 21st century are different compared to what they were in the previous century because of the rapid changes in technology and the availability of information. According to the South African Agency for Science and Technology Advancement (SAASTA 2010), information of a technical nature is more than doubling every two years. This implies that half of what learners[1] in a 4-year technical or college degree learn in their first year will be outdated by the time they graduate. Our educational landscape has, however, not kept up with the changes and new demands to equip learners with the skills and competencies they need to cope and flourish in an ever-changing environment. It is now more than ever necessary that they are guided to be self-directed, lifelong learners who take responsibility for their own learning. In the context of the curriculum, it is argued that reflection on the curriculum and action through the curriculum (described as the curriculum as praxis [Grundy 1987]) are necessary to deal with the challenges of 21st-century education. In this chapter, we make the case that the introduction of active teaching–learning strategies within the curriculum as praxis could enhance self-directed learning. Self-directed learning competencies are necessary for learners to cope with these changes and keep up with the challenges life (including but not limited to education) presents. Our primary research question thus was: 'How can self-directed learning be enhanced within the curriculum as praxis through active teaching–learning strategies?' In this chapter, we will also report on research findings derived from the implementation of active teaching–learning strategies to enhance self-directed learning, and how these findings could contribute to impacting the education scholarship in South Africa.

....

1. A learner is referred to as a person who is part of the learning process (Hornby 2010), regardless of context (tertiary or secondary education). We therefore use this term throughout the chapter to indicate any individual engaged in the learning process.

■ Twenty-first Century Skills: A Necessity Not Yet Reached in the South African Educational Landscape

'If we think the way we thought, we will get what we always got' (Radhoff 2011:110). These words ring especially true in the era within which we find ourselves. The reality of this era, the 21st century, is that the skills needed in previous centuries differ vastly from those needed in the 21st century (Noss 2012). Although 21st-century skills are sometimes explained as a new phenomenon, Rotherham and Willingham (2010) are of the opinion that these skills are not new at all. They continue to state that the extent to which these skills are needed in this era emphasises the reason why the focus has shifted so greatly to the development of 21st-century skills. In the late 1940s, it was expected that individuals who graduated from high school could be employed until retirement while only knowing 75% of what they needed to know. In the 1990s, this figure was reduced to 2% (Barth 1997). It is estimated that 65% of children in the USA will end up in jobs that have not yet been invented (Davidson 2012). Although we do not know what these jobs will be, they will certainly require the 4 Cs of the 21st century – collaboration, communication, critical thinking and creativity (Kereluik et al. 2013). Trilling and Fadel (2009) report on a study in which 400 hiring executives commented on whether they felt graduates were ready for the workplace. Unfortunately, the answer was that it is not so. These executives continued to note that graduates lacked several skills that were needed in the workplace: 'oral and written communications, critical thinking and problem-solving, professionalism and work ethic, teamwork and collaboration, working in diverse teams, applying technology, leadership and project management' (Trilling & Fadel 2009:7). The National Skills Development Strategy of South Africa (2011–2013) declares that a large percentage of young people leave secondary and tertiary education and enter the labour market

with inadequate skill levels and poor work readiness. The labour market requires skills such as 'leadership, emotional intelligence, problem-solving, communication, decision-making skills' as well as 'the ability to function in a multicultural environment' (Makhathini 2016:56). Makhathini (2016) continues to note that university graduates who do not possess these critical skills are not fully equipped as efficient employees. Three of the top characteristics required by employers in the 21st century are teamwork skills, communication skills and interpersonal skills (Binkley et al. 2012). From the noted scholars, some skills needed to survive in the 21st century include:

- collaboration
- communication
- critical thinking
- problem-solving
- creativity
- professionalism
- teamwork
- decision-making skills
- initiative
- ability to function in diverse contexts.

In the light of the fact that 21st-century skills have been deemed important and even vital in the age within which we live, schools need to be more deliberate about teaching these skills (Rotherham & Willingham 2010). Apart from schools, universities and other institutions are also responsible for supporting the 21st-century skills revolution. In this attempt, the university as we know it is not viable anymore (Chow & Leung 2016).

To prepare learners for the 21st century, scholars agree that the learners' 21st-century skills need to be developed (Larson & Miller 2011). As noted by Rotherham and Willingham (2010), Larson and Miller (2011) as well as Trilling and Fadel (2009), it is the responsibility of facilitators in the 21st century to foster these skills deliberately; however, discrepancies exist amongst scholars on what these skills exactly entail.

Trilling and Fadel (2009:49) are widely quoted for their comprehensive explanations on what 21st-century skills entail. Trilling and Fadel state that 21st-century skills can be divided into four domains (2009):

- [c]ore subjects and skills (reading, writing and numeracy)
- [/]earning and innovation skills (critical thinking, problem-solving, communication, creativity and innovation)
- [c]areer and life skills (collaboration and teamwork, leadership and responsibility, initiative and self-direction, flexibility and adaptability, social and cross-cultural interactions, career and learning self-reliance, productivity and accountability)
- [d]igital literacy skills (computing literacy, information literacy, ICT literacy and media literacy). (n.p.)

These skills are also emphasised by Larson and Miller (2011) although they distinguish between digital citizenship and technology operations.

In this new environment, it is no longer viable for teaching to be merely based on the transmission of knowledge in a lecturer-centred environment; lecturers as facilitators[2] continuously need to seek new ways in which learners can be prepared for their eventual place in the world (Perez-Navarro et al. 2016). When referring to definitions of 21st-century skills, it is evident that critical thinking, problem-solving, teamwork, innovation and self-direction feature strongly. The onus thus lies with the facilitator to ensure that these skills are fostered during the teaching–learning process. In this chapter, we specifically make a case for self-directed learning and note how placing the focus on self-directed learning enhancement within the curriculum as praxis can contribute to 21st-century skills development – an imperative that cannot be ignored anymore.

---

2. We refer to a person who is promoting and facilitating learning as a facilitator (e.g. the teacher or the lecturer).

■ Self-Directed Learning as Imperative for Success in the 21st Century

For an individual to cope in the 21st century, self-directed learning is needed as it prepares one to keep up with changes and be a lifelong learner – most importantly, it enables one to take responsibility for one's own learning.

Knowles (1975) defines self-directed learning as:

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

In the year 2000, Huey Long organised self-directed learning research in a meaningful way, structuring the progress it has made over the years. He categorises the definitions of self-directed learning into four conceptualisations, namely, sociological, technique, methodological and psychological (Long 2000). The sociological conceptualisation emphasises the learner as an individual and solitary learner who makes use of facilitators or other experts only for their skill or content. In the technique conceptualisation, self-directed learning is defined as a group activity. Long (2000) describes his third conceptualisation as the methodological conceptualisation. Here, ideas are based on distance education processes where the learner may experience self-directed learning in solitude (as with the sociological conceptualisation) or with the help of others (as with the technique conceptualisation).

The recently most debated and researched conceptualisation of self-directed learning is that of its psychological nature (Long 2000). The psychological conceptualisation focuses on the internal influences of self-directed learning as described in Long (1987). Long (1987) notes that it is likely that self-direction would be impossible if focus is only placed on the first three conceptualisations, which focus on the external influences. The psychological conceptualisation can further be broken into primary dimensions,

namely, metacognition, motivation and self-regulation (Long 2000). Metacognition describes our thinking about thinking, and in self-directed learning, we require awareness of our cognition during learning (Long 2000). Motivation can be either intrinsic, extrinsic or absent (Long 2000). Self-regulation or self-regulated learning, according to Zimmerman and Pons (1986) and Zimmerman and Schunk (2011), seeks to understand learners' ability to learn on their own as well as their motivation to do so. Zimmerman and Pons (1986) continue by saying that several categories are found in self-regulated learning, namely, goal setting, environmental structuring, self-consequences and self-evaluating. Long (2000) states that the quality of self-directed learning lies in the application of self-regulated processes.

In the psychological conceptualisation, Long (2000) identifies four secondary dimensions:

1. choice
2. competence
3. control
4. confidence.

Learners need to have the freedom of choice to select own learning strategies and resources while gaining competence in the fundamental knowledge and skills of the subject or task. In so doing, they have the opportunity to control their own learning by selecting from a number of alternatives. They should have the expectation of success, which contributes to feelings of competence and confidence.

Evidence of the psychological conceptualisation is also eminent from the work of Gibbons and Phillips' (1978) critical transition stages (decision, initial ecstasy, shock of recognition, crisis, realism, commitment, achievement, plateau and mobilisation), Grow's (1991) four stages of self-directed learning (learner as dependent, learner as interested, learner as involved and learner as self-directed) as well as Garrison's (1997) stages of self-directed learning, consisting of self-management (control), self-monitoring (responsibility) and motivation. They all describe the internal

manifestation of the learner when presented with a self-directed learning context.

Although it is the responsibility of the facilitator to set the stage for self-directed learning (Krabbe 1983), Long (2000) notes that if the learner does not illustrate intrinsic motivation, it is less likely that self-direction will occur.

From the above discussion on self-directed learning, it is clear that self-directed learning is a complex process that is influenced by various factors (facilitator, learner, teaching–learning strategies, environment, etc.), which influence the promotion of self-directed learning amongst learners.

Figure 8.1 illustrates a classroom where self-directed learning is enhanced, where the process described by Knowles (1975) (illustrated in grey in the diagram), the influence of the four elements (three described by Douglas and Morris [2014] and one added by Bailey [2016]) and the learner (as integral part of the self-directed learning enhancing context) are shown. Then, the learner is shown to consist of four psychological aspects (three primary dimensions of the psychological conceptualisation of Long [2000], namely, motivation, self-regulated learning and metacognition) and the transitional stage of self-directed learning (Gibbons & Phillips 1978; Grow 1991) in which they find themselves in.

Self-directed learning as an educational goal is not a new endeavour (Bolhuis 2003) and holds many advantages in several fields of study. This section will be focussed on illustrating the necessity of self-directed learning in education and, specifically, how self-directed learning and 21st-century skills relate.

Bolhuis and Voeten (2001) explain that self-directed learning is an important educational goal. This notion is emphasised by Birenbaum (2002) in what she deems to be the self-directed active learning pole of education that needs to be promoted as opposed to the external regulation pole, which is more frequently found in educational settings. Guglielmino (2008) notes that self-directed learning is a necessity as a result of our human nature (inquisitiveness
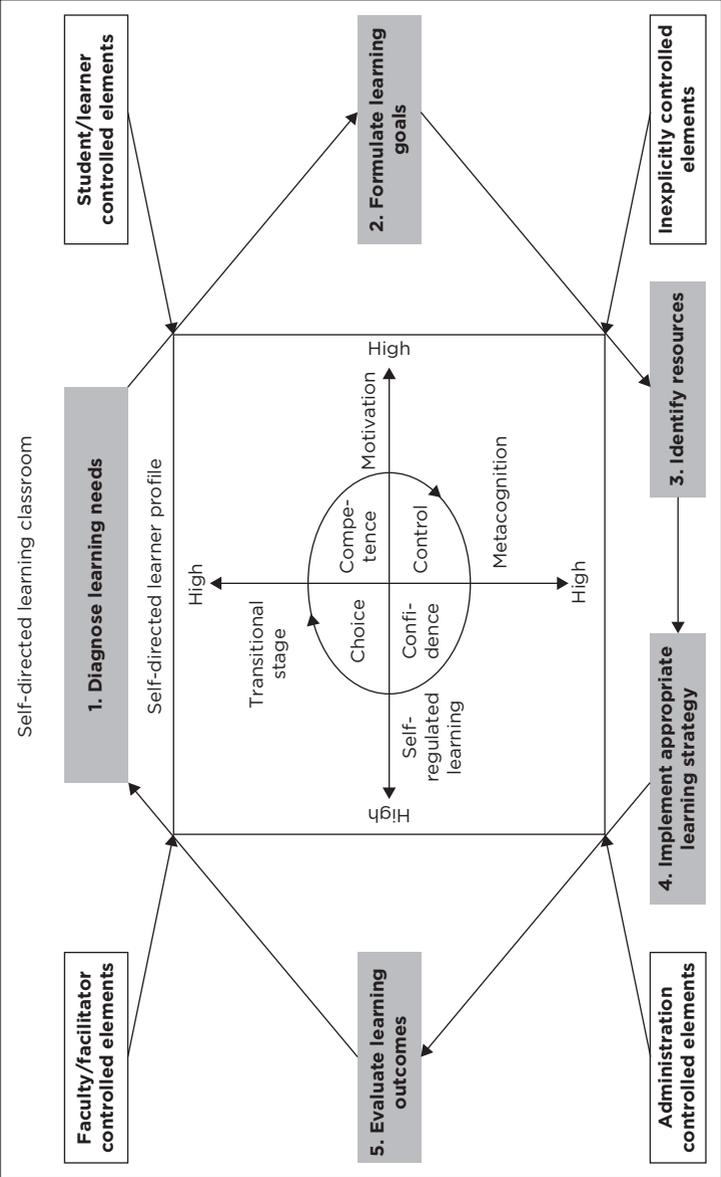
Source: Bailey (2016); Douglas and Morris (2014); Gibbons and Phillips (1978); Grow (1991); Knowles (1975); Long (2000).

FIGURE 8.1: Classroom set to enhance learners' self-directed learning.

to learn) and the environment (ever-changing world) within which we find ourselves. Guglielmino (2008) illustrates how a baby would be inquisitive and through this intrigue explores all aspects of that which is before them, thereby illustrating a natural sense of self-direction. Apart from our natural tendency to learn and explore continuously for the sake of gaining knowledge, the ever-changing environment within which we find ourselves requires of us to keep up with these changes through constant learning endeavours (Guglielmino 2008:4).

Although self-directed learning has been emphasised as important in education (Bolhuis 2003; Saks & Leijen 2014), researchers like Silén and Uhlin (2008:461) state that the development of self-directed learning has been neglected in educational settings. Brockett (2006) notes that the technological advances in recent years brought with it opportunities that have not been possible 20 years ago. With these advances, the importance of making good decisions is emphasised. Brockett (2006) explains that self-directed learning is concerned with freedom, autonomy and choice, all of which are aspects that assist in coping with the ever-changing 21st-century world within which we find ourselves today. The focus on freedom, autonomy and choice features not only in the self-directed learning and the 21st century but also in the concept of emancipation (Grundy 1987) (as explained later in this chapter). Apart from these three aspects, several skills or characteristics of a self-directed learner have been identified by Guglielmino (1978):

- [*i*]nitiative
- [*i*]ndependence
- [*p*]ersistence
- [*s*]ense of responsibility for one's own learning
- [*t*]endency to view problems as challenges
- [*s*]elf-discipline
- [*h*]igh degree of curiosity
- [*s*]trong desire to learn or change
- [*a*]bility to use basic study skills
- [*a*]bility to organise one's time and set an appropriate pace for learning
- [*s*]elf-confidence

- [*a*]bility to develop a plan for completing work
- [*j*]oy in learning
- [*t*]olerance of ambiguity
- [*p*]reference for active participation in shaping an educational programme
- [*a*]bility to evaluate one's own progress
- [*e*]xploratory view of education
- [*a*]bove average risk-taking behaviour
- [*k*]nowledge of a variety of potential learning resources and ability to use them
- [*a*]bility to accept and use criticism
- [*a*]bility to discover new approaches for dealing with problems
- [*a*]bility to formulate learning objectives
- [*a*]bility to select and use many learning strategies
- [*p*]ositive orientation to the future
- [*e*]motional security
- [*a*]verage or above average intelligence
- [*c*]reativity
- [*p*]reference for independent study or relatively unstructured sources. (p. 73)

From the comprehensive list above, it is noted that a self-directed learner should have the ability to acquire new knowledge (what) and the competence in managing the learning process (how) easily and skilfully for the rest of their lives. Being self-directed contributes to success in the 21st century; however, if the educational landscape does not support this notion, learners' self-directedness in learning will either not develop or develop slowly. In the next section, we therefore make a case that self-directed learning should be enhanced within the curriculum as praxis where the five elements (as described by Grundy [1987]) are visible. These five elements are discussed later in this chapter.

■ Enhancing Self-Directed Learning Within the Curriculum as Praxis

The curriculum as praxis holds many possibilities for the successful enhancement of self-directed learning; however, for some learners, the concept seems daunting to understand and

therefore needs clarification. In this section, the development that occurred from the curriculum as product to the curriculum as practice and ultimately to the curriculum as praxis is discussed. Although the views of the curriculum as product and the curriculum as practice are still evident in the educational landscape of South Africa, we argue that self-directed learning cannot be enhanced effectively within these views and therefore needs to be contextualised within the curriculum as praxis.

■ Curriculum Development

Curriculum theories have been developing for as long as education has been developing. Carl (2012) explains curriculum development as an overarching and ongoing process from design to evaluation, featuring structure and systematic planning methods. Hlebowitsh (2005) argues that meaning could be added to experiences of learners through curriculum development. Therefore, it is relevant here to share an overview of how the curriculum has developed and how these developments supported the development of the curriculum as praxis. How the curriculum as praxis can then support self-directed learning in the 21st century will also be discussed.

The most prominent approaches to curriculum development, as elaborated by Ornstein and Hunkins (2013), are the technical–scientific approach and the non-technical–non-scientific approach. The first, also called the 'instrumental' approach (Castner, Schneider & Henderson 2017; Ylimaki & Uljens 2017), is recognised by specific, clear and measurable objectives (Booyse & Du Plessis 2014). This instrumental approach also resonates with that of Ralph Tyler, called the Tyler Rationale (Ornstein & Hunkins 2013; Posner 1998). Ralph Tyler (1949) claims that the ends of a learning session should be determined before the means of how to educate should be decided; therefore, experts with specialised knowledge solely decide on the outcome. Although the idea of specifically set outcomes does not seem too wrong, Tyler's rationale received much criticism. The main criticism on the Tyler's rationale was

that it contextualises education as a *factory model* where the learners are viewed as raw materials to be fashioned by the *school factory* to the *product* that they were expected to become (Posner 1998). Freire (1970) explains that learners are only expected to receive, memorise and repeat information, similar to deposits made into a bank, for example, the banking metaphor of technical education.

The concern regarding the technical–scientific approach is that it does not support the expectations of the 21st century. Furthermore, this approach also does not support the enhancement of self-directed learning. Therefore, we will now consider the non-technical–non-scientific approach. Curriculum theory has developed beyond the technical–scientific approach towards the more practical, process-oriented theory of Lawrence Stenhouse and further to the critical, emancipatory approach of Paulo Freire (Booyse & Du Plessis 2014; Hoadley & Jansen 2012). Stenhouse's main idea was that facilitators should be involved in educational research and curriculum development and that facilitators should be allowed to do research, evaluate and make changes, while in the process of teaching–learning (Booyse & Du Plessis 2014), rather than being mere conveyors of information. Stenhouse's ideas then supported the idea of teachers becoming facilitators in the teaching–learning environment and in the development of active teaching–learning strategies, rather than rote learning. The critical and emancipatory approach of Freire, which led to the development of the curriculum as praxis, will be discussed later in this chapter.

The curriculum as praxis forms part of the non-technical–non-scientific approach to the curriculum. In the 21st century, where learners need to be engaged in their own learning in order to develop the skill set needed to cope in this century, dialogue, deeper understanding and the focus on making a difference all resonate. It is necessary to note however that the curriculum as praxis first developed from a curriculum as product model. We will thus focus the next section on how curriculum development has been theorised from being the curriculum as product to the curriculum as praxis.

■ Curriculum Development from Product to Praxis

Grundy (1987), drawing much from Freire's (1970) foundational work, elaborated on the influence of praxis on education, by contrasting the curriculum as product with the curriculum as practice and the curriculum as praxis. In relation to these views on the curriculum, Grundy (1987) drew from Habermas' ideas regarding the relevant interests of education. These are the technical, practical and emancipatory interests, which are also related to the curriculum as product, practice and praxis, respectively.

The curriculum as product is associated with the technical interest, which is associated with positivism where control is exercised over the relevant role players in a system (Grundy 1987; Makrakis & Kostoulas-Makrakis 2016), as was also discussed within the technical–scientific approach to curriculum development. Control, in an educational context, means that education is teacher-centred, because control can be exercised over people's environment, based upon the knowledge they have (Grundy 1987). Therefore, the ends were decided and the means of getting there was known in a direct path to follow, before teaching commenced (Cornbleth 1988). Phan, Lupton and Watters (2016:1257) confirm that this curriculum is 'fixed and ready-made prior to [learners'] learning'. Teachers have strict and forceful control over their learners' learning environment, because the belief is that only the teachers have the knowledge that the learners are still supposed to acquire. This view is certainly too strict and limiting for the ever-changing world we are living in and which is constantly undergoing change, especially in the 21st century. A curriculum that is designed to achieve specifically set objectives has at its core a technical interest (Grundy 1987; Makrakis & Kostoulas-Makrakis 2016). The learners' learning is controlled in such a way that at the end of the teaching process, a specific product of a learner can be produced, namely someone who conforms to the

intentions and ideas of the original objectives. This technical interest, underpinning the curriculum as product, directly relates to the technical–scientific approach to curriculum development. In the light of how Long (2000) defines control as one of the secondary dimensions of the psychological conceptualisation of self-directed learning, control can be positive when it means learners take control of their own learning.

A shift came when the focus was moved from teaching content to the process of learners' learning, where learners' experiences of the learning became relevant (Phan et al. 2016). This is called the *curriculum as practice*, which relates to the practical interest (Grundy 1987; Phan et al. 2016). In this case, it is crucial to understand the environment in order to be able to interact with it (Grundy 1987). The purpose of this interest is to take the right action within a specific environment; therefore, knowledge is produced through meaning-making (Grundy 1987). The practical curriculum design, relating much to Stenhouse's (1975) ideas, is seen as a process through which a facilitator and learners interact in order to make meaning of the world around them (Grundy 1987; Phan et al. 2016). In this process, curriculum components (such as objectives, content and resources) can be assembled in a subtle way to make a coherent curriculum (Cornbleth 1988). Therefore, the curriculum as practice will not only enhance knowledge in learners but also reveal the right action to be taken (Grundy 1987).

The curriculum as praxis resonates with emancipatory interest. Habermas in Grundy (1987) explains that emancipation does not refer to libertinism (i.e. an extreme form of hedonism), but rather to a state of autonomy. Therefore, emancipation is identified with autonomy and responsibility, and for this state of emancipation, self-reflection is imperative (Grundy 1987). For Grundy (1987), the technical interest is too focussed on control without reasoning, implying that it will not facilitate autonomy and responsibility. The practical interest focuses on consensual meaning and understanding where people, in this case, learners, could be deceived in their understanding; therefore, practical

interest will also not facilitate total autonomy and responsibility (Grundy 1987). The emancipatory interest thus focuses on 'the ability of individuals and groups to take control of their own lives in autonomous and responsible ways' (Grundy 1987:19). The emancipatory curriculum will include the facilitator and learners in a continuous mutual relationship between self-reflection and action (Grundy 1987; Makrakis & Kostoulas-Makrakis 2016). These notions of autonomy and responsibility link directly with ideas of self-directed learning, especially when considering Garrison's (1997) model of self-directed learning where self-management (control) and self-monitoring (responsibility) are regarded as the two main dimensions of self-directed learning.

Our argument is that, when considering curriculum development, the view of the curriculum as praxis will best support the enhancement of self-directed learning in the 21st century. Therefore, further elaboration is needed regarding the curriculum as praxis, which follows in the next section.

■ Curriculum as Praxis

The thought of praxis developed from different theorists, amongst others Freire (1970) and Grundy (1987). Freire (1970) wrote much about the oppressive nature of life, where people in more powerful positions (the oppressors) control people in less powerful positions (the oppressed). Grundy (1987) then used much of Freire's work to apply his ideas regarding praxis to the field of curriculum.

Freire (1970) argues that the oppressed should become critically aware of their oppression through praxis. In this sense, 'praxis' refers to reflection and action regarding the world, especially being able to bring forth transformation (Freire 1970; Makrakis & Kostoulas-Makrakis 2016). He further emphasises that the action cannot be only intellectual, nor can it be mere activism without serious reflection (Freire 1970). Simultaneously, true reflection should lead to action (Freire 1970). When referring to praxis in education, Freire (1970:101) explains that education is

constantly changing through praxis, specifically reflection and action, which truly transforms people's reality, which he claims to be 'the source of knowledge and creation'. Action and reflection therefore form one of the bases of praxis (Grundy 1987). As noted in the previous section on self-directed learning, facilitators and learners alike need to be constantly involved in the process of self-directed learning where action is taken based on the reflections in the self-directed learning process.

The curriculum as praxis thus constitutes a 'transformation of consciousness' (Grundy 1987:99), which means that the ways in which someone perceives and acts in his or her environment change. To focus on and acquire self-directed learning skills and 21st-century skills, we (as role players in education) cannot continue doing exactly what we did in previous centuries. Furthermore, contributing to 21st-century education and active teaching–learning strategies, Grundy (1987) and Burns (2014) explain that the emancipatory interest of the curriculum as praxis actively includes the learner as a creator of knowledge alongside the facilitator, rather than someone only passively receiving knowledge. Teaching and learning can thus not occur in separate ways and therefore should consist of the teaching–learning act, as part of emancipatory pedagogy (Grundy 1987). By including learners as active participants while constructing learning, the learning becomes meaningful; therefore, the curriculum content generates meaning from its beginning rather than from its end (Grundy 1987). Breunig (2005:111) concludes that 'praxis is reflective, active, creative, contextual, purposeful, and socially constructed'. In the constantly changing educational field, especially within the vast-growing information of the 21st century, it seems vital to draw the meaning of curriculum content from its end, rather than from its beginning in reflective and active ways.

Figure 8.2 demonstrates how curriculum development occurred from the specific technical–scientific approach to the non-technical–non-scientific approach. In conjunction with curriculum development, the thoughts of praxis also developed. These thoughts led to the emergence of the curriculum as praxis as applied with
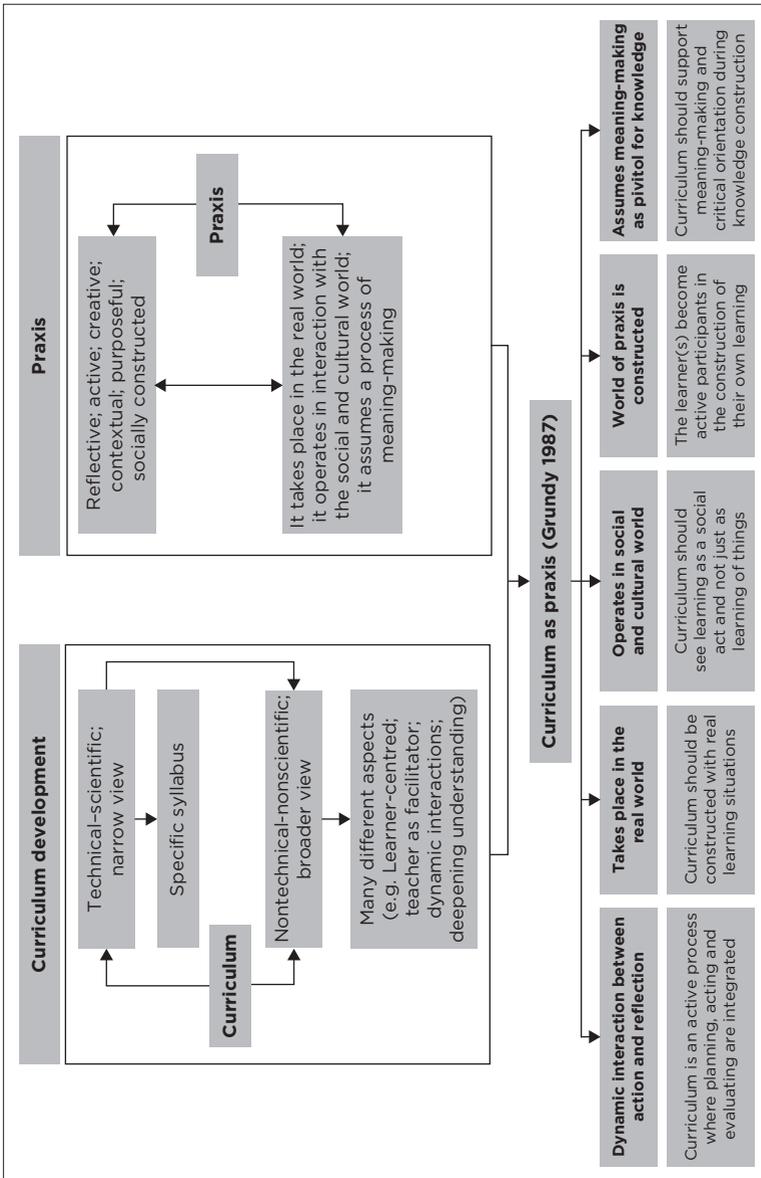
Source: Grundy (1987); Ornstein and Hunkins (2013).

FIGURE 8.2: The development of curriculum and praxis in forming the curriculum as praxis.

five specific elements. These elements are explained as follows to shed light on how they influenced the curriculum as praxis:

- Action and reflection, which in relation to curriculum, mean that the dynamic interaction between action and reflection develops the curriculum (Grundy 1987). The curriculum is thus an active process where planning, acting and evaluating are integrated (Grundy 1987).
- Praxis takes place in the real world and not in a hypothetical one; therefore, the curriculum should be constructed within real learning situations and with real learners (Grundy 1987).
- The world of interaction – the social and cultural world is where praxis operates; therefore, the curriculum must include learning as a social act and not only the learning of *things* (Grundy 1987).
- The world of praxis is constructed, therefore knowledge as a social construction is recognised, which means that 'groups of [learners] become active participants in the construction of their own knowledge' (Grundy 1987:115).
- The process of meaning-making is assumed by praxis, where meaning is a social construction. Meaning-making and interpretation are thus pivotal for knowledge, and a critical orientation to all knowledge is vital (Grundy 1987).

From the brief explanation of the five elements that form part of the curriculum as praxis and how it influences the curriculum, it becomes obvious that these elements support self-directed learning; however, the following section will deliberately discuss how each element supports self-directed learning.

☐ Action and Reflection

Garrison's (1997) model of self-directed learning, where he describes three dimensions of self-directed learning (motivation, self-monitoring and self-management), makes specific mention of action and reflection. According to Garrison (2003), the two main dimensions in self-directed learning (self-monitoring and self-managing) specifically focus on action (self-managing) and reflection (self-monitoring). He continues to note that self-monitoring (reflection) requires the assessment of feedback,

while self-managing (action) requires taking control of learning. When referring to Long's (2000) three primary dimensions (i.e. the psychological conceptualisation of self-directed learning, self-regulated learning, as well as metacognition), all point directly to the importance of action and reflection. Self-regulation is impossible without action (doing something or regulating one's learning) and metacognition is foundationally based on reflection (thinking or reflecting about one's own cognition).

☐ In the Real World

Self-directed learning development best happens in a real-world context underpinned by active teaching–learning strategies (Bailey 2016). When referring to the curriculum as praxis, Grundy (1987) also suggests that the curriculum should be constructed within real learning situations and with real learners – indicating that a similarity exists between self-directed learning, active teaching–learning and the curriculum as praxis in this regard.

☐ World of Interaction

Douglas and Morris (2014) note that self-directed learning involves the interaction between three specific elements in the quest for self-directed learning development; these are student- or learner-controlled elements, faculty- or facilitator-controlled elements and administration-controlled elements. Bailey (2016) maintains that a fourth element could be added, namely, inexplicitly controlled elements (which include all the other elements that are not present in the three elements of Douglas and Morris [2014]). Figure 8.3 lists the four elements that play a role in self-directed learning development as well as their examples. The positive interaction between these four elements is important to enhance learners' self-directed learning. Within the curriculum as praxis, the interaction between the social and cultural world may be implemented by the synergic interaction between the four elements noted in Figure 8.3. One can thus accept that the curriculum as praxis element of interaction is just as important in self-directed learning as it is in curriculum design.

FIGURE 8.3: Elements that influence self-directed learning development.

☐ Praxis is Constructed

Grundy (1987) makes a case that the curriculum should support learning where groups of learners have the opportunity to act as their own agents of change. When referring to the foundational theory of self-directed learning, Knowles (1975) makes a clear case that a learner should have the opportunity to take responsibility for his or her own learning (with or without the help of others). Other learners therefore become additional resources. Although self-directed learning can be developed on one's own, several researchers have proved that socially facilitated classes and learning opportunities contribute to greater self-directed learning development (Breed & Bailey 2016; Mentz & Van Zyl 2016). Often, the active teaching–learning strategies that prove to be conducive to develop self-directed learning occur within a social constructivist environment as indicated in the section discussing active teaching–learning strategies.

☐ Meaning-Making

Continuing from the explanation of the fourth element above, Grundy (1987) explains that meaning should be linked with the process of the social construction of knowledge. Through social construction of knowledge, meaning should thus emerge for

active participants. Exercising critical thinking about the emerging knowledge is also crucial. Critical thinking and social construction have both been linked to self-directed learning (Bailey 2016).

The curriculum as praxis supports and underpins what is needed to enhance self-directed learning. Figure 8.4 illustrates the self-directed learning classroom (as illustrated in Figure 8.1); however, the five elements of the curriculum as praxis are included. What is evident from Figure 8.4 is that the five elements are intertwined and happen concurrently and in no specific order – they are interlinked. Another notion illustrated is that the five elements of the curriculum as praxis inform the whole self-directed learning classroom (illustrated by the fact that the lines inter-cross over the classroom illustration).

The five elements of the curriculum as praxis link closely with an active teaching–learning environment where constant action and reflection take place within a social and cultural environment in order to construct knowledge during a process of meaning-making and interpretation. In the next section, active teaching–learning strategies that can enhance self-directed learning are discussed.

■ Active Teaching–Learning Strategies to Enhance Self-Directed Learning

Active learning is an approach to teaching–learning in which facilitators build learner participation into learning activities (McConnell, Steer & Owens 2003) and learners are actively engaged in the learning process (Freeman et al. 2014). Active learning is a learner-centred approach, opposed to a teacher-centred approach where learners are passively listening. Active learning as a teaching–learning approach focuses on promoting learner engagement in the learning environment, enhancing relevance of learning and improving learners' motivation and responsibility for learning (Gleason et al. 2011).
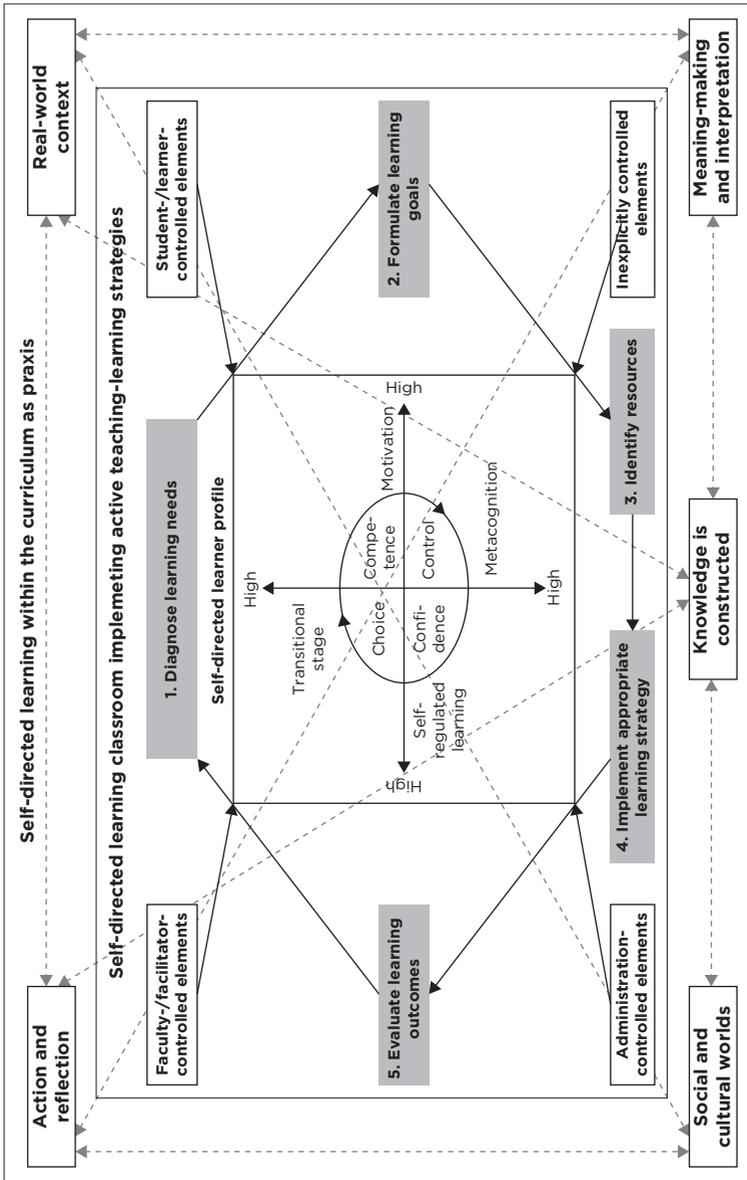
Source: Douglas and Morris (2014); Gibbons and Phillips (1978); Grow (1991); Grundy (1991); Knowles (1975); Long (2000).

FIGURE 8.4: Self-directed learning within the curriculum as praxis.

The theory of active learning is closely related to the theory of knowledge construction (Serfontein & Breed 2013). The theory of active learning claims that the knowledge learners construct (or the meaning they make) emerges from their active involvement, interactions and experiences with phenomena in the world (Serfontein & Breed 2013). A teaching–learning approach that promotes active learning enhances learners' abilities to construct their own knowledge actively (Carr, Palmer & Hagel 2015). One cannot have one's own knowledge construction of a concept without experiencing that concept directly and actively. Learners who are actively involved in the learning process are most likely exposed to situations that require that they make connections between new knowledge and their current mental models (Brame 2016). Learning thus becomes more meaningful. Meaningful learning leads to better understanding, which helps learners to retain and apply the knowledge they have gained better. Active engagement in the learning environment could motivate learners to advance beyond rote learning to the level of understanding and applying constructed knowledge, skills and attitudes (Gleason et al. 2011).

Implementation of an active learning environment is an approach to teaching and learning, which implies, amongst other, that the learner gains some control of the learning environment (Gleason et al. 2011) but is also expected to take more responsibility. Such learner-centred approaches are characterised by learners sharing in the decision-making in the class, change in the instructor's role from lecturer to facilitator of learning, a learning environment that motivates learners to accept more responsibility for their own learning, a balance between learning content and learning skills, and learners' involvement in the purpose and process of evaluation (Weimer 2003). Instructors are challenged to move from being expert dispensers of information to being designers of learning experiences that develop learners from passive listeners into active learners (Pierce & Fox 2012).

The active learning approach to teaching–learning includes a variety of teaching–learning methods. The multiple methods of active learning all emphasise activity, which is the active

engagement of learners in the teaching–learning activities, which have been carefully structured by facilitators (Gleason et al. 2011). Effective active teaching–learning activities should be designed to provide opportunities in which learners are actively examining, exploring, experimenting and interacting with learning content. These activities generally emphasise higher-order thinking and enable learners to relate newly learnt facts and concepts to their existing knowledge and skills, and to transfer their learning to new situations or contexts (Gleason et al. 2011).

Active learning methods can range from complex classroom-based active learning strategies, for example, cooperative learning, problem-based learning, case-based learning and team-based learning but also simpler methods that can be implemented in the classroom, for example, minute writing, debates and the fishbowl method (Gleason et al. 2011). Another strategy that has gained recognition in a wide variety of academic settings to promote learner-centred, 'active learning' is the flipped classroom model (Pierce & Fox 2012). In the flipped class model, the learners do what used to be traditional classroom activities (e.g. the lecture and note taking) as homework prior to the scheduled class, and what used to be homework (e.g. assigned problems) is done during the scheduled class time (Pierce & Fox 2012).

According to Gleason et al. (2011), one strategy or method cannot be considered more effective than any other can. The success of a strategy or method may be dependent on factors such as the personality and teaching style of the facilitator, learners' learning styles, the specific learning content and the availability of resources. Most important is that two-way communication between facilitator and learners is enabled and that active engagement of peer interactions is facilitated (Gleason et al. 2011).

The extensive support for active learning stretches over more than three decades (Brame 2016; Pierce & Fox 2012). Reported benefits of active learning to courses and curricula include learner engagement in learning, stimulation of higher-order and critical thinking, and enhancement of problem-solving skills (McKeachie & Svinicki 2006). Prince (2004) adds the benefits of greater

emphasis on learner exploration of attitudes and study habits, as well as increases in learners' motivation to learn and improve their ability to solve problems. In their study on the implementation of the flipped class model, Pierce and Fox (2012) report improved learner performance and positive learner attitudes. These findings match the findings of the meta-analysis done by Freeman et al. (2014) of 225 studies in undergraduate STEM courses under traditional lecturing versus active learning, which indicated that average examination scores of learners in active learning sections improved by about 6% and that these learners were 1.5 times less likely to fail than learners in classes with traditional lecturing (Cooper 2016).

Research about the benefits of active learning in terms of learners' level of self-directed learning has received attention only in recent times. In their article about 'evidence supporting the use of active learning strategies in pharmacy education', Gleason et al. (2011:2) state that active learning 'engages learners as partners in the teaching–learning process and helps them take more responsibility for their own learning', which is an important aspect of self-directed learning. Research done on the implementation of cooperative learning, problem-based learning, case-based learning and project-based learning found evidence that active learning enhances learners' self-directed learning to a greater or lesser extent, as discussed in the following section.

■ Cooperative Learning

The research referred to in this section adhered to the implementation of cooperative learning supported by the five basic principles identified by Johnson and Johnson (2013). Mentz and Van Zyl (2016) implemented various cooperative learning methods in a Computer Application Technology first-year university class and concluded that the learners' attitudes towards learning and their self-perceived level of self-directed learning were positively influenced. Results of qualitative interviews with learners revealed that their positive attitudes

towards learning positively influenced their self-directedness in learning in terms of inquisitiveness, learning methods, social skills, interest, motivation to learn, the use of extra resources and enjoyment of learning. Learners who initially scored themselves in the 'moderate' category of self-directed learning significantly improved in their level of self-directed learning after the cooperative learning intervention.

The research by Lubbe, Mentz and Petersen (2016) involved Life Sciences first-year university learners and the implementation of cooperative base groups as a specific method of cooperative learning. In cooperative base groups, learners work together over a long term, providing each other with both academic and personal support (Johnson, Johnson & Johnson Holubec 2008). The value of this implementation was found to be in academic and personal support in a large class and that it contributed to the development of learners' self-directedness in learning. The learners' perception was that working in cooperative base groups improved their social skills, motivation, 'ability to give and receive help' and seeing 'peers as resources, all of which are characteristics of self-directed' learners (Lubbe et al. 2016:n.p.). Working in cooperative base groups further improved learners' ability to take initiative and responsibility for their own learning.

'Implementation of cooperative learning' methods in an Information Technology (IT) first-year university class by Breed (2016:n.p.) revealed results showing that the cooperative learning approach reportedly had an influence on learners' ability to monitor their own learning, their interpersonal skills, their 'awareness of factors contributing to self-directed learning', and their 'use of appropriate learning strategies to become self-directed in learning'. Accordingly, in research combining pair problem-solving as a cooperative learning method and a metacognitive approach to problem-solving, Breed and Bailey (2016) found positive influences in terms of awareness of factors contributing to self-directed learning and interpersonal skills, but also in terms of learning strategies and learning activities related to self-directed learning.

■ Case-Based Learning

Although a relatively new field of research regarding active learning and self-directed learning, De Beer and Gravett (2016) opine that case-based learning provides opportunities for self-directed and deep learning in pre-service teacher education. Based on their research involving first-year education learners, they argue that, in their study, case-based teaching, which implemented cooperative learning, effectively assisted pre-service teachers in developing effective problem-solving and metacognitive skills. Case-based learning also had affective outcomes in terms of engagement in learning and motivation of pre-service teachers.

■ Problem- and Project-Based Learning

Evidence of the influence of project-based learning on learners' programming self-directedness can be found in the research of Havenga (2015), which involved a different group of second-year Computer Science learners. These learners had to develop a programming project while working in pairs. Execution of the project required a variety of skills, which the learners had to apply, for example, they had to formulate their own learning goals, solve problems collaboratively, learn to manage their time effectively, and apply monitoring and self-reflective skills. The findings indicated that involvement in project-based learning contributed to development of a diverse range of skills, including solving complex problems, practising teamwork, constructing innovative end products and fostering self-directedness. In a similar investigation, focusing on the learners' accountability and responsibility during problem-based learning, Havenga (2016) again involved second-year learners majoring in Computer Science who had to develop a programming project while working in pairs. The aim was to explore individual and group accountability and responsibility in a cooperative problem-based learning setting. The findings indicated that the best results occurred where group members were bound to contractual and moral obligations. This type of active learning strategy provided real-life experiences to learners and enhanced their self-directedness in learning.

■ Conclusion

In the 21st century, learners are expected to show certain skills and competencies; however, it has been made clear that our learners do not necessarily possess these. For learners to be successful in the 21st century, being self-directed is a must. When learners are self-directed, they take responsibility for their own learning and therefore can cope with the myriad of changes brought about in the 21st century. The main place to support this development is in the curriculum in its broadest sense. Enhancing self-directed learning within the curriculum as praxis is therefore needed.

The curriculum as praxis entails having a dynamic interaction between action and reflection, placing learning in a real-world context and enabling learners to engage in constructing their own knowledge socially. Within the curriculum as praxis, active teaching–learning strategies are a necessity and cannot be avoided. Making use of active teaching–learning strategies, such as case-based learning, cooperative learning and problem-based learning, not only falls within the curriculum as praxis but also enhances self-directed learning.

In this chapter, we made a case that self-directed learning should be developed to prepare learners (in the educational landscape of South Africa) to cope in the 21st century. The most favourable way to ensure that learners develop self-directed learning is within the curriculum as praxis. As illustrated in Figure 8.4, the five elements of the curriculum as praxis are visible in the self-directed learning classroom where all aspects (and stakeholders) of teaching–learning are influenced by it.

The curriculum as praxis (and specifically the interaction brought about during active teaching–learning strategies) hold the key to the development of self-directed learning and should be supported throughout the South African educational landscape.

■ Summary

Skills and competencies necessary to cope in the 21st century are different compared to what they were in the previous century

because of the rapid changes in technology and the readily available information. Our educational landscape has however not kept up with these changes. In this chapter, we make a case that self-directed learning is necessary to cope with these changes and keep up with the challenges life presents. Innovative curriculum as praxis may hold the key to enhance self-directed learning and equip individuals for the challenges of the 21st century. With the breadth of curriculum as praxis, it is important to establish which areas specifically could be advantageous in this regard. One possibility is active teaching–learning strategies. Our primary research question thus is: 'How can SDL be enhanced within curriculum as praxis through active teaching–learning strategies?' We will also report on our own qualitative and quantitative research results derived from the implementation of these active teaching–learning strategies and the influence thereof on self-directed learning. We indicate how the curriculum as praxis can be informed and enriched in order to enhance self-directed learning. This chapter contributes to an improved understanding of the necessity and possible impact of self-directed learning in the South African educational landscape.

The Paradoxes during Doctoral Studies and Supervision in the Field of Education

Ntlantla Sebele
Open Distance Learning
University of the Free State
South Africa

Lynette Jacobs
Open Distance Learning
University of the Free State
South Africa

■ Introduction

According to the *National Development Plan: Vision for 2030* (NDP), it is essential for South Africa to increase its number of doctorate graduates, in particular African and female doctoral students, per year. It is stated in this plan that '[t]o achieve the

target of 100 PhD graduates per million per year, South Africa needs more tha[n] 5000 PhD graduates per year against the figure of 1420 in 2010' (National Planning Commission 2011:n.p.). The expectation is that doctoral graduates will provide essential input into national development, the modernisation of the economy and improved public service (Auf der Heyde 2015; National Planning Commission 2011). In the context of the field of education, this would suggest that an increase in the number of education doctorates would lead to developments and improvements within the education sector. Faculties of education, like other faculties, are thus under pressure to deliver more PhD graduates towards such an impact.

The two most important role players in a doctoral study, namely the student and the promotor, find themselves in a stressful space. Doctorate students in education are mostly working professionals and do not have the luxury of full-time studies, as is often the case in the natural sciences. They have to balance work and family responsibilities together with the demands of doctoral studies. They also come from different backgrounds and have their own needs (Capella University 2015; Wisker et al. 2003). The situation of the promotors, on the contrary, is such that the demands of publication, large undergraduate classes, heavy postgraduate teaching loads, administrative responsibilities and supervision loads, often as a result of pressure by external bodies within the neoliberal landscape, become an impossible balancing act (Deuchar 2008; Jacobs & Coetzee 2017). The PhD promotor seems to be in the centre of a triangle trying to satisfy the needs of the student, the university and the external bodies at the same time, often finding it a challenge to survive. While many of the demands might be justified from an outsider's perspective, the paradoxes within the policies and practices are notable for those in the situation. The envisaged impact of doctoral studies as explained in the introductory paragraph could be adversely affected because of this, in spite of the efforts by promotors and students to the contrary.

In view of the expected impact that doctoral studies are supposed to have, and the perceived paradoxes within the system, we aim, in this chapter, to consider the implications of the realities of students and promotors during doctoral studies. Towards that, we draw from the literature and South African policies, as well as from data obtained during a small-scale study collected from students and promotors from two different universities, over a period of two years. We conclude by considering the impact of the findings in view of the need for research, specifically for doctoral studies to have an impact.

■ Literature Study

Several international and local authors have written from different perspectives about doctoral studies. Based on the literature, we firstly provide a brief conceptualisation of doctorateness, after which we discuss several tensions and opposing standpoints within the doctoral studies and supervision arena. For instance, within the neoliberalist environment, there is a tension between financial imperatives (quantity) versus quality, there are different perspectives on how supervision should take place and there are also opposing views about the value of an academic doctorate versus that of a professional doctorate.

■ Conceptualising Doctorateness

A PhD qualification is the highest academic qualification an individual can achieve anywhere in the world. The Higher Education Qualification Sub-Framework (HEQSF) (Department of Higher Education and Training 2014) clearly explains what is expected at doctorate level:

> The defining characteristic of this qualification is that the candidate is required to demonstrate high level research capability and to make a significant and original academic contribution at the frontiers of a discipline or field. (p. 40)

The level descriptors for the National Qualification Framework (NQF) (the South African Qualifications Authority 2012:n.p.) use

phrases such as 'knowledge […] at the forefront of the field', 'independent judgements', 'complex practical and theoretical problems', 'the development of significant original insights' and 'intellectual independence' to describe the expected performance on this level. These stipulations by authorities in South Africa resonate with the understanding of the concept of doctorateness internationally. In any PhD study, one anticipates autonomy and innovation (Bengtsen 2014). The thesis should make an original contribution based on an identified 'gap in the knowledge' (Engels-Scharzpaul 2015), and there needs to be an element of creativity (Whitelock, Faulkner & Miell 2008).

The prerequisite to be allowed into doctoral studies is a certain level of achievement on master's level (often 65%), and the assumption is that the student would have mastered certain skills already, as is also described by the South African Qualifications Authority (SAQA) level descriptors for NQF Level 9 (the South African Qualifications Authority 2012). Bengtsen (2014) draws from other scholars to emphasise that promotors then need to guide students in terms of research, structure and techniques, as well as how to manage research to attain doctorateness. Kiley (2009) describes achieving the required level of doctorateness as a 'rite of passage' during which students not only learn about their topic and research methodology but also 'learn to "act" as a graduate researcher with the rigor and conceptual levels of thinking that is expected of them'. Authors, such as Rose, McIntosh and Junke (2011), agree with this view, explaining that although a PhD is designed primarily to equip candidates to be researchers, it is of essence that further growth beyond this should take place during the PhD journey. Atkins and Redley in Drennan and Clarke (2009) likewise point out that thesis writing should develop skills such as being able to work independently and also critically with the ability to produce a sound argument. Whitelock et al. (2008) expect promotors to be active managers in creating opportunities that will develop creativity and innovation. Clearly, the task of the promotor is multifaceted, and the growth and development of students should take place in terms of different qualities.

To summarise, a PhD should foster the acquisition of effective research skills and the use of these research techniques to produce an original, credible and authentic research work that contributes to new knowledge in an autonomous and creative way, with the promotor playing a significant role in terms of the student's development. Quality in the context of a PhD study thus refers to autonomy, originality, creativity and authenticity produced through effective research skills and techniques to create knowledge that is meaningful to the student, the profession and society. Rossouw's (2015) findings based on a number of authors warn, however, that quality is not easy to define, and thus, it is often judged based on 'obvious and visible factors'. In the current higher education landscape across the world, these factors are more often linked with neoliberalism.

■ Neoliberalism

In the 1980s, the higher education landscape changed under the influence of neoliberalism, demanding accountability and conformity in a market-driven environment. The issue of quality 'moved beyond institutional boundaries and evolved into a social and political issue involving multiple stakeholders' (Zhang & Su 2016). While education, including PhD education, has become a commodity (Leal 2017), institutions have become pressured to satisfy number needs in order to generate funding in what is becoming a progressively competitive, business-driven environment. This has had an effect on PhD studies as academics have become pressured to deliver larger numbers of students and more publications.

External agencies, including governments who subsidise universities, as well as ranking bodies focus on the number of students who graduate with a PhD and also where they come from (i.e. national vs. international) to assess the 'quality' of the institutions. This puts promotors under pressure to increase the throughput of PhD students (Grant 2005). Deuchar (2008:489) indeed points out that the higher education landscape has become, '[D]ominated by a market-drive, consumerist service ethic and

that this may have had an impact on the style of research supervision that academics adopt for a new knowledge economy'.

Pertinent to this is the issue of competing for resources by universities. Baty (2009:1) points out that universities are experiencing diminishing resources that mostly do not match the increasing demands of students. The limitation of resources often leads to the poor supervision of students which then translates unintentionally into disappointed students and lower-quality work. Financial resources, in particular, are becoming tighter and more competitive, causing universities to respond in different ways. Ramsden (1992) points to 'mass production standards' that developed in the UK in the 1990s as an example, when institutions of higher learning were obliged to start producing doctorates *en masse* towards external funding. Number chasing, in order to improve the financial resources that would be secured from outside funders, most frequently governments, caused PhD promotors to handle each individual PhD student in a one-size-fits-all manner, even though research has positively documented that students learn in different ways. Mass production is the single biggest downside just of the PhD supervision (Ramsden 1992). PhD students require focussed support and when the promotor has too many students to supervise, these students are not given enough assistance during their studies. Mass production of PhD students compromises both the student experience and the quality and integrity of the PhD qualification.

Furthermore, academics suffer from the 'publish or perish' syndrome identified by Lawhern (2002). Academics are given targets in terms of the number of publications that each should produce. The more the publications, the more the funds generated by the university. Lawhern (2002) avers that academics, *inter alia*, generate these publications from the work of their students; thus, more students will create opportunities for more publications.

Lastly, all of the above have implications for the promotion of academics, as both the number of students successfully supervised and the number of publications are taken into account for promotion (Ramsden 1992).

In summing up this section on quantity needs versus quality needs, it is worth mentioning that PhD supervision is a contested process. While it should be common knowledge that the teaching and learning process should be about the student, events at universities paint another picture, as universities have to survive financially, and this compromises PhD studies. Academics are under pressure to produce more students and more publications and thus have less time to spend on supervision. Supervision is, however, pivotal to a student's success.

■ Supervision

There is a general agreement that the supervision that a student receives during his or her doctoral study is crucial for success (Dysthe, Samara & Westerheim 2006), but the quality of promotors is not all the same (Drennan & Clarke 2009; Engels-Scharzpaul 2015). Students, on the contrary, come into the HEIs from different home and educational backgrounds and different needs, interests, capabilities, personalities and temperaments, and those who are involved in the studies of students need to account for this (Ali, Watson & Dhingra 2016; Ang et al. 2001). These, in addition to the factors discussed in the sections above, complicate matters.

Promotors must have certain technical, academic, intellectual and interpersonal skills, and although they are expected to be knowledgeable in the field within which studies take place, they do not have to be an expert on the particular topic (Sambrook, Stewart & Roberts 2008). Furthermore, promotors should be resourceful, committed, highly organised and preferably experienced, while being supportive of, and committed to, the student (Lee 2007). An aspect that is highlighted by Lee (2007), as well as Drennan and Clarke (2009), is that the promotor needs to be an active researcher. The promotor should be able to provide guidance in terms of a timeline for the study but, at the same time, should not interfere too much in terms of detail and must encourage the student to become autonomous and independent (Sambrook et al. 2008). Lee (2007) cautions that promotors should not become complacent about their supervisory skills, and continuous development should take place.

☐ Instruction Versus Construction

Although the discourse around teaching and learning and the instruction versus construction of knowledge are typically found in relation to coursework, we believe it is also relevant in the context of the supervision of postgraduate students. Constructivists (such as Dewey) and social constructivists (such as Vygotsky) believe that previous learning and your work and life are all key to learning. Moreover, events, ideas and activities during interactions also contribute to sense making and the construction of knowledge (Kern & Fritz 2017; Ültanır 2012). Within the context of postgraduate supervision from a constructivist perspective, the student is responsible for his or her learning, understanding and the creation of new knowledge, while the PhD promotor's role is simply to guide, facilitate and become a co-explorer of new knowledge. Bengtsen (2014) stresses that promotors should go beyond 'writing skills and academic craftsmanship' towards making 'emancipation and autonomy' possible, and thus, their role should change from being teachers to being facilitators. In essence, the promotor should not take over the construction of knowledge or creation of real understanding but should create opportunities for the students to come with their own ideas, thinking, opinion and questions (Ültanır 2012), and thus, the promotor acts as a facilitator of learning, rather than an instructor (Lee 2007). Unlike teaching and learning at lower levels, learning and teaching at this level can be referred to as a learning conversation between the student and promotor which should be in a dynamic and engaged manner (Wisker et al. 2003).

☐ Supervision Approaches

Research supervision is a complex process that requires expertise and a number of skills (Deuchar 2008). It is not always easy and promotors use different approaches. While some prefer individual supervision, others view group or cohort supervision favourably, and over the years, different supervision practices have developed.

Dysthe et al. (2006) experimented with supervision approaches over a period of time using a cohort of master's students. The first strategy was 'student colloquia', where students were divided into groups of five or six students who met weekly to discuss theory and journal articles. These were managed by themselves without the interference of the promotors. A second strategy was to have these groups of students also meet with promotors in what they called 'supervision groups'. These sessions were a combination of research training for parts of their individual theses and presentations of parts of texts by some of the students (two or three). Lastly, the students also regularly met their promotors on an individual base. The outcome of the study was that the students indicated that both of the first two approaches were very valuable, but individual supervision remained central. One aspect that was emphasised was that the small groups' support resulted in shortened individual supervision, thus making the students less vulnerable.

☐ The Relationship Between the Promotor and the PhD Student

The success of the PhD study is dependent primarily on the relationship between the student and the promotor (Deuchar 2008; Wisker et al. 2003). Supervision is viewed as a two-way process, and openness and trust in the relationship between promotor and student right from the start prevent years of frustration (Sambrook et al. 2008). The student should be able to draw from the promotor in terms of the academic field, methodology and theory and also from the experiences of the promotor himself or herself. Students must be directed and encouraged to be autonomous towards doctorateness (Lee 2009; Wisker et al. 2003).

Communication and dialogue between students and promotors is pivotal to the success of a PhD student (Severinsson 2012; Wisker et al. 2003), and the conversation between the promotor and the student changes and is adjusted throughout the journey (Bengtsen 2014). It should be noted that challenges

can arise, *inter alia*, when students' needs are overpowered or when promotors feel under pressure (Deuchar 2008; Grant 2005; Lee 2009), consequently resulting in a strained relationship. Promotors should not see themselves as gatekeepers to specific knowledges, but mentor students (Lee 2007).

Lee (2009) points out that another challenge to the PhD supervisory relationship is the prevalence of the academic and professional cultures. It is her contention that promotors are primarily academics located in universities who do not fully understand the professional environments, yet the majority of PhD students in education are professionals located within the contexts of practice. Deuchar (2008) views academic and professional cultures as conflicting in this sense and says there is evidence of a gap between theory and practice. Promotors are embedded in theory, while many PhD students are professionals embedded in practice. The promotor usually ends up directing the students largely along the academic route and then promoting the academic culture at the disadvantage of a student who is practising in the professional culture. It is therefore important to take into account the two cultures that prevail in the supervision relationship in order to ensure its value, particularly for the PhD student.

While a certain professional intimacy is owing to develop, Lee (2009) questions the relevance and desirability of socialisation into academic disciplines. Furthermore, Deuchar (2008) indicates that socialisation, both positional and personal, has an impact on the supervision relationship. Positional socialisation sees the promotor as a manager or director and the student as a passive recipient of information in the relationship. This socialisation depicts an unequal relationship, where the promotor has power over the student (Lee 2007). Schulze (2012) concurs that power plays a key role in the promotor–student relationship as it has the potential to reduce the PhD student to simply a receiver of information, instead of being actively involved in an autonomous and creative way in his or her studies. Grant (2005) asserts that such a relationship between the promotor and the student could result in frustration, disappointment and bitterness in the student.

The relationship between promotors and international students is particularly complex. Deuchar (2008) cites a study by McLure regarding East Asian students' experiences, where students felt marginalised and disempowered because they did not have the cultural competence to deal with the student–promotor relationship. It is clear that the relationship between promotor and student is complicated, and promotors who are in a position of power should take steps to ensure that it remains professional and contributes to the success of the student.

■ Academic Versus Professional Doctorate

The historic debate about an academic versus a professional doctorate has been raging even prior to 1920 when Harvard University awarded the first Doctor of Education degree. Since then, there existed two pathways to doctoral studies in the field of education, which are the Doctor of Philosophy (PhD or D.Phil) and the Doctor of Education (e.g. DEd or Ed.D). McNulty and Shirley (2010) opine that historically, the PhD has always received favour and support from scholars and academia on the basis that it is seen as the degree that prepares individuals for research and the professoriate (McNulty & Shirley 2010). Lee (2009:n.p.), based on Green and Powell, points out the 'dissatisfaction with the PhD as a qualification for advanced professional work outside of the academia'.

In the context of the South African higher education landscape, the HEQSF stipulates that a PhD degree (also sometimes D.Phil) is seen to prepare students for an 'academic career' (Department of Higher Education and Training 2014). On the contrary, the Professional Doctorate (e.g. DEd) 'provides education and training for a career in the professions and/or industry and is designed around the development of high-level performance and innovation in a professional context' (Department of Higher Education and Training 2014:n.p.). Both the doctorate degrees are 360 credit qualifications on NQF Level 10. The HEQSF (Department of Higher Education and Training 2014:n.p., *author's*

added emphasis) makes allowance for the professional doctorate as a structured degree, in which 'the research component should comprise *at least* 60% of the degree'. It furthermore states that candidates should 'undertake a combination of coursework and advanced research' and 'may also include appropriate forms of work integrated learning', without giving clear directives regarding the expected balance between these. The *Revised Policy on the Minimum Requirements for Teacher Education Qualifications* (MRTEQ) (Department of Higher Education and Training 2015) corroborates the HEQSF, with all its uncertainties in terms of the Professional DEd. The confusion expands in this document in terms of the designators and abbreviations. A doctoral degree in education (academic) may be a Doctor of Philosophy (PhD) or a Doctor of Education (DEd), whereas the professional doctoral degree could be called either a *Professional Doctorate* or a *Doctorate* [*emphasis in original*], abbreviated DEd. It is clear that in the South African context, a PhD is always a full research qualification but one which may be pure *or* applied research. The DEd could be exactly that but could also be a professional degree with fewer credits for research.

As far as we could establish from the different information on websites, no South African university has yet started to offer professional doctorates in education, and irrespective of whether they offer a PhD or a DEd, it remains a full 'academic' or research degree. The majority of doctoral students in education are however practitioners and do research related to the education praxis. Amongst the many needs of PhD students identified by the literature, career advancement is regarded as key. Acquiring transferrable skills that are needed to meet societal and market demands, as well as taking up leadership in the professions, is thus pivotal for PhD students (Lee 2009; Rose et al. 2011). The drive of many doctoral students in education to advance their careers is aligned with the NDP, as mentioned in the introduction. These students come to the university to read for a PhD because, according to Lee (2009), they want to combine their professional role and PhD studies, in order to apply what they learn in the

context of their work. Deuchar (2008:n.p.) is of the view that institutions should provide these students with opportunities 'to develop for themselves a sense of direction, community, identity and opportunities for relevant skills training, will also influence a student's satisfaction'.

In the chapter thus far, we have provided a synopsis of the complexities of doctoral studies mainly based on the international literature. We have further provided the reader with an understanding of expectations by government in terms of policies and plans. In the section that follows, we draw from observations and interviews within South Africa.

■ Research Methodology

In order to understand the experiences of promotors and students, we followed an inductive qualitative research approach and employed multiple strategies to generate data.

Firstly, we used the first author's field notes based on observations and reflections over a period of two years. One of the authors was part of the group supervision team, and data were gathered through observations of students during their research seminars over a period of two years. At these seminars, master's and doctoral students were presenting their work in progress. The first author listened and recorded details of the observations. Listening was focussed predominantly on what was said and how it was said (Merriam 2009). Focussed attention was on what research concepts were used, how they were relayed and how students responded to the questions asked that related to these concepts.

Secondly, the first author conducted semi-structured interviews to generate data from four promotors from two different institutions and six students also from two different institutions. Two of the promotor-participants were participants in the research seminars and formed part of a group supervision team, and the other two were not; three were male and one was

a female. Two of the students were pursuing an academic career; two were practising teachers; one was a school principal and the last one was an official at Department of Education. Three students were part of a cohort supervision enterprise, and the other three were not. Three were female and three were male. Five were still busy with their PhD studies at the time of the interviews, while the sixth one was not.

The interviews were transcribed by the first author. Copies of the transcriptions and observations were made and the first and second author separately analysed them into identified themes. Each author identified themes that emerged from the promotors' transcribed interviews and compared them with themes that emerged from the students. This comparison allowed for the identification of similarities and differences between the promotors' and students' perceptions, experiences, understanding and knowledge of the supervision process.

After informing them in detail about the purpose of the study and what would be expected of them, the participants agreed to take part. We made sure that no participant could be identified, in order to protect their identity.

■ Findings

The following themes emerged. It should be noted that the intention of the study was not to generalise findings but to understand the experiences of these few individuals to gain some insight into the phenomenon at hand. The findings are then discussed in view of the available literature to make further sense.

■ Autonomy, Originality and Contribution to Knowledge

From the interviews, it seemed as if some promotors struggle to find the balance between getting the students to work autonomously and ensuring that the work is on the expected standard.

One promotor exclaimed 'I can't afford to let sub-standard work go through. It's my name at stake here!' (PhD promotor, male, year undisclosed). He further proceeded to say, 'I have to keep a hawk's eye on all my students' work to ensure that I don't drop standards' (PhD promotor, male, year undisclosed).

It appears that some promotors do not let their students choose their topics. One student indicated:

> I wanted to champion educational solutions to the problems back in my village, but I was not allowed that opportunity. I had to do something that had no bearing on the education issues where I come from. (Student, male, year undisclosed)

This student felt that he had identified a unique problem that could be original if explored, but according to the sentiments of the promotor, this idea could compromise standards. Another student similarly indicated during her interviews that she had identified a problem area in her master's research project and wanted to investigate it. She indicated that she could not pursue that study because the promotor specified that he had a topic on which he wanted her to focus. A third student indicated that his promotor asked him 'Do you want the degree or do you want to struggle?' (Student, male, year undisclosed). This was justified by a promotor who stated: 'I don't have time to divert from my area of specialisation. I focus on my area and my students know that too' (PhD promotor, gender undisclosed, year undisclosed).

From the observations, it seems that some students lack support in the development of critical thinking skills. During presentations at the seminars, for instance, the majority of students lacked confidence in articulating the contents of their studies. In addition, some could not substantiate a concept or defend decisions that they had taken about the study. For example, when asked after presenting their work, why they had chosen one particular theoretical framework, it was evident that the students were not aware of other theoretical frameworks which they could have chosen. When the students could not

respond to a question from the audience, the promotor would interject and provide the explanation. Wisker et al. (2003) postulate that the more a student is engrossed in his or her studies, the greater the autonomy and chances of originality.

When probed about theory during the interviews, one student admitted: 'I don't know other theories except the one provided to me by my supervisor' (Student, gender undisclosed, year undisclosed). It furthermore appears that some students are provided with a map that they need to follow without questioning it. All three students from the cohort used the same research approach, research design, methodology and theoretical framework and not all the students were satisfied with it. One student reflected that during presentations 'it sounds like we are parrots […] we all say the same thing' (Student, gender undisclosed, year undisclosed). One student expressed his frustration in terms of originality and moving to the forefront of the field when he admitted, 'I'm not learning anything; I only need to listen and do like the rest. It's like you are wasting someone's time if you want to be different' (Student, male, year undisclosed). One promotor was convinced that this is the way to do it, indicating that students who come to him for supervision choose him and know his reputation. As he put it:

> I chose for the students what they need to do because they come to me insisting that I be their promotor. I know what needs to be done. A student who wants to do things differently, should go somewhere else. (PhD promotor, male, year undisclosed)

This promotor admits that PhD promotors are prescriptive and make students 'do as you are told' (PhD promotor, male, year undisclosed). Another reason that perpetuates this syndrome seems to be the prescription of the research methodologies by promotors, and sometimes they even make decisions on behalf of the students. Some promotors seem to be unbending and over-direct PhD studies for the purposes of meeting the internal demands, which indirectly meet the external demands. Quick completion rates are driven by the need to raise additional funding for the university and add to the promotor's 'tally of publications and

conference presentations and career promotions' (PhD promotor, gender undisclosed, year undisclosed).

Another inconsistency that was detected was from the perspective of some students in terms of their own knowledge. While the majority of the students interviewed felt that they wanted to be regarded as experts by their colleagues, they also felt that they did not want to spend a lot of time learning about research concepts, strategies and methodologies. One student bluntly stated that, '[methodology] is the area of the promotor for specialization' (Student, gender undisclosed, year undisclosed), and similar views were confirmed by two others. This is problematic as the expectation for doctoral students to be able to do research independently will be compromised (the South African Qualifications Authority 2012). Mitsis (2015) emphasised that in order to have success in doctoral programmes, it is important to build research capacity during lower degrees.

Schulze (2012:n.p.) highlights the fact that while the promotor is central to the success of the study, the relationship between the promotor and the student should not be autocratic and should enable the student 'to find his or her own voice'. The view is shared by Sambrook et al. (2008) who emphasises that students should develop confidence in their work.

■ The Impact of Pressure

One of the findings that emerged from the interviews with promotors was the issue of pressure. Promotors were asked to describe their PhD supervision experiences, and they strongly commented on their being overworked. They feel that they have too much work to do, including undergraduate and postgraduate teaching. Their performance at both these levels is over scrutinised and this puts a lot of pressure on them. One promotor complained that '[w]hen I'm overloaded with work, some areas suffer, and mostly it is the student who is off campus' (PhD promotor, gender undisclosed, year undisclosed). Connected to this response is what the other promotor indicated that

'[m]y PhD students suffer when it comes to development. I don't have much time to spend with them because of the pressure on me as a supervisor' (PhD promotor, gender undisclosed, year undisclosed). Yet another promotor indicated that:

> The situation is not ideal, because we have so many students. In the past, I could easily give feedback to students within 10 days. That kept the momentum going. Now students wait quite a long time before I give feedback, and that is not acceptable. But what can I do? (PhD promotor, gender undisclosed, year undisclosed)

It thus seems that promotors are subjected to internal organisational pressures and these impact on the quality of the supervision process.

Another finding from the interviews with promotors is that 'accountability' has changed at universities. Although teaching and learning are about students, promotors feel that their accountability lies outside the scope of students. Promotors account more to external bodies through the internal processes of the university. One promotor indicated that funders (of a project) have taken over accountability. In his own words, '[w]e keep being reminded that if we don't meet the target, funders will withdraw' (PhD promotor, male, year undisclosed). Another promotor pointed out that 'external markets have taken over the accountability in terms of research results' (PhD promotor, gender undisclosed, year undisclosed). With accountability having shifted to external bodies, the needs of students have become secondary. Another promotor stated that '[f]unders give universities annual research output targets and every one of us supervisors is expected to help the university to meet those targets in indirectly securing funding' (PhD promotor, gender undisclosed, year undisclosed). This type of accountability has changed the nature of research supervision, especially at PhD level. There is pressure to produce more graduates at a faster rate. Three of the promotors confessed that they tend to over-direct students simply to ensure a good throughput, and thus, quality is bound to be compromised. Another promotor indicated that external bodies are threatening autonomy, innovation and

creativity within the university. He puts it that 'All the university is interested in, is to satisfy its external partners, leaving us and students at our own peril' (PhD promotor, male, year undisclosed). Promotors feel that they are not able to do their work to the best of their knowledge and ability. According to Deuchar (2008), external bodies impose quantifiable expectations which are market-driven and consumerist service dominated on higher education. Grant (2005) says that this situation pressurises promotors to compromise the relationship by pushing PhD students to finish their studies quicker. The prevalence of these pressures compels promotors to sometimes over-direct the work of the PhD students, and more often, to neglect the needs of the students, thus compromising the relationship.

PhD students are mostly individuals who enrol at universities to establish themselves as credible experts deserving of professional prominence and to earn higher salaries. The majority of these students are established in their respective professions but are driven by the need to further enhance their knowledge and skills to perform better. It is this need that should be fundamental to a PhD supervision process and the qualification should be of high-quality and be credible. As indicated, students should be provided with learning opportunities that will help them create new knowledge and better understanding pertinent to the professions (McAlpine & Asghar 2010). However, external pressures drive the process in terms of quantities – more graduates, more research outputs and more funding (Deuchar 2008). The 'mass production standards' and 'publish or perish' mantras at universities only serve to produce quantities rather than quality (Grant 2005; Ramsden 1992).

■ One-on-One Supervision and Group Supervision

Students had different experiences in terms of one-on-one supervision and cohort supervision. Two of the students who were not part of the seminars indicated their frustration about

feeling isolated. Both of them indicated that regular meetings with the promotor and other students would enhance support, stating that 'I feel isolated. I do not think my confidence is growing as an expert in my field' (Students, gender undisclosed, year undisclosed). The third participant who received only individual supervision was comfortable with that and indicated:

> I met with my promotor once every six weeks. If I needed support, I would send her emails or WhatsApp messages, and she quickly responded. That was all I needed. (Student, gender undisclosed, year undisclosed)

While the idea of group supervision was welcomed by the majority of the students who had had this experience, not all the students who were part of the group supervision were happy with it. One student commented:

> Sometimes I felt deep frustrations during group sessions, unlike when I had individual sessions with my supervisor. In groups, the supervisor treats us the same and yet some of us have specific expectations. (Student, gender undisclosed, year undisclosed)

Most of them felt that group supervision should not replace regular face-to-face interactions where constructive dialogue can happen. 'I feel that I need more face-to-face sessions with my supervisor, as they give me an important opportunity to be personal about my learning' (Student, gender undisclosed, year undisclosed). Two students indicated that they have never met their promotors in their offices to discuss their studies. Another student felt frustrated about not knowing what to expect and indicated that 'when I was presenting for the first time, I wasn't adequately prepared and this made me look stupid' (Student, gender undisclosed, year undisclosed).

Promotors who were part of group supervision were positive about what they achieved in the group. The majority of these promotors believe that working as a group empowers everyone, especially the new promotors. In the words of one promotor, 'I found that to have one or more co-promotors works well, particularly if each has a clear role to play' (PhD promotor, gender undisclosed, year undisclosed). The overall group view is that an

individual learns better through social experiences. Contrary to the group perceptions, promotors who did not belong to the group emphasised 'individual learning' as important and that group learning hinders individuals from learning in an effective way. One promotor added that 'an individual student generates his or her own knowledge, constructs knowledge in the process of tackling problems at his or her own pace' (PhD promotor, gender undisclosed, year undisclosed). In addition, another promotor indicated that PhD students who are put in groups 'measure themselves against their peers' and further indicated that 'benefits for students in such settings are limited' (PhD promotor, gender undisclosed, year undisclosed). Therefore, balancing individual learning with group learning drew a sharp contrast amongst promotors.

■ The Relationship Between the Promotor and the Student

Student dependence on promotors emerged strongly. As one of the students clearly put it, 'I couldn't do it on my own' (Student, gender undisclosed, year undisclosed).

Firstly, students depend on their promotors for the structure of the PhD study. One of the promotors explained: 'I always give my students one or two of my former students' theses to refer to, so that they can see the structure, particularly of the first chapter' (PhD promotor, female, year undisclosed). She, however, emphasised that she always encourages them to adapt it to their own needs.

Secondly, students depend on their promotors for more guidance and progress. The students believed very strongly that their promotors are better placed to guide them to proceed with ease in their studies and complete successfully. For instance, during presentations, students would often indicate their dependence when making decisions, such as one who responded: 'My supervisor will assist me' (Student, gender undisclosed, year undisclosed). These findings correlate with other authors who

found that some students tend to be more dependent on promotors than is expected (Schulze 2012).

Central to this relationship is communication and, in particular, dialogue, which is embedded in the whole process of supervision. This said, it seems from the data that dialogue could deteriorate into one-directional communication, which was called 'instructions' by a participant. Dialogue should present opportunities to both the promotor and the student for cordial exchanges of views, ideas and decisions. Interviews revealed that promotors sometimes give instructions and that students should simply comply. Dialogue is the opposite of monologism, which is mere instruction. Dysthe et al. (2006) point out that dialogue allows interaction, analysis and the construction of understanding, thus promoting multiple views.

One student felt that written feedback sometimes feels like instructions to her and she does not have the opportunity to question the feedback provided: 'The supervisor's comments on my chapters are sometimes annoying' (Student, female, year undisclosed). Two of the students indicated that group sessions sometimes consist more of announcements than learning. They felt that they bring to these sessions problems that they are unable to resolve on their own and they anticipate that they will be helped in the sessions: 'Sometimes our challenges don't even get discussed because of the number of students present' (Students, gender undisclosed, year undisclosed). This leaves students disillusioned. Nevertheless, Sambrook et al. (2008:n.p.) believe that students should, from the start, understand that even what can be perceived as negative feedback 'provides learning opportunities and is therefore positive'. Dysthe et al. (2006:n.p.) emphasise the importance of 'active participation from the student' during feedback sessions, instead of the promotor's taking an authoritative stance.

Most of students saw supervisory dialogue as a problem-solving mechanism. Although the relationship is professional, sometimes emotions run high during the process. When one party in the relationship is unable to view the process from the other party's point of view, there is a need to resolve the

situation immediately. One supervisor indicated that most students 'want to be baby-sitted (sic) throughout' (PhD promotor, male, year undisclosed) and that he could not afford that as he has other responsibilities. Another promotor indicated:

> You spend hours and hours working through the students' work, and making comments and giving advice. Some students really take those comments to heart, and work on the weaknesses. Other students, however, simply delete the comments or do not pay any attention to them. Then you have to point out something as basic as wrong referencing again and again. It is frustrating. (PhD promotor, gender undisclosed, year undisclosed)

One of the promotors commented on the importance of continuity between Master's and PhD studies:

> In my experience, it is easier to supervise a PhD student who did his or her Master's with me. We have already established a working relationship and the students know what to expect of me, and vice versa. In fact, we get to know each other very well, and that helps. (PhD promotor, gender undisclosed, year undisclosed)

This is supported by Mitsis (2015) who asserts that mentoring prior to doctoral studies is important, as the student's 'research voice' needs to be developed and fostered prior to doctoral studies.

Drennan and Clarke (2009), drawing on from other scholars, list specific practices with quality supervision:

- [*f*]eedback must be given without delay
- a balance between 'direction and independence' must be found
- students and promotors should meet regularly. (n.p.)

Another aspect highlighted by authors is that the expertise of the promotors should be appropriate and promotors should be able to suggest alternative designs if problems arise.

Mitsis (2015:818) concluded as follows in terms of the working relationship between supervisor and student:

> It is also important to note that for successful implementation of the PhD conceptual model presented, both the supervisor and the candidate must be willing to embrace a positive constructive

relationship over the course of the candidature whereby the supervisor dedicates time to student development and the student is open to constructive criticism and willing to engage in step appropriate independent research. (n.p.)

■ Completion

Quick completion was at the forefront of some of the students, while others were not concerned about the time it takes. Of those concerned with quick completion, one indicated the need to get 'instructions on what must be done' and felt that the 'supervisor left me to struggle too much with some sections and this is delaying' (Student, gender undisclosed, year undisclosed), while another added 'I spent too much time on things that waste students' time' (Student, gender undisclosed, year undisclosed).

However, those that were unperturbed about rushing to complete were very clear about their viewpoint. One student indicated that 'I want to be given enough time to engage with my topic so that I can be an expert' (Student, gender undisclosed, year undisclosed), while another commented that 'I'm able to manage my time; all I need is support' (Student, gender undisclosed, year undisclosed). The sixth student indicated that '[w]e worked with a specific schedule, and I worked hard to stick to that' (Student, gender undisclosed, year undisclosed). Conversely, promotors felt that the approach of the 'quick fix' to PhD studies deprives themselves, the students and the university of autonomy, which is a significant element of higher education.

■ Differentiation Between Traditional and Professional Doctorates

Both promotors and students were asked about their views on the difference between an academic doctorate and a professional one. Promotors were articulate about the difference between a disciplinary and professional doctorate, while students struggled to differentiate. Four of the promotors emphasised the need to develop the professional doctorate, particularly in education.

However, one qualified that there is a need to start at the lower levels of student studies in order to focus on the professional part. The promotor said that, '[c]onceptually, it is difficult to start focusing a student in the direction of the professional doctorate if it didn't begin at least at a Master's level' (PhD promotor, gender undisclosed, year undisclosed). Another promotor contradicted this view point by indicating:

> I have in the past supervised students who wanted to grow and develop in their professional space and those students performed so well because they knew what they were doing. (PhD promotor, gender undisclosed, year undisclosed)

It seemed as if some interpreted the difference as only being the focus of the study and were not aware of the details in the HEQSF. None of the students was aware that a professional doctorate exists and seemed surprised when the question was posed during the interviews.

Ozer (2004) states that in constructivism, students' previous learning, work and life experiences, and their background knowledge are key to learning. PhD studies should be meaningful to students in order to facilitate and enhance significant learning, growth and development, not only of the graduate but of the profession itself. Universities should thus consider the possibilities of professional doctorates towards enhancing professions.

■ Discussion

In a developing country, such as South Africa, education at all levels is crucial and this is captured in the NDP. In particular, countries need citizens to go through the process of attaining higher degrees and, in particular, doctoral degrees, in order to make a significant impact on the society in different spheres. Our education system is under threat for many reasons. The expectation is that to support the NDP, universities need to increase the number of doctoral graduates so that they plough back the critical skills and significant insights that they have gained towards improving our education system.

Nonetheless, the neoliberalist environment in which universities find themselves today affects the work of academics and concomitantly compromises the quality of doctoral studies. Universities are in a situation where they have to increase the number of doctoral students while at the same time struggle to compete for limited funds. This results in some cases, in a mass production mode, where unique student needs in terms of research focus, research methodology and many other aspects, suffer.

In order for a doctoral study to be successful, meaningful supervision needs to take place. This should not be an environment where the promotor is seen as omniscient, and the student a *tabula rasa*. On the contrary, it should be a space where critical deliberations take place, and students can grow cognitively and beyond, towards doctorateness. This requires a positive, open relationship between the student and the promotor, which is not always an easy feat and requires engagement and time, which is not always possible because of the pressures discussed above.

Promotors are individuals, each with a different style. Some prefer to supervise students only individually, while others opt for team supervision and cohort supervision. It is, however, clear that in the end all students should receive some individual attention from the supervisor. The relationship between the promotor and student is complex, and a balance between support and independence should be striven for. Promotors should be respectful when giving feedback to students, but students should also understand that feedback should be seen as developmental and not a critique of the person.

Ultimately, the outcome of doctoral studies and doctoral supervision should be a rounded-off student on the expected level of doctorateness who has produced a credible thesis which has meaning for both theory and practice.

■ Conclusion

The NDP expects doctoral studies to make a significant impact on the workplace of educators, amongst others. If this requirement

is to be met, in view of the paradoxes pointed out in this chapter, stakeholders in government need to come on board. The funding of HEIs should be sufficient so as to allow the capacity to supervise the increased numbers of students. Departments of Education should allow doctoral students study leave to enable them to deeply engage with the theory and methodology, in addition to their topics. Furthermore, promotors need to make sure that their supervisory skills are built up by attending development opportunities. Such opportunities should not merely be focussed on the latest technical skills but should also include social and interpersonal skills. Lastly, HEIs should consider the development of professional doctorate courses in line with the needs of the education fraternity.

■ Summary

In the *National Development Plan: Vision for 2030*, the expectation is raised that the HEIs should increase the number of doctoral graduates who then should make an impact in the sectors where they work. Still, the path towards obtaining a doctoral degree in education is not easy. Students mainly study part-time, and promotors are overwhelmed by the demands that they experience. In this chapter, we thus aim to consider the implications of the realities of students and promotors during doctoral studies. We provide a synopsis of the complexities of doctoral studies mainly based on the international literature. We further provide the reader with an understanding of expectations by government in terms of policies and plans, as well as some insight into the realities of four promotors and six students. We point out that the neoliberalist environment in which universities find themselves today affects the work of academics and, concomitantly, compromises the quality of the experiences of doctoral students and promotors. One of the recommendations that we make towards improving the impacts of doctoral studies on the education field is the introduction of professional doctorates, as is allowed for in the existing qualification framework.

Changing Views About Community Colleges in South Africa

Rosalind L. Raby
Michael E. Eisner College of Education, Educational
Leadership & Policy Studies Department
California State University
United States of America

Edward J. Valeau
The ELS Group, Emeritus
Hartnell Community College District, Emeritus
United States of America

■ Introduction

Despite more 'students completing secondary education', the pathways to the university are highly competitive (Raby 2018:n.p.). Massification theories (Trow 1973) have charted how new mass higher educational institutions provide distinct opportunities for students to gain access to higher education. Mass higher education includes teaching universities, private for and non-profit universities,

and the community college and global counterpart sector, all of which are distinct from elite universities. While elite universities remain the primary choice of students and receive high status from parents and employers, the limited spaces remain a concern for countries needing new avenues for higher education (Raby 2018; Raby & Valeau 2018). Worldwide, institutions in the community college and global counterpart sector serve as an alternative to the university and are instrumental in expanding the massification of higher education, especially for non-traditional students (Raby & Valeau 2018).

While the concept of massification was intended for universities, the similarities to the community college and global counterpart sector are striking (Raby & Valeau 2009, 2018). Literature shows that 'non-universities have shift[ed] the centre-of-gravity of mass higher education systems towards greater instrumentality' (Teichler 2004:3–16) and have changed a 'scale of the social transformation in higher education' (Scott 2010:2). In turn, massification of higher education results in graduates who gain employment that can result in social and occupational mobility, which in turn can raise the standard of living and help create societal equity (Raby & Valeau 2018; Raby 2009).

'There are noted explanations as to why access to community colleges and global counterparts positively supports social reform' (Raby 2018:n.p.). At the core is the belief that access to mass higher education results in better jobs, higher income and social mobility (Gallacher 2017; OECD 2015). In terms of access, there is a definite connection between mass access, expansion of student diversity and opportunity (Ayalon & Yogev 2006). Massification also serves students who are older, have non-traditional entry qualifications, work full-time, have family commitments, come from low-income and minority populations, are women and are often first-generation students (Jansen 2003). As such, access is believed to 'redress inequalities' (Ural 1998:199). Access is enhanced by the location of institutions in remote, rural or urban poor areas, and it is the physical placement close to home that is the most noted element for students

choosing to attend not only these institutions, but higher education itself (Anzai & Paik 2012). In some situations, access has positive outcomes for enrolment as well as for post-completion in terms of getting jobs at a rate higher than non-graduates, wage increases and even societal gains, such as improved physical and mental health and even a reduction of crime (Chen 2009; Schofield & Dismore 2010). At the same time, mass higher educational institutions are not viewed as having the same status as elite universities (Raby & Valeau 2009). Moreover, there is even a status differentiation between different types of mass higher education with community colleges and global counterparts being the least prestigious. Community colleges and global counterparts receive a lesser share of governmental funding, hire lesser qualified faculty and have minimal prestige given to them by students, family and workforce (Raby & Valeau 2018).

Comparative research has documented the community college and global counterpart sector since 1971. Evidence exists that shows despite low status, these institutions are growing in number and influencing educational reform. This chapter explores historical scholarly discussions about institutions within the community college and global counterpart sector in South Africa. This chapter explores the changing discussions around the creation and adaptation of community colleges into a unique institutional form and explores the historical context from which publications emerge, along with institutional changes unique to South Africa, with the aim to assess the future scope of these institutions within the higher education landscape of South Africa.

■ Sector Distinctions

Raby and Valeau (2018; Raby 2009) show that:

> [/]nstitutions in the community college and global counterpart sector are mostly divided according to institutional type (Applied Sectors of Higher Education College of Further Education; Community College; Higher Colleges of Technology; Junior College; Polytechnic; Technical University; Technical and Further Education College; and University

Colleges), academic level (upper-secondary, post-secondary; sub-degree; pre-baccalaureate); length of study (short-cycle; short-term; two-year; three-year); type of study (post-compulsory; tertiary); curricular context (lifelong education, transfer education, vocational education), regional distinctions (American or European models), and status (non-university, second-tier). (pp. 12–13)

The disciplinary focus of vocational and technical higher education is commonly offered at these institutions, yet, in this century, these institutions are also offering a practical-oriented curriculum combined with a liberal arts or theoretical emphasis (Raby & Valeau 2009, 2018). 'Even within the same institution, multiple emphases can be offered, such as pre-baccalaureate and baccalaureate degrees, and/or vocational and further education' curricula (Raby 2018:n.p.). The multi-purpose is a result of these institutions responding to changing local and national needs by redefining purpose, institutional structure and even names of these institutions. Raby and Valeau (2009) and Raby (2018) define community colleges and global counterparts as sharing four characteristics:

These institutions have a mission in which professional and academic programs are responsive to the educational needs of local communities and industries and whose curricular programs are likewise defined by local needs. In that these institutions are purposefully located in communities where students live, there is an ease of access that increases enrollment for non-traditional students. Secondly, this sector offers options for university overflow and a 'second chance' for non-traditional students who have long been excluded from higher education. Thirdly, this sector offers short-term and sometimes longer multi-purpose curricula to meet regional medium term labor requirements in high demand occupations in changing economies. Finally, these institutions support a mission that views educational access as necessary for providing economic and social capital that is needed to ensure social prosperity. (p. 14)

Some would argue that the 'term "community college" is a North American prototype and as a symbol of westernisation is not deemed to be applicable worldwide' (Raby 2018:n.p.). At the same time, for 50 years, institutions around the world call themselves 'community colleges'. In South Africa, overtime, there

have also been numerous names attributed to institutions in the community college and global counterpart sector. In the 1990s, these institutions were referred to as FET colleges and included institutions called technikons. In the 2000s, these institutions were called TVET colleges, and later simply colleges. In the last decade, some of the institutions in this sector were called Universities of Technology or Comprehensive Universities. The concept of the community college was introduced in South Africa in the 1990s (Zuma 1996) and today, there are new discussions regarding the importance of this institutional type to future South African higher education (Kruger & Wolhuter 2018).

■ Methodology

Raby and Valeau (2009, 2012, 2018) conducted 'a literature review of' institutions in the community college and global counterpart sector from print and online literature written in English with a focus on peer-reviewed journal articles, book chapters, dissertations and policy documents. The literature review used English language sources because the vast majority of authors who wrote on this topic used the medium of English. Acknowledging that 'only [using] English language sources ignore[s] a wealth of publications' (Raby 2010:n.p.), the latest additions to the review include non-English sources (that were translated into English) often found by listings in the reference section of recent publications (Raby & Valeau 2018).

Publications, according to Raby and Valeau (2018):

> [*W*]ere identified based on the process defined by the Comparative Education Review Bibliography (Raby 2010) in which a title had to reference (1) a country and/or region outside of the USA and (2) contain one of the identified keywords. (n.p.)

'Keywords were selected through a four-step process' that was first adopted to literature in the field by Raby and Valeau (2009:n.p.). Firstly, a list of keywords was created from the first generation of comparative scholarship that was published from 1970 to 1980. Secondly, as new sources were read, additional

keywords were accumulated. Thirdly, all identified publications underwent a final keyword search to assure proper identification to define cross-checking results. Finally, selected publications were reviewed to find non-English references whose titles were translated into English. Two search designs helped to locate diverse sources that would reflect different scholarly approaches:

1. peer-reviewed articles listed in the Comparative Education Review Annual Bibliographies from 1971 to 2016
2. publications in EBSCOhost, PROQUEST, PsycINFO, Google and Education Resources Information Center (ERIC) academic databases, IDP Database of Research on International Education, NORRAG database and Australian Council for Educational Research databases from 1971 to 2018.

Data analysis included a quantitative charting of the date, type of publication, institutional name, keyword identification and geographical focus. Qualitative content analysis included identification of the definitions ascribed to these institutions in the abstract and in the section that described the institutional type. Based on this analysis, we assigned codes to keywords that marked the name of the institution and the services provided to categorise data. The codes were then divided into segments and then labelled for overlap and redundancy and finally collapsed into layers of themes (Creswell 2014). To ensure data validity, each qualitative content analysis and coding process was performed independently by both authors. A list of codes was then discussed and systematically categorised. The thematic similarities of the codes and themes were reviewed and marked for each decade of publication. As new years were added to the review, the entire database was reviewed, re-discussed and re-categorised as needed. As new keywords were added, selected publications were re-read to see if the new keywords were applicable. Such a strategy was considered to be sufficient for the final decision about the identification of each keyword.

The review of literature includes 1516 publications from 1970 to 2018 (please refer to Table 10.1). The year 1970 is used as a start date because that is the date of the earliest publications

TABLE 10.1: Keywords on publications about South Africa.

Keyword	1980s	1990s	2000s	2010s	Total
Adult basic and further education		1			1
Community college	1	25	2	3	31
Comprehensive university				1	1
Further education			5	1	6
FET		4	4	2	10
Higher education			1		1
Lifelong learning		1			1
Non-career degree		1			1
Post-secondary		1		1	2
Post-school youth			1	1	2
Post-school Education and Training (PSET)				3	3
Technical education	2				2
Technical university				1	1
Technikons	1	3			4
Tertiary		1	3		4
Technical-vocational education (TVE)			1		1
TVET				1	1
Vocational education (VE)			3	4	7
VET			1	2	3
Universities of technology				1	1
Grand total					83

FET, Further Education and Training; TVET, Technical and Vocational Education and Training; VET, Vocational Education and Technology.

that highlight community colleges and their global counterparts in a comparative mode (Raby & Valeau 2009, 2018). 'Within the sample are 902 journal articles, 227 book chapters, dissertations/thesis, 36 conference presentations, and 351 monographs, policy documents or government reports' (Raby & Valeau 2018:n.p.). The most mentioned keywords were Community College (323), Technical and Further Education (TAFE) (236), Further Education (219), Vocational Education (190), Vocational Education and Technology (VET) (114), Tertiary (51), Technical and Vocational Education and Training (TVET) (22), Polytechnic (22), Post-Secondary (21) and Non-University (21). Table 10.1 compares the frequency and geographical emphasis of the top 25 mentioned keywords as they are found in publications about South Africa from 1970 to 2018.

∎ Findings

For this chapter, a separate content analysis on South Africa was conducted on sources included in the larger literature review. In total, 85 sources were identified from 1985 to 2018. Of these sources, six were in Afrikaans with the abstracts translated into English. The rest of the sources were in English. Included in the selection were journal articles (27), government monographs (20), chapters in books (20), government reports (8), books (5), conference presentations (3), United States Agency for International Development (USAID) monograph (1) and United Nations Educational, Scientific and Cultural Organization (UNESCO) paper (1). The following is a list of the journals in which more than two articles were found:

- *Africa Education Review*
- *Community College Journal of Research and Practice*
- *Compare*
- *Education Knowledge and Economy*
- *Higher Education Research and Development*
- *International Journal of Educational Development*
- *Journal of Vocational Education & Training*
- *New Directions for Community Colleges*
- *Research in Comparative and International Education*
- *South African Journal of Higher Education*
- *Southern African Review of Education*.

Table 10.2 shows the dates, sources, sub-topics and keywords attributed to each publication source. There were additional articles in Afrikaans that were not translated into English and those sources were not included in the review.

An examination of the keywords shows that 20 keywords that were identified in the larger search are also found in publications about South Africa (see Table 10.1). Yet, while top 10 keywords about South Africa are similar to the top 10 terms found in the larger search, the frequency of use is different. For example, the top five key words in the larger search were, in order of frequency, Community College, TAFE, FE, Vocational Education and VET.

TABLE 10.2: South African publications (1985–2018).

Year	Source	Sub-topic	Keyword
1985	Monograph	State of the field	Community college
1986	Government report Chapter	Description Description	Technical education Technical education
1988	Government monograph	Philosophy	Technikons
1991	Government report Chapter	Alternative models Link to democracy	FET
1992	Monograph Monograph Government report Conference presentation Government report	Institutional description Academic support Examine policy Sector description	Community college Technikons Post-secondary Community college Tertiary
1993	Conference presentation Government monograph Journal article Government monograph Government monograph Government monograph	Adaptation Institutional role Creating programme Framework National viewpoint Increase access	Community college Community college Non-career degree Lifelong learning Community college Community college
1994	Government monograph Government monograph Government monograph Government monograph	Review Planning to build Framework Description	Community college Community college Adult basic and further education FET
1995	Book Journal article Journal article Government monograph	Institutional description Policies Description	Community college Technikons Community college FET
1996	Chapter USAID monograph	Development Development	Community college Community college
1998	Book Chapter Chapter Chapter Chapter Chapter Chapter Chapter Chapter Chapter Chapter Chapter Government monograph Government report	Development Development Multicultural Comparative Comparative Development Need Models NQF Experiential learning Staff and students Building policy NQF	Community college Community college Community college Community college Community college Community college Community college Community college Community colleges Community colleges Community colleges Community colleges FET Technikons
2000	Compare	Policy	FE
2001	Book	Development	Community college
2002	Journal article	Governance	FE

TABLE 10.2 (Continues...): South African publications (1985–2018).

Year	Source	Sub-topic	Keyword
2003	Journal article	Occupational Social	Tertiary
	Paper presentation	work	FET
	Government monograph	Skills policy	FET
2005	Journal article	Professionalism	FE
2006	Book	State of the field	Higher education
	Journal article	Reform efforts	VET
2007	Journal article	Marketing	FE
	Journal article	Management	FE
	Journal article	Auto-curriculum	VE
2008	Chapter	Training skills	FET
	Government report	National plan	FET
2009	Journal article	Skills training	TVE
	Journal article	Student choices	VE
	Journal article	Sustainability	VE
	Chapter	Descriptions	Community college
	Journal article	Gender	Tertiary
	Journal article	Employment	Post-school youth
	Book	Student needs	
2010	Journal article	Private institutions	VET
	Journal article	Policy	VE
	Journal article	Development	FE
	Journal article	Curriculum	FE
	Journal article	Changes	FE
	Government monograph	Challenges	FET
	Government report	Access	Universities of technology
	Government report	Student survey	VE
2010	Chapter	Building a model	Community college
	Journal article	Challenges	TVET
	Journal article	Policy	VE
	Journal article	Web design	VE
	Journal article	Reimagining	VET
2011	Journal article	Comparative	Community college
2012	Green paper	Structure	PSET
	Chapter	Philosophy	Community college
	Government paper	Needs-analysis	Post-school youth
2013	White paper	Building programme	PSET
2015	Chapter	Institutional design	FET
	White paper	Expansion	PSET
2017	Journal article	Application	Post-secondary
2018	Book chapter	Upgrading	Technical university
	Book chapter	Student voices	Comprehensive university

FET, Further Education and Training; USAID, United States Agency for International Development; NQF, National Qualification Framework, FE, Further Education, VET, Vocational Education and Technology; TVE, Technical-Vocational Education; PSET, Post-School Education and Training.

The top five keywords in the South African search were, in order of frequency, Community College, FET, VE, FE and technikons. Also unique to the South African review are the following terms that are not found in other countries:

• PSET
• Post-school youth (PSY)
• Adult basic and further education.

Three other terms are also found in other countries:

• Comprehensive university
• Non-career degree
• Universities of technology.

While the larger search has numerous publications about TVE and TVET, these are not the focus of publications about South African institutions. Telling is the fact that the keyword technikons is the name of an institution that is less popular today, while PSET, one of the newest terms attributed to this group of institutions, is gaining popularity. Finally, the vast majority of publications on community colleges were published not because there are community colleges in South Africa but because of the decades-long discussion on the applicability of this institutional type to widening access and serving the economic needs of the population (Kruger & Wolhuter 2018; Zuma 1996).

■ Applying Historical Foundations of Comparative Scholarship to South Africa

Raby and Valeau (2012, 2018) define four generations of scholarship on community colleges and global counterparts in which both United States (US) and non-US scholars chart institutional reform within and between countries. Comparative research shows that a scholarly interest in institutions in the community college and global counterpart sector began in the early 1970s. With the advent of the Internet, academic study began to include 'publications that were written by scholars

from other countries about their own institutional constructs' (Raby 2018:n.p.). The following section uses the four-generation framework and applies it to literature on South Africa.

■ Generation One: Discovery

During the 1970s and 1980s, the first generation of scholarship focussed on case studies of institutions that were 'like community colleges'. The focus of these studies was to describe structure and institutional form and sometimes compare and contrast with structures in different countries. The first publications about community colleges and global counterparts in South Africa were published in the mid-1980s. Zuma (1996) details the history of the changing state of higher education and the role that community colleges can play and dates back to the early 1980s. Kruger (1986) focussed on the transformation of technical education to serve the same niche. By the end of the decade, there were many government monographs and reports about the changing state of the field of technical education, a monograph on technikons and a position paper on the relevance of community colleges to South Africa. In total, during the 1980s, there was one monograph on the state of the field, two government reports, and one chapter that described existing institutions and how community colleges would help fill gap needs.

■ Generation Two: Educational Borrowing and Collaboration

During the 1990s, the second generation of literature acknowledged that similar institutional forms existed throughout the world and began to detail educational borrowing patterns. Some of these patterns included USA and Canadian community college creation of transnational collaboration projects with the intent of helping institutions around the world to adopt community college characteristics (Australian Agency for International Development 2016). Many of these publications were final grant reports that

described the outcomes of planned international development projects. In South Africa, publications also described findings from South African delegations that visited the USA, Canada and Great Britain. Other publications focussed on the viability of adopting US community college and/or UK FE curricula, institutional structure and mission (Strydom & Lategan 1998). Most of the publications documented the thought process of what South Africa needs, what could be borrowed from other countries and what form the borrowing would take (Du Toit 1992; Fisher 1993; Ural 1998). The linking of community colleges and FET to democracy (Levin 1991; Strydom, Bitzer & Lategan 1995) grounded many publications in this period as these institutional types were seen to be an 'antidote to the apartheid system' (Le Roux 1991:88). Throughout the decade, government monographs and reports also explored the viability of the community college model as a way to enhance education and training institutions in South Africa (African National Congress 1994; NICE 1994). The focus of these publications was on alternative models for access, for servicing the job market, for multicultural understanding and opportunity, and for regional development. There were also a range of publications that described the existing institutional types of technikons as well as institutions labelled as post-secondary, tertiary and non-career degree. In sum, this was a decade of debate on how best to serve the needs of a post-apartheid country (Fisher & Scott 2008). In total, during the 1990s, there were 12 government monographs on educational reform; four government reports on exploring new institutional types and on establishing NQFs; two conference presentations on adaptation of institutional forms, three journal articles on increasing access; one USAID monograph on sector development and two books that combined included 14 chapters that described the benefits of adopting new institutional models.

■ Generation Three: Theoretical Analysis

In the 2000s, the third generation of scholarship began to apply theoretical models of globalisation and neoliberalism to explain

why the community college and global counterpart sector continues to have relevance worldwide (Raby & Valeau 2018). In South Africa, studies showed how institutional mission and structure were adopted from one country to another (Fisher, Jaff & Scott 2003), while other studies depicted how specific characteristics were modified to fit the needs of South Africa (Jansen 2003; Raby 2009; Wolhuter 2009). As with other countries, now that the institutional type was taken as existing, there began to emerge empirical studies on professionalisation, management, marketing and communication, and curriculum (McGrath & Akoojee 2007). Government reports also explored the building of policy frameworks and connections to NQFs. During this decade, there were very few publications about community colleges and more publications that examined and analysed what existed in terms of FET colleges (Fisher & Scott 2008). Yet, as the College sector grew, Fisher and Jaff (2003) noted that other elements of FET and skills policy frameworks were not being addressed as they were in the past. In total, during the 2000s, there were:

- two government monographs on educational reform
- one conference presentation on skills development policy
- 13 journal articles on increasing access, educational policy, professionalism, skills training, management and sustainability
- two books on the state of the field and pending reforms
- two chapters in other books, one focusing on FET and the other on community colleges.

■ Generation Four: Academic Studies

Since 2010, empirical Comparative Education studies were conducted that focussed on defining the purpose of VET (Powell 2012), assessment of need for community colleges (Wolhuter 2011) and impact of Universities of Technology (Du Pré 2010; Raby 2009). Many of the empirical studies in this decade examine private and public institutional types, curriculum, access, student voices, needs-analysis, challenges and restructuring (Kruger & Wolhuter 2018). There were, in addition, publications that

continued to explore the viability of community colleges (Wolhuter 2012) and placed these institutions in a comparative mode (Wolhuter 2011). Since 2012, a notable change to the publications was the addition of the keyword PSET. In total, during the 2010s, five journal articles on increasing access, educational policy, challenges of current institutional design, application of community college models, skills training and philosophy of institutional mission within TVET, VE and FET institutions were published. In addition, there were five chapters on building the new institutional model, institutional structure, institutional design, upgrading institutional forms and student voices, and four government monographs or white papers on needs assessment, pathways leading to educational reform, student voices and access.

■ Discussion

Over the decades, there are three primary themes found within publications on community colleges and global counterpart sector in South Africa, namely, direct comparison, educational borrowing and academic drift.

■ Direct Comparison

Direct comparison is difficult to do in the community college and global counterpart sector owing to the large number of terms by which these institutions are called. As noted, in South Africa, there has never been an institution with the name 'community college'. Nonetheless, as the wealth of publications suggest, there are authors that denote commonalities of community colleges with existing institutions. Adding to the difficulties of direct comparison is that many of the South African institutional names continue to change as well. For example, Technikon, which is unique to South Africa, was changed in 2003 to another name to gain international currency (Wolhuter 2011). Regardless of name, there is consensus that there are institutions in South Africa that can be considered to be 'global counterparts', be it Technikons, FET colleges, Universities of

Technology or Comprehensive Universities, because all of these institutions fit into the definition prescribed by Raby and Valeau (2018). These institutions (Fisher & Scott 2008; Kruger & Wolhuter 2018; Raby & Valeau, 2009:12; Raby & Valeau 2018):

> [L]ink curricula to local industry needs, are located in communities where students live, offer a 'second chance' for non-traditional students [who] were historically excluded from higher education, and support a mission that views educational access as necessary for providing economic and social capital that is needed to ensure social prosperity. (n.p.)

■ Educational Borrowing

Globalisation results in social, economic and cultural values and norms that are shared around the world aided by colonialisation, transnational corporations, technological changes, non-governmental organisations, and student and scholar mobility (Raby 2018). Borrowing results from both purposeful design and common experiences defined by space and time (Raby & Valeau 2018). Steiner-Khamsi and Quist (2000) caution that 'what was borrowed' is less important than 'why it was borrowed' (Raby 2009:n.p.). Raby and Valeau (2009) show that in a discussion on community colleges and global counterparts that two patterns of educational borrowing help to explain the 'why' (Raby 2009). The history of the community college and global counterpart sector in one of educational borrowing (Skolnik 2016) in which institutions seek out others through student and staff mobility and via collaborative projects (Raby & Valeau 2018). In South Africa, the impetus for borrowing began with academics and government officials looking to reform higher education. As noted above, a combination of governmental reports (Department of Higher Education and Training 2012) and books (Strydom et al. 1995) explored institutional types of community colleges and FE in other countries with the purpose of transfer of knowledge. Knowledge was borrowed through first-hand visits to other countries and from scholars being invited to visit South Africa as well.

Another important concept is the linking of the South African institutions to democracy, equity and societal change. In part, community college and global counterparts do serve local communities by training and retraining, by appealing to unique student sectors and allowing them to contribute to the economic well-being of the country and to achieve social mobility (Raby 2009; Ratcliff & Gibson-Berninger 1998). Equally important is that borrowing comes from outreach from donors, often from the USA, Canada or Australia, for either neoliberalism or humanitarianism purposes, facilitated by collaborative projects (Raby 2000, 2009). In South Africa, international development projects were supported by the Canadian International Development Agency (ACCC 2016), German technical colleges (Barabasch, Huang & Lawson 2009; Raby & Valeau 2012), the Japanese International Cooperation Agency (World Federation of Colleges and Polytechnics 2008; Raby & Valeau 2018), Higher Education for Development (HED) in cooperation with USAID in South Africa (Raby 2000) and World Bank (2009) which reported that neglecting tertiary education could seriously jeopardise longer-term growth prospects of sub-Saharan African countries, while slowing progress towards Millennium Development Goals, many of which require tertiary-level training to implement.

◼ Academic Drift

Academic drift occurs when institutions change their names and mission as they seek to upgrade their visibility and status (Raby 2009; Wilson 2009). In a hierarchal process, technical institutions often change to community colleges, which in turn are then upgraded into a university college or university (Raby 2009; Raby & Valeau 2018). In the USA, in 2017, Eastern Idaho Technical College was transformed into a community college, while in Canada, in 2016, the name of Association of Canadian Community Colleges was changed to Institutes Canada to represent those community colleges that morphed into teaching universities (Raby 2009). In Namibia, the Polytechnic of Namibia was upgraded to the status of a university to make their brand

more applicable to international universities with whom they were building collaborations (Krishnamurthy & Wolhuter 2018; Raby 2009).

In South Africa, academic drift has been occurring since the 1970s. The upgrading of institutions in this sector was done to serve a specific niche of students, to provide job-skill training to support local and national economy, to increase opportunities to higher education and to address historical racial inequities. In the early 2000s, Apprenticeship Training and Technical Secondary schools were upgraded to Training and Technical Institutes and then later to technikons. Technikons were replaced in 2003 with University of Technology (Wolhuter 2009). Parallel to technikons are the FET colleges that began as a form of upper-secondary education and were later upgraded to colleges. More recently, various institutional types merged to achieve racial equity (Fisher & Scott 2008; Wilson & Van Alebeek 2018). For example, the Nelson Mandela Metropolitan University was created when Port Elizabeth Technikon (a school for people of mixed race), 'the University of Port Elizabeth (a school for white people), and Port Elizabeth campus of Vista University (a school for black people) merged' (Raby & Valeau 2018:n.p.; Wilson & Van Alebeek 2018). Likewise, the University of Limpopo which was begun as the University of the North for four ethnic groups, namely, Sotho, Venda, Tsonga and the Qwa-Qwa, was merged with the University of Free State, which later was merged with the Medical School of South Africa to form the University of Limpopo (Raby & Valeau 2018; Wilson & Van Alebeek 2018).

■ Conclusion

'Since 1971, literature has been published by those writing about their own countries' as well as by researchers conducting comparative research (Raby 2018:n.p.). In South Africa, institutions within the 'global counterpart' sector are not without conflict. Kruger and Wolhuter (2018) note that institutions in this sector are expensive to maintain, include high-levels of internal

inefficiency, the curricula is not aligned with work, few graduates have sufficient training, there is an excessive number of students vying for limited spaces and the increase in tuition costs make them unattainable for those whom they are intended to serve. Fisher (2015) notes that the wide scope of reforms and the limited capacity and resources of the state and institutions challenge the mission and successful implementation. In response, there are current calls to review the short-cycle curriculum for specific professions. In other cases, as institutions merge, funds are given to the more senior-level institutions (Wilson & Van Alebeek 2018), leaving the 'global counterpart' sector even more impoverished, which served as a basis for the recent student protests.

Despite the challenges, South African publications on the community college and global counterpart sector profile the impact that these institutions have had on social change at both national and local levels. As Raby and Valeau (2012:19) note, 'students, in large numbers, enrol because the opportunity exists, and sometimes because it is the only opportunity that exists'. Scholars in the field maintain that as a result of massification, and as we propose, the process of introducing a community college or global counterpart institution into a society results in increased access for non-traditional students, and the potential for jobs and career or personal upward mobility. The story of the evolution of community colleges and global counterparts is one of social equalisation where new opportunities define new possibilities for social change. Equally important is that these institutions represent new voices that need to be recognised as part of the higher educational landscape.

■ Summary

This chapter explores historical scholarly discussions about institutions within the community college and global counterpart sector in South Africa, with the aim to assess the future scope of these institutions within the higher education landscape

of South Africa. This chapter explores the changing discussions around the creation and adaptation of community colleges into a unique institutional form, historical context from which publications emerge, and institutional changes unique to South Africa. At the foundation of this reform is an intent to broaden access to higher education, especially for non-traditional students. This chapter explores the transformation of discussions over time and the consequent institutional changes in South African higher education. The research methodology consists of a literature study. Since 1971, literature has been published by those writing about their own countries as well as by researchers conducting comparative research. In South Africa, institutions within the 'global counterpart' sector are not without conflict. Despite the challenges, South African publications on the community college and global counterpart sector present a positive profile regarding the impact that these institutions have had on social change at both national and local levels. These include expanding and equalising access to higher or post-secondary education.

Higher Education Tenure and the Associated Scholarship Reward Practices in South Africa and the United States of America

Fulufhelo G. Netswera
Business School
North-West University
South Africa

Kristin Wilson
College of Education and Behavioral Sciences
Western Kentucky University
United States of America

∎ Introduction

The staffing and continuous development of academic capacity in the higher education sector is an important intellectual project throughout the world. Such a programme is championed by different role players and conducted using different methodologies. The bearer of this talent, that is, higher education which include but not limited to the university and further education training colleges sectors, takes different approaches, some more proactive and others passive in training and improving the quality of required intellectual and delivery capacity. Non-governmental organisations that operate in this space also contribute indirectly through either financial support towards the training and development of the required higher education academic or research capacity or are involved directly in the actual training. In all of these endeavours, there is due diligence associated with what is perceived to be academic excellence so that the right calibre of academic talent is recruited, trained, well remunerated and retained.

Governments also take different approaches to the development of the required countrywide academic and research capacity. All governments promulgate special legislation to regulate and give directive on how the higher education sector within their jurisdiction will be governed and how the appointments of office bearers will be managed in most instances. This is done through devolution of such authority to the HEIs themselves. Most governments appoint the board of governors of their public universities and/or fund higher education directly through transfers or subsidies to the HEIs or develop parallel programmes to intervene in the training and retention of the required academic and research capacity.

What compounds the problem associated with inadequate capacity, academic tenure and career progression, as well as the retention of excellent academic cohorts, is a forever intensifying competition throughout the world for the same skills. The productive

and skilled academics are highly mobile in the current context of global education. Their profiles are published, accessible and benchmarked throughout the world, and this increases the demand for outstanding and excellent academic skilled personnel. Neave (2002) believes that historically higher education had a strong national focus during the era of nation-state dominance in the 19th and 20th centuries (Teichler 2004). However, these trends have drastically changed over the years, and mobility of both academic and students therefore optimised, especially after the Bologna Process in Europe which harmonised qualification requirements and outcome standards (Keeling 2006).

It is generally accepted that career progression is premised on what may be clearly referred to as academic excellence. The notion of academic excellence is defined differently across different HEIs than regulated at a national government level. Some of the measures utilised in assessing academic excellence include but not limited to academic citations which are closely monitored and computed by independent and commercial agencies like Scopus, Google Scholarly Matrix (hi-index) and Thomson Reuters – Web of Science. The South African National Research Foundation (NRF) rating system is equally a very important independent peer review system on the standing of the scholar amongst his peers in their research field. The NRF rating system is generally utilised by South African universities as an employability criterion. There is proliferation worldwide in the area of assessment of academic excellence at university to university-level (university ranking), academic schools and departmental comparisons (e.g. Research Assessment Exercise in the UK) as well as individual academic impact computations (scytometric) (Barker 2007; Liu, Cheng & Liu 2005). The demand for academics, attainment of academic tenure and associated remunerations are currently widely highly influenced by an individual academic standing in these ranking systems.

The attainment of full-time posting in the South African HEIs, with reference to the public HEIs, which is also referred to as

tenure track in the USA, is primarily the interest of this chapter. This chapter describes the higher education sectors in the two countries (South Africa and the USA) and how tenure is regulated and managed in these countries. It is a common cause that there are specific predetermined requirements to secure tenure; however, the question is, are these requirements comparable?

■ The Genesis of the Two Higher Education Systems

The USA is (at the time of writing) home to approximately 326 million people (US Census Bureau n.d.). In the Fall of 2015, the USA had 3318 4-year, non-profit colleges, and of these, 1698 were private non-profit colleges, and 1620 were public non-profit colleges, and the most elite and private ones, also referred to as the Ives, stood at 43 (National Centre for Educational Statistics [NCES] 2017). In 2015, all these universities were being serviced by 1.6 million faculty members of which nearly half (800 000) were full-time faculty members (Snyder, De Brey & Dillow 2018). The ratio of population to institution is 98 000:1, and the ratio of population to faculty is 203:1.

Of all HEIs, 415 000 are full-time faculty lines at 4-year public universities. The non-profit 4-year universities including those considered the Ives employ a mere 260 000 faculty members. Together, these 675 000 positions in the 4-year public and 4-year private combined are coveted faculty lines and are often what the public envision when thinking about faculty work. However, faculty positions like these are increasingly rare. These positions represent slightly more than 40% of all faculty employment in the post-secondary sector. In general, part-time faculty employment is rising at a faster rate than full-time employment. The implications are that universities are able to avoid long-term employment contractual obligations like pension funds and medical aid and thereby spend less on employees. At public, 4-year institutions, 68% of the teaching staff are full-

time employees, while at public, 2-year colleges, 48% of the teaching staff are full-time employees.

South Africa is a smaller country in comparison to the USA both in terms of population size and in the size of its higher education system. South Africa, according to Statistics South Africa (n.d.), has a population of 56.5 million people (at the time of writing). A reference to the higher education sector in the South African context is a post-secondary education sector which comprises the university sector and the further higher education and training colleges which are also commonly known as the TVET colleges. There are 26 public universities and 50 public TVET colleges that operate in 265 campuses. Both the public universities and the TVET colleges receive government subsidies annually and are established and operated through the *Higher Education Act 101 of 1997* and *Continuing Education and Training Act 16 of 2006* under the authority of the Department of Higher Education (TVET colleges South Africa n.d.). There are also 32 private universities and colleges and six theological seminaries which are independent of government financial subsidies and other related support. In the academic year 2015, the public higher education sector in South Africa was serviced by 51 311 staff members of which 18 567 constitute the academic pool, 6735 professional employees, 21 051 administrative and technical staff and 4958 categorised as other (Centre for Higher Education Trust n.d.). The ratio of population to institution is 172 000:1 for all institutional types combined, and the population to faculty ratio is 3000:1 at least calculated at the level of public higher education only.

Unlike with the universities, the appointment and remuneration at the TVET colleges is managed differently guided by the Occupations Specific Dispensation (OSD) which is a framework of the Public Services Coordinating Bargaining Council (PSCBC) Resolution 1 of 2007 which is informed by the *Labour Relations Act 66 of 1995*. The OSD is applicable to teachers of the public schools, while principals and their deputies are ranked directors and deputy directors of the public sector (Terblanche 2017;

Ministry of Higher Education and Training 2017).[3] There are long-standing recommendations that the lecturing services of the TVET colleges should be re-graded and re-aligned in benchmark against the university requirements and remuneration in order to attract and retain quality academics. This chapter does not discuss tenure in relation to the TVET colleges as their services are determined by the OSD and equated to those of other civil servants, while tenure and career progression in the university sector are differently managed and comparable to other international universities.

■ Academic Freedom – Another Important Tenure Demand Determinant

Both the South African and American higher educational systems have their origin in the British imperial system which was their colonial master. The current South African university sector emerged out of the British collegiate system. The first university was set up as an examining centre for the first 'distance education' provision through the University of London. The first college, that is, the University of Cape of Good Hope, was established in 1873 but only received its Charter in 1877 and was renamed the University of South Africa in 1916. The university established examination centres throughout the country, including in Graaff-Reinet and Stellenbosch, and later in Bloemfontein, Burgersdorp, Kimberley, Johannesburg, Grahamstown, Alice and Pietermaritzburg, amongst others. The university system had it basic foundations premised on 'academic freedom' which was defined as (ALA n.d.):

> [*T*]he conviction that the freedom of inquiry by faculty members is essential to the mission of the academy as well as the principles of academia and that scholars should have freedom to teach or communicate ideas or facts (including those that are inconvenient

---

3. Memorandum from Parliamentary Office. National Assembly for written reply. Question 970.

to external political groups or to authorities) [*without being targeted for repression, job loss or imprisonment*]. (n.p.)

The higher education landscape has since gone through tumultuous periods at times in conflict with the state and at times also in collaboration with the state against the foundations of academic freedom. Many universities have also since emerged out of the colleges-satellite campuses of the former University of South Africa (Royal Society of South Africa n.d.).

Each of the current 26 South African universities is established by an Act of Parliament (Statues) which predicates governance, structures and systems for the operations of the university and stems from *the Higher Education Act 101 of 1997*. With reference to academic freedom, the *Higher Education Act* (CHE n.d.) makes only minimal reference to:

1. promoting the values which underlie an open and democratic society based on human dignity, equality and freedom
2. respect and encourage democracy, academic freedom, freedom of speech and expression, creativity, scholarship and research. (n.p.)

All the statutes of the individual universities pronounce on the importance of upholding academic freedom and freedom of scientific research although at a minimalist level. For example, in its statues, the University of Cape Town (UCT) asserts (UCT n.d.):

> The Council also determines the nature and scope of the University's social responsibilities, protects the institutional autonomy of the University, upholds the academic freedom of its members, and deliberates on the nature and role of the University. (p. 1)

The North-West University statutes read (North-West University Statutes 2017):

> Whereas the North-West University is duly established in terms of the *Higher Education Act*, 1997 [...] has its own identity, institutional culture and ethos based on its unity and values in pursuit of fostering engaged and caring staff and students by ethics in all endeavours, academic integrity, academic freedom and freedom of scientific research, responsibility, accountability, fairness and transparency as well as by embracing diversity. (p.1)

The longest operating college in the USA predates the establishment of the country. Harvard College, for instance, was established in 1636 for the training of clergy in the English Puritan tradition. The American colonial colleges in the 17th century relied on donor and tuition for operations funding and capital development. That means that donors often tied strings to their donations requiring certain kind of research and/or teaching to take place. It was not until the beginning of the 20th century that university presidents began viewing the use of donations to direct research and teaching as an impediment to academic freedom. The American Association of University Professors (AAUP), which is a non-profit, membership-based organisation, was founded in 1915 during the progressive era when colleges and universities were growing and thriving. When the AAUP was formed, a committee, the Committee on Academic Freedom and Academic Tenure, articulated principles to guide thinking about tenure (AAUP 1915). During a 1925 conference of the American Council on Education (ACE), a short statement was written and was further endorsed by the professional groups.

When the stock market crashed in 1929, the Great Depression ensued. The Second World War began in 1939 and lasted until 1945. The depression along with the war changed American cultures, for example, women entered the workforce and began to attend colleges in mass. During the war, the university enrolments plummeted and universities were struggling to stay afloat. At the end of the war though, soldier with GI Bill fund enrolled in universities in droves. During this time period and specifically in 1970, the AAUP crafted their statement on academic tenure and freedom that has guided law and policy ever since. The '1940 Statement of Principles of Academic Freedom and Tenure' reads: 'Freedom in research is fundamental to the advancement of truth'; in addition, the statement names the purpose of tenure as providing (AAUP 1970:14), firstly, freedom to teach and research and, secondly, satisfactory remuneration to entice capable people to the profession.

These two pieces, freedom and tenure, as outlined by the AAUP in 1940, are a principal aspect of the growth of the American research capacity.

The Supreme Court of the USA has viewed academic freedom as a First Amendment right, that is, 'freedom of speech'. For example, in Keyishian v. Board of Regents (US Sepreme Court 1967), the ruling reads:

> Our Nation is deeply committed to safeguarding academic freedom, which is of transcendent value to all of us, and not merely to the teachers concerned. That freedom is therefore a special concern of the First Amendment. (n.p.)

Shelton V. Tucker (1960 in Encyclopedia Britannica 2018) contends that 'the vigilant protection of constitutional freedom is nowhere more vital than in the community of American schools' (Collier 1991:469). And in Sweezy v. New Hampshire (US Supreme Court 1957), the court ruled (French 2017):

> The essentiality of freedom in the community of American universities is almost self-evident. No one should underestimate the vital role in a democracy that is played by those who guide and train our youth. To impose any strait jacket upon the intellectual leaders of our colleges and universities would imperil the future of our nation. Teachers and students must always remain free to inquire. To study and to evaluate, to gain new maturity and understanding; otherwise our civilisation will stagnate and die. (n.p.)

The connection between the First Amendment and academic freedom is well-established in the USA. The 1940 Statement of Principles of Academic Freedom and Tenure defines academic freedom as (AAUP 1970):

1. [*t*]he full freedom to teach and publish
2. [*t*]he freedom to teach within their disciplinary expertise (although not outside it)
3. [*t*]he freedom to speak publically without censorship from the institution. (n.p.)

■ Appointments and Tenure Configurations

In the USA, ensuring academic freedom is the notion of tenure. Tenure is understood as continuous employment after a probationary period. The 1940 Statement of Principles of Academic Freedom and Tenure includes acceptable practices including issuing the terms and conditions of appointment in writing before the appointment begins; a probationary period that does not exceed seven years; academic freedom during the probationary period is also guaranteed; termination for cause only; and termination for financial exigency should be demonstrated. Along with these basic notions are specific guidelines requiring that faculty be informed of any performance problems and that faculty be given a hearing to offer a defence. The 1940 Statement of Principles of Academic Freedom and Tenure is the most commonly cited and used statement on academic freedom and tenure in the USA and possibly throughout the world. Even today, many universities make reference to this statement in their academic policies or in their faculty governance policies. The AAUP has two types of chapters located on university campuses, namely, advocacy chapters and collective bargaining leadership concerning work responsibilities, tenure requirements and promotion requirements, as well as salaries, for example, Michigan and Pennsylvania.

The appointment and establishment of the conditions service for the academic faculty members in the South African higher education context is a delegated responsibility by the Ministry of Higher Education to individual university councils. Such appointments should be conducted in consultation with senate in accordance with Section 34 of *the Higher Education Act 101 of 1997*. Moreover, the Minister of Higher Education has the right to appoint at least five persons to the University Council, that is, the highest governing body which consists of not more than

30 individuals. In its primary definitions, *The Higher Education Act* (CHE n.d.) regards:

1. higher education 'employee' means any person employed at a public higher education institution
2. higher education 'employer' means the council of a public higher education institution. (n.p.)

In respect of the North-West University, the statues determine that appointment of both academic and support staff is a council responsibility. This is a mirror of other public universities, given as follows (North-West University Statutes 2017):

- An academic employee must be appointed after consultation with the senate.
- An academic employee who is offered an appointment in a management position is entitled to a contractual stipulation, subject to such conditions as may be agreed upon, pertaining to the return or not to an academic position on the termination of the contract.
- Employees may be discharged on the grounds of – (a) operational requirements; (c) serious misconduct; or (d) incapacity. (p. 29)

Within the tenure system in the USA, faculty typically work through a rank hierarchy of positions and can only attain full tenure after probationary periods of not more than seven years. Most commonly, institutions have promulgated systems for determining rank and tenure. Faculty committees often write and administer promotions and tenure policies with final approval given by the provosts, presidents and boards. The South African equivalent is a cascaded scale for career progression that is performance based. There is, however, strong emphasis in the scale for performance in research, that is, both supervision and publications. All employment types are permanent employment from the most junior, and probation is generally not a practice. Where it is applicable, it is for a short duration of either six months or one year to gauge if the incumbent has the capacity and expertise to render a job requirement. The career ladder is provided in Table 11.1.

TABLE 11.1: Academic ranks – South Africa versus USA.

United States	South Africa
3. Full professor	4. Full professorship
2. Associate professor	3. Associate professor
1. Assistant professor	2. Senior lecturer
	1. Lecturer

Some universities make it highly explicit and others are a bit vague on their requirements for entry into any academic position and progression thereafter within the South African higher education sector (University of Stellenbosch n.d.). The University of South Africa Research and Innovation policy, for instance, has established targets that should be achieved in terms of 'accredited research outputs' for the various job grades over a given duration and equally so link the position to the remuneration band. For instance, entry into a senior lecturer's position is a 1.2 research output points which may be equivalent to a journal article and peer-reviewed conference proceeding. In three years' time, there is an expectation of four peer-reviewed publications (University of South Africa 2016).

As it is the case in both the USA and South Africa, tenure and promotion requirements have traditionally included teaching, research and service (Boyer 1990; Menges & Schuster 1999). Dependent on institutional type, requirements for each vary widely, and the emphasis on either teaching, research or community engagement is informed by the institutional type too. Even within institutions, departmental leaders often resist telling faculty members how many publications they must have to achieve promotion into the next rank. In the USA, teaching requirements range from a 2–2 load (two classes a semester) to a 4–4 load, with community colleges having the heaviest teaching load of a 5–5 semester course load. Often where there is a heavy teaching load requirement, there is low research and publication requirement. Service requirements, which is also termed community service, community engagement or engaged scholarship, typically include committee work at the department,

school, faculty- or university-level committees. The primary argument for premise and an ongoing debate regarding community engagement is that the world of academia should operate and deliver on community expectations. The triple helix model in this regard argues for strong connections between the university, industry and government so that each of these sectors continuously feeds into ethos and operations of the other and thereby continuously strengthens each other (Ranga & Etzkowitz 2013).

Tenured full professors are generally asked to do more service work in the case of the USA because they have achieved the highest rank and have greater knowledge and experience in institutional matters. Although this is true to some extent in South Africa, full professors however often steer away from 'administrative work' in favour of a more intensive research career focus. Historically in most instances, prolific researchers of a full professorial stature have opted for senior university administration positions because of better remuneration scales than for the love of the job (Higher Education South Africa 2014). Although administrative ranks have generally emanated from tenured academic ranks, especially in the most senior category of professorship, over the years this relevance and importance of drawing from within the academic ranks has withered and seen senior university administrators drawn from corporate and public sector. This is equally a forever-evolving academic management terrain in that historically some of these positions had been voted for on a contract basis of at times five years, and in other times especially in the levels of deans, director and Heads of Departments, these were rotational appointments. This practice is not fully standardised in the South African context, suffice to say, all administrative appointments are generally competitive and of fixed term contracts of usually five years. In most instances, appointed administrators receive dual appointments thereby retaining their substantive professorial appointments. In cases where their administrative appointments lapses or are not renewed, they would automatically revert back to their substantive appointments. The debate of managerialism

in higher education is a continuous one (Deem 2014; Deem & Brehony 2007).

The big controversy in these appointments, that is, academic tenure track and administrative appointments, relates to salary parity which is peculiar both in the USA and in South Africa. Administrative appointments in the case of South African universities are perceived as senior posting and attract better salaries than academic posting. This lures great academics away from pursuing their love and passion for academic and research endeavours into full-time administration. Most of them are often bereted as bad managers, hence the continuous blending of administrative appointments from within the academic pool and the corporate and public sector.

In terms of research, institutional type, discipline and departmental expectations, all vary greatly. In some disciplines, receiving a promotion to full professor requires authoring a book, while in other disciplines, a peer-reviewed journal article in high impact factor journal is viewed as having greater prestige. Over the past few years, South African universities irrespective of institutional types had put a lot of emphasis on research publication or journal outputs for a number of reasons that include but not limited to:

1. journal articles earned good subsidy from the Department of Higher Education and Training (DHET)
2. some universities allow academics to cash a portion of the DHET earned subsidy
3. it is less time-consuming and at times easier to produce a journal article than a book.

This led to a serious neglect of academic book publication promoting the 'Academy of Science of South Africa (ASSAF)' to undertake a study on 'Scholarly Books: Their production, use and evaluating in South Africa today' (Higgins 2017:n.p.). The report recommended that book should be given more prestige, evaluated differently and provided a differentiated government subsidy to that of journal articles (ASSAF 2009).

In 1990, Ernest Boyer authored a book titled, *Scholarship Reconsidered: Priorities of the Professorate*. Boyer argued that the three traditional spheres of teaching, research and service should be replaced with the scholarship of:

1. discovery
2. integration
3. application
4. teaching.

Many universities in the USA rewrote promotion and tenure documents along these lines. For example, Western Carolina University rewrote tenure guidelines in keeping with Boyer's taxonomy, and a faculty member from the College of Education was able to earn a rank increase using the development of online tools for teachers in classrooms as the scholarship of application (Jaschik 2007). Evaluation of the work was based on peer review by the teachers using the tools. Even when tenure documents do not expressly use Boyer's framework, the idea that research may well include expressions other than journal articles and books has taken hold in academe in the USA.

In particular, building on ideas of academic freedom in the classroom as the basis of democracy, the scholarship of teaching and learning (SoTL) is a growing area of interest and prestige (Hutchings, Huber & Ciccone 2011; Wilson-Doenges & Gurung 2013). SoTL includes developing individual faculty through critical thinking about classroom work and embracing institutional agendas (e.g. retention efforts) to develop critical inquiry into what works on campus. As a result of this movement, tenure track and tenured professors in the USA are increasingly expected to demonstrate that their students have learnt and are prepared for the next class or step in their trajectory. Faculty are also commonly asked to describe what changes they have made to their curriculum and their teaching strategies, including demonstrating how those changes affected learning. At some universities, students' evaluations of instruction are a critical component in the promotion and tenure process.

These new conceptualisations of promotion and tenure have made it possible for faculty to include advising work, company projects, committee assignments and leadership, as well as involvement in campus projects as an important part of their argument for promotion. Importantly though, this type of work is commonly performed by full-time faculty members, and with the decline of full-time faculty, faculty find themselves with increasing committee and advising loads, meaning they have less time for traditional scholarship. A recent book on faculty life titled *Juggling Flaming Chain Saws* (Marshall et al. 2012) offers stories of faculty balancing work and life as a tenure track professor in the USA from the perspective of gender, race, parenting and age. The book focus on the risk of letting ones professional life overtake personal life, and it makes clear that tenure track lines are not for wimps.

Because of concerns over shifting loads for full-time faculty, the AAUP issued a report on the function of regional accreditation in determining the proportion of full- and part-time faculty (Scholtz, Gerber & Henry n.d.). Universities must maintain their regional accreditation to be able to distribute federal financial aid dollars to students. The report found that no regional accreditor requires a particular proportion, and only the Southern Association of Colleges and School Commission on Colleges (SACSCOC) addresses the need for full-time faculty. 'The number of full-time faculty members is adequate to support the mission of the institution and to ensure the quality and integrity of its academic programs' (AAUP n.d.). This lack of requirements means that university leaders are free to continue to reduce the number of proportion of full-time faculty on campus.

■ Tenure Capacity Building Demands and Controversies

Despite the idealist notions of academic freedom and tenure as a bedrock of democracy, the free exchange of ideas and research productivity, many view tenure as an aged concept that needs to be reviewed and if necessary replaced in the 21st century.

Critics of the tenure system cite the lack of post-tenure reviews that tenured professors are often kept even when they could be terminated for cause. Professors are waiting longer to retire and that having earned tenure, some professors often reduce their academic productivity and impact (Rabban 2015; Sugar et al. 2005).

Political leaders cite the need to be flexible in programme and degree offering, as well as budget constrains as a reason to eliminate tenure protections. Specifically, in 2015, a Wisconsin governor, Scott Walker, used the word 'modernise' to justify eliminating tenure protection from state law (Hillman 2015; Tiede n.d.). The bill makes it possible for universities to eliminate tenured professors for financial reasons. It removes long-standing notions of due process and gives boards the power to act unilaterally. Despite efforts by the campus AAUP chapter, the University of Wisconsin Board chose to adopt weaker tenure policies than existed before the state law changed (Tiede n.d.). Following the change in law, a number of tenured faculty members left the University for States with better tenure protections (Schuman 2016). Similar tenure termination bills have been considered in Iowa and Missouri. While Missouri has legislated that new faculty hired in 2018 onwards would be out of a tenure system, Iowa has opted to take away tenure from those who have already earned it (Flaherty 2017).

More recently, Kentucky passed a budget bill that eliminated tenure protections in the context of financial strain. Specifically, university boards can terminate tenured professors with only 10 days of notice (Bailey & Sayers 2018). In an effort to keep top faculty, most university presidents affirmed that their institutions would follow the AAUP guidelines. However, Eastern Kentucky University eliminated 16 programmes, 153 jobs and 8 tenured professors (Blackford 2018; EKU 2018). Programmes eliminated included deaf studies, specialised nursing degrees, a religion minor, certificates and minors in theatre, mathematics teaching, and business and marketing teaching. Traditional tenure protections are disappearing in the USA. Political leaders are

increasingly sceptical of the value of tenure, and as a result of academic freedom, proportionally, tenure lines are disappearing. Conventional understandings of research are being replaced with work towards institutional agendas, and budget constraints are being addressed through increased teaching loads.

Nonetheless, attractive tenure policies continue to attract the most talented professors and research income to institutions. Strong tenure and academic freedom policies, alongside immigration policies that are inviting to international scholars, create institutions where research capacity can grow. Research capacity means innovations across the disciplines, new registered patents and licences, as well as new industries or competitors to old industries. Where there is research capacity, there are new drugs, new medical procedures, new technologies and new artistic expressions of all sorts. While the USA had historically attracted top scientists from around the world, the phasing out of tenure might turn the tide against its research dominance in the future.

South Africa has over the past decade experienced a tremendous increase in student registration numbers by nearly 76.61%. In the public higher education sector alone, the increase between 2000 and 2015 has at least reached 56.6% from 557 000 to 983 698 in those respective years. The demand for academics at least for the period of 2009 to 2015 also increased by 20.5% in response to increment in student numbers from 21 421 to 25 814 (Centre for Higher Education Trust n.d.). In its quest to fill academic vacancies, the South African government introduced a two-pronged response. The first is relaxation of the immigration visa for the critical skills through the Home Affairs Department, and the second is introduction and financing of the training and development programmes for new and emerging academics by the DHET. Anecdotal evidence, however, suggests that the USA is currently tightening immigration policies resulting in the decline in international students and academic cohorts compared to historical trends.

The South African Department of Home Affairs' response to the demand for increased immigration of critical skills academics

and the stipulations of the National Development Plan was the facilitation of the arrival of critical skills. Such facilitation was attained by amending the immigration legislation and introduction of protocols for critical skills work visa. The amendment in the immigration legislation happened in consultation with the Department of Higher Education and Training for purposes of scarce skills list identification (Department of Home Affairs n.d.).

And while the USA seems to be scaling down on the tenured track opportunities, South Africa in its 2014 medium terms budget set aside R169 million, specifically to address academic staff shortages (Sapa 2014). As recently as 2015, the Minister of Higher Education signed off a Staffing South African Universities Framework (SSAUF 2015) document. The framework acknowledges the importance of transforming the higher education sector by building academic capacity and the need to develop future generations of academics. Estimations by the SSAUF are that the higher education sector may require 1200 new academics annually in order to respond to the historical backlog and to cater for staff attrition and address planned growth of the sector. This new framework is not a legislation and does not therefore take away the authority of the university councils to appoint staff member at HEIs. What it does however is provide financial support for new, young and emerging academics and allow individual institutions to identify areas where such academic capacity is required. The framework therefore sets up a parallel mechanism to independently assist public HEIs through programmes that are meant to address under representation in gender, race and specialised academic fields and addresses factors that impede attraction and retention of academic staff in higher education.

■ Conclusion

Tenure definition and tenure requirements in the case of South Africa and the USA seem to differ. Emerging out of the 'civil service', tenure in South Africa is equivalent to full-time civil

service employment and attainable at entry at all levels for as long as minimum requirements for entry are met. The USA had crafted a merit-based tenure achievable after a probationary period of at least seven years. It can easily be argued that the US tenure system was an important mark of achievement that lured academics from across the world. However, evidence suggests that States are encroaching and ending tenure as exemplified by Missouri, Iowa and Wisconsin. Anecdotal evidence already suggests that top academics seem to migrate in search of tenure elsewhere.

There is sufficient evidence to conclude that tenure did improve academic performance and excellence at least in the probationary period, that is, seven years prior to tenure conferment. The attainment of tenure however seems to have had negative effect on academic productivity and therefore academic excellence. The South African higher educational promotion system is a merit-based system. Although tenure can be secured at entry, progression can only commensurate with productivity and academic excellence.

The governments of the two countries have historically been indirectly involved in the development of academic capacity and tenure security. Evidence suggests that only recently the two countries have also been involved directly this time in phasing out tenure (in the USA) and in the development of the new and future cohorts of academics (South Africa). The effects of the direct involvement of these countries in the affairs of higher education are yet to be felt and measured.

■ Summary

Throughout the world, the successful recruitment and development of academic capacity in the higher education sector means attracting the most skilled and productive scholars. The relationship between a thriving and productive higher education and research sector and the development of nation-state economies has long been established. As a result, countries

often do not entirely depend on higher education self-regulation but often intervene with relevant policies and programmes to ensure continuous supply of research and academic capacity, security of tenure and proliferation as well as protection of intellectual property rights. This chapter compares the context of the professoriate in South Africa and the USA noting how policy shifts in the two countries may result in either the weakening or strengthening of their respective academic sectors.

THEME 4

Comparative and International Education

Comparative and International Education: A Tool for Powerful Global Impact Available to South African Scholars

Charl C. Wolhuter
Comparative and International Education
North-West University
South Africa

Matthew Thomas
Comparative education and sociology of education
The University of Sydney
Australia

Takalani S. Mashau
School of Education
University of Venda
South Africa

Hennie J. Steyn
School of Education
North-West University
South Africa

■ Introduction

Academics attached to universities are tasked with teaching, research and using their academic expertise to render services in support of community development. Academics in CIE, too, have this assignment and are well, if not uniquely, suited to produce research with significance to international and South African educational issues as well as to the continued development of a scholarly field of education that is uniquely rooted in South African soil and diverse contexts. The aim of this chapter is to consider the (sub-)field of CIE, both as a means to take stock of its accomplishments to date as well as to explore the potential role and relevance of CIE. Moreover, it highlights for scholars of related fields the possibilities for CIE to positively influence South African educational theory and practice and to influence relevant research in education in South Africa, particularly within the realm of international contexts.

The chapter commences with an exploration of the field of CIE, including the historic evolution of the field, a conceptual clarification as to what the term CIE means and the significance of this field of scholarly endeavour. This section is followed by an overview of the South African education system and the societal context it finds itself in, in order to determine what role research from the angle of CIE can play in addressing the challenges facing South African education.

■ The Nature of Comparative and International Education

■ Historical Evolution

The answers to the question, 'What is Comparative and International Education?', are rich and varied, as is evident from the many top scholars in the field who have tried to proffer a definition of Comparative Education (cf. Hayhoe, Manion & Mundy 2017:1–2). For example, to answer the question above,

scholars such as Bereday (1957) and Kubow and Fossum (2007), as quoted by Balodimas-Bartolomei (2016:n.p.), have described International and Comparative Education as an unstructured field which depends on other fields 'such as anthropology, sociology, political science, philosophy, economics, history, and psychology to meet its objectives'.

It is in the history of the field that its key features and identity reveal itself. It therefore makes sense to commence with a reconstruction of the historical trajectory of the field, when in search for an elucidation of what CIE is all about.

In the historical development of CIE, the following phases can be distinguished:

- a phase of travellers' tales
- a phase of the systematic study of foreign education systems with the intention of borrowing
- a phase of international cooperation
- a 'factors and forces' phase
- a social science phase
- a phase of heterogeneity (Wolhuter 2015a).

These phases should not be seen sequentially, as one phase replacing the preceding, but as a progressive expansion of the field, with each phase continuing up to today.

The first phase, a phase of travellers' tales, involved the movement of travellers for the purposes of trade, holiday, mission work, war, business or other reasons. During their travel, the wanderers were often impressed by the ways in which the societies and cultures raised and educated their children. Upon return to their original points of departure, the travellers related their impressions with friends and family. This phase reaches back to times immemorial. As these travellers' tales are mostly incidental, cursorial and not at all 'scientific' in the traditional sense, 'this phase could be seen as a pre-scientific phase of Comparative Education' (Wolhuter 2015a:n.p.). However, it is important to note the immense value of the stories, life histories

and early observations of others' cultures that were shared during this phase, particularly amongst the many indigenous societies that have engaged in travel across cultures for millennia.

With the formation of nation-states in Western Europe and North America during the 19ᵗʰ century, a new type of traveller appeared. Government emissaries visited foreign countries, sometimes with the expressed purpose of learning about an exemplary education system. These officials conducted comprehensive, extensive studies of such systems, with the intention of taking back and then transplanted the 'best' ideas, policies and practices within their own countries. Thus, this second phase of CIE involved a systematic and politically minded study of foreign education system, with the intention of educational borrowing and transfer. Debates continue today regarding the extent to which the nation-state should remain a core unit of analysis in both research and teaching of CIE (Sobe 2016).

The third phase in the development of CIE – sometimes considered a field of international cooperation – moved beyond the rather narrow objectives of improving one's own domestic education system to serving the broader interests of humanity. The precursor of this phase can be taken as Marc-Antoinne Jullien (1775–1848) who set out this ideal in his 1817 publication in which he coined the term 'Comparative Education', although his ideas only came to more formal fruition in the 20ᵗʰ century through organisations such as UNESCO, and through Comparative Education societies, conferences and journals, and studies in education international in scope (cf. Wolhuter 2017a).

A fourth phase, known colloquially as the 'factors and forces' stage, took centre stage in the field during the decades between the First World War and the Second World War. National education systems were increasingly viewed as the outcome of societal forces extant in national contexts. During this phase, universities contributed to the formalisation of the field, as Comparative Education coursework was offered at several prominent institutions. For example, James Russel's course in

1900 at Colombia University was the first specific course of study, from where it eventually spread to the rest of the world.

Then during the decades after the Second World War, and decidedly in the 1960s, CIE entered a social science phase. The theories and methods (particularly quantitative methods, which at that time became much in vogue across the whole line of the social sciences) and paradigms of the social sciences were wholesale appropriated by Comparative Education. This phase coincided with a growing, borderless belief in the power of education to remedy any ill or any problem in society, with a worldwide education expansion drive, and with Comparative Education experiencing expansion at universities (cf. Wolhuter et al. 2013).

The 1970s were years of disillusionment as the worldwide expansion of the 1960s did not yield the predicted returns. For example, instead of being a catalyst of economic growth, as the propounders of Human Capital Theory predicted in the 1960s, the 1970s saw the growing spectre of schooled unemployment. Rival paradigms to those of the 1960s emerged. Examples of rival paradigms include, for example, the paradigms of Socio-economic Reproduction, Cultural Reproduction and World Systems Analysis. Paradigm wars were a key feature of Comparative Education in this new phase of heterodoxy, as protagonists of opposing paradigms directed their heavy ordnance against each other.

A final phase in the development of Comparative Education, a phase of heterogeneity, dawned by 1990s, when scholars have come to accept – and even appreciate – the diversity of paradigms making up the field (Rust 1996:32). During this time, Comparative Education as a stand-alone course at universities faded in many parts of the world, although the field was taught in courses such as 'Education and Development' or 'Globalisation and Education'.

Where does this historical trajectory leave Comparative Education today? For some time, there has been a widespread criticism amongst scholars in the field that there is too much fixation on paradigms, to the neglect of the actual subject of study, namely, education. This criticism has been levelled perhaps

most vociferously by Psacharopoulos, in his 1990 Comparative and International Education Society (CIES) presidential address (Psacharopoulos 1990); furthermore, the field has lost its moral compass, in its tolerance of virtually any paradigm (e.g. Welch 2013:46).

As to the future evolution of the field, Wolhuter (2015a) suggests three beacons, namely, the rise of knowledge economies, the creed of education as a human right and the rise of international education. In the nascent knowledge economies of the world, both knowledge and education are more important than ever before. Moreover, the knowledge economy asks for a new kind of education, a re-thinking of education – this provides the opportunity for a renewed importance and role for the field of CIE. Education as a human right as well as education for human rights likewise have given the field a new mission, as does studying education from a global optic in an age of globalisation.

◼ Conceptual Clarification: What is Comparative and International Education?

As explained in the beginning of the chapter, no unanimity exists as to the definition of CIE (for the range of definitions of Comparative Education, the interested reader is referred to Manzon 2011:153–183, 2016:133–150). Comparative Education can be defined as having a three-in-one perspective on education (Wolhuter 2015a):

- [*a*]n education *system* perspective
- [*a*] contextual perspective
- [*c*]omparative perspective. (n.p.)

This can be schematically represented as in Figure 12.1.

The three perspectives of education are:

1. education system perspective
2. contextual perspective
3. comparative perspective.
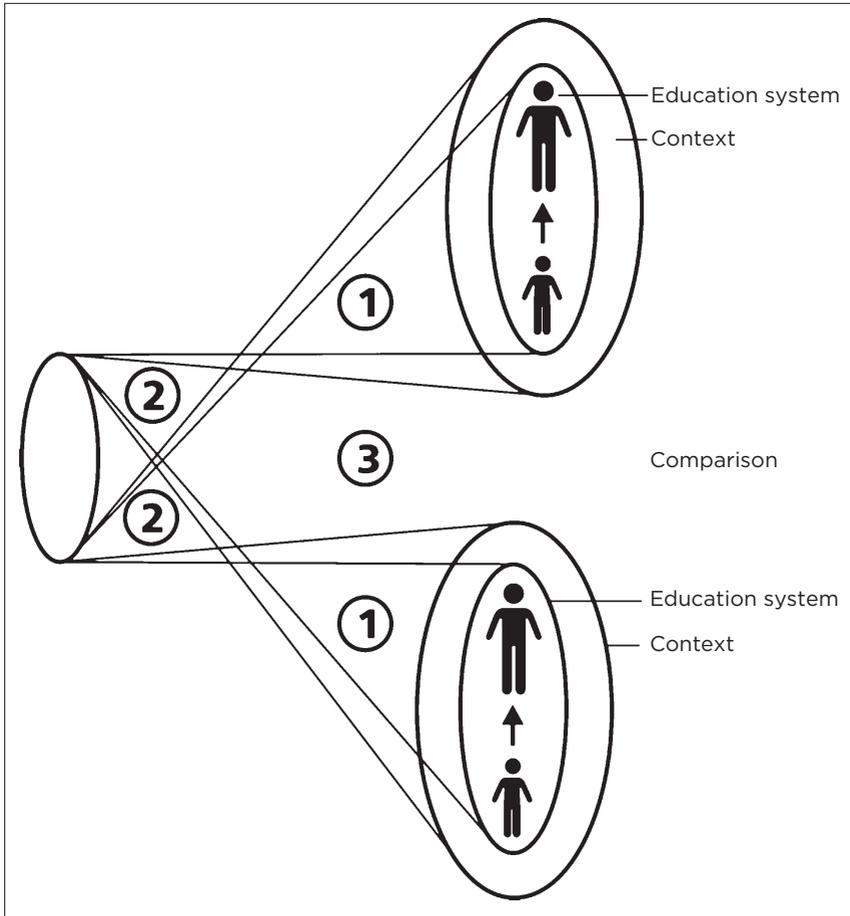
Source: Želvys and Wolhuter (2015).
FIGURE 12.1: The three-in-one perspective of Comparative Education.

Education as concept that is being understood as the implementation of planned activities by trained educators to assist learners to acquire the agreed upon competencies (knowledge, skills and attitudes) in order to execute the roles in life is usually considered to be of interest to other branches of education studies, such as Educational Psychology and didactics of education. Such a narrow conceptualisation of education is

considered to be beyond the scope of Comparative Education. Comparative Education focuses on the education *system.* However, the subject of study of Comparative Education is wider than just the education system as such. The education system is studied within its societal context and is regarded as being the outcome of a set of societal forces (e.g. geographic, demographic, social, economic, cultural, political and religious). To this end, the multifaceted series of interrelationships between societal contexts and educational experiences are prominent areas of scholarly focus within CIE. Some scholars, for example, may be concerned with the ways in which education enables or constrains social mobility. Meanwhile, other scholars may consider the ways in which social status (e.g. social capital) enhances or diminishes educational outcomes. In sum, CIE scholars assess both the effect of education on societal features such as economic growth or social mobility and the effect of societal forces on education systems, for example, the effect of socio-economic stratification on education.

Finally, Comparative Education does not end with studying only one education system in its societal context in isolation. Different education systems, each being the outcome of its societal context, are compared; hence, the comparative perspective.

Recent trends, both in scholarship and in education, have given rise to 'a belief that the name of the field should change to Comparative and International Education' (Wolhuter 2017b:18). The term international education has a long history, with many meanings attached to it (for a survey of this diversity of meanings the interested reader is referred to Philips and Schweisfurth [2014:53–71] and Wilson [1994]). However, here 'International Education' primarily refers to scholarship for studying education through a lens bringing a global perspective (Phillips & Schweisfurth 2014:60). As far as scholarship is concerned, the trailblazers of the study of the international education project were the two monumental books of Philip Coombs (1968, 1985), *The World Education Crisis: A Systems Approach* (1968) and *The World Crisis in Education: The View from the Eighties* (1985).

According to Wolhuter (2012):

> With the scholarly field of Comparative Education then [*developing*] into Comparative and International Education, [*it is believed*] that single/limited area studies and comparisons will eventually feed the comprehensive, global study of the international education project. (p. 24)

There has been a significant rise in single-subject or country case studies that are published in CIE and presented at CIE conferences, which are not only framed within broader globalised forces (e.g. Global Education Reform Movement, GERM) but also maintain a narrower view of a specific national or society context. This line of advancing the field – explicating the dialectic of global, national and local forces as they shape education systems and the functions and outcomes of education systems – also appears from the promise in the title of the publication, currently the most widely used textbook in the field, *Comparative Education: The Dialectic of the Global and the Local* (Arnove, Torres and Franz 2013).

◼ Significance of Comparative and International Education

The reasons, aims and contribution of the scholarly field of CIE, as noted in the scholarly literature, can be classified in the following manner:

- description
- understanding, interpretation and explanation
- evaluation
- application which consists of educational planning, teaching practice, other branches of educational study and the comparative method
- motivating and teaching students to conduct research
- furthering the philanthropic ideal.

☐ Description

The most elementary contribution of Comparative Education to the field of education is to describe education systems and

learning communities, within their societal contexts, in order to satisfy the yearning for knowledge which is *sui-generis* part of human nature. Bereday (1964:5) notes, 'The foremost justification for Comparative Education is intellectual. [Humans] study Comparative Education because they want to know'.

□ Understanding: Interpretation and Explanation

On the next level, Comparative Education also satisfies the need that the educational approaches within diverse learning communities are explained or understood in relation to the contextual forces within which they are embedded. Contrariwise – if education systems are shaped according to the societal parameters in which they are situated (and if education systems, in turn, shape societies and cultures), then the comparative study of education systems too contributes towards understanding of individualities and communalities of cultures and/or societies. Noah's (1986:156–157) thesis of 'education as touch stone of society' is relevant here. The value of Comparative Education is very topical in relation to multicultural societies and intercultural education. In a study surveying the motivations of Comparative Education students in nine countries for studying Comparative Education, students in Cuba, for example, indicated that their reason is to understand, for example, the society and culture of the USA (as the American education system offers a key towards understanding American culture and society) (Wolhuter et al. 2011)*.* In his monumental book on the 5000-year history of Chinese education, *Cultural Foundations of Chinese Education*, Go Mingyuan (2014) relates how American education (cf*.* the decentralised nature of American education, the large amount of power and autonomy vested in individual school districts and individual institutions) offers a glimpse into extreme individualism (shaped by pioneer conditions over a large continent, and the fact that the first immigrants hailed from a variety of countries and religious beliefs, which militated against a communal spirit). Similarly, Dewey's ideas on education and its effect on American education facilitate understanding of the pragmatic

nature of American culture (also shaped by the exigencies of frontier conditions). Speaking on her own book entitled *Becoming political: Comparative perspectives on citizenship education* (1998) – a classic on Citizenship Education from the angle of Comparative Education, entailing a comparative study on Citizenship Education in five countries – Carole Hahn (2018) explained how teachers and students of Citizenship Education rated the merits of Citizenship Education exceptionally high, yet of the five countries involved they had the lowest scores for the question as to whether they think they can sway public opinion on a political issue. That finding was related back to the high place of 'tolerance' in the Dutch hierarchy of values and the belief that a citizen has every right to express an opinion but not to foist an opinion down on any other citizen. Thus, Comparative Education provided for the researcher (Hahn) a window into the Dutch culture.

Moreover, concerning the interplay between education and society, CIE facilitates understanding as to how education can influence society in a broader sense. Since the dawn of the social science phase in the field in the 1960s, there has been studies on this, in the expectation of the time, that education can cure any 'societal disease'. Especially in the early stages, these studies tend to be crude correlation studies between education and specific societal outcomes. An example is the study by Harbison and Myers (1964) calculating a correlation coefficient between investment in education in 75 countries and size of their education effort (measured by enrolment ratios) as independent variables, and their economic strength (measures in *per capita* Gross National Product) as dependent variable. On such an aggregate level, interesting positive correlations have often (but by no means always) been obtained. These range from positive correlations between education and longevity, between level of education and chances of surviving the 2004 tsunami in Indonesia and between health and the education levels of a person's neighbours (Malawi) (cf. Lutz & Klingholz 2016). However, the nuanced relations between education and society are contingent

on a diversity of contextual factors (cf. Wolhuter 2003). As such, CIE is tasked with describing and exploring the many contextual configurations and how they manifest across all aspects of educational systems, *writ large*.

☐ Evaluation

Thirdly, Comparative Education is of value in evaluating education systems (cf. Wiseman 2012:3), including one's own domestic education system as well as more global evaluations of education systems. In a time of a competitive globalised world, the evaluation of the national education project assumes even bigger importance, hence the proliferation of studies such as the International Association for the Evaluation of Educational Achievement (IEA) studies, the OECD PISA studies and the international rankings of universities (Želvys & Wolhuter 2015). The universal evaluation includes how well the education systems of the world respond to the challenges of the 21st century world as well as an estimation of the limits and the possibilities of the societal outcomes of education. Examples of the latter include:

- How far can education be used to set off economic growth?
- How far can education be used to ensure that unemployment is exterminated?
- How far can education be trusted to guarantee a democratic culture?
- How far can education be used to guarantee intercultural tolerance and intercultural sensitivity in a multicultural society?
- Which country has the best education system?

☐ Application: Education System Planning and Reform

Comparative Education is also used to design a new education system, to plan education and to reform education systems (cf. Bray 2014:22–25; Watson 2012:32; Wiseman 2012). In reforming or improving the education system – or in dealing with

an educational issue, challenge or problem – one country may benefit from the experience of other systems. When a country, state or territory or school faces a particular educational issue or problem, a study of the experience of others that at some stage have encountered the same problem could yield insights into the problem and its causes as well as offer possible solutions. An example is Wolhuter's (2003) publication of the experience of Germany and other countries which attempted a dual VET system, as a guideline for South Africa when she began to build a similar system.

☐ Application: Improvement of Teaching Practice

In the past decade, a number of publications demonstrating or explaining the value (or potential value) of Comparative Education in guiding the teacher to improve his or her teaching practice (e.g. Bray 2014:19; Planel 2008) were published. Comparative Education research can trace the histories of specific teaching methods in particular contexts. This may be beneficial, for example, in improving teaching practice in multicultural classrooms, as Planel (2008) demonstrated in her comparative study of pedagogy in English and in French classrooms. For teachers, an understanding of Comparative Education literature aids reflection on issues of concern in their classrooms, such as diversity, conflict and peace, pedagogy, curriculum and classroom organisation in a wider global context, and for learning from the innovations, experiences and practices of other teachers, schools, countries and regions (Hayhoe et al. 2017:2; Kubow & Blosser 2016).

☐ Application: Serving Other Fields of Educational Studies

Comparative Education also benefits other branches of educational scholarship (and even beyond, to related fields of social sciences). Within the Philosophy of Education, for example, Comparative Education can highlight the comparison of the

record of the implementation of different philosophies of education in specific locations and at specific times in history (e.g. see Hayhoe & Li 2017, on the outcomes of Confucianism as philosophical basis of the education systems of East Asia).

☐ Application: The Comparative Method

A particular contribution of the field to the collection of education sciences is the development and refinement of the comparative method as apparatus for these other cognate fields of education scholarship. For too long, scholars in the macro scholarly field of education have overlooked the value of one of the constituent fields right in their midst, namely, CIE with its trade tool, the comparative method, in addressing serious challenges facing their fields and in dealing with critical topics of research pertaining to their subjects of scholarly inquiry. To illustrate this statement, cf. Kosmützky and Krücken's (2014) publication of comparative research that just cannot take off in the booming field of higher education, versus Roberts' (2014) publication demonstrating how comparative research can and has been informing practices of student affairs at HEIs around the world.

☐ Teaching Students to Conduct Research

In an age when even undergraduate education students are increasingly required to develop and to demonstrate research proficiency, Crossley (2016:44), in a recently published book on the teaching of CIE, singles out training in the comparative method as a particular value that CIE can add to teacher education programmes.

☐ The Philanthropic Ideal

Historically, the prime motivation for the scholarly field of Comparative Education, the philanthropic ideal originally formulated by Jullien, remains the noblest cause of CIE. Serving and improving the condition of humanity is in the present age of

globalisation more important than ever, that is, by cultivating a global citizen, equipped with a creative, critical, caring mind set (cf. Wolhuter 2017a).

While these reasons noted above are commonly enumerated in the literature, a series of publications on students' motivations for Comparative Education have revealed new vistas for CIE. The results revealed interesting differences regarding students' perceptions of and motivations for studying Comparative Education (cf. Wolhuter 2012). Their diverse motivations, the study concluded, can be traced to contextual factors. In the case of the USA, the main reason for enrolling in Comparative Education courses is related to international understanding within the context of education as part of international aid. The expectations of the American students might be explained from the background of these students' experience and career plans in international development and foreign diplomacy. American student expectations may also be linked to the amount of foreign aid (and education as part thereof) that the USA has been engaged in since the mid-20th century, ever since the advent of independence of large parts of the Third World, The Cold War, and the Truman Doctrine.

Comparatively, in the case of Ireland, the most important reason for studying CIE was to help students to get a post to teach abroad (Wolhuter 2015c). The Irish student teachers were mainly in their early twenties and planned to teach internationally at some stage of their career. It also transpired in their responses that they trust Comparative Education would develop their capacities to teach in growing multicultural classrooms in Ireland and to also develop their general teaching strategies. The students of Greece and South Africa viewed Comparative Education as a way to direct the national education reform project taking place in their countries. Greece as well as South Africa were at the time of the survey or shortly before the terrain of radical societal reform – in these locations, education is regarded as being at the same time a part of and a driver of societal change. On the other hand, the expectations of the

Bulgarian students centred around getting a better understanding of their own education system. While also the scene of societal and educational reconstruction as South Africa, Bulgaria, as a full member of the former Eastern Bloc, was never subjected to the same of academic insulation as South Africa was during the decades of the international academic boycott. The existence of a non-transparent government and political bureaucratic machinery up to 1990 might have created a desire to know and to understand their education system better though. Unlike South Africa, Tanzania has long since been through the post-independence educational and societal reforms of the 1960s – a project that eventually had limited success, and whatever educational reform is currently taking place, takes place within the prescriptions of the World Bank Structural Adjustment Programme (which Tanzania had little option but to sign) and the neoliberal global economic revolution. For this reason, Tanzanian students have a somewhat more detached (from everyday practice), purely intellectual expectation from Comparative Education courses.

Elsewhere, Oman had shortly before the time of the survey constructed an education system for all; therefore, Omani students, like their South African and Greek counterparts, were motivated by the potential role of Comparative Education for its strength to direct national educational reform. A unique expectation which transpired from the responses of the Omani students is that in a country with one public university, and 5097 students studying abroad (total tertiary enrolment 68 154), Comparative Education will be seen as a means to obtain knowledge of foreign education systems, which will help students proceed to further (postgraduate) studies abroad. Similarly, amongst the Thai postgraduate cohort, an interesting expectation was that CIE would assist them in finding an appropriate research design for their theses. Cuban students viewed Comparative Education as a way to gain a better understanding of various countries' societies and cultures. Cuban students' expectations could have been shaped by their country's history of using

education to construct a new society and culture since 1961. These participants viewed Comparative Education as valuable for showing how their own as well as other societies and cultures were shaped by education, and how education contributes to the accomplishment of societal goals, such as societal justice. This study was followed up by another study of the author who discovered while teaching Comparative Education as a visiting professor at Brock University, Canada, to a class of international students, a further reason for studying Comparative Education, namely, to equip international students to prepare themselves for the demands of studying at university level in the host country (Wolhuter 2012).

With this seemingly infinite panorama of potential use and value of CIE, the next two sections will focus on the current state of South African education and the challenges facing that system, and the position of CIE at South African universities. After that the potential role of research in the field will be assessed in view of the exposition above as to the role of CIE.

■ South African Education

■ Societal Context

The societal context impacting education in South Africa has been discussed in greater detail elsewhere in this volume (Wolhuter 2018) and will not be repeated here, only to state that this context presents education with a set of fierce challenges. These challenges relate to:

- the geographic size of the country (1.2 million km^2)
- a youthful population profile
- an increasingly mobile population
- cultural and linguistic diversity
- a very high incidence of a variety of social pathologies and a lack of social capital
- a strongly stratified socio-economic structure
- widespread poverty and unemployment

- at the political level, not only ineffectual governance, rampant corruption and a government increasingly encroaching on the autonomy of civil society but also very poor and uninspiring leadership
- leadership that has lost its moral compass
- policy uncertainty
- a lack of political accountability
- a lack of punitive measures on wrong doing in public sector
- religious and life-philosophical diversity.

Confronting and overcoming the many facets of such a challenging, even debilitating societal context directs a special appeal for research from the angle of Comparative Education, having societal-education system interrelationships as its subject of study.

■ Beginnings and Historical Development of Education in South Africa

'Formal' education in South Africa commenced with the establishment of a refreshment station at the Cape by the Dutch East India Company in 1652. A typical colonial set-up, education (as society as a whole) was segregated along racial lines. Separate schools for children of black people and white people were developed. Under the auspices of the Dutch East Indian Company, schools for the children of white were founded. The first school was established in 1658.

Formal schools for the children of black people, on the other hand, were provided by missionaries. Since the end of the 19th century, missionaries from Europe came in large numbers to South Africa to do missionary work in black communities to convert black people to Christianity. In this process, they established churches, hospitals and schools for black people in South Africa. The education provided by the missionaries, however, reached only a very small percentage of children of black people. Furthermore, education was limited to the lower grades of primary education and was of a poor quality (cf. Christie 1991:74). Contemporary black and postcolonial scholarship

criticises missionary education for having educated children of black people away from their African cultural heritage, for teaching them that African culture was inferior, for serving as agents of Western cultural imperialism, and especially for having taught children of black people to be submissive to the rule of white people.

In 1953, the South African government also entered into the provision of education for children of black people through the *Bantu Education Act,* when a Ministry of Black Education was created. The Ministry established public schools for children of black people. In the community of black people there was strong opposition to the system of segregated education and to black education in particular. Their opposition revolved around the following objections (cf. Mphahlele & Mminele 1997):

1. The inequality of the South African education system. Compared to schools for the children of white people, schools for the children of black people were poorly resourced and supplied with less well-qualified teachers. Per pupil public expenditure on school-going children of white people was much higher than per pupil public expenditure on children of black people.[4]
2. Black education was regarded as extremely authoritarian.
3. Black education was criticised as being too Eurocentric, as it excluded the cultural heritage and achievements of the rest of humanity, especially neglecting the (South) African heritage. (pp. 104–119)

After taking over government in 1994, the African National Congress spelt out an education policy based upon its ideals. The principles of this policy, the *intrinsic* goals of the post-1994 education systems, were the following (cf. Raby & Valeau 2018; Wolhuter 1999):

1. [*d*]emocratisation
2. [*d*]esegregation

---

4. From a comparative perspective, this critique was similar to objections in the USA that 'separate but equal' under Plessy versus Ferguson was not truly equal.

3. [*d*]ecentralisation
4. [*e*]qual educational opportunities
5. [*m*]ulticultural education. (n.p.)

The entire education system aims to develop the entire population and to promote various societal goals (Raby & Valeau 2018). These goals, the *extrinsic* goals of education, include (Raby & Valeau 2018; Wolhuter 2015b):

• *Economic goals*: Destroying poverty and the promotion of the country's economic productivity and development.
• *Social goals*: Building a society free of racial, gender and other forms of unfair discrimination, creating a socially mobile society and the removal of artificial hierarchies and abstractions in the way of progress.
• *Cultural goals*: Empowering people so that they can participate in the process of cultural expression.
• *Political goals*: Empowering citizens to take part in the processes of a democratic society and nation building – building a communal value system for a society characterised by democracy, equality, freedom, peace, justice, tolerance and stability. (n.p.)

■ Assessment of the Education System: Theoretical Model

In order to assess the present state of South African education, this chapter will employ the model of Wolhuter (2014b), whereby any (national or other) education system can be evaluated along three dimensions: quantitative, qualitative and equality (see Figure 12.2).

The quantitative dimension refers to enrolments and enrolment ratios of the three dimensions. This is the easiest to measure.

However, quantity without quality education is valueless. A second dimension, therefore, is quality. Educational quality is a concept which cannot be encapsulated in a short definition. Instead of trying to define educational quality, Bergmann (1996) suggests that the components of educational quality be enumerated. The following four elements of educational quality,
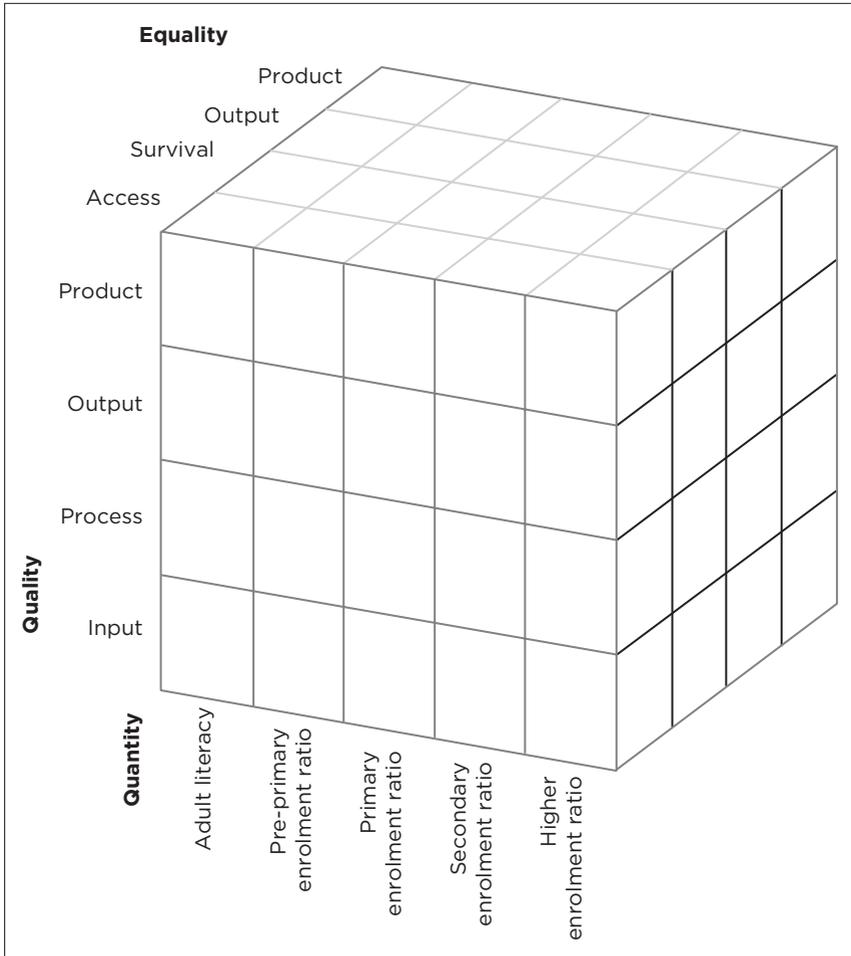
Source: Wolhuter (2014a).
FIGURE 12.2: Model for the evaluation of a national education project.

adapted by Wolhuter (2014b) from the model of Bergmann (1996), will be used in tandem with the model outlined above:

- *Input quality*: Input quality refers to the quality of financial and physical (physical facilities and infrastructure) input.
- *Process quality*: This is the quality of teaching and learning taking place in the education project.

- *Output quality*: This is the outcome of the learning process, that is, the achievement levels of learners at the end of the education process.
- *Product quality*: Product quality refers to the effect of education – or the impact thereof – which the graduated product makes. One commonly used measure of this is, for example, to calculate the rates of return to education. (n.p.)

A final measure for an education system is how this quality is spread over the entire population. Equal educational opportunities are similarly a concept that is difficult to encapsulate in a single definition. However, a model of equal education opportunities, which is widely accepted in Comparative Education, is that of Farrell (1982). Farrell (1982) distinguished between four facets of equality:

- *Equality of access*: The statistical chances that learners from various social categories could enter the school system.
- *Equality of survival*: The statistical chances that learners from various social categories would reach a particular level in the school system (e.g. the last year of secondary school).
- *Equality of output*: The statistical chances that learners from various social categories would achieve the same outcomes (e.g. pass the matriculation examination).
- *Equality of product*: The statistical chances that learners from various social categories with the same educational qualifications would be able to obtain the same jobs, incomes and life opportunities. (n.p.)

What is commonly known as the 'trinity of inequality in education' are gender inequality, socio-economic inequality (children from affluent families have more and better education than children hailing from poor families) and racial or ethnic inequality. However, other aspects of social difference, such as religion and sexual orientation, are growing areas of interest within research on inequality in education.

South African Education: Quantitative Dimension

Progress in enrolments and gross enrolment ratios in recent years are presented in Table 12.1.

TABLE 12.1: Progress in enrolments and enrolment ratios in South Africa.

Level of Education	Enrolments		Gross Enrolment Ratio (%)	
	2000	**2015**	**2000**	**2015**
Pre-primary	320 637	862 553	32.52	26.39
Primary	7 444 302	755 842	106.51	102.80
Secondary	4 141 946	5 527 196	84.34	102.75
Higher	632 911 (1999)	1 050 860 (2012)	13 (1999)	19.78 (2012)

Source: UNESCO (2015, 2018); Wolhuter et al. (2010:202). Enrolment ratios over 100% are because of large numbers of overaged students.

The figures in Table 12.1 testify of impressive quantitative expansion of the education system in recent years; however, they mask the problem of high attrition rates in South African education (cf. Wolhuter 2014b). Of every 100 children entering Grade 1, 48 reach Grade 12, 36 pass their matric examinations and only 14 obtain high enough marks to qualify for university admission (Anonymous 2015).

■ South African Education: Qualitative Dimension

To commence with financial input, the R320.5 billion allocated to education in the 2017–2018 budget of the South African government represents 20.54% of the public budget, the largest single item on the budget (RSA 2017). International comparative studies have revealed that per student public expenditure at primary, secondary and higher education levels in South Africa are relatively high, compared to other upper-middle income countries (such as Malaysia and Mexico) and even some high-income countries (such as Portugal, Greece and Hong Kong) (cf. Wolhuter 2011, 2014a).

Turning to the inset of teacher supply, the pupil–teacher ratios at primary school level in South Africa, compared to other regions in the world, are presented in Table 12.2.

The large number of pupils per teacher in South Africa is totally at variance with the higher levels of expenditure. The poor infrastructure at many schools (cf. RSA 2016) similarly does not tally with the amount of money invested in education.

TABLE 12.2: Pupil teacher ratios at the primary school level.

Region	Number of pupils per teacher
South Africa	33.6
World aggregate	23.3
North America and Western Europe	14.1
Central and Eastern Europe	16.7
East Asia-Pacific	17.6
Central Asia	17.7
Middle East – North Africa	19.8
Latin America – Caribbean	21.9
South and West Asia	32.6
Sub-Saharan Africa	38.8

Source: UNESCO (2017).

The (monetary) input quality translates even less commensurately to output quality, whether measured against matric examination results (as could be read from figures supplied above) or against the paltry results of international test series. In the 2016 international PIRLS (Progress in Reading Literacy Study) reading test, South Africa ended last amongst the 51 participating countries (Mullis et al. 2017).

The discrepancy between financial input and output creates the suspicion that substantial losses are incurred at the process quality segment. A case could therefore be made for the elements of this segment (administrative substructure, teacher education, teacher input, curriculum, learner input, school organisation and leadership) to be subjected to comparative international research, in order to identify the places where the education system is found wanting, and also to draw on the experiences of other education systems around the globe, to address the weak spots of South African education. The same could be stated with respect to inequalities in South African education, while the product quality of South Africa has not at all thus far figured on the research agenda. As the entire destination of the education of every learner in the system, that component of education (product quality), too, should be made the focus of scholarship.

■ Comparative and International Education at South African Universities

Comparative Education secured a foothold at South African universities during the 1960s (Bergh & Soudien 2006). It had its strongest presence at the historically white Afrikaans and historically black universities. At these institutions, it figured not only in stand-alone undergraduate and graduate education programmes, but it also had a very strong institutional infrastructure (in terms of Departments of Comparative Education and staff exclusively specialising in Comparative Education) that was rivalled by few universities around the world (cf. Wolhuter 1994). However, in the years after 1994, with the introduction of OBE and a corresponding change in teacher education programmes, whereby teacher education programmes were no longer composed with the basic sub-disciplines or sub-fields of education (Philosophy of Education, History of Education, Educational Psychology, Comparative Education, and the like) as building blocks but built around a set of outcomes, roles and competences teachers were required to have (cf. Wolhuter 2010), Comparative Education disappeared from one programme after the other. Comparative Education departments at universities likewise shut down. Stand-alone Comparative Education courses were taken out of teacher education programmes, and CIE has since been subsumed in a wide array of courses, including but not limited to (O'Sullivan 2008):

- Educational Change Policy: Issues in South African Education.
- Democracy and Civil Education.
- Human Rights Education.
- The Context of Schooling, Identities and Social Justice.
- Justice, Democracy and Education.
- Democracy Education.
- Lifelong Education. (n.p.)

As far as the curriculum of Comparative Education courses taught at South African universities is concerned, the international academic boycott waged against the country during the time

span 1960–1990 (cf. Harricombe & Lancaster 1995) meant that up to 1994 Comparative Education was taught in the mould of the 'factors and forces' paradigm, in vogue in pre-Second World War Comparative Education globally (cf. Wolhuter 2007). This meant that, compared to global trends, the field as taught at South African universities appeared increasingly anachronistic. There is also an accusation that Comparative Education as taught at that time at South African universities lent credibility to the segregation policies of the government of the time (cf. Wolhuter et al. 2013:355). However, after 1994, new paradigms, themes and theories in line with recent global developments in the field were brought into courses.

On 19 February 2015, the Minister of Higher Education and Training proclaimed the Revised Policy on the MRTEQ (Department of Higher Education and Training 2015). This Policy Statement specifies that 50% of credits of teacher education programmes should consist of modules in the phase or subject area specialisation of the student, and 40% of credits should be in Foundations of Education (such as Philosophy of Education, History of Education and Sociology of Education), general pedagogy (instructional science) and situational learning (learning in specific situations, such as classrooms, schools and in the community). The remaining 10% is left to the judgement of the particular teacher education institution. This development bodes well for a resuscitation of the field in stand-alone courses, at undergraduate as well as graduate education courses at South African universities. At the country's largest university, the University of South Africa (a distance education university, with some 300 000 students), a new course is being developed in the B Ed Hons programme, combining History of Education and Comparative Education, focusing on decolonisation of education. This new programme represents the growing trend in higher education in South Africa to decolonise curricula following widespread student protests in 2015 against colonial vestiges in university curricula (cf. Chaudhuri 2016), and it also highlights the possibilities for CIE to continue advancing both education and equity in South Africa, and perhaps beyond.

If the teaching of the field at universities took a dip in the years after 1994, the organisational side of the field, and its reconnection with the international Comparative Education fraternity, was nothing less than spectacular. On 15 August 1991, the Southern African Comparative and History of Education (SACHES) was established (Wilson 2003). In 1994, SACHES was admitted to the World Council of Comparative Education Societies (WCCES). The founding president of SACHES, Harold Herman, soon after rose to the position of Vice-President of the WCCES, and some 15 years later, another member, Crain Soudien, became President of the WCCES. Apart from the SACHES President, who *ex officio* sits on the Executive of the WCCES, three other SACHES members (i.e. Crain Soudien, Aslam Fataar and Charl Wolhuter) serve on the Executive of the World Council. Since its inception, SACHES organises an annual conference in various parts of the Southern and Eastern African region, and has founded a journal *Southern African Review of Education*. In 1998, SACHES hosted the World Conference of Comparative Education in Cape Town.

While the organisational side has emerged strongly in 1994 and the teaching side seems poised for renewal in the new future, several aspects of research in CIE are left waning. Weeks et al. (2006) noted in their survey of the field that whereas CIE pre-1994 was characterised (at least by scholars not attached to the historically Afrikaans and the historically black universities) by robust criticism of the socio-political dispensation of the day, after 1994, these critical voices fell silent. This is part of a general paralysis that set in along the entire line of social sciences in post-1994 South Africa, as noted and well described by Gumede and Dikeni (2009). In the major education reforms in South Africa in the past 25 years, the Comparative Education fraternity was marginalised and overlooked in the provision of guidance or expertise. Furthermore, in major international studies, such as the IEA Civic Education survey, or the TALIS (Teaching and Learning International Survey), the South African Comparative Education scholarly community is absent too, meaning South Africa is omitted from these surveys, arguably to the detriment of both South Africa and the wider world.

■ Conclusion

■ A Place for Comparative and International Education?

As was explained above, the educational community in South Africa faces substantial challenges. Firstly, these challenges lie not only in the education system (they are there too) but also in the debilitating societal context in which the system finds itself. With the new requirements for teacher education programmes in South Africa, Comparative Education scholars are well placed at their institutions to employ their tools regarding the study of society–education system interrelationships with the aim to gain a better understanding of these challenges and to draw benefit from the experience of other national education systems with similar challenges.

Secondly, South African scholars of Comparative Education are encouraged to engage in collaborative research projects that lead to articles co-authored by top scholars, including those abroad. Kosmützky and Krücken's (2014) bibliometric analysis of the 4095 articles falling within the field of Comparative Higher Education, published from 1992 through 2012 in Web of Science indexed journals, revealed that a sizeable and (over time) increasing percentage of these articles were authored by more than one scholar from more than one country. Hence, it could be stated that international collaboration between scholars in South Africa and those abroad will likely lead to an enhanced research profile for individual South African researchers as well as their institutions, and ideally, the nation as a whole.

Thirdly, CIE may be an appropriate field for international scholars, especially from within Sub-Saharan Africa, to complete their postgraduate studies and to do post-doctoral studies in South Africa. As these students are educated in South Africa and conduct research either at home or in South Africa itself, the research development of South Africa can benefit from such an arrangement, especially when early career researchers publish in

journals using their South African institutional affiliations. Moreover, it may help prevent increasing 'brain drain', where emerging scholars seek higher education opportunities in Europe or North America, and oftentimes remain there rather than returning to their country of origin. Indeed, the post-1990 internationalisation of the student body of South African universities has not been impressive. In 2012, only 72 859, or 8.3%, of the 880 514 students at South African universities were international students and the vast majority of these students (87%) were from Africa (IEASA 2014:18). In sum, robust CIE research programmes could prove an effective means to reduce brain drain and increase the cannon of CIE research conducted on the continent while also improving the status of CIE research in South Africa, specifically.

Fourthly, in very recent years, CIE has been challenged by calls to decolonise its core body of knowledge and practice. Takayama, Sriprakash and Connell (2016) in their lead article in a recent special issue focussed on decolonisation and CIE, published by a top journal in the field, *Comparative Education Review* (61, 4), offer a strong critique of the history of CIE, including how leading scholars in the field's past have put the field to the perusal of the colonial project, and how vestiges of a colonial mind set are still evident today. At the same time, the authors draw attention to the fact the field, with its sensitivity to context, offers an instrument to disrupt the Northern Hegemony in the entire range of scholarly fields of education. In this regard, Teichler (2014:397) points to the value of Comparative Education research in deconstructing, challenging and disrupting that which, hailing from very parochial knowledge constructions, are taken as universal and the only truths.[5] This emphasis on decolonisation aligns with renewed calls by scholars, by students, by education planners and by leadership in higher education in South Africa to decolonise higher education and knowledge

5. Here Teichler is elaborating specifically on the scope for Comparative Higher Education, but his broader theses are applicable to Comparative and International Education at large.

production processes (cf. Prinsloo 2016). Thus, in this regard, CIE can lend itself as a vehicle through which education research in, from and with South Africa can enhance its impact. It is not only by detecting, naming and deconstructing relics of colonialism in education but also by exploring indigenous knowledge systems, and by bringing in epistemologies and knowledge gained from the South African context as part of the Global South, into the diverse global landscape of knowledge, still, as Takayama et al. (2016) point out, too much dominated by knowledge developed in the context of the Global North.

Fifthly, research at universities is justified primarily from the teaching–research symbiosis, the idea, then, that newly produced knowledge should find its way back in teaching programmes. In a statistical analysis done at a South African university, Sutherland and Wolhuter (2002) found a positive correlation between teaching proficiency of lecturers (as measured by student evaluations) and research output, confirming a pattern also found at universities abroad. With Comparative Education setting to return to its once strong place (or certainly to a more prominent place than the past two decades) at South African universities and in teacher education programmes in particular, such Comparative Education courses present another forum for scholars for impact-making research. Two further points need to be raised here. In the first chapter of this volume, it was explained that *impact* in the phrase 'impact-making research' is usually understood as impact in the scholarly world (especially as citation material in peer-reviewed journals) and impact in practice (which can be education planning or policy or impact in schools and in classrooms). But in view of what has been stated in this paragraph, a third category should be added, namely, impact in teaching (in university courses), sometimes referred to within higher education circles as 'scholarship of teaching'.

For a long time, scholars in the field have simply eschewed paying any attention to the teaching of CIE. For example, in combing through the leading journal in the field, the *Comparative Education Review*, since its inception in 1957 till 2014,

Wolhuter (2014b) could identify a mere nine articles dealing with the teaching of CIE. Furthermore, these articles came with decreasing frequency as the years went by – the last one, published in 2001, was a full 21 years after the previous. Yet, as Erwin Epstein (2011:n.p.) suggests, '[…] I can think of nothing more crucial for the future of the field than the teaching thereof'. The formation of a SIG (Special Interest Group) for the teaching of Comparative Education by the CIES in 2011, and the ensuing publication, *Teaching Comparative Education: Trends and Issues Informing Practice*, by Kubow and Blosser (2016) bodes well for the teaching of the field to take a more central position in CIE scholarship. In addition, recent research on the teaching of Comparative Education has highlighted its potential to further decolonise the curriculum as well as engage students in broadening their understandings of knowledge and how it might be co-constructed (Shah, McCormick & Thomas 2017). If CIE has this potential, South African scholars can also avail themselves to the publication part of this new discourse in the field, publishing in and making an impact in the international scholarly discourse on the teaching of CIE. To interest in teaching as location for impact should be added the inclusion of the comparative method in courses for doctoral and masters, as well as honours and bachelor level research methodology courses. Thus, students from all fields of education will be introduced to the potential of the comparative method, and consequently, they may be better suited to use concepts, frameworks, methods and literature of Comparative Education in their research and publications. This opportunity for expanding the field becomes larger now that research training is an obligatory part of initial teacher education.

Finally, knowledge production processes are increasingly becoming international in scope. Journals are read more widely, open access journals are increasingly popular, etc. The comparative and international nature of CIE pushes the boundaries of what we see as local or global, as we engage with transnational knowledge production processes, including this very chapter.

■ Summary

This chapter takes stock of the scholarly field of CIE in South Africa, especially with a view of its potential to leverage impact-making research in the fields of education. The chapter surveys the historic evolution of the field, followed by a conceptual clarification as to what the term CIE means, and an explanation of the significance of this field of scholarly endeavour. This section is followed by an overview of the South African education system and the societal context it finds itself in, in order to determine what role research from the angle of CIE can play in addressing the challenges facing South African education. The chapter makes the statement that CIE can not only make an invaluable contribution to research addressing education challenges facing South Africa, and thus make an impact in practice, but the field can also serve as a vehicle for research done on South African soil to make an international impact. Further to that, in the space created for the field in the recent reforms in teacher education in South Africa, teaching students the research method, and scholarship of learning and teaching too create new and exciting possibilities for the field to play its part in raising the impact of education in South Africa.

BRICS: A 'Road and Belt' for South African Researchers in Education to be Involved in Impact-Making Research

Hennie J. Steyn
School of Education
North-West University
South Africa

Charl C. Wolhuter
Comparative and International Education
North-West University
South Africa

Deon Vos
Comparative Education
North-West University
South Africa

Louw de Beer
Comparative Education
North-West University
South Africa

Ana Caanen-Ivanicki
Department of Educational Studies
Federal University of Rio de Janeiro
Brazil

■ Introduction

An international organisation is always established to serve the interests of a particular group of related nations or societal groups. BRICS is the acronym for the organisation that seeks to serve the interest of five developing and newly industrialised countries, namely, Brazil, Russia, India, China and South Africa (O'Neill 2001). BRICS should be seen in view of the new global order currently taking shape, especially the place of China. Since the end of the Cold War in 1990, the image of a unipolar world order came into being, with the USA as the unquestionable leader and with a hegemonic place in a unipolar world. However, that order is increasingly being challenged by China. Not only is it estimated that in the current calendar year, 2018, China will unseat the USA and become the number one country in the world as far as gross national product is concerned (Paton 2015), but with president Xi Jinping's 'belt and road' policy initiative it has launched a forceful outward movement to fill the vacuum in the global economic and political landscape created when the 2008 economic slump led to a tapering off of the US-led globalisation. China has since then fully executed 101 agreements with 86 countries, and the total investment in the 24 countries along the belt and road regions amounts to US$50 billion (Jia 2018:A4). While the West is apprehensive about this initiative and cites as reasons China's 'authoritarian' and 'predatory' stance and for not upholding 'freedom, democracy and individual rights' – core values of the West (the evaluation of this criticism falls beyond the scope of this chapter), Beijing's initiative stands on three Chinese principles, namely, mutual consultation, joint construction and shared benefits (Jia 2018:A4), and moreover, this outward movement is a fact of international politics and a new global order, and pure *realpolitik* dictates that South African scholars of education should look into the possibility of tapping into this and also the possibilities it presents to produce impact-making research.

One of the important focusses of BRICS is collaboration to effect the sustained development of education in the member states (BRICS5 2013b). Being such a huge organisation,

representing a significant part of the international population and geographical populated area, it is obvious that one would wonder what the education role of BRICS is and should be. That is why the research aim of the doctoral thesis, with the topic *The BRICS-organisation: Implication for education provisioning in the member states*, stated that the 'aim of the research [is] to determine [and describe] the [meaning] of BRICS for education provisioning in the individual member' states (De Beer 2017:10). Because research implies the use of scientific strategies and methods to answer a particular issue in practice, the question arises as to whether the above-mentioned thesis could have any impact in education supply in the BRICS member countries. The question is whether the aim of research as posed in the thesis can serve to improve the supply of education in the BRICS countries. The thesis was also executed within the field of CIE. Thus, the question regarding the level to which the research outcomes contribute to capacity building is even more relevant, because the utilitarian nature, namely, the search for 'that which works', is a central focus of CIE (Steyn et al. 2017:14).

Thus, the objectives of this chapter is to provide the most important findings of the PhD research and to investigate its possible further course, not only regarding its value in improving education practice in the BRICS countries but also with respect to the BRICS grouping as providing a conduit for impact-making research for scholars, particularly for South African scholars in the field of CIE. To realise these objectives, the core characteristics of the structure and functioning of BRICS as an international organisation, specifically regarding supply of education, will be analysed and discussed. Next, the interest of higher education in the work of BRICS will be explained. In the third part of the chapter, the broader outcomes of the PhD research will be in the focus, namely, regarding the possible enrichment and expansion of collaboration of different teaching programmes, the actual commencement of collaboration in particular research projects and the development of the projects for the implementation of expertise in terms of the establishment of an academic association for BRICS education and the establishment of a journal focusing

on BRICS education, that is, the potential of the BRICS grouping of countries as a conduit for South African education scholars to make impact-making research.

■ The BRICS Association

■ Establishment of BRICS

International cooperation is an important instrument to support development of different nations with a common focus (Paulo 2014). Typical examples are the Japanese International Cooperation Agency that focuses on individual development and economic growth (JICA 2015) or the International Cooperation Alliance that focuses on commercial development or UNESCO, a specialised agency of the United Nations, with the aim to improve international cooperation by means of education, science and technology (UNESCO 2015). In a similar attempt to support their dynamic growth as developing and newly industrialised countries characterised by their big economies and significant regional and global influences, the BRICS organisation, with Brazil, Russia, India and China as its members, was established in 2006 and changed to the BRICS organisation with the inclusion of South Africa as a full member in 2010 (BRICS 2017; De Beer 2017:43; Russian Federation 2009). The importance of BRICS is also a result of the rise of China. BRICS should be seen in view of the new global order currently taking shape. Since the end of the Cold War in 1990, the image took hold of a unipolar world order, with the USA as the unquestionable leader with a hegemonic place in a unipolar world. It is estimated that in the current calendar year, 2018, China will unseat the USA and become the number one country in the world as far as gross national product is concerned (Paton 2015).

The establishment of the BRICS organisation represented the founding of a comprehensive international group of nations with significant economic power and demographic weight in the world. Although all five countries were outside the ambit of

the established first world countries, they are members of the so-called G20 nations. BRICS member states cover about 26% of the world's total land area and include about 42% of the total world population, which implies that about 4.2 people of every 10 people of the world population live in one of the BRICS countries. The BRICS countries contribute about 27% of the Gross Domestic Product (GDP) of the world 'and have contributed to more than 50% of world economic growth during the last 10 years' (BRICS 2017). BRICS constitutes about 13% of the World Bank's voting power and 14% of International Monetary Fund quota shares. Although the member states of BRICS are clearly different, they share significant similarities. They are going through similar transformation processes because of their changing societies and also exert significant regional influences. And education plays a significant role in the transformation of their societies (BRICS2017 2017; De Beer 2017:69; Schwartzman, Pinheiro & Pillay 2015).

Therefore, it is clear that BRICS has a significant influence internationally and that interested groups and individuals should take notice of what happens in this organisation, for example, in their education systems.

■ Structure and Functioning of BRICS

□ The Aims

The central force in the operation of BRICS is the annual summits that meet in one of the member states. Consensus exists amongst its members to strengthen its two main pillars, namely, the 'coordination in multilateral fora, with a focus on economic and political governance, and' building a meaningful cooperation between its members during the second BRIC summit (BRICS5 2013b), with the following objectives being accepted:

1. support a fair and 'democratic world order based on international [*justice*], equality and respect and recognise and' support the roles of G-20 and the United Nations (Gu, Shankland & Chenoy 2016:n.p.)

2. emphasise the importance of mutual cooperation
3. recognise the contribution of developing markets in the world economy
4. support the development of a multilateral trading system
5. engage in dynamic cooperation in the field of agriculture
6. contribute to the elimination of poverty, exclusion and inequality
7. recognise the potential and be involved in providing in the need for environmentally friendly technology and in the diversification of energy
8. acknowledge the threat of uncontrolled climate change and that international intervention is crucial to support cooperation amongst the BRICS countries.

During the second summit of BRICS, the objectives, which were accepted during the first summit of BRICS, were further defined into 32 different objectives, and during the fourth summit (2012) of BRICS the objectives accepted during the first (2009) and third (2011) summits of BRICS were further refined into 50 declared objectives (BRICS5 2013a). Intra-BRICS cooperation has increased over the few years of existence of BRICS, for example, a broad agenda for cooperation has been developed, including areas for cooperation 'such as finance, agriculture, economy and trade, combating transnational crime, science and technology, health, education, corporate and academic dialogue and security, amongst others' (BRICS 2018:n.p.). Since BRICS' foundation, it has 'been guided by the [overall] objectives of peace, security, development and cooperation' (BRICS6 2014:n.p.).

☐ The Administrative Basis

The BRICS organisation functions as a multi-level process led by the annual summits as foundation of its decisions, policies, activities and structures. The structure, content and agenda of each summit are informed by, firstly, the meetings of the ministers, such as, respectively, the ministers of Foreign Affairs, Agriculture, Disaster Management, Culture, Education, Energy, Industry, Science, Technology and Innovation, Environment,

Finances, Health, Trade, Labour and Employment as well as the Minister of Migration; secondly, the national Security Advisers; thirdly, the inputs of the government officials, namely, the Anticorruption Officials, Competition Authorities, High Representatives on Security and National Security Advisers, National Statistical Authorities, Science and Technology Officials, Tax and Revenue Authorities; and lastly, interest groups such as the academic forum, business forum, mayors of BRICS cities, parliamentary forum and the special envoys for the Middle East and United Nations. BRICS is 'enriched by pragmatic cooperation in [many] areas such as [in the fields of] economy, trade, finance, business, agriculture, education, health, science and technology and the culture' (BRICS2017 2017:n.p.). Cooperation mechanisms such as the New Development Bank, Contingent Reserve Arrangement, Business Council and Think Tank Council have been established. Pragmatic cooperation has gone to greater depth to yield more fruitful results and exerted important influence globally. Since then, the Summit has become an annual event. To date, eight summits have been held. The administrative basis of BRICS is the responsibility of the respective country where the particular annual summit will be held (BRICS 2017).

□ International Cooperation

A central feature in the functioning of BRICS is the meeting, discussions and decisions that take place during the annual summits. Since 2009, BRICS summits became an annual event. These BRICS summits lead to cooperation on an overarching scale in different spheres such as finance, agriculture, education, trade and health (De Beer 2017:47).

Cooperation on international level, and the importance thereof, receives particular attention in different summits; for example, the emphasis that was placed on the role that the G20 countries play in the handling of different financial crises as well as to the need for international financial institutions to reform in order to include upcoming and developing countries was

accentuated (Russian Federation 2009; UN 2018; Van Agtmael 2012). Thus, the internationally agreed development goals were supported, including the Millennium Development Goals that should contribute to reduce the backlogs of developing countries, many of which are still facing unique developmental challenges, widespread poverty and inequality. It was during the fourth summit of BRICS, which was held in New Delhi, India, that the first action plan, namely, the Delhi Action Plan, was introduced. The Delhi Action Plan focussed on cooperation on different levels and areas, including foreign affairs, finance, trade, agriculture, national safety, urbanisation, local government, health and competition. One of the most important decisions included in the action plan was the founding of the New Development Bank that will focus on the financing of developmental and infrastructure projects and that will supply long-term loans to lessen the impact of global financial challenges. It was emphasised that the initial contribution of the BRICS member states to the Bank should be substantial and sufficient for the Bank to establish infrastructure and to effectively support infrastructure and sustainable development projects in BRICS and other emerging economies and developing countries. BRICS emphasises the positive role the 'Internet plays in promoting economic, social and cultural development' and 'to contribute to and participate in a peaceful, secure and open cyber space, and that' it must be regulated by universally accepted norms, standards and practices (Pawlak 2016:n.p.). It was acknowledged 'that climate change is one of the [biggest] challenges and threats [to] achieving sustainable development' and cooperation (BRICS5 2013a).

The continuous drive to increase cooperation can be seen in the themes of different summits, for example, during the 2014 BRICS summit, the theme was 'Inclusive growth: Sustainable solutions' (BRICS6 2014:n.p.) and for the ninth BRICS summit (2017), the theme was 'Stronger Partnership for a Brighter Future' (BRICS2017 2017:n.p.). To indicate the successes of BRICS, the level of cooperation was accentuated,

which includes the establishment of the BRICS Development Bank, the treaty regarding the BRICS emergency fund and the consolidation of the position of BRICS as a positive role player in the world. BRICS showed an exponential growth of cooperation. Coordination amongst BRICS member states was well established in several multilateral initiatives and cooperation regarding intra-BRICS activities was expanded, for example, by developing common social indicators methodologies which should be included in the BRICS Joint Statistical Publication (BRICS6 2014). 'Institution building to further deepen, sustain and institutionalise BRICS cooperation' by integrating the existing cooperation mechanisms and to enable innovation through new cooperation mechanisms (BRICS16a 2016:n.p.).

The aims of BRICS and its drive to develop internal and external cooperation always, even if it was not explicitly mentioned, inherently recognised the need for quality education as instrument to realise its focusses that are meant to increase the quality of life in the member states of BRICS.

■ Participation of BRICS in Education
□ The Aims

Although particular objectives regarding education provisioning initially were not part of the objectives of BRICS, the need for quality education was emphasised since the beginning of BRICS and formulated in 2013 as follows (BRICS5 2013b; De Beer 2017:59), namely, to:

- [*s*]trengthen the cooperation between the BRICS universities by focusing on the establishment of partnerships
- [*e*]stablish partnerships in the provisioning of technical and vocational education
- [*f*]acilitate the transfer of education qualifications between the BRICS member states
- [*a*]ccelerate the realisation of the 'education for all' objectives. (n.p.)

▭ Distinct Focuses

Four distinct aspects were highlighted regarding education in BRICS. These aspects are higher education, TVE, general education and education policy. The statement by the BRICS Education Ministers during their third meeting in 2015 (BRICS7 2015b:1) clarifies these focusses. According to this statement:

- Higher education in BRICS must move towards increased cooperation with regard to teaching and research on mutual areas of knowledge, for example, through the establishment of education and research centres of excellence at leading universities in the BRICS member countries, the support of joint research projects and the promotion of joint publication in journals, the better cooperation with regard to the recognition of degrees and diplomas, the establishment of the BRICS University League and the establishment of a BRICS Network University (BRICSNU). The BRICSNU is an educational project aimed at developing preferential bilateral and multilateral joint short-term education programmes and to jointly develop transferable Master's and PhD programmes. The BRICSNU would focus on the creation of a new generation of highly qualified and motivated professional academics and will follow the principles of openness. It will also focus on teaching and learning and focussed research and innovation, with equal rights for the participants (BRICS7 2015a). The BRICSNU will first focus on the following specialist areas, namely, energy, Computer Science, IT, bricsiology (the study of BRICS), ecology and climate change as well as water pollution.
- A second priority was the focus on the development of TVE. The important role that technical and VE could play in the labour market was emphasised. VE should be strengthened in all the BRICS education systems through initiatives that improve skills development and it was agreed upon that best practices should be identified and utilised. Collaboration with regard to specific projects initiated by the BRICS Skills Development Working Group of the BRICS Business Council should be supported by directed technical and VE (BRICS7 2015b:1).

- Regarding general education, the focus was to initiate comparative research that will contribute to the improvement of the quality of general education in order to establish commonly agreed upon norms and values between the BRICS member countries, to ensure that lifelong learning (also self-initiated lifelong learning) through formal and informal education is available and that sufficient opportunities for learning other languages are provided to enable efficient business and professional communication (BRICS7a 2015:2).
- Finally, it was realised that in order to realise the development of attainable and sustainable education policy strategies, quality representatives from each BRICS member country should be appointed to coordinate programmes and projects, that member states should share statistical data and develop a suitable methodology to develop common education indicators and that the exchange of information regarding national assessment systems of BRICS member countries should be ensured (BRICS7 2015a:2).

This statement by BRICS Education Ministers has for the first time clarified the initial demarked cooperation goals regarding education. The necessity for cooperation was again reiterated at the eighth summit of BRICS (2016) and clearly showed the massive cooperation effort regarding education. In the *New Gao Declaration*, the New Delhi Declaration on Education was supported, the importance of education and skills development for economic growth acknowledged as well as the need for universal access to high-quality education reaffirmed. The BRICS member states voice their satisfaction with the progress of the establishment of the BRICSNU as well as the BRICS University League (BRICSUL). These two initiatives would facilitate higher education collaboration and partnerships across the BRICS countries. The importance of education for the youth of BRICS member states was also highlighted. The outcomes of the BRICS Youth Summit in Guwahati were welcomed including the '"Guwahati BRICS Youth Summit 2016 Call to Action" that recognise the importance of education, employment, entrepreneurship, and skills training for them to be socially and economically empowered' (Gao Declaration 2016).

☐ The Future

During the ninth summit of BRICS (2017), education was again a priority and featured prominently in the declaration under the theme 'People-to-People Exchanges'. During the summit, the successes of BRICS education were recognised but more importantly particular guidelines for the future were set.

As one of the important outcomes of the 2017 Summit, the positive progress in BRICS education cooperation was commended. The importance of education to promote sustainable economic and social development, as well as attempts to strengthen the BRICS partnership, was acknowledged. The BRICS Education Ministers discussed education reforms and support the strengthening of BRICS collaboration in the field of education. They also highlight the importance to share relevant information amongst the member states in order to decide and implement the consensus arrived at the Meetings of BRICS Ministers of Education (BRICS 2017).

Another outcome was the acknowledgement that the BRICS community aspires to ensure inclusive and quality education for all and to promote lifelong learning. It was acknowledged that all member states face common challenges in promoting educational equity and accessibility. And the representatives took note that the scale of education development in BRICS member states is expanding rapidly. Thus, according to the corresponding targets set within the *The 2030 Agenda for Sustainable Development* and the *Education 2030 Framework for Action*, mechanisms should be put in place to promote equity in education and fostering quality education, to accelerate the exchange of students and scholars and to promote exchange regarding the use of teaching faculties amongst BRICS member states. In order to improve teacher quality, teachers and educational administrators were encouraged to learn from experiences of other countries and promote inter-BRICS exchanges. The organisation of 'youth winter/summer camps' was encouraged in order to reinforce communication and cultural

exchanges amongst the youth from BRICS member states. Member states were also requested to expand the number of scholarship opportunities to students across BRICS member states (BRICS 2017).

Considering the fact that higher education contributes to the development of high-level human resources and as the intellectual support for the much needed economic and social development of or in BRICS, another outcome was the realisation that academic studies of or in BRICS member states will on the one hand enhance the mutual understanding amongst the member states and on the other hand will contribute to the coordinated and deeper cooperation amongst the member states. It was emphasised that the BRICS member states should support the BRICSNU to collaborate in the fields of teaching, research and innovation and to encourage universities to participate in the BRICSUL. The member states should also enhance and ease opportunities for the mobility of academic personnel and students between the universities of member countries. Focussed initiatives should be undertaken to promote the professionalisation of academics in higher education and to promote the BRICS NU as a focus of future education development (BRICS 2017).

An outcome of high importance was the emphasis that cooperation in the field of TVET should be strengthened. Member states were requested to share ideas and experiences in the development of vocational programmes and educators and to develop joint projects in technical and VE that are of common interest to BRICS member states (BRICS 2017).

It was also indicated that it was important to share and develop best practices in education through collaboration in research and innovation projects. The efforts to promote cooperation amongst educational think tanks were welcomed and it was agreed to share experience and practices in realising education-related SDGs. The importance of streamlining the cooperation amongst educational think tanks and education researchers in BRICS was also pointed out.

■ Important Findings of the PhD Research

The findings in the PhD thesis can be summarised in a few categories.

The BRICS organisation is an international group of nations with economic power and influence on the world population, going through similar transformation processes because of their developing communities, and that also exerts significant regional influences. Together these countries cover a total of about 26% of the world land area and include about 42% of the total of the world population and contribute about 27% to the global GDP. The main focus of BRICS is in intra- and inter-cooperation, including areas such as finance, agriculture, economy and trade, science and technology, health, education and academic dialogue. Since the inception of BRICS, it has been guided by the overall objectives of peace, security, development and cooperation.

Regarding the participation of BRICS in education, the role of education and the need for quality education were emphasised since the beginning of BRICS. The following aspects were identified to be realised in education, namely, to strengthen and deepen the cooperation in general education and between the BRICS universities, to establish partnerships in the fields of technical and vocational education, to facilitate the transfer of education qualifications and to accelerate the realisation of the 'education for all' objectives. This means that different distinct aspects were highlighted regarding education in BRICS, namely, cooperation, the different elements of general pre-tertiary education, higher education, TVE and the importance of cooperation in research and innovation projects.

■ The Impact of the PhD Research: Contributing to the Aims of BRICS Education

■ Introduction

The aims of the participation of BRICS in education invite the involvement of higher education and, in this case, for the contributions from the academic field of education, in general,

and CIE, in particular. These types of contribution can be in the field of teaching in identified education programmes, research projects to solve common challenges and the delivery of expertise services and innovation. In this section, the focus will be on the characteristics of the academic fields of education and CIE that support cooperation projects, the nature of higher education in South Africa, China and Brazil as examples of national settings potentially favourable to cooperation and finally a description of actual examples in teaching, research and the delivery of expertise services that directly flows from the mentioned PhD research.

■ The Characteristics of Education and Comparative and International Education That Support BRICS Cooperation

The explanation as to what constitutes the scholarly field of CIE and what the significance or potential value of such an endeavour is has been fully covered in detail elsewhere in this volume (cf. Wolhuter et al. 2018). Therefore, it is sufficient to state that Comparative Education entails a three-in-one-perspective on education, namely, an education system perspective (focusing on education systems), a contextual perspective (investigating education system–societal interrelationships) and a comparative perspective (comparing different education systems, each one as embedded in its societal context), and that one of the purposes of this exercise is to improve the domestic education enterprise. Governments and education planners worldwide are keen upon drawing on international best policies and best practices, when planning their own education system and/or in justifying an education reform drive. Forestier and Crossley (2014), for example, write about how historically all education policies in Hong Kong were always modelled, actually imitated, on that of England. This occurred, because, as in any colonial project, the education system of the mother country was deemed best; but in recent years, when Hong Kong came up best in international test series such as the Programme for International Student

Assessment (PISA) tests, the UK is now looking at Hong Kong for education policies to learn from. The success of education policies is, however, always context-contingent (Mundy & Read 2017:3019) (cf. Wolhuter 2003, e.g., for the German model of *duale Ausbildung* which has worked well in Germany, but the export of it to any other context in the world has failed). This phenomenon underscores the point of the fallacy in the common predilection to compare South Africa with countries of the Global North, such as the USA (cf. Wolhuter 2000). On the other hand, the term 'developing countries' encompass (education-wise and societal-context-wise) such a variety (cf. Wolhuter 2011) as to render the term meaningless, apart from the objection levelled against the term as signifying a Eurocentric bias (cf. Takayama, Sriprakash & Connell 2016). All five BRICS countries are at the forefront of the Global South in terms of economic strength, and they share many commonalities, including a diverse population. BRICS as a set of countries, and the new world order with the rising star of China, seems to present a datum line for South African scholars of education wishing to engage in comparative research and acts as a relevant place for such research to make an impact. Finally, the guideline to develop education systems could still be found in the three-in-one-perspective on education, namely, the education system perspective, the contextual perspective and the comparative perspective.

Nature of Education on the Level of Higher Education in South Africa and Brazil Regarding BRICS Cooperation

South Africa

The HEQSF of South Africa specifies all types of professional higher education qualifications to be obtained in the academic field of education in order to teach in South African schools. These qualifications are categorised under the different NQF levels and according to the credits that have to be obtained in each qualification (RSA 2015). The following are qualifications

for initial teacher education, namely, the Bachelor of Education degree (NQF Level 7) of four years' duration and the Postgraduate Certificate in Education (NQF Level 7) of one year's duration. The following are qualifications for the continuing professional and academic development of teachers, namely, the Advanced Certificate (NQF Level 6), the Advanced Diploma (NQF Level 7) and the Postgraduate Diploma (NQF Level 8). On the postgraduate level, the following qualifications are applicable, namely, the Bachelor of Education Honours degree (NQF Level 8), the Master of Education degree (Professional) (NQF Level 9) and the PhD degree (NQF Level 10). The qualification for Grade R teaching is the Diploma in Grade R Teaching (NQF Level 6) and the Bachelor of Education in Foundation Phase Teaching (NQF Level 7).

The institutions to acquire the teacher education qualifications and complete the different pre-service, in-service and postgraduate qualifications are the 22 universities in South Africa, for example, the University of Johannesburg, the University of Stellenbosch, the UFS and the North-West University (Edu Connect 2018). At each of the universities, the academic field of education is situated in a faculty of education, usually including the different sub-fields of education.

Regarding the international networking and collaboration between government and institutions of higher education, each has particular interests and responsibilities. The Government of South Africa, Department of Higher Education and HEIs are all committed to ensure the effective and successful implementation of the internationalisation programme regarding collaboration between academic institutions abroad. There are specified responsibilities of government and HEIs regarding internationalisation and collaboration with international accredited academic institutions (RSA 2017).

The following responsibilities are expected from the government, namely, to ensure inter-departmental policy integration and cooperation between the relevant departments, coordination between the Department of Home Affairs and the Department of Higher Education in order to streamline

visa applications, creation of a conductive environment for internationalisation of higher education by the Department of Higher Education, inter-departmental coordination and cooperation to facilitate internationalisation in the higher education system, with contradictory policies not being legislated. Furthermore, it is expected that the Department of Higher Education and government will articulate national policy and give guidance for the fulfilment of the national policy. The internationalisation happens primarily at the institution level where government plays a supportive and facilitative role. Government and the Department of Higher Education must provide opportunities for internationalisation.

The following responsibilities are expected from the institutions, namely, to develop institutional policies and strategies on internationalisation. There must be mechanisms in order to measure internationalisation, targets must be set and adequate resources should be allocated for initiatives and activities. Furthermore, there must be appropriate support services for incoming and outgoing students. HEIs should internationalise their curricula in order to meet with international standards and needs. This must also be seen as an opportunity to redress historical imbalances in our higher education system and lastly there must be a proper administrative system where all records must be kept.

☐ Brazil

As claimed elsewhere (Ivenicki 2015), within a context of increasing global mobility, either linked to internationalisation perspectives in work and study, or as a result of flights from civil wars and terrorisms, higher education in Brazil has been confronted with the urge to respond to cultural diversity, as well as to promote linkages between quality, internationalisation and inclusion.

In Brazil, as explained elsewhere (Canen 2012), in order to be called universities, HEIs should be research institutions, namely, those that not only provide teaching but also are committed

to research. HEIs that do not prioritise the above aspects are University Centres, Isolated Higher Education Schools, Technology Higher Education Centres and Integrated Higher Education Schools. It should be noted that universities – particularly those supported by the government (federal, state and city), as well as Catholic private, non-profit institutions – have been associated with the role of knowledge production through a strong research-oriented perspective. Also, universities should show a commitment to what is called the 'extension dimension', namely, university social responsibility role in promoting professional development and social projects in general, geared towards society at large, such as promoting continual teacher education, constructing local curricula and acting in adult and lifelong learning education.

The National Plan of Education in Brazil (Brazilian Ministry of Education 2014), which is a 10-year (2014–2024) national plan with intended educational principles, goals and strategies, has been issued in the context of the Brazilian federative political context, in which, according to Carnoy et al. (2017), central government issues guidelines after consulting educational bodies, and those policies should be translated locally by state and municipal educational authorities, in accordance with their specificities. The mentioned National Plan for Education (Brazilian Ministry of Education 2014), issued by the Ministry of Education, 'stresses the importance of statistically increasing the [roll] of youngsters in higher education to 50%, [as well] as doubling the [rolls in] professional education of that same age group'. There can be noted goals related to the need to develop differentiated paths for indigenous groups' education, taking their ways of life and cultures on board, as well as in those goals related to expanding school education for rural and black populations, which can point to a multicultural, inclusive perspective.

At the same time, in terms of internationalisation, particularly within the scope of BRICS, Brazil signed an agreement with Russia, India, China and South Africa in terms of creating the 'Universidade em Rede' (The 'University in Net'). Such an

agreement is geared towards fostering research in the areas of economy, energy, climate change, technology and safety of information, hydric resources and pollution, as well as studies about the block itself.

Brazil received 10 masters scholarships and 10 for doctoral studies within the Universidade em Rede of the BRICS Higher Education Project in the end of 2016, and the courses started in the first semester of 2017. Students should have their certificates recognised in the five countries of the BRICS, and such a higher education agreement within the BRICS in 2015 was considered by the Ministry of Education as a historical moment of education amongst those countries.

Results of those courses are still to be evaluated, but they should represent a relevant step towards internationalisation of Brazilian higher education and a singular opportunity for increasing the dialogues within and outside the BRICS countries.

■ Actual Impact of PhD Research
□ Cooperation in Teaching

BRICS universities can cooperate in teaching, for example, developing between universities – one in each of the BRICS countries, a combined master's in Education programme CIE zooming in on critical education issues in the BRICS countries.

□ Cooperation in Research

Regarding the impact-making influence of the PhD research in the field of CIE, a research project is already registered at the research section of the Faculty of Education Sciences of the North-West University in South Africa. Based on the research question, the overall goal of the research project is to gain understanding of the current realities of the education aims at the national level, of each member state, and the collective level of the BRICS organisation. The goal is to compare the educational aims across the BRICS

countries and to explore how successfully these aims are being implemented on the ground. Based on such comparison, we will identify best practices that allow member states to fulfil the education aims of the BRICS organisation. In more detail, the objectives are to explain the similarities and differences between the different education aims of the member states; to determine whether these similarities and differences amongst the aims of the member states provide a supportive context for the realisation of the education aims of the BRICS organisation; to identify to what extent the education objectives of the BRICS organisation support the provision of quality education in the member countries; and to describe to which level the different countries could learn from each other in order to realise the education objectives of the BRICS organisation and at the same time successfully implement their own education foci.

It was decided that this research project will be a qualitative study that will rely on the interpretivist paradigm. In this regard, data will be collected and analysed taking into consideration the respective contexts of each country. A broad literature review will provide the background of the BRICS organisation as well as an overview of the education system and education aims in individual member states. Considering that the methods and sources should be chosen based on their ability to provide insights into the phenomena under investigation, data collection will also include document analysis and semi-structured interviews with experts in BRICS education (e.g. scholars and government officials). Data collection will also include personal interviews with experts in BRICS education. Throughout the process of data collection and analysis, diverse strategies will be employed to ensure the trustworthiness of interpretations and findings. As scholars, it is essential to show the credibility of the findings, thus triangulation and member checking will be employed as primary strategies to validate findings. Severe limitations are not anticipated, but it is realised that the executioning of the individual interviews can be a challenge.

☐ Cooperation to Facilitate BRICS Education Research

An organisation for academics involved and interested in BRICS education had the following to say (NWU Subject group Comparative and International Education 2018):

> It is important that an organisation for academics interested in BRICS education is founded to recognise and support the importance of education for the development of the five emerging societies and economies of the BRICS member states. The Association should function as an inclusive network to promote excellence in education through collaboration and exchange of information amongst educational institutions, universities, research institutes, researchers and students. Such an organisation should encourage the exchange of effective educational practices in order to learn from each other and thus maximise the success of each member state, and beyond. (n.p.)

It is proposed that the association shall endeavour to promote quality research in the areas of BRICS education, establish vibrant relationships with other institutions and educational associations, facilitate international exchanges between researchers and students in BRICS nations, organise conferences, seminars and workshops, and act in an advisory capacity with regard to BRICS education, especially for decision-makers who determine a journal for BRICS education (NWU Subject group Comparative and International Education 2015):

> It is essential that a journal be established that will focus on education issues in the BRICS countries. The aims of the proposed journal could include the following, namely, to support the provisioning of quality of education in the BRICS countries and to provide for the publication of research in and regarding education in the BRICS organisation and in the BRICS countries. The format of the proposed journal is that it will be an e-journal that consists of three sections, namely, a first section that comprises peer-reviewed academic research articles focusing on research regarding education in or related to the BRICS countries; a second section consisting of summaries of the research results of, for example, post-graduate studies and research projects and a third section including general information regarding education in the BRICS organisation and BRICS countries. (n.p.)

The management of the journal should be the responsibility of the editorial board under the leadership of an editor. The editor could be supported by three sub-editors, respectively, responsible for the three sections of the journal. The funding of the journal will partly be provided from membership fees by the proposed BRICS Education Association. The editorial board will also apply for subsidy from the BRICS organisation. The editorial board will also consider requesting page money for the publication of articles.

■ Conclusion

The emerging new world order, also in the world of education (two telling examples of this are, firstly, that of Hong Kong, located as it is in a tiny but dynamic corner or outpost of BRICS, which has now reversed roles with the UK as a model-trailer in education; secondly, the fact that China already toppled the USA as the world's largest higher education system in terms of enrolments in the 2010–2011 academic year, as well as being the country producing the largest number of PhDs two years ago, in 2016, at a rate of 71 000 per year compared to 48 000 in the USA), is creating an opportunity for South African scholars of Education, with the BRICS countries apparently the closest correlates to South Africa on the education system and societal context descriptor-axes of the Cartesian grid upon which the international galaxy of national education systems is spread out. This is indeed an opportunity for scholars in the field of Comparative Education to demonstrate the field's relevance in addressing the education challenges in the BRICS countries and for South African researchers in Comparative Education in particular, to rise to the occasion and to render impact-making research.

■ Summary

This chapter provides the most important findings of the PhD research on the meaning of the BRICS grouping of countries for

collaboration in the area of education, and to investigate its (the BRICS organisation's) possible further course, not only regarding its value in improving education practice in the BRICS countries but also with respect to the BRICS grouping as providing a conduit for impact-making research for scholars, particularly for South African scholars in the field of CIE. To realise these objectives, the core characteristics of the structure and functioning of BRICS as an international organisation, specifically regarding supply of education, are analysed and discussed. Next, the interest of higher education in the work of BRICS is explained. In the third part of the chapter, the broader outcomes of the PhD research were the focus, namely, the possible enrichment and expansion of collaboration of different teaching programmes, the actual commencement of collaboration in particular research projects and the development of the projects for the implementation of expertise in terms of the establishment of an academic association for BRICS education and the establishment of a journal focusing on BRICS education, that is, the potential of the BRICS grouping of countries as a conduit for South African education scholars to make impact-making research.

Researching Problems in Specific Contexts Towards Making an Impact: Considering a Case of Book Harvesting at a School in Kenya

Peter M. Gathara
Department of Educational Foundations
Kenyatta University
Kenya

Lynette Jacobs
Open Distance Learning
University of the Free State
South Africa

■ Introduction

Case study research is common in the social sciences, specifically also in the field of education. While stakeholders attempt to understand trends across different countries using large-scale studies, many researchers are convinced that case studies are equally valuable, albeit in a different manner. Merriam (2009:38) explains that case studies focus on a 'bounded system'. Mertens (2010:233) adds that the case may be based on a number of 'units of analysis: an individual, a group of individuals, a classroom, a school or even an event', while Plowright (2011:14) suggests a wider interpretation that could even include 'in-animate objects'. While one can rightly wonder whether all research is not indeed case studies, as specific cases are almost always selected in various forms, Lindegger (2006:460) points out that case studies are 'ideographic', that is, studies focusing on 'individuals as individuals rather than as members of a population'. Idowu (2016:184) adds that case studies focus on the 'real-life context'. It is thus clear that case studies should provide insight into a specific, and real, context and hence should have relevance for the stakeholders in that case, whatever the nature of the case might be.

Research, however, by its nature, is required to solve problems and produce knowledge, and this implies theorisation, and also some level of applicability, generalisability or transferability (Cooper & Schindler 2003:13; Van der Riet & Durrheim 2006:91) beyond the case. Undeniably, the same academic rigour is expected from case study researchers as from others. Idowu (2016:187) indeed warns that case studies should not be arbitrary and indefensible, but should 'build knowledge from observation of phenomenon within a contextually rich environment and contemporary real-life situations'. In order to expand the generalisability and transferability of case study research, and thus strengthen the impact thereof, a meta-analysis of case studies can be done. An example of such a study was done by Cundill et al. (2014), who analysed four of their own published
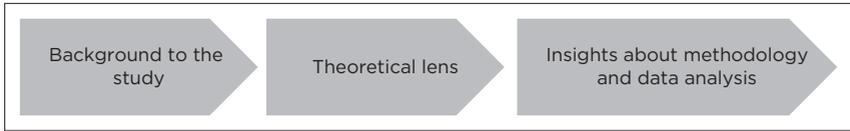
Source: Adapted from Cundill et al. (2014:41).
FIGURE 14.1: Framework for comparing case studies.

case studies. Their framework for comparison is illustrated in Figure 14.1.

The authors highlight the value of such a meta-analysis of case studies, as the same phenomenon is then studied from different perspectives (Cundill et al. 2014:45). Still, the majority of case studies are presented as single case studies, and one has to consider *what the potential of a single case study is to make an impact.*

To provide some insight into this matter, in this chapter we present a single case study, after which we reflect on its potential to make a difference in a specific context, and beyond.

◼ The Case Study

◼ Background to the Case Study

There is no doubt that the formal education of children significantly affects their adult life. In the context of developing countries, access to quality education is even more important, as the quality of education can contribute to either sustain or break the cycle of poverty (Jacobs 2016; Lewin 2009; Department of Education and Skills 2011). Children need to acquire the literacy and numeracy competences that will allow them to partake in economic activities in the global village that we live in (Jacobs & De Wet 2014; Jacobs, Stals & Leroy 2016; Department of Education and Skills 2011). Literacy and numeracy of learners are justifiably emphasised in numerous international agendas (e.g. Education for All movement [UNESCO n.d.], Sustainable

Development Goals [hereafter SDG] [United Nations 2015]) and international studies (e.g. TIMSS, PIRLS [International Study Centre, Boston College 2018]). Of particular importance is the fourth SDG, namely 'Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all' (United Nations 2015:18).

International studies are powerful in identifying global trends, also in relation to the mention of SDG. For instance, the TIMSS indicates that the East Asian countries continue to be strong in sciences and in mathematics (Mullis et al. 2016). In fourth Grade science, Singapore, Korea, Japan and the Russian Federation had the highest achievements, while in eighth Grade science, Singapore, Japan, Chinese Taipei, Korea and Slovenia were top-scoring. Singapore was also the country that out-performed other participating countries in the PISA, including Japan, Estonia, Finland and Canada (OECD 2018).

In their discussion of the above results, Mullis et al. (2016) specifically discuss resource allocation in schools in those countries. The study further revealed that resource shortages affected the pupils' performance; 69% was affected by schools lacking resources and scored an average score of 502, while another 4% was affected notably and scored an average of 466. Those not affected by resource shortages comprised 27% and scored an average of 519 (Mullis et al. 2016). The implication is that lack of resources can adversely affect the learning outcomes in schools. The playing field towards quality education and lifelong learning opportunities is clearly not at an equal level. Jacobs (2016) highlights aspects such as poverty, race, class and gender that hinder progression and success of learners in different countries around the world.

One of the tangible barriers that prevent equitable quality education in developing countries is lack of up-to-date and quality teaching and learning materials (Alikor 2014; Fredriksen, Brar & Trucano 2015). This is problematic, as the creation of a learner-centred classroom is difficult without textbooks and

resources (UNESCO 2016). The Global Education Monitoring Report (UNESCO 2016) has argued that textbooks are the most commonly used type of learning materials. They are indicated to be relevant in improving learning outcomes, especially in low-income countries with large class sizes, a high proportion of unqualified teachers and shortage of instructional time. However, availability of books in schools differs according to the socio-economic status of the society and geographical locations.

While the Word Bank Group has been involved in initiatives including funding and policy development for more than 30 decades, the vast majority of learners in Sub-Saharan Africa still do not have sufficient access to textbooks (Fredriksen et al. 2015; UNESCO 2017). The Global Monitoring Education Report (UNESCO 2016) refers to a study by the UNESCO Institute for Statistics that has shown that in 2008, in primary schools in 11 developing countries, on average between 15% and 20% of Grade 4 learners did not have textbooks and had to share with one another. One example is Cameroon where in 2012 a research study indicated that there was only one reading textbook for 12 Grade 2 learners and only one mathematics book per 14 Grade 2 learners. Although not satisfactory, the situation in Zambia was better with four learners for every mathematics book, while two learners shared a reading book in Grade 2 level. The situation did not differ much in East Africa where in Tanzania the ratio of mathematics books is one to five students, while the reading textbook is one to two students in Grade 2. Similarly, in Uganda, the ratio of mathematics books was one to three learners, while for reading it was one to four learners. The survey published by the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ) and quoted by the Global Monitoring Education Report (UNESCO 2016) has noted that between 2000 and 2007 in Malawi the percentage of students who either had no textbook or had to share with at least two other pupils increased from 28% in 2000 to 63% in 2007. This deterioration was attributed to increased enrolment as a result of the introduction of the Universal Elementary Education. In the

Seychelles, there was a decline in access to textbooks (comparing 2000 to 2007). Whereas in 2000, 75.6% of learners had their own mathematics textbooks, it declined to 62.8% in 2007 (Leste & Benstrong 2011; UNESCO 2016). There were, however, exceptions where the textbook ratios have been increasing in the mentioned region. A case in point is Swaziland where the number of students having a sole use of reading textbooks increased from 74% to 99%, while the enrolment rate increased by 20% (Shabalala 2011; UNESCO 2016).

The acquisition and distribution of textbooks, not only in this region but also in many different developing countries' contexts, is problematic. For instance, UNESCO (2017) found that 65% of funds that were supposed to be spent on textbooks in the Philippines was lost as a result of corruption. Chisholm (2013) reports on a crisis with textbooks in the Limpopo Province of South Africa, when textbooks that were supposed to be procured by the government did not reach the schools in the first half of the 2011 school year. It was revealed that this crisis was caused, *inter alia*, by 'fraud, corruption mismanagement and maladministration' (Chisholm 2013:8).

The importance of textbooks, particularly from the perspective of learners, was highlighted in a study by Simam, Rotich and Kemoni (2012) who explained that learners use textbooks during teaching time, to do homework and also for revision. It is thus essential for stakeholders to find ways to overcome the mentioned challenges such as limited funding, and corruption, to provide learners with the necessary material to support their educational endeavour, often in spite of poor standards.

■ Education Provision in Kenya

A case in point in terms of poor standards is the Republic of Kenya. In 1999, the Commission of Enquiry into the State of Education in the Country (Republic of Kenya 1999) raised the concern that the standards of primary education had gone down. Amongst other things, the low quality of education was attributed

to inadequate and unsustainable physical facilities, equipment and learning and teaching materials. The commission observed that the availability of class textbooks, teachers' reference materials and basic teaching and examining items such as wall maps, dusters and chalk revealed that these materials were insufficient. Already at that stage, it was pointed out that the situation might get worse with the introduction of modern teaching methodologies where the situation will become more demanding when the competency curriculum will be implemented. At that stage, the concern was raised that the cost of textbooks was four times higher than the cost in countries with similar economic status. Although the government has highlighted the strategies to be used to change the scenario, little has been done to ensure that schools have the relevant course books required.

Kenya is a sub-Saharan country with a population of close to 48 million (Index Mundi 2018). It is part of the East Africa region, covering an area of 582,366 km². There are 40 indigenous groups in Kenya, each with its own dialect, but English and Kiswahili are the official languages. The country is divided into eight provinces (Dagne 2012:106; SACMEQ 2018). The percentage of GDP allocated to education was 5.3% in 2015 (Index Mundi 2018). Previously a British colony, Kenya gained independence in 1963 (Dagne 2012). Since then, Kenya has embarked on three different initiatives towards Free Primary Education (FPE). The latest drive saw FPE being introduced in 2003 (Somerset 2009:233; Kenya National Examinations Council 2016). Kenya's school system offers an 8.4.4 system, and the first cohort of learners who fully benefited from eight years of FPE completed primary school in 2010 (Kenya National Examinations Council 2016).

In Kenya, the Kenya National Examinations Council (KNEC) is responsible for national examinations. These include, *inter alia*, the Kenya Certificate of Primary Education (KCPE) offered to each year in November to Class 8 learners and the KCSE at the end of Class 12 (Kenya National Examinations Council 2016). It must be noted that many children leave school without completing Class 8 (Jacobs 2016). Like many countries in

Sub-Saharan Africa, the classrooms are often overcrowded and there is a lack of resources (Jacobs 2016; Somerset 2009).

☐ Provision of Textbooks

Over many years, various commissions have highlighted the problems with regard to textbooks in Kenya. In 1964, the Ominde Commission emphasised that the school community and other stakeholders can join hands to provide the required course books, supplementary reading, stationery and other materials with the aim of improving the learning outcomes (Republic of Kenya 1964). The issue of adequate books was further raised by the Gachathi Report, which emphasised that textbooks and other educational materials are the basic tools for educational development (Republic of Kenya 1976). The report noted with concern that textbooks must be available to the learners in adequate quality and quantities. They are expected to be available at the time they are required and at a cost the learner can afford. However, the committee was concerned with the rising cost of educational material. The worrying trend that was observed was that the materials produced by the government through the Kenya Institute of Education and the Jomo Kenyatta Foundations were more expensive than similar ones produced by commercial firms. The committee recommended an investigation on lowering the cost of production of essential educational materials. In 1999, the Commission of Inquiry to the Education System of Kenya stated that the government alone cannot provide all the educational services required nationally and advocated for a policy that nurtures the involvement of the private sector (Republic of Kenya 1999). The Mackey Commission of 1981, however, never raised the issues of textbooks as was recommended by the Gachathi Commission of 1976. Rotich (2004) has criticised the commission and lamented that, despite the recommendations given by the Mackey Commission to overhaul the entire education system with a new curriculum and educational structure, there was no mention of how textbooks for the new curriculum would be produced and distributed to schools.

In an endeavour to improve the text book ratio in primary school, the Republic of Kenya (2005) under Sessional Paper No. 1 of 2005 has outlined the costs that the government were to provide. They included teachers' salaries and non-salary costs involving teaching and learning materials. However, the teaching and learning materials are not classified and outlined. There are other costs that were said to be passed to the parents that are not clearly stated for them to act on. This is further compounded by the challenges of overstretched facilities, overcrowding in schools and high pupil teacher ratios that are greatly affecting the quality of education. The Kenya Education Sector Support Programme (KESSP) (Ministry of Education Science and Technology 2005) is the framework that was supposed to provide a guideline for implementing Sessional Paper No .1 of 2005 over the period from 2005 to 2010 (Republic of Kenya 2005). The Ministry of Education, Science and Technology (2005) in the KESSP acknowledged the challenges faced by primary schools in provision of adequate teaching and learning materials. They included provision of textbooks and other instructional materials, improving textbook ratios and the provision of funds to purchase textbooks. The KESSP developed a rationale for investing in instructional materials towards attainment of quality education. The investments in textbooks were geared towards pupils so that they can be able to study on their own and do homework at home. They highlighted that teaching time is lost when pupils are sent home to buy textbooks. The investment strategy that was to be used was that all the enrolled pupils had to receive 650 Kenyan Shilling (KES) (approximately US$6.5) per year for the purchase of teaching and learning materials. Various justifications were given for the amount allocated. They include buying new textbooks, replacement and replenishment of lost and worn-out books, and increasing the ratio of textbooks in every subject.

Although KESSP was the framework to be used in ensuring that all the schools had the required number of books, this has not been the case. The amount provided has not been adjusted according to the economic inflation that has been experienced in the country

over the last 10 years. The same amount is currently being allocated to the pupils in disregard of the changes in prices of textbooks and the introduction of a new tax on paper that has greatly influenced the prices of locally published books. The amount is not enough to buy all the textbooks required by the pupils in a particular year for all the subjects without asking the parents and other stakeholders to come in. Moreover, the same amount is used not only to purchase textbooks but also to purchase exercise books and other teaching and learning materials needed in schools. The allocation given by KESSP indicates a downward trend as the money allocated for the financial year 2005–2006 was 4811.2 million, which decreased to 3761.6 million in the consecutive financial years 2006–2007 and 2007–2008. It increased marginally to 3824.7 million in the financial years 2008–2009 and 2009–2010 (Ministry of Education Science and Technology 2005).

The government of Kenya has come up with a policy on national curriculum. The policy has argued that access to low-cost books both printed and electronic is essential in learning, and it determines to a large degree the quality of learning outcomes. Referring to Buhere, however, the Kenya Institute of Curriculum Development (2015) stated:

> It is expected that currently, there should be a 1:1 pupil textbook ratio in order to cater for instructional materials for learners. However this is not the situation and learners are still sharing textbooks in a ratio of 1:4 or more in some schools. (p. 46)

It is clear from the above preceding discussion that while the deficits in terms of provision of textbooks are highlighted from time-to-time, very little progress has been made over the last five decades to provide each learner with the required textbooks.

■ Statement of the Problem for the Case Study

In view of the problems with regard to textbook provision in Kenyan education, primary schools have adopted different models to increase their course textbook ratio apart from relying

on government funding. Although the government through Sessional Paper No.1 of 2005 has indicated that parents and other stakeholders can be used to provide teaching and learning resources, no policy guidelines have been provided to actualise how they would participate and support schools in acquiring of course textbooks. The amount allocated to schools was quite restricted (Ministry of Education Science and Technology 2005). Schools are thus left to find ways to supplement the money provided, in order to address the deficit.

One example of a school that had the agency to address the problem is ABC Primary (pseudonym). ABC Primary is a co-ed public primary school in the central region of Kenya. According to Educate Kenya (2015), it has 18 classrooms and more or less the same number of toilets for boys and girls separately. In a personal communication, the school principal shared the following:

> This school was started in 1976 to cater for the community. As of 2018 the school has 2 female teachers for early childhood classes. The early childhood classes are divided into nursery which has 21 boys and 9 girls and pre-unit which has 14 boys and 13 girls. There are 14 teachers for both lower and upper primary. Teacher composition is 4 male and 10 female teachers. Currently the school has 330 pupils. There are currently 168 boys and 162 girls as from class 1 to class 8 excluding the nursery and pre-unit classes. From class one to class five the pupils are in a single stream while classes 6 and 7 are double streams. On the other hand class 8 is a single stream class. There are 13 classes that are in use while another five are not in use. This has been brought about by reduced enrolment of pupils due to competition from private schools and reduced birth rates. There are 30 latrines for pupils and 4 for teachers. This data was collected from the school records as of 23 March 2018 (Netswera pers. comm., n.d. March 2018).

ABC Primary School is a day school and does not have any hostel facilities. The school services an indigent community. Families depend on tea picking as casual labourers as a source of income and therefore have no means to spend on books (Kenya Primary Schools 2017).

Prior to the onset of the project, through the Board of Management (BOM), the school has conducted an analysis of its

strengths, weaknesses, opportunities and threats (SWOT). Textbooks featured as a critical component leading to poor performance (Personal communique). The ratio of textbooks per pupil in almost all the subjects and classes was very high, with 1:7 for the worst affected subject and 1:5 for the subject with many books. This was contrary to the laid down government policy where each child should have a textbook for each subject. In informal discussions, teachers have shared that they are not able to give homework and further assignments to do at home. Valuable teaching time is lost as they have to write everything on the blackboard. Learners are not able to engage in independent reading on matters related to the content that teachers have covered in class. This has prompted the BOM to think of strategies that can be used to alleviate the poor performance and increase levels of learning outcomes for the pupils. The BOM came up with a strategy of 'book harvesting' in order to bridge the gap. The idea was to collect new and old books that are relevant to the primary school curriculum from various role players. The expectation was that the book harvesting project would lower the number of learners per book, and this would lead to an improvement in the performance of learners. The overarching question that we thus pose is: *What lessons can be learnt from a book harvesting project in a school in an indigent community*? We formulated the following objectives towards answering the main research question:

- to determine the extent to which the book harvesting succeeded in lowering the learner:textbook ratio
- to establish whether a reduction in the learner:textbook ratio would lead to better learner achievement.

◼ Methodology of the Case Study

This study is comparative in nature using the school (ABC Primary) as a unit of analysis. It used an intranational orientation where a single school was used. As Manzon (2007) has noted, the adoption of schools as units of analyses requires a focus on

the specific communities, and also on the institutional culture and what is different about the school in comparison to other schools in the same country. ABC Primary was purposively selected, and the case study method was appropriate because it is the only school that used the 'book harvesting' model of collecting books from the stakeholder. This method helped to examine ABC Primary School as a whole unit in order to understand learning outcomes after introducing the new model of acquiring books.

We base our discussions of the project on a longitudinal comparison of quantitative data, using information obtained from official records over a number of years at the school. Merriam (2009) highlights that one of the biggest advantages of using data from documents is the stability of the data and that the presence of the researchers does not influence the data.

We used the following as measurable indicators:

• the learners-per-textbook ratio in ABC Primary School between 2007 and 2016
• the money allocated for textbooks
• the enrolment figures
• the average performance of Grade 8 learners in the KCPE, with a score calculated out of 500 and as a percentage.

Aggregated, descriptive figures in the form of numbers, ratios and percentages were used in the analysis of the information collected through the official documents.

■ Case Study Findings

☐ The Possible Successes of Book Harvesting in Lowering the Learner: Textbook Ratio

Firstly, we established whether the relative learners-per-book ratio improved over the period. The collective data, on the average number of learners per book, obtained from the school records are summarised in Table 14.1.

TABLE 14.1: Number of learners per textbook in ABC Primary School between 2007 and 2016.

Year	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Average
2007	4	4	4	4	4	4	4	4	4.0
2008	3	3	3	3	3	3	3	3	3.0
2009	3	3	3	2	3	4	3	3	3.0
2010	3	3	3	2	2	2	2	2	2.3
2011	2	2	2	3	3	2	2	2	2.3
2012	3	3	3	2	2	2	2	2	2.3
2013	3	3	3	3	3	2	1	1	2.3
2014	3	4	4	3	3	2	1	1	2.6
2015	1	1	1	3	3	2	1	1	1.7
2016	1	1	1	3	3	2	1	1	1.7

Table 14.1 shows that the overall average number of learners per book decreased from 4 to 1.7 during 2007–2016. The improvements were particularly positive in the first three years of schooling, and also in Class 7 and Class 8, where it was 1:1. It must be noted that the improvement in the first 3 years of schooling could be linked to the Tusome project (cf. Uwezo 2016) run by the Kenyan government for classes 1, 2 and 3. This was done in an attempt to enhance numeracy and literacy in the country. Furthermore, with the emphasis on the performance of learners in the exit-level examinations (KNEC), more resources were allocated to the last two years of schooling.

So, at face value, the figures suggest that the book harvesting project could be making an impact, at least in terms of availability of books. However, in order to see the above information in context, other factors must also be considered. The one variable that could affect the number of textbooks per learners is the amount of money allocated for the different years, per learner. Table 14.2 provides that information.

Spending on textbooks remains between 27% and 30% of the money allocated by the government through the so-called FPE Kitty, to enable FPE. From Table 14.3, based on the information that was made available to us, it can be seen that the amount of money made available per learner for purchasing of books initially went down from 360.72 KES in 2007 to only 149.32 KES

TABLE 14.2: Per capita allocation for books (KES, Kenyan Shilling).

Year	Enrolment	Allocation for books (KES)	Per capita allocation for books (KES)
2007	653	235550	360.72
2008	658	235550	357.98
2009	659	Not available	
2010	653	135272	207.15
2011	658	98252	149.32
2012	660	96644	146.43
2013	474	96644	203.89
2014	441	92104	208.85
2015	450	95803	212.90
2016	390	95343	244.47

TABLE 14.3: Comparing the average number of learners per textbook to the per capita spending (KES, Kenyan Shilling).

Year	Average number of learners per textbook	Per capita spending (KES)	Inflation rate* (%)
2007	4	360.72	9.8
2008	3	357.98	26.2
2009	3	Not available	9.2
2010	2.3	207.15	4
2011	2.3	149.32	14
2012	2.3	146.43	9.4
2013	2.3	203.89	5.7
2014	2.6	208.85	6.9
2015	1.7	212.9	6.6
2016	1.7	244.47	6.3

*, Obtained from (World Data Atlas, 2018).

in 2011. It picked up again, and in 2016, the per capita spending on books was 244.47. If one takes into account that in real terms, the currency lost value because of an average annual inflation rate of 9.81% during this time (World Data Atlas 2018), a per capita spending of 917.74 would have been on par. So, it is clear that if the school relied only on the government funding, the number of learners per textbook would have increased.

Juxtaposing the average number of learners per textbook, with the per capita spending on textbooks, it is clear that, even if one ignores the inflation rate, the situation improved drastically

in spite of less money being made available for textbooks. It is thus clear that the book harvesting project indeed made a significant difference in lowering the learner:textbook ratio (from 4:1 to 1.7:1).

However, more textbooks would not be helpful unless it impacts positively on the performance of the learners. We thus considered the performance in relation to the general performance in the country.

☐ The Impact of a Reduction in the Learner: Textbook Ratio on Learner Achievement

From the above, it became clear that through the book harvesting project, more textbooks were available in spite of a significant drop in funding. In line with the narrative found in literature and policy, one would expect the performance of learners to increase. We thus considered the performance of the Class 8 learners over the years, taking into account that the country's average fluctuates on or below 250 (Oketch & Mutisya 2013).

It is clear from Table 14.4 that the performance of Class 8 learners from ABC Primary School in the KCPE examinations was gradually showing a downward trend. It reached a low point during 2013, after which it slowly picked up again. The expected

TABLE 14.4: ABC Primary School performance in the Kenya Certificate of Primary Education between 2007 and 2016 (KCPE).

Year	Mean KCPE performance of ABC Primary (out of 500)	Percentage (%)
2007	250.66	50.1
2008	255.31	51.1
2009	251.16	50.2
2010	240.78	48.2
2011	241.12	48.2
2012	229.11	45.8
2013	221.59	44.3
2014	222.56	44.5
2015	228.81	45.8
2016	241.04	48.2

increase in performance with the lowering of the number of learners per textbook clearly did not take place. This challenges the narrative in the many reports that the learner:textbook ratio needs to improve in order to improve the results. Although clearly resources are needed for education to take place, Jansen and Blank (2014:83) state that, 'it is possible to have all the material and human resources required and still fail to become an effective school'.

■ Concluding the Case Study

In the case study presented, it was found that the book harvesting project succeeded in significantly lowering the number of learners per textbook in the school under discussion. Endeavours by the school community and beyond should be applauded as an example of a ground-level initiative, and the school community serves as an example to other education communities. Examples of initiatives outside the formal government can also be found in literature. Jacobs et al. (2016) report on an initiative where library books, collected from all over the world, are provided to struggling schools in South Africa, by means of mobile libraries. Van Breda, Reynders and De Wet (2018) report on another initiative in South Africa to build capacity in parents from deprived communities to assist their children with mathematics.

However, it is also evident that one cannot put all one's hope on a single initiative. The problem with ABC Primary learners who are not performing on the standard expected is not unique. Uwezo (2016) points to the worrying finding that:

> [O]nly 3 out of 10 children in Class 3 can do Class 2 work. On average, 1 out of 10 children in Kenyan primary schools are completing Class 8 without having acquired the basic competencies expected of a child completing Class 2. (p. 3)

Many Kenyan learners enter schools late, instead of at the appropriate age (Ngware et al. 2013), particularly those who live in poverty-stricken areas. This impacts negatively on their chances of success, but is not unique to Kenya. Lewin (2009)

explains that in Sub-Saharan Africa, there is often a range in children's ages in one class. Economic background is certainly another barrier worth mentioning (Jacobs 2016), but so is school readiness (Mullis et al. 2016). Taking the history of education in Kenya into account, where schools were formerly divided along racial lines, it is currently being replaced with a new distinction, namely that of economic class (Somerset 2009). This is not unique to Kenya, as Jacobs (2016) found the same trend across the globe. A very important aspect of success is the quality of teaching and the professionalism of the teachers (Uwezo 2016).

To truly turn an underperforming school around requires insight into the complexity of the situation. Jansen and Blank (2014:77) point out that 'every school is different in terms of the context in which it operates, the culture of the school and the challenges it faces' and warn that change is not easily achieved. Still, lessons from other studies can be learnt. An example of a case study in which the performance of the school was turned around can be found in Alston (2018). She pointed out four essential aspects that school leaders must take on. Firstly, school leaders should have integrity and instil values in the school. Secondly, a shared vision must be developed based on their shared values. Thirdly, processes of change should be taken into account, and fourthly, staff development must be undertaken to 'enrich the teaching experience of staff' (Alston 2018:124; also see Nieuwenhuis 2011). In addition, Jansen and Blank (2014) stress the importance of learners being in every class, every day and teachers teaching those classes, every period and every day. Also, discipline is essential (Jacobs & De Wet 2014; Jansen & Blank 2014). It is thus clear from the case study that changes need to take place on different levels before one will really see a different outcome. Still, we concur with Uwezo (2016:5) who states that if every person makes some contribution to change the situation, gradually the situation will improve for Kenyan children. We believe that the book harvesting project at ABC Primary is an example of what Uwezo (2016:5) calls 'one small thing' that can contribute to change and that other schools can learn from this.

■ The Value and Impact of Case Studies

When considering a case study such as the above, one has to understand the strengths as well as the limitations of case studies. On the one hand, case studies provide enough information for the reader to be able to imagine the situation and that helps the reader to make sense of what is presented (Merriam 2009). Case studies should be appreciated for the richness in information that they bring and be valued for the context-dependent information that is provided (Merriam 2009 based on Flyvbjerg as well as Shields). Idowu (2016) concludes that:

> [*C*]ase study as a research strategy excels at bringing us to an understanding of a complex issue or object, and can extend experience or add strategy to what is already known through previous research. (p. 187)

The detail provided however could pose challenges in terms of ethics, as the information must be presented in such a way to protect the identities of all involved and also the research site (Merriam 2009).

Manzon (2007:112) highlights the usefulness of using a school as a unit for analysis as it 'deepens conceptual understanding of educational reality'. This is evident from the small case study that showed that while resources such as textbooks are essential in schools, it does not equate to quality education. In spite of the managerial drive to harvest books to ensure a smaller learner:textbook ratio, the performance of learners at ABC Primary School deteriorated, and parents are less inclined to send their children to the school. Focusing on one aspect only does not turn a school around, and a whole school approach is necessary to bring about change.

■ Conclusion

Although large-scale studies, such as the TIMSS and PIRLS studies, receive a lot of attention in the formal education structures and in the media, case study research in the field of

education is quite common. While the former provide us with indicators to see trends across nations, one has to consider the worth of case study research. We argue that case studies, such as the one presented here, provide insight into the realities of educational settings. If these are placed within the larger body of knowledge, they have the potential to inform practitioners in different contexts towards solving their problems. However, it is essential to provide detailed descriptions of the context nationally and locally to enable transferability. Even small-scale studies can refute existing perceptions and stimulate subsequent studies to critically consider certain assumptions, towards research making an impact.

■ Summary

Although large-scale studies, such as the TIMSS and PIRLS studies, receive a lot of attention in the formal education structures and in the media, case study research in the field of education is quite common. While large-scale studies provide us with indicators to see trends across nations, one has to consider the worth of case study research. In this chapter, we thus deliberate the potential of case study research to make an impact. We base this chapter on a single small-scale case study, taking a school in Kenya as our unit of analysis. We argue that case studies provide insight into the realities of educational settings and, if placed within the larger body of knowledge, has the potential to inform practitioners in different contexts towards solving their problems. However, it is essential to provide detailed descriptions of the context nationally and locally to enable transferability. We point out that even small-scale studies can refute existing perceptions and stimulate subsequent studies to critically consider certain assumptions.

Global Education: Image and Voice of Africa in Iran's School Textbooks

Abbas M. Arani
Department of Education
Lorestan University
Iran

Lida Kakia
Ministry of Education
Iran

■ Introduction

At the time of establishment of Iran's Islamic government in the early 1980s, few in the world thought that a decade later in 1991 the Cold War would end and that apartheid law would be abolished in South Africa. For the world, the end of the Cold War opened an optimistic perspective on life with global peace

and understanding. In fact, since the Second World War, organisations such as UNESCO have focussed on concepts such as the promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity. It seemed that the end of the Cold War could be a suitable time when UNESCO's humanitarian goals could be realised easily and quickly. For Iranians, this optimism has already proved to be unbelievable. In fact, as a young generation after the revolution and for a decade since then, we were listening to the teachers and reading textbooks that constantly said 'the West is only thinking of colonializing other nations' (Arani & Kakia, Authors, 2018). We became familiar with the terms such as colonisation, political and economic blockade, war, jihad, martyrdom, heaven and hell. The early optimism of the West also was not lengthy, and suddenly, Huntington (1993) came to the scene and argued that future wars would be fought not between countries, but between cultures, and that Islamic extremism would become the biggest threat to world peace. In Iran, this theory found many supporters and opponents. Some considered it a type of propaganda for 'Islamophobia' (Isazadeh & Sharaf al-Din 2017) and the former Iranian president Mohammad Khatami introduced the idea of 'Dialogue amongst Civilizations' as a response to Huntington's theory (Sciolino 1998). But what should not be forgotten is that the content of Iran's textbooks was and still is far more supportive of the Huntington theory. Although the events of the next two decades – such as the 'September 11 attacks' and the emergence of 'al-Qaeda' and 'Daesh' – proved Huntington's prediction, but what did not change was the failure of the Iranian government to accept UNESCO's slogans such as culture of peace and non-violence, global education and respect for cultural differences. Over the past four decades, Iran's textbooks have failed to train the younger generations in these subjects. One method of collecting proof is to analyse the content of school textbooks showing what images are presented to the Iranian learners about other countries.

In this article, the authors attempt to demonstrate the content social studies textbooks teach about Africa – with emphasis on South Africa – and to what extent this image is compatible or incompatible with UNESCO's goals, as well as what message post-apartheid South Africa could send to Iranian policy-makers and curriculum planners.

■ A Short Glance at the Social and Political Environment of Iran

One of the most important features of Iran's political leaders was and still is hostility to the West and mainly to the USA (cf. Amuzegar 1991). This hostility, especially because of US support of the Shah, became intensified. Therefore, the foreign policy of the Islamic Republic is to fight against the USA – as the great coloniser – and its allies across the globe. Based on this policy, Iran's relations with countries such as South Africa – during the apartheid period – were sharply reduced. From the social point of view, the fight against the manifestations of Western life style and values, especially in areas such as consumption, fashion, social customs and habits, is one of the main principles of the Islamic Republic (Vahdat 2014). The closure of branches of US companies like Coca-Cola, the prevention of wearing Western-style clothes – for example, cravat – in public and especially governmental complexes, and the promotion of Hijab can be seen as examples that are still ongoing. The idea of fighting the West and its manifestations is promoted through various social systems such as religious institutions, governmental organisations, social media (radio and television, newspapers and journals), schools and universities. These institutions constantly proselyte the idea that there are many fundamental differences between Islamic and Western worldviews, and that international organisations such as UNESCO through concepts such as global peace, global citizenship, gender equality and human rights are in favour of the West and deny differences in religious, cultural and social practices (HakimZadeh 2008).

Amongst these institutions, schools have a broader role. The political system of Iran in the last four decades has tried to transfer its views about the West to the younger generation through school textbooks. In this process, the images presented to students about Western countries emphasise on subjects like colonial history, economic and cultural differences, world of poor and rich, and methods of combating against Western cultural influence and invasion. From one side, and in many cases, this picture develops the spirit of struggle and hatred of the enemy and magnifies differences. On the other hand, and in a conscious process, the human positive similarities and progress of societies towards cultural understanding – which reduces the disparities between nations – are dimmed. One author of this chapter already mentioned that (Madandar 2015):

> [*A*]t the time of the 1979 Islamic Revolution in Iran, I was a Grade 9 student […] during the decades since entering school I have experienced an Islamic revolution, closure of universities, a terrible war, political training, external economic blockades, teaching of new generations, and opportunities to contribute to research. (p. 133)

These experiences have brought different lessons, but one in particular is that Iran's education system in all its dimensions and at all levels remains strongly under political influence. The government is very mindful of the role of schooling in shaping attitudes and pays close attention to educational structures and processes.

■ Images of Africa (with Emphasis on South Africa) in Iranian School Textbooks

At present, education in Iran is centralised and divided into K-12 education supervised by the Ministry of Education. Primary school starts at the age of six, for six years. Middle school goes from the seventh to the ninth Grade, and high school for which

the last three years is not mandatory is divided between different scientific fields. This chapter presents an analysis of eight social studies textbooks (Grades 5–12) to determine the image of Africa in school textbooks. The books are posted by the Ministry of Education[6] on the Internet and are exact copies of the original Persian or Farsi printed versions. The textbooks are currently used in Iran and for children outside of Iran who are following the Iranian educational system. It is expected that the textbooks will continue to be used in the foreseeable future. Also, all Iran's primary to secondary school textbooks (Grades 1–12) for different subjects were reviewed for potentially relevant information. The social studies textbooks include three sections of geography, history and social sciences, available to learners from Grades 5 and 6 of primary schools and Grades 7–12 of middle and high secondary education (total eight books). In primary schools, Iranian students get a brief introduction to the geographic features of Africa, but from secondary schools, pupils learn more information about demographic, economic, social and cultural characteristics of different parts of the continent. This information is presented subsequently.

■ Geography of Africa

In Grade 5 of primary school and for the first time, pupils are familiarised with the number of continents and their shape and location (Figure 15.1). In Grade 6, students find what route the ships of European countries such as France, England and Spain have travelled for geographic explorations (Figure 15.2). The social science textbook of Grade 9 provides more extensive information on the type of climate, name of rivers and mountains, geographical boundaries of countries as well as the extinction of animal species (Figure 15.3).

---

6. See http://chap.sch.ir/

Source: Ministry of Education n.d.a.
FIGURE 15.1: Depiction of the number of continents and their shape and location.
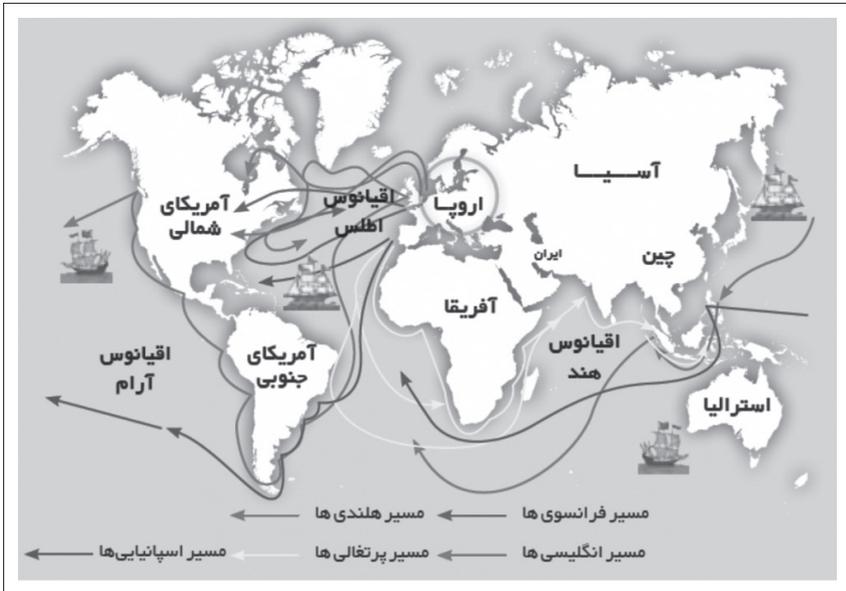
Source: Ministry of Education n.d.b.
FIGURE 15.2: European countries' geographic exploration routes for ships.

Source: Ministry of Education n.d.d.

FIGURE 15.3: Depictions of extinction status of animal species, climate types, geographical features and boundaries of countries.

■ Demographic Features of Africa

The social studies textbook of Grade 8 (Ministry of Education n.d.c) explains that:

> Despite being the second largest continent in the world, Africa has a small population. Over the years, the lack of health and the spread of various diseases, droughts and subsequent famine and wars have prevented population growth on the continent. Nowadays, population growth and fertility rates have increased in Africa because of improvement in vaccination and health conditions. (p. 145)

In this book, and through a map, it is indicated in which country the majority of the population are Muslims (Figure 15.4). Also, with the presentation of three pictures of children and without mentioning their hometown, the faces of African children are displayed (Figure 15.5). The authors wrote (Ministry of Education n.d.c):

> Most Africans are black and only people of North of Africa and a small part of the South are white. The people of northern sub-Saharan Africa, such as Egypt, Algeria, and Morocco speak Arabic. The people of other African countries speak their local languages or language of the countries that were previously under their influence and colonialism (such as French or English). (p. 146)

■ Economy of Africa

The economic characteristic of Africa is one of the topics that have been allocated many pages in social studies textbooks. To explain this characteristic, writers have largely highlighted the factors influencing Africa's underdevelopment, especially the role of states and colonialism. For example, in Grade 8, while introducing some agricultural products of Africa, we can read (Ministry of Education n.d.c.):

> In general, Africa's underdevelopment factors can be divided into two groups: 1. External factors: The most important reason for the failure of Africa is the colonization of European countries and the plundering of Africa resources. Today, the interference of powerful countries in the creation of wars and crises on this

Source: Ministry of Education n.d.c.
FIGURE 15.4: Countries with mostly Muslim populations.

Source: Ministry of Education n.d.c.
FIGURE 15.5: African children's faces.

Source: Ministry of Education n.d.c.
FIGURE 15.6: Killing of African elephants.

continent continues. 2. Internal factors: The severe environmental conditions (dense forests, vast deserts, warm weather), the outbreak of illness, illiteracy and low awareness of the people, civil wars, and dependent and autocratic governments. (p.147)

In this lesson, while referring to the tourism potential of the continent and the negative role of China and Thailand in the killing of African elephants, it also compares European and African countries through six economic and social indicators (Figure 15.6).

■ Cultural and Political Features of Africa

After students' awareness of the economic characteristics of Africa, they get acquainted with the cultural and political features of the continent. For the first time, Grade 5 Iranian students see a black and white photo of Nelson Mandela in a Farsi textbook and a question below, 'Do you know him?' (Ministry of Education n.d.a).

Source: Ministry of Education n.d.c.
FIGURE 15.7: A photograph of Nelson Mandela.

No explanation has been given to the student about the owner of the photo on this Grade. In Grade 8, there is a picture of Mandela with a sentence introducing him as a revolutionary person (Figure 15.7). Interestingly, except for these two pictures and brief sentences, no explanation of Mandela's performance and behaviour – especially after apartheid – can be found in the school textbooks of Iran. Instead, you can find many explanations – especially in higher secondary schools – about the colonial performance of Western countries in Africa. For example, Grade 8 pupils can read (Ministry of Education n.d.c):

> When colonialist Europeans discovered America, they took Africans as a slave to work in farms and mines. Between the years 1500 and 1800 (AD), they took away millions of black people to America by ship. Slaves collapsed with chains so they could not escape. The slaves were sold to the owners of the farms and the mines. They had a very tough life and were often punished by the masters. Slave trade is one of the sad events of the Africa continent. (p. 16)

In the higher secondary schools and in the Sociology textbook of Grade 10, in the lesson entitled 'Social Identity Changes', three photos have been presented to the learners. In the first picture, two white police officers have arrested a black man who objected to apartheid (Figure 15.8). In the second picture, a black girl is walking inside an enclosure, and the white

Source: Ministry of Education n.d.e.
FIGURE 15.8: White police officers arresting a black man.

crowd is watching her. Below this picture, the authors have written: 'Show of African Blacks in the New York Zoo' (Ministry of Education n.d.e) (Figure 15.9). In the last picture which is a poster, two black and white hands are on each other, and a sentence from the Prophet of Islam has been quoted that 'no white over black and no black over white, except in virtue' (Figure 15.10). In this way, the authors develop a sense of hatred in the minds of the Iranian students against Westerners, by exposing their inconsiderate behaviour and discrimination against other races, and by showing that the main factor concerning formation of social identity in Islam is 'virtue'.

Source: Ministry of Education n.d.e.
FIGURE 15.9: Reprinted photograph in an Iranian textbook of an African girl on display at a zoo-like expo in Belgium during 1958.

FIGURE 15.10: A photograph of black and white hands joined to symbolise the equality of human beings, captioned: 'No white over black and no black over white, except in virtue'.

Continuing these tutorials, in a chapter entitled 'Global Challenges', the authors have focussed on issues such as bipolar world, global conflicts and wars, economic and environmental crises, and epistemic and spiritual crises (Sociology textbook, Grade 11). In most of these discussions, authors have chosen their examples from Africa. For example (Ministry of Education n.d.f:n.p.), they wrote under a poster: 'Africa has valuable resources and mines such as oil, diamonds,

gold, uranium, iron, copper, silver, etc. But because of colonialism, Africa is the poorest residential continent in the world'. On the poster, there is also a message in English which says, 'Don't worry Africa. We'll go away, when we finish' (Figure 15.11).

In the next paragraph, to justify the backwardness of Africa, students are confronted with the sentence, 'the problem of poor countries is not their only economic and industrial weakness, but their lack of cultural self-esteem and imitation modeling'

Source: Ministry of Education n.d.f.
FIGURE 15.11: A poster concerning the colonisation of Africa for access to its natural resources, with the message: 'Don't worry, Africa. We'll go away when we finish'.

(Ministry of Education n.d.f:91). Finally, in Grade 12 (Ministry of Education n.d.g:19), the authors describe the term 'imperialism' and its political, economic and cultural forms and as an example display a map of Africa with the flags of European countries, mentioning that 'During the nineteenth century, the occupation of foreign lands by Europeans rose from 35% to 67%' (Figure 15.12).

Source: Ministry of Education n.d.g.
FIGURE 15.12: A map using the flags of European countries to depict their colonisation of Africa.

Source: Ministry of Education n.d.g.
FIGURE 15.13: A photograph of African people with their hands raised in front of armed white officers.

On the following page, there is also a picture depicting black people raising their hands in front of armed white officers (Ministry of Education n.d.g:20) (Figure 15.13).

One of the favourite subjects for authors of textbooks is the presence of Islam in different parts of the world – including Africa – and its liberating role (Ministry of Education n.d.h) (Figure 15.14). In the Grade 11 textbook, the authors have tried to explain the cultural features of Africa according to religious characteristics. They consider the continent to be divided with regards to cultural geography into three regions of Northern Africa (dominated by Islamic culture and religion), Central Africa (dominated by indigenous culture) and South Africa (dominated by Christianity). Along with this description, the spread of Islam over the years from Saudi Arabia to other parts of the world has been featured on a map for students (Ministry of Education n.d.h:77). In fact, the authors of the textbook condemn the arrival of Europeans in Africa in various ways; at the same time, and possibly unconsciously, the prevalence of Islam in Africa – without referring to its effects – is acceptable for them.

بسیاری از ادیان و زبان‌ها طی دوره‌های تاریخی در جهان گسترش یافته‌اند. دین اسلام فقط در محل ظهور یا کانون خود باقی نماند بلکه در بخش‌های وسیعی از جهان، انتشار یافت.

نقشهٔ گسترش اسلام در دوره‌های مختلف
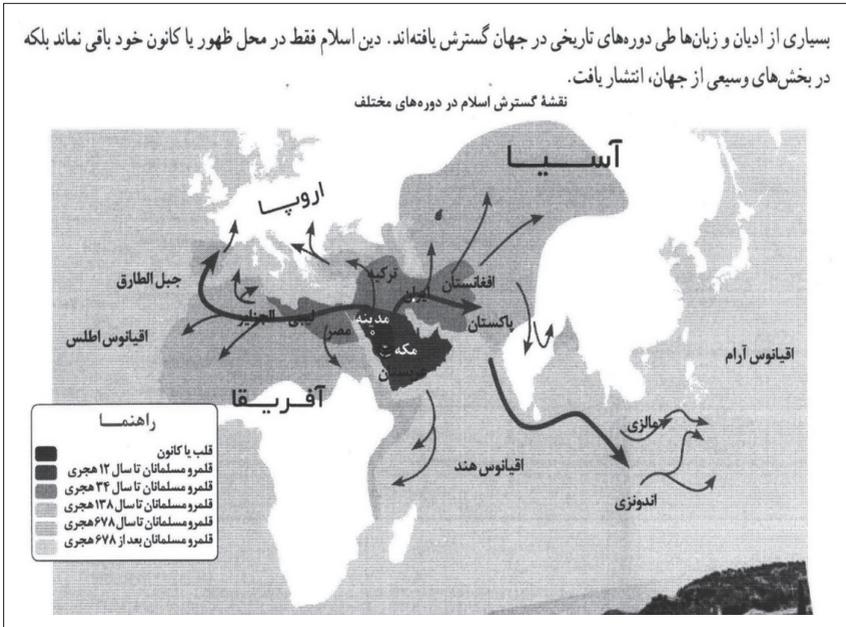
Source: Ministry of Education n.d.h.
FIGURE 15.14: A map depicting the spread of Islam.

Following this doctrine, Chapter 4 – comprising 38 pages – of the Grade 11 Geography textbook is devoted to the theme of 'Islamic Awakening and the New World'. The authors compared the Iranian revolution with other revolutions and the role of leaders such as Mao, Ataturk, Gamal Abdel Nasser and Gaddafi. Then, writers express the impact of Iran's Islamic revolution on the awakening of the Islamic world and its leaders and have written that (Ministry of Education n.d.h:108), 'The Islamic Revolution of Iran is a turning point to Islamic culture in the world of Islam'. Interestingly, a photo of the leader of the Islamic Movement of Nigeria, Sheikh Ibrahim Yaqoub El Zakzaky, has been exposed to demonstrate the impact of Iran's revolution on recent Islamic movement leaders (Ministry of Education n.d.i) (Figure 15.15).

FIGURE 15.15: Photograph of Sheikh El Zakzaky, Leader of the Islamic Movement of Nigeria.

■ Conclusion

One of UNESCO's goals to promote sustainable development is that educational systems teach young people the concepts of peace education and non-violence, global citizenship, and the acceptance and appreciation of other cultures. It is obvious that images and pictures portrayed by school textbooks about different parts of the world and historical events can be a source of love or hate for other people, nations and cultures. In this article, we track three goals. Firstly, what information Iran's school textbooks offer about geography, history, civilisation and culture of Africa, and what kind of image they create in the minds of Iranian children and youths about Africa. Secondly, to what extent this information is in line with goals such as peace education, non-violence and acceptance of cultural diversity? Thirdly, does Africa – with an emphasis on South Africa after apartheid – have a voice and message for policy-makers, educational planners and Iranian authors of school textbooks?

With regard to the first goal of the article, content analysis of textbooks shows a stereotypical image of Africa – which is probably also known elsewhere in the world. The features of this stereotypical image are as follows:

1. Natural resources, forests, wildlife, black population and widespread poverty
2. Slavery, apartheid, active role of colonialists and passive role of Africans
3. Africa as an 'Integrated whole' without a deep thought about the historical, cultural and social diversity of its countries.

The consequence of this stereotypical image in the minds of the Iranian students cannot mean anything but sadness for the people of Africa, as well as implying insecurity, famine, hunger and sustained backwardness in Africa.

Considering the second goal of this chapter, content analysis of the textbooks reveals the following messages for Iranian students:

1. Africa's culture is affected by religious distinctions. Islam in North, Christianity in South and indigenous religions in Central Africa.
2. A bipolar world based on the existence of oppressor and oppressed, poor and rich, and constant plunder of Africa's wealth.
3. Corrupt governments affiliated with the colonialist powers of the world.
4. Sustainable cultural alienation.

A comprehensive review of the textbooks indicates that it is rarely possible to find sentences about subjects such as global citizenship, acceptance of cultural diversity, peace education and the negation of violence. The ruling mindset of the writers of the textbooks still belongs to the Cold War era; acceptance of the Huntington theory – despite its apparent negation; belief in a power struggle between states and nations; and enduring enmities with other nations. In one sentence, the world of Iranian textbooks is a bitter, dark, suspicious world full of conflict and inequality.

Given these findings, now we ask ourselves whether '[d]ue to the UNESCO's target – Education for sustainable development and global citizenship does Africa – with emphasis on South Africa – has any voice or message for Iran's textbooks authors?' (Arani & Kakia, Authors, 2018). Although our answer is positive, before that, let us say what image these authors have about South Africa in their minds.

It seems that they are well aware of the history of Iran's relations with South Africa before and after the revolution. Before the revolution, the Shah's relationship with the apartheid regime was good. Then (Chehabi 2016):

> The Islamic revolution of 1979 caused a break in formal relations. It affected South Africa in two ways: oil imports were disrupted, and it contributed to the growing militancy of South African Muslims in the anti-apartheid struggle. Iran then made financial contributions to the ANC, resulting in a friendly resumption of ties after the end of apartheid. (p. 687)

The Islamic government named an affluent and upper-class district in northern Tehran to Nelson Mandela Boulevard, and two photos of him were presented in school textbooks. The textbook authors also dedicated many pages to explaining the history of colonialism and apartheid. But, surprisingly, in none of the textbooks can we find a paragraph about the transfer of power from white people to black people in South Africa, Mandela's behaviour towards yesterday's enemies, and his emphasis on non-violence after the collapse of apartheid. In reality, the authors of textbooks are well aware of Mandela's behaviour, but the educational policy is based on hate instead of compromise. Because of this policy, it is hard to understand and accept Mandela's behaviour.

So the most important lesson that Iran's educational policy-makers and curriculum planners can learn from Africa – in particular South Africa – is promoting a culture of peace and understanding that preventing the cultivation of seeds of hatred can make a better world for the children of Iran. They should learn from Mandela that friendships and hostilities are not

permanent because they are defined by national interests. According to this, the need to change the content of textbooks according to new transitions, transformations and reforms in African countries should be considered. Finally, the Africa stereotypical image should be changed and instead of the extreme emphasis on past bitter events – that can no longer be altered – Iranian students must find new information about Africa's ever-increasing advances.

■ Summary

The purpose of this chapter is to provide a brief answer to the question, 'does Africa (with emphasis on the experience of post-apartheid South Africa) have any voice within global education, forms of knowledge and policy discourses for the Middle East (with emphasis on Iran)?' This answer is related to one of the 10 targets of 'Sustainable Development Goal 4', that is, 'Education for Sustainable Development and Global Citizenship'. This chapter included an analysis of eight social studies textbooks to determine the extent to which the above goal and its dimensions are emphasised in Iranian school textbooks. This chapter has the following sections: Firstly, an introduction; secondly, a short glance at the social and political environment of Iran during the past four decades (1979–2018); and thirdly, the image of Africa in the Iranian school textbooks. The chapter ends with a conclusion.

References

Academic Ranking of World Universities, 2011, *Academic ranking of world universities 2011*, viewed 02 November 2011, from http://www.shanghairanking.com/ARWU2011.html.

Brezinka, W., 1981, 'The limits of education', *Logs* 1, 2–5.

Brookes, A. & Stewart, A., 2016, 'What do citation patterns reveal about the outdoor education field? A snapshot 2000–2013', *Journal of Outdoor and Environmental Education* 19(2), 12–24. https://doi.org/10.1007/BF03400991

Campbell, K., 2017, 'South African spending on R&D on the rise but government aims yet higher', *Creamer Media's Engineering News*, viewed 12 February 2018, from http://www.engineeringnews.co.za/article/south-african-rd-spending-on-the-rise-but-government-aims-yet-higher-2017-04-12/rep_id:4136.

Carnegie Institution of Washington, 2018, *Find your H-index*, viewed 18 February 2018, from https://library.gl.ciw.edu/index.php?option=com_content&view=article&id=57&Itemid=170.

Davidson, J.D. & Rees-Mogg, W., 1992, *The great reckoning: How the world will change in the depression of the 1990s*, Sidgwick & Jackson, London.

Deacon, R., Osman, R. & Buchner, M., 2009, *Audit and interpretative analysis of education research in South Africa: What have we learnt?* Research Report for the National Research Foundation, Centre for Education Policy Development, Johannesburg.

De Wet, C. & Wolhuter, C., 2007, 'From "borrowing" to "learning" in international comparative study: A critical reflection', *South African Journal of Education* 27(2), 317–328.

Farrell, J.P., Manion, C. & Rincón-Gallardo, S., 2017, 'Reinventing schooling: Successful radical reform alternatives from the Global South', in K. Bickmore, R. Hayhoe, C. Manion, K. Mundy & R. Read (eds.), *Comparative and international education: Issues for teachers*, pp. 39–87, Canadian Scholars, Toronto.

Friedman, V., 2016, 'Having an impact on the impact of impact factor on action research', *Action Research* 14(4), 355–356. https://doi.org/10.1177/1476750316683039

G3 Business Solutions, 2005, *Persepsiepeiling: Fakulteit Opvoedingswetenskappe*, Noordwes-Universiteit, Unpublished, North-West University, Potchefstroom.

Gruber, T., 2014, 'Academic sell-out: How an obsession with metrics and rankings is damaging academia', *Journal of Marketing for Higher Education* 24(2), 165–177. https://doi.org/10.1080/08841241.2014.970248

Kannemeyer, J.C., 1990, *Die rym neem ook `n hele lewe in beslag*, JUTALIT, Kaapstad.

Larrabee, D.F., 1998, 'Educational researchers: Living with a lesser form of knowledge', *Educational Researcher* 27(8), 4–12. https://doi.org/10.3102/0013189X027008004

Levin, B., Qi, J., Edelstein, H. & Sohn, J. (eds.), 2013, *The impact of research in education: An international perspective*, The Policy Press, Bristol.

Muller, J. & Hoadley, U., 2013, 'Knowledge mobilisation in education in South Africa', in B. Levin, J. Qi, H. Edelstein & J. Sohn (eds.), *The impact of research in education: An international perspective*, pp. 165–182, The Policy Press, Bristol.

Ohlson, D., 2003, *Psychological theory and educational reform: How school remakes mind and society*, Cambridge University Press, Cambridge.

Opesade, A.O., Famurewa, K.F. & Ebelechukwu, G., 2017, 'Gender divergence in academics' representation and research productivity: A Nigerian case study', *Journal of Higher Education Policy and Management* 39(3), 341–357. https://doi.org/10.1080/1360080X.2017.1306907

Oxford Living Dictionary, 2018, *Impact*, viewed 07 February 2018, from https://en.oxforddictionaries.com/definition/impact.

Raby, R.L. & Valeau, E.J. (eds.), 2018, *Handbook of comparative studies on community colleges and global counterparts*, Springer Nature, Dordrecht.

Redwood, J., 1993, *The global marketplace: Capitalism and its future*, Harper Collins, London.

Rodriguez, J.G., Bain, K., Moon, A., Mack, M.R., De Korver, B.K. & Towns, M.H., 2017, 'The citation index of chemistry education research in the 'Journal of Chemical Education' from 2008 to 2016: A closer look at the impact factor', *Journal of Chemical Education* 94(5), 558–562. https://doi.org/10.1021/acs.jchemed.7b00062

Saganuwan A.S., 2017, 'Google scholar citations help on calculation of H-Index of a researcher in the field of pharmacology may be misleading', *EC Pharmacology and Toxicology* 3(5), 131–137.

Shin, J. Cd., Toutkoushian, K. & Teichler, U. (eds.), 2011, *University rankings: Theoretical basis, methodology and impacts on global higher education*, Springer, Dordrecht.

Stoker, H.G., 1969, *Beginsels en metodes in die wetenskap*, Pro-Rege, Potchefstroom.

Stone, H.J.S., 1983, *The common and the diverse: A profile of comparative education*, McGraw-Hill, Johannesburg.

Torres, C.A., 2015, *Theoretical and empirical foundations of critical global citizenship education*, Routledge, New York.

UNESCO, 2018, *How much does you country invest in R&D?*, viewed 12 February 2018, from http://uis.unesco.org/apps/visualisations/research-and-development-spending/.

Van der Walt, J.L., Potgieter, F.J., Wolhuter, C.C., Higgs, P., Ntshoe, I. & Higgs, L.G., 2010, 'Teacher educators in South Africa: Something amiss with their performance?', *Journal of Education* 50, 197–222.

Weeks, S., Herman, H., Maarman, R. & Wolhuter, C., 2006, 'SACHES and comparative, international and development education in Southern Africa: The challenges and future prospects', *Southern African Review of Education* 12(2), 5–20.

Wolhuter, C.C., 1994, 'Vergelykende perspektief op Vergelykende Opvoedkunde in Suid-Afrika', *Suid-Afrikaanse Tydskrif vir Opvoedkunde* 14(3), 155–158.

Wolhuter, C.C., 2011a, 'Die wêreldrevolusie in die hoër onderwys en die verrekening daarvan binne die Suid-Afrikaanse konteks', *Litnet Akademies* 8(3), 95–121.

Wolhuter, C.C., 2011b, 'The international impact of education research done and published in South Africa', *South African Journal of Education* 31(4), 603–616. https://doi.org/10.15700/saje.v31n4a400

Wolhuter, C.C., 2012, 'n Wêreldklasuniversiteit in Suid-Afrika: Ideaal, wenslik, haalbaar, werklikheid, hersenskim?', *LitNet Akademies* 9(2), 284–308.

Wolhuter, C.C., 2014, 'Research on higher education in South Africa: Stocktaking and assessment from international comparative perspectives', *South African Journal of Higher Education* 28(1), 275–291.

Wolhuter, C.C., 2015a, '*Quisnam sum ego?* Crises of identity in comparative education and the call for comparison of comparative studies', in A.W. Wiseman & N. Popov (eds.), *Comparative sciences: Interdisciplinary approaches*, pp. 15–35, Emerald, Bingley.

Wolhuter, C.C., 2015b, 'Steps in the research process', in C. Okeke & M. Van Wyk (eds.), *Educational research: An African approach*, pp. 148–163, Oxford University Press, Cape Town.

Wolhuter, C.C., 2015c, 'The case of the education system of South Africa on the World Map: Inspiring case or call for guidance from abroad?', in C.C. Wolhuter, L. Jacobs & H.J. Steyn (eds.), *Thinking about Education Systems*, pp. 57–77, Keurkopie, Noordbrug.

Wolhuter, C.C., 2015d, '1994: New academic profession for a new South Africa?', *Studies in Higher Education* 40(8), 1377–1391. https://doi.org/10.1080/03075079.2015.1060712

Wolhuter, C.C. 2017, 'Economics and comparative and international education: Past, present, future,' in N. Popov, C. Wolhuter, J. Kalin, G. Hilton, J. Ogunleye, E. Niemczyk & O. Chigisheva (eds.), *Current business and economics driven discourse and education: Perspectives from around the world*, pp. 17–23, vol. 15, Borovets, Bulgaria, n.d. June 2017.

Wolhuter, C.C., 2018, 'The salience of African scholars in education research', *Africa Education Review* n.v., 1–16.

Wolhuter, C.C., Higgs, P., Higgs, L.G. & Ntshoe, I., 2010, 'How affluent is the South African higher education sector and how strong is the academic profession in the changing international academic landscape?', *South African Journal of Higher Education* 24(1), 196–213.

Wolhuter, C.C., Higgs, P., Higgs, L. & Ntshoe, L.G., 2011, 'South Africa: Recklessly incapacitated by a fifth column – The academic profession facing institutional governance', in W. Locke, W.K. Cummings & D. Fisher (eds.), *Changing*

governance and management in higher education: The perspectives of the academy, pp. 107–125, Springer, Dordrecht.

The World University Rankings, 2011, *The world university rankings 2011–2012*, viewed 06 November 2011, from http://www.timeshighereducation.co.uk/world-university-rankings/2011-2012/top400.

Chapter 2

Anderson, S. & Sivasubraniam, M., 2017, 'Comparative perspectives on School improvement', in K. Bickmore, R. Hayhoe, K. Mundy & R. Read (eds.), *Comparative and International Education: Issues for teachers*, pp. 119–151, Canadian Scholars, Toronto.

Anonymous, 2009, *The Department of Home Affairs has no idea how many illegal immigrants are in South Africa*, viewed 01 April 2012, from http://mg.co.za/art/2009-11-13-has-no-idea-how-many-illegal-immigrants-are-in-South-Africa.

Balfour, R.J., 2015, *Education in a New South Africa: Crisis and change*, Cambridge University Press, Cambridge.

Bass, B.M., 1985, *Leadership and performance beyond expectations*, The Free Press, New York.

Bass, B.M., 1998, 'The ethics of transformational leadership', in J.B. Ciulla (ed.), *Ethics: The heart of leadership*, pp. 169–192, Praeger, Westport.

Bass, B.M. & Steidlmeier, P., 1999, 'Ethics, character, and authentic transformational leadership behavior', *Leadership Quarterly* 10(2), 181–217. https://doi.org/10.1016/S1048-9843(99)00016-8

Bloch, G., 2009, *The Toxic Mix: What's wrong with South Africa's schools and how to fix it*, Tafelberg, Cape Town.

Bray, M. & Thomas, R.M., 1995, 'Levels of comparison in educational studies', *Harvard Educational Review* 65(3), 472–490. https://doi.org/10.17763/haer.65.3.g3228437224v4877

Bush, T., Joubert, H.J., Kiggundu, E. & Van Rooyen, J., 2010, 'Managing teaching and learning in South African schools', *International Journal of Education Development* 30(2), 162–168. https://doi.org/10.1016/j.ijedudev.2009.04.008

Carlyle, T., 1849, *On heroes, hero worship and the heroic in history*, Houghton Mifflin, Boston.

Central Intelligence Agency (CIA), 2017, *Word Fact Book*, viewed 01 January 2018, from https://www.cia.gov/library/publications/the-world-factbook/fields/2212.html.

Dempster, N., 2009, 'What do we know about leadership?', in J. MacBeath & N. Dempster (eds.), *Connecting leadership and learning: Principles for practice*, pp. 20–33, Routledge, London.

Department of Higher Education and Training, 2015, *Revised policy on the minimum requirements for teacher education*, Government Printer, Pretoria.

Galton, F., 1869, *Hereditary Genius*, viewed 24 November 2018, from http://galton.org/books/hereditary-genius/text/pdf/galton-1869-genius-v3.pdf.

Govender, P., 2018, 'Guateng a magnet for "outside" pupils', *Sunday Times*, 14 January, 2018, p. 1.

Hallinger, P. & Heck, R.H., 2011, 'Conceptual and methodological issues in studying school leadership effects as a reciprocal process', *School Effectiveness and School Improvement: An International Journal of Research, Policy and Practice* 22(2), 149–173. https://doi.org/10.1080/09243453.2011.565777

Harricombe, L.J. & Lancaster, F.S., 1995, *Out in the cold: Academic boycotts and the isolation of South Africa*, Information Resources Press, Arlington.

Hayhoe, R., Manion, C. & Mundy, K., 2017, 'Why study comparative education?', in K. Bickmore, R. Hayhoe, K. Mundy & R. Read (eds.), *Comparative and International Education: Issues for teachers*, pp. 1–26, Canadian Scholars, Toronto.

Helmrich, B., 2015, *30 ways to define leadership*, viewed 18 February 2016, from http://www.businessnewsdaily.com/3647-leadership-definition.html.

Heymans, S.P., 1979, 'Comparative education from an ethnomethodological perspective', *Comparative Education* 15, 241–249. https://doi.org/10.1080/0305006790150302

Krishnamurthy, S. & Wolhuter, C.C., 2017, *Chapter 14-1 Upgrading Polytechnic in Namibia to the Namibia University of Science and Technology and the Post-Secondary Education Niche in Namibia*, Springer Nature, Dordrecht.

Kubow, P.K. & Blosser, A.H., 2016, 'Multicultural Education is not enough: The case for Comparative Education in preservice teacher education', in P.K. Kubow & A.H. Blosser (eds.), *Teaching comparative Education: Trends and issues in practice*, pp. 75–90, Symposium Books, Oxford.

Leithwood, K., Day, C., Sammons, P., Harris, A. & Hopkins, D., 2006, *Seven strong claims about successful school leadership*, Department for Education and Skills, London.

Lewin, K., Lippit, R. & White, R.K., 1939, 'Patterns of aggressive behavior in experimentally created "social climates"', *Journal of Social Psychology* 10, 271–301. https://doi.org/10.1080/00224545.1939.9713366

Magno, C.S., 2013, *Comparative perspectives on International School Leadership Policy, preparation and practice*, Routledge, New York and London.

Maseman, V.L., 2008, *Remark made at the 2008 International Conference on Comparative Education and Teacher Education*, Sofia, Bulgaria.

Masondo, S., 2016, 'Education in South Africa: A system in crisis', *City Press*, 31 May, 2016, viewed 05 October 2017, from http://city-press.news24.com/News/education-in-south-africa-a-system-in-crisis-20160531.

Mullis, I.V.S., Martin, M.O., Foy, P. & Hooper, M., 2017, *TIMSS 2015 International Results in Mathematics*, viewed 14 December 2017, from http://timss2015.org/wp-content/uploads/filebase/full%20pdfs/T15-International-Results-in-Mathematics-Grade-4.pdf.

Ng, J.Y., 2010, *Hong Kong: State of mind: 37 views of a city that doesn't blink*, Blacksmiths, Hong Kong.

Olivier, C., 2017, *How to steal a City: The battle for Nelson Mandela Bay: An insider account*, Jonathan Ball, Johannesburg.

Pauw, J., 2017, *The President's Keepers: Those keeping Zuma in power and out of prison*, NB Publishers, Cape Town.

Pew Research Center, 2016, *Pew-Templeton global religious pictures project: South Africa*, viewed 18 January 2018, from http://www.globalreligiouspictures.org/south-africa#/?affiliations_religion_name=AllCountries&Restrictions_year=20108religion_name=AllCountries&Restrictions=2013.

Planel, C., 2008, 'The rise and fall of comparative education in teacher training: Should it rise again as comparative pedagogy?', *Compare* 38(4), 385–399. https://doi.org/10.1080/03057920701467867

Psacharopoulos, G., 1990, 'Comparative Education: From theory to practice: Are you a A;\neo or a B\ist?', *Comparative Education Review* 34, 369–380. https://doi.org/10.1086/446952

Republic of South African (RSA), 2018, *2011 Census in brief*, viewed 08 January 2018, from http://www.statssa.gov.za/census/census_2011/census_products/Census_2011_Census_in_brief.pdf.

Schneller, P.L. & Wolhuter, C.C. (eds.), 2011, *Navigating the CO: Creativity, core, compassion, character, cosmopolitanism and critical awareness an introduction to comparative education*, Keurkopie, Noordbrug.

Spencer, B.F., 2016, *The leadership chain: McClelland and his legacy*, viewed 19 February 2016, from https://www.ssca.com/resources/articles/103.

Statistics South Africa, 2017, *South Africa's population density map*, viewed 05 January 2018, from https://www.southafricanmi.com/population-density-map.html.

Steinberg, B., 1987, 'Comparative education in South Africa: An irrelevant academic exercise?', in D. Young & R. Burns (eds.), *Education at the crossroads: Papers to mark seventy-five years of teacher education at the University of Cape Town, 1911–1986*, pp. 78–87, University of Cape Town, Rondebosch.

Stenhouse, L., 1979, 'Case study in comparative Education: Particularity and generalization', *Comparative Education* 15(1), 5–10. https://doi.org/10.1080/0305006790150102

Stogdill, R.M., 1948, 'Personal factors associated with leadership: A survey of the literature', *The Journal of Psychology* 25, 35–71. https://doi.org/10.1080/00223980.1948.9917362

Trading Economics 2018, *South Africa's unemployment statistics*, viewed 10 January 2018, from https://tradingeconomics.com/south-africa/unemployment-rate.

University of South Africa (UNISA), 2018, *Post-Graduate Diploma in Educational Leadership and Management*, viewed 08 March 2018, from http://www.unisa.ac.za/sites/corporate/default/Register-to-study-through-Unisa/Subjects-&-modules/All-subjects/EDUCATIONAL-LEADERSHIP-AND-MANAGMENT.

Van der Walt, J.L., Potgieter, F.J. & Wolhuter, C.C., 2010, 'The road to religious tolerance in South Africa (and elsewhere): A possible "Martian perspective"', *Religion, State & Society* 38(1), 29–52. https://doi.org/10.1080/09637490903500507

Weeks, S.G., Herman, H., Maarman, R. & Wolhuter, C.C., 2006, 'SACHES and comparative, international and development education in Southern Africa: The challenges and future prospects', *Southern African Review of Education* 12(2), 5–20.

Welch, A., 2013, 'Technocracy, uncertainty, and ethics: Comparative education in an era of postmodernity and globalization', in R.F. Arnove, C.A. Torres & S. Franz (eds.), *Comparative Education: The dialectic of the global and the local*, pp. 27–54, Rowman and Littlefield, Lanham.

Wolhuter, C.C., 1994,'Vergelykende perspektief op Vergelykende Opvoedkunde in Suid-Afrika', *Suid-Afrikaanse Tydskrif vir Opvoedkunde* 14(3), 155–158.

Wolhuter, C.C., 2000, 'Enkele implikasies van die 1996 sensus vir die opvoedkundenavorsingsagenda', *Suid-Afrikaanse Tydskrif vir Opvoedkunde* 20(2), 155–160.

Wolhuter, C.C., 2008, 'Review of the review: Constructing the identity of comparative education', *Research in Comparative and International Education* 3(4), 323–344. https://doi.org/10.2304/rcie.2008.3.4.323

Wolhuter, C.C., 2010, 'Teacher training in South Africa: Reforms and challenges', in K.G. Karras & C.C. Wolhuter (eds.), *Handbook on Teacher Education World Wide*, pp. 861–875, vol. 1, Atrapos, Athens.

Wolhuter, C.C., 2014a, 'Crisis in the societal forces shaping education', in P. Calogiannakis K.G. Karras, C.C. Wolhuter, T-H. Chiang & M. Tendo (eds.), *Crisis in Education: Modern trends and issues*, pp. 99–110, HM Studies and Publishing, Nicosia.

Wolhuter, C.C., 2014b, 'Weaknesses of South African education in the mirror image of international educational development', *South African Journal of Education* 34(2), 1–25, viewed 06 October 2017, from http://www.sajournalofeducation.co.za.

Wolhuter, C.C., 2015, 'Comparative and international education: Conceptual clarification and significance', in C.C. Wolhuter, L. Jacobs & H.J. Steyn (eds.), *Thinking about education systems*, pp. 13–32, Keurkopie, Noordbrug.

Wolhuter, C.C., 2016, 'The education system of South Africa: Catapulting the country into the twenty-first century', in K. Horsthemke, P. Siyakwazi, E. Walton & C.C. Wolhuter (eds.), *Education studies*, pp. 104–125, Oxford University Press, Cape Town.

Wolhuter, C.C., Van der Walt, H. & Steyn, H., 2016, 'A strategy to support educational leaders in developing countries to manage contextual challenges', *South African Journal of Education* 36(4), 1–9. https://doi.org/10.15700/saje.v36n4a1297

Wolhuter, C.C., Vos, D., Van Jaarsveld, L. & Challens, B., 2018, 'Die samehang tussen kontekstuele faktore, leierskap en prestasie by top presterende skole', *Litnet Akademies*, Forthcoming.

World Bank, 2017, *2017 development indicators*, The World Bank, Washington.

Wright, L., 2015, *South Africa's Education Crisis: Views from the Eastern Cape*, NISC, Grahamstad.

Želvys, R. & Wolhuter, C.C., 2014, 'Lyginamosios edukologijos raida pasaulyje ir Lietuvos universitetuose', *Acta Paedagogica Vilnensia* 32, 59–71. https://doi.org/10.15388/ActPaed.2014.32.7388

Zvavahera, P., 2013, 'The effect of leadership on service delivery in universities', *Research in Higher Education Journal* 21, 1–8, viewed 30 March 2016, from http://www.aabri.com/manuscripts/131574.pdf.

Chapter 3

Abuya, B.A., 2017, 'Why the new education curriculum is a triumph for Kenya's children', *The Conversation*, viewed 04 April 2018, from theconversation.com/why-the-new-education-curriculum-is-a-triumph-for-kenyas-chil.

Asiwaju, A., 1972, 'Ashby revisited: A review of Nigeria's educational growth: 1961–1971', *African Studies Review* 15(1), 1–16. https://doi.org/10.2307/523532

Buchere, D., 2009, 'Kenya: Primary teachers barred from degree study', *University World News, Africa Edition*, viewed 04 April 2018, from http://www.universityworldnews.com/article.php?story=20090828105531185.

Fafunwa, A.B., 1974, *History of education in Nigeria*, George Allen & Unwin, London.

Furley, O.W. & Watson, T., 1978, *A history of education in East Africa*, NOK Publishers, New York.

Hardman, F., Ackers, J., Abrishamian, N. & Sullivan, M., 2011, 'Developing a systematic approach to teacher education in sub-Saharan Africa: Emerging lessons from Kenya, Tanzania and Uganda', *Compare* 41(5), 669–683. https://doi.org/10.1080/03057925.2011.581014

Jwan, J., 2017, 'Education reform inclusive', *The Star*, 16 May, 2017, viewed 20 March 2018, from https://www.the-star.co.ke/news/2017/05/16/education-reform-inclusive_c1560973.

Kabita, D.N. & Ji, L., 2017, *The why, what and how of competency-based curriculum reforms: The Kenyan experience*, UNESCO, Paris.

Kafu, P.A., 2011, 'Teacher education in Kenya: Emerging issues', *International Journal of Curriculum and Introduction* 1(1), 43–52.

Karugu, A.M., 2007, 'Challenges of graduate teacher education in Kenya in the 21st Century', *The Educator* 1(2), 1–6.

Katitia, D.M.O., 2015, 'Teacher education preparation program for the 21st century. Which way forward for Kenya?', *Journal of Education and Practice* 6(24), 57–63.

Keating, J., 2010a, *Teacher training – Up to the 1960s*, viewed 22 May 2018, from https://www.history.ac.uk/history.../history.../teacher_training_-_up_to_the_1960s.do.

Keating, J., 2010b, *Notes on teacher training 1960s to present day*, viewed 22 May 2018, from https://www.history.ac.uk/history.../history.../teacher_training_1960s_to_present.

KICD (Kenya Institute of Curriculum Development), 2016, *Research report and draft framework for teacher education in Kenya*, KICD, Nairobi.

Koech Report, 2000, *Totally Integrated Quality Education and Training (TIQET)*, Government Printer, Nairobi.

Lengoiboni, G.K., 2008, *Letter of 23rd June 2008*, to the Registrar Academic Kenyatta University.

Marker, W.B., 1996, 'From take-over to merge', in M. Harrison & W. Marker (eds.), *Teaching the teachers: The history of Jordanhill College of Education 1828–1993*, pp. 146–157, John Donald, Edinburgh.

McNamara, D.R. & Ross, A.M., 1982, *The Bachelor of Education and its future – School of Education*, University of Lancaster, London.

Modiba, M.M. & Simwa, K.L., 2011, 'An examination of curriculum coherence between a university and school programme: A case in Kenya', *The International Journal of Interdisciplinary Social Sciences* 5(11), 289–302. https://doi.org/10.18848/1833-1882/CGP/v05i11/51936

Nyankanga, M.E., Joshua, B.N., Wekesa, N., Ongaga, E. & Orina, F., 2013, 'The changing trends in the development of teacher education in Kenya: The role of the Teachers Service Commission', *Research on Humanities and Social Sciences* 3(19), 82–85.

Ojiambo, P.C.O., 2009, 'Quality of education and its role in national development: A case study of Kenya's educational reform', *Kenya Studies Review* 1(1), 133–149.

Pioneer School, 2004, *KCSE guide*, Nairobi Pioneer School, Nairobi.

Rono, G., 2016, 'KNUT: Leave 8-4-4 structure intact, change the content', *Sunday Nation*, 03 April, 2016, p. 10, viewed 04 April 2018, from https://www.nation.co.ke/news/Do-not-scrap-8-4-4-system--teachers-tell-State-/1056-3144074-axc2d6z/index.html.

Rots, I., Aelterman, A. & Devos, G., 2014, 'Teacher education graduates' choice (not) to enter the teaching profession: Does teacher education matter?', *European Journal of Teacher Education* 37(3), 279–294. https://doi.org/10.1080/02619768.2013.845164

Solaru, T.T., 1964, *Teacher training in Nigeria*, Ibadan University, Ibadan.

Sossion, W., 2016, 'Education reforms incomplete if the welfare of teachers is left out', *Daily Nation*, 13 April, 2016, viewed 04 April 2018, from https://www.nation.co.ke/oped/opinion/Education-reforms-incomplete/440808-3158172-ywbtlf/index.html.

The James Report, 1972, *Teacher education and training. Report by a Committee of Inquiry appointed by the Secretary of State for Education and Science, under the Chairmanship of Lord James of Rusholme*, Her Majesty's Stationery Office 1972, London, viewed 23 May 2018, from http://www.educationengland.org.uk/documents/james/james1972.html.

The Robbins Report, 1963, *Higher Education. Report of the Committee appointed by the Prime Minister under the Chairmanship of Lord Robbins*, Her Majesty's Stationery Office 1963, London, viewed n.d., from http://www.educationengland.org.uk/documents/robbins/robbins1963.html.

University of Nairobi, 1979, *A review of graduate teacher education in Kenya: A report of Bachelor of Education Review committee appointed by the Deans*, Committee of the University of Nairobi, University of Nairobi, Nairobi.

Chapter 4

Bak, N., 1998, 'Organising learning in large group teaching', in W. Morrow & K. King (eds.), *Vision and reality. changing education and training in South Africa*, pp. 204–213, University of Cape Town Press, Cape Town.

Barnett, R., 1990, *The idea of higher education*, SRHE & Open University Press, Buckingham.

Council on Higher Education (CHE), 2004, *South African higher education in the first decade of democracy*, CHE, Pretoria.

Council on Higher Education (CHE), 2007, *Review of higher education in South Africa*: *Selected themes*, CHE, Pretoria.

Council on Higher Education (CHE), 2016, *South African higher education reviewed: Two decades of democracy*, CHE, Pretoria.

Delanty, G., 2001, *Challenging knowledge: The university in the knowledge society*, The Society of Research into Higher Education and the Open University Press, Buckingham.

HEQC (Higher Education Quality Committee), 2007, *Audit report on Stellenbosch University, Report of the HEQC to Stellenbosch University*, January, Council on Higher Education (CHE), Pretoria.

Herman, H., 1998, 'Access and equity: Major challenges to universities in South Africa', in W. Morrow & K. King (eds.), *Vision and reality. Changing education and training in South Africa*, pp. 39–48, University of Cape Town Press, Cape Town.

Louw, J. & Finchilescu, G., 2003, *UCT organizational climate survey*, Unpublished Report, University of Cape Town.

Maldonado-Torres, N., 2007, 'On the coloniality of being. Contributions to the development of a concept', *Cultural Studies* 21(2), 240–270. https://doi.org/10.1080/09502380601162548

Mills, C.H., 1997, *The racial contract*, Cornell University Press, Ithaca & London.

National Commission on Higher Education, 1996, *National Commission on Higher Education (NCHE) Report: A Framework for Transformation, 1996*, n.p.

Samoff, J., 2005, 'The pedagogy of transformation', *Perspectives in Education* 23(2), 121–124.

Steyn, M. & Van Zyl, M., 2001, *Like that statue at Jammie stairs. Students' perceptions and experiences of institutional culture at the University Cape Town.* 1999, Institute for Intercultural and Diversity Studies of Southern Africa, Unpublished Report, University of Cape Town.

Teichler, U., 2005, 'Research on higher education in Europe', *European Journal of Education* 40(4), 447–468. https://doi.org/10.1111/j.1465-3435.2005.00239.x

Chapter 5

Bender, G. & Jordaan, R., 2007, 'Student perceptions and attitudes about Community Service-Learning in the teacher training curriculum', *South African Journal of Education* 27, 631–654.

Brandell, G. & Staberg, E., 2008, 'Mathematics: A female, gender or gender-neutral domain? A study of attitudes amongst students at secondary level', *Gender and Education* 20(5), 495–509. https://doi.org/10.1080/09540250701805771

Cai, J., Morris, A., Hohensee, C., Hwang, S., Robison, V. & Hiebert, J., 2017, 'Clarifying the impact of educational research on students' learning', *Journal of Research on Mathematics Education* 48(2), 118–123. https://doi.org/10.5951/jresematheduc.48.2.0118

Centre for Development and Enterprise, 2014, *What does research tell us about teachers, teaching and learner performance in Mathematics?*, Zenex Foundation, Johannesburg.

De Wet, C. & Jacobs, L., 2013, 'South African teachers' exposure to workplace bullying', *The Journal for Transdisciplinary Research in Southern Africa* 9(3), 1446–1464. https://doi.org/10.4102/td.v9i3.190

De Wet, C. & Jacobs, L., 2014, 'The perpetrators of workplace bullying in schools: A South African study', *Mediterranean Journal of Social Sciences* 5(16), 567–577. https://doi.org/10.5901/mjss.2014.v5n16p567

Duit, R. & Treagust, D.F., 1998, 'Learning in Science – from behaviourism towards social constructivism and beyond', in B.J. Fraser & D. West (eds.), *International Handbook of Science Education*, Part 1, pp. 3–25, Kluwer Academic Publishers, Dordrecht.

Fitzpatrick, J.L., Sanders, J.R. & Worthen, B.R., 2012, *Programme evaluation. Alternative approaches and practical guidelines*, International edition, 4th edn., Pearson, Upper Saddle River.

Itumeleng Community Trust, n.d., *Family Maths & Science programme*, viewed n.d., from http://itumeleng-trust.org/?page_id=164.

Kaiser, G. & Sriraman, B. (eds.), 2012, *Advances in Mathematics Education*, Palgrave Macmillan, London.

Lake, W., Wallin, M., Woolcott, G., Boyd, W., Foster, A., Markopoulos, C. et al., 2017, 'Applying an alternative mathematics pedagogy for students with weak mathematics: Meta-analysis of alternative pedagogies', *International Journal of Mathematical Education in Science and Technology* 48(2), 215–228.

Meadows, K.A., 2003, 'So you want to do research? Questionnaire design', *British Journal of Community Nursing* 8(12), 562–570. https://doi.org/10.12968/bjcn.2003.8.12.11854

Naudé, H., Pretorius, E. & Vandeyar, S., 2003, 'Teacher professionalism – an innovative programme for teaching Mathematics to Foundation level learners with limited language proficiency', *Early Child Development & Care* 173(2/3), 293–315. https://doi.org/10.1080/03004430303089

Petersen, N. & Osman, R., 2013, 'An introduction to service learning in South Africa', in R. Osman & N. Petersen (eds.), *Service learning in South Africa*, pp. 2–32, Oxford University Press, Cape Town.

Petker, G. & Petersen, N., 2014, 'Service learning in foundation phase teacher education: Experiential opportunities for student teachers', *South African Journal of Childhood Education* 4(3), 122–135. https://doi.org/10.4102/sajce.v4i3.231

Pournara, C., Hodgen, J., Adler, J. & Pillay, V., 2015, 'Can improving teachers' knowledge of Mathematics lead to gains in learners' attainment in Mathematics?', *South African Journal of Education* 35(3), 1–10. https://doi.org/10.15700/saje.v35n3a1083

Reynders, A., 2016, *Training of Intermediate phase student educators: MTBI 2503, Orientation Guide, 2016*, University of the Free State, Bloemfontein.

Sarouphim, K. & Chartouny, M., 2017, 'Mathematics education in Lebanon: Gender differences in attitudes and achievement', *Educational Studies in Mathematics* 94(1), 55–68. https://doi.org/10.1007/s10649-016-9712-9

South African Institute for Distance Education (SAIDE), 2007, Evaluation *of COUNT Family Math school pilot project*, SAIDE, Braamfontein.

Vale, C. & Bartholomew, H., 2008, 'Gender and Mathematics: Theoretical framework and findings', in H. Forgasz, T. Barkatsas, A. Bishop, B. Clarke, S. Keast, W.T. Seah & P. Sullivan (eds.), *Research in Mathematics education in Australasia*, 2004–2007, pp. 271–290, Sense Publishers, Rotterdam.

Van Breda, C. & Reynders, A., 2016, *To demystify mathematics and science in the early school years by raising learners' levels of understanding and changing their attitudes towards Mathematics and Science*, viewed 19 October 2016, from http://fams.ufs.ac.za.

Van Breda, C. & Reynders, A., 2017, 'Connecting education "biomes" through the triangular model of Family Math', *Paper presented at the EASA Conference*, Parys, South Africa, January 08–11, 2017, n.p.

Venka, H. & Spaul, N., 2015, 'What do we know about primary teachers' mathematical content knowledge in South Africa? An analysis of SACMEQ 2017', *International Journal of Educational Development* 41, 121–130. https://doi.org/10.1016/j.ijedudev.2015.02.002

Webb, P. & Austin, P., 2009, 'The Family Math programme: Parents' perceptions of what influences their engagement, enjoyment and confidence within a complex learning community', *Education as Change* 13(1), 27–44. https://doi.org/10.1080/16823200902933438

Xiao, J., 2017, 'Learner-content interaction in distance education: The weakest link in interaction research', *Distance Education* 38(1), 123–135. https://doi.org/10.1080/01587919.2017.1298982

Chapter 6

Bais, A.K. 2016, 'Security risks associated with BYOD', Master's Thesis, Business Development Track, ICTE, Aalborg University.

Chere, R., 2015, 'Towards smooth implementation of the New Curriculum', *Teacher in Zimbabwe* 3, 7.

Chimbodza, A., 2012, 'From brain drain to brain gain: Addressing human Capital needs for post crisis Zimbabwe Capacity Building', Pennsylvania University, Philadelphia.

Chitamba, J., 2015, '140 000 Teachers. Preparing Today's teachers for Tomorrow: Staff development for the New Curriculum', *Teacher in Zimbabwe* 3, 20–22.

Chitate, H., 2016, 'Science, Technology, Engineering and Mathematics (STEM): A case study of Zimbabwe's Educational approach to industrialisation', *World Journal of Education* 6(5), 27–35. https://doi.org/10.5430/wje.v6n5p27

Connections Learning, 2011, *STEM Education: Preparing students for a growing field*, viewed 11 December 2016, from www.connectionslearning.com.

Dokora, L.D., 2015a, *ZANU-PF National People's Conference*, ZANU-PF, Harare.

Dokora, L.D., 2015b, *Minister of primary and secondary education Report to the 15th ZANU PF Conference*, ZANU-PF, Harare.

Education Council, 2015, *National STEM school education strategy 2016–2026*, Melbourne, Australia, pp. 1–12, viewed 17 December 2016, from www.educationcouncil.edu.au.

Gadziray, C.T., Bongo, P.P., Ruyimbe, B., Bhukuvhani, C. & Mucheri, T., 2016, *Diagnostic study on status of STEM in Zimbabwe*, BUSE, Bindura.

Gandawa, G., 2016a, 'Stem: Unpacking the vision', *The Sunday Mail*, 17 April, 2016, viewed n.d., from http://www.sundaymail.co.zw/stem-unpacking-the-vision/.

Gandawa, G., 2016b, 'Stem: Leveraging Zim's future success', *The Standard*, 22 April, 2016, viewed n.d., from https://www.thestandard.co.zw/2016/04/22/stem-leveraging-zims-future-success/.

Gerlach, J., 2012, 'NSTA Report, STEM: Defying a simple definition', *NSTA WebNews Digest*, 11 April, 2012, viewed 01 January 2017, from http://www.nsta.org/publications/news/story.aspx?id=59305.

Government of Zimbabwe 2012, *Second science, technology and innovation policy of Zimbabwe*, March, Harare.

Katongomara, A., 2016, 'Ministry in last call for STEM funding hopefuls', *The Chronicle*, 29 March, p. 3.

Mberi, N. & Phambili, M., 2016, 'Science, technology, engineering and mathematics craze hits Zimbabwe', *The Sunday News: STEM Supplement*, 28 February–05 March, p. 12.

Ministry of Primary and Secondary Education, 2013, *Annual Statistical Report*, Government Publications, Harare.

Mupinga, D.M., Burnett, M.F. & Redmann, D.H., 2005, 'Examining the purpose of technical education in Zimbabwe's high schools', *International Education Journal* 6(1), 75–83.

Ncube, L., 2016, 'Gwango Lodge joins STEM bandwagon', *The Chronicle: Feature/Opinion*, 01 March, p. 5.

New Zimbabwe News, 2016, February 07, 'STEM project: Moyo has the last laugh', viewed 07 February 2016, from http://www.newzimbabwe.com/new/news.aspx?newsID=27577.

Onguko, B.B., Abdalla, M. & Webber, C.F., 2012, '"Walking in unfamiliar territory": Headteachers' preparation and experiences in their first year in Tanzania', *Educational Administration Quarterly* 48(1), 86–115. https://doi.org/10.1177/0013161X11423391

Zvavahera, P., 2015, 'Human capital problems in Zimbabwean rural schools: A case study of Mazowe District', *Journal of Case Studies in Education* 7, 1–8, viewed 26 January 2017, from http://insiderzim.com/science-the-way-to-go-.

Xinhua News Agency, 2003, 'Stimulation of science, technology to pave way for Zimbabwe's development', *Xinhua News Agency*, 31 March, n.p.

Zim Asset, 2013, *Zimbabwe agenda for sustainable socio-Economic transformation*, Government Printers, Harare.

Zhou, T. 2016, 'STEM dysfunctionally applied in Zimbabwe?. . . Zim also lacking in blended learning', *The Sunday Mail*, viewed n.d., from https://www.sundaymail.co.zw/stem-dysfunctionally-applied-in-zimbabwe-zim-also-lacking-in-blended-learning.

Chapter 7

Amram, Y., 2007, *What is spiritual intelligence? An ecumenical, grounded theory*, Institute of Transpersonal Psychology, Palo Alto.

Becker, A. & Du Preez, P., 2016, 'Ideological illusions, human rights and the right to education: The in (ex)-clusion of the poor in post-apartheid education', *Journal of Education* 64, 55–78.

Bishop, S. & Van der Walt, B.J., 2010, 'Interview with Bennie van der Walt', *Koers* 75(1), xii–xvii.

Botha, R.J., 2002, 'Outcomes-based education and educational reform in South Africa', *International Journal of Leadership in Education* 5(4), 361–371. https://doi.org/10.1080/13603120110118831

Breault, D.A. & Marshall, J.D., 2010, 'Definitions of curriculum', in C. Kridel (ed.), *Encyclopaedia of curriculum studies*, pp. 179–181, Sage, London.

Clark, A., 2000, *A theory of sentience*, Oxford University Press, New York.

De Beer, J. & Mentz, E., 2016, *Self-directed learning: Lessons from indigenous knowledge holders for school science education*, viewed n.d., from https://scholar.google.ch/scholar?hl=en&as_sdt=0%2C5&q=Self-directed+learning%3A+Lessons+from+indigenous+knowledge+holders+for+school+science+education.&btnG=.

Dillon, J.T., 2009, 'The questions of curriculum', *Journal of Curriculum Studies* 41(3), 343–359. https://doi.org/10.1080/00220270802433261

Du Preez, P., 2014, 'Reimagining curriculum evaluation', in P. du Preez & C. Reddy (eds.), *Curriculum Studies: Visions and Imaginings,* pp. 177–194, Pearson, Cape Town.

Efklides, A., 2011, 'Interactions of metacognition with motivation and affect in self-regulated learning: The MASRL model', *Educational Psychologist* 46(1), 6–25. https://doi.org/10.1080/00461520.2011.538645

Engelbrecht, J. & Harding, A., 2008, 'The impact of the transition to outcomes-based teaching on university preparedness in mathematics in South Africa', *Mathematics Education Research Journal* 20(2), 57–70. https://doi.org/10.1007/BF03217477

English, L.M., 2000, 'Spiritual dimensions of informal learning', *New Directions for Adult and Continuing Education* 2000(85), 29–38. https://doi.org/10.1002/ace.8503

Ernest, P., 1993, 'Constructivism, the psychology of learning, and the nature of mathematics: Some critical issues', *Science & Education* 2(1), 87–93.

Ferry, L., 2013, *On love: A philosophy for the twenty-first century*, John Wiley & Sons, Polity Press, Cambridge.

Flavell, J.H., 1979, 'Metacognition and cognitive monitoring: A new area of cognitive– developmental inquiry', *American Psychologist* 34(10), 906. https://doi.org/10.1037/0003-066X.34.10.906

Grussendorff, S., Booyse, C. & Burroughs, E., 2014, 'What's in the CAPS package?', *A comparative study of the National*, UMALUSI, Pretoria.

Huitt, W., 2011, 'A holistic view of education and schooling: Guiding students to develop capacities, acquire virtues, and provide service', *Revision of paper presented at the 12th Annual Conference sponsored by the Athens Institute for Education and Research (ATINER)*, Athens, Greece, May 24–27, 2011, n.p.

Jagals, D. & Van der Walt, M., 2016a, 'Enabling metacognitive skills for mathematics problem solving: A collective case study of metacognitive reflection and awareness', *African Journal of Research in Mathematics, Science and Technology Education* 20(2), 154–164.

Jagals, D. & Van der Walt, M.S., 2016b, 'Exploiting metacognitive networks embedded in narrative focus Group Interviews using NodeXL', *The Qualitative Report* 21(10), 1868–1880.

Jagals, D. & Van der Walt, M.S., 2018, 'A South African perspective on the mathematics curriculum: Towards a transcending metacognitive ideology', in D.R. Thompson, M.A. Huntley & C. Suurtamm (eds.), *International perspectives on mathematics curriculum*, pp. 165–190, IAP, Charlotte.

Joye, S. R., 2016, 'The Pribram-Bohm Hypothesis: A topology of consciousness', *Cosmos and History: The Journal of Natural and Social Philosophy* 12(2), 114–136.

Knowles, M., 1973, *The adult learner: A neglected species*, Gulf Publishing Company, Houston.

Knowles, M.S., 1975, *Self-directed learning*, Prentice Hall, Englewood Cliffs.

Knowles, M.S., Holton III, E.F. & Swanson, R.A., 2012, *The adult learner*, Routledge, New York.

Legg, A.M. & Locker, Jr, L., 2009, 'Math performance and its relationship to math anxiety and metacognition', *North American Journal of Psychology* 11(3), 471–486.

Li, Y. & Kulm, G., 2009, 'Curriculum research to improve mathematics teaching and learning', *ZDM–The International Journal on Mathematics Education* 41(6), 709–832. https://doi.org/10.1007/s11858-009-0217-1

Miller, J.P. (ed.), 2005, *Holistic learning and spirituality in education: Breaking new ground*, SUNY Press, New York.

Olthuis, J.H., 1985, *On worldviews*, Institute for Christian Studies, n.p.

Pratt, D.D., 2002, 'Good teaching: One size fits all?', *New Directions for Adult and Continuing Education* 2002(93), 5–16. https://doi.org/10.1002/ace.45

Reed, J., 2014, 'A concept analysis from a nursing perspective', *Canadian Journal of Nursing Informatics* 9(1–2), 137–146.

Sandars, J. & Walsh, K., 2016, 'Self-directed learning', *Education for Primary Care* 27(2), 151–152. https://doi.org/10.1080/14739879.2016.1149956

Schoenfeld, A.H., 1992, 'Learning to think mathematically: Problem solving, metacognition, and sense making in mathematics', in D. Grouws (ed.), *Handbook of Research on Mathematics Teaching and Learning,* pp. 334–370, MacMillan, New York.

Schraw, G. & Moshman, D., 1995, 'Metacognitive theories', *Educational Psychology Review* 7(4), 351–371. https://doi.org/10.1007/BF02212307

Schwab, J.J., 1983, 'The practical 4: Something for curriculum professors to do', *Curriculum Inquiry* 13(3), 239–265. https://doi.org/10.1080/03626784.1983.11 075885

South Africa Department of Basic Education [SA DBE], 2011, *Curriculum and assessment policy statements Grades 10–12 Mathematics*, DBE, Pretoria.

Stern, J., 2017, 'Critical exchange: Religion and schooling in conversation', *Research in Education* 97(1), 16–26. https://doi.org/10.1177/0034523717697517

White, J., 1996, 'Education, spirituality and the whole child: A humanist perspective', in R. Best (ed.) *Education, Spirituality and the Whole Child,* pp. 30–42, Cassell, London.

Wilson, M., 2002, 'Six views of embodied cognition', *Psychonomic Bulletin & Review* 9(4), 625–636. https://doi.org/10.3758/BF03196322

Chapter 8

Bailey, R., 2016, 'Developing information technology learners' critical thinking skills: Implications for self-directed learning', PhD thesis, North-West University.

Barth, R., 1997, *The principal learner: A work in progress*, International Network of Principals' Centers, Harvard Graduate School of Education, Cambridge.

Binkley, M., Erstad, O., Herman, J., Raizen, S., Ripley, M., Miller-Ricci, M. & Rumble, M., 2012, 'Defining twenty-first century skills', in P. Griffin, E. Care, R. Adams, N. Awwal, M. Alom, M. Bui, C. Scoular & Y. V, A. Vista (eds.), *Assessment and teaching of 21st century skills*, pp. 17–66, Netherlands, Springer.

Birenbaum, M., 2002, 'Assessing self-directed active learning in primary schools', *Assessment in Education: Principles, Policy & Practice* 9(1), 119–138. https://doi.org/10.1080/09695940220119229

Bolhuis, S., 2003, 'Towards process-oriented teaching for self-directed lifelong learning: A multidimensional perspective', *Learning and Instruction* 13, 327–347. https://doi.org/10.1016/S0959-4752(02)00008-7

Bolhuis, S. & Voeten, M.J.M., 2001, 'Toward self-directed learning in secondary schools: What do teachers do?', *Teaching and Teacher Education* 17, 837–855. https://doi.org/10.1016/S0742-051X(01)00034-8

Booyse, C. & Du Plessis, E., 2014, *Curriculum studies: Development, interpretation, plan and practice*, 2nd edn., Van Schaik, Pretoria.

Brame, C.J., 2016, 'Active learning', *Vanderbilt University Center for Teaching*, viewed 27 June 2017, from https://cft.vanderbilt.edu/active-learning.

Breed, B., 2016, 'Exploring a cooperative learning approach to improve self-directed learning in higher education', *Journal for New Generation Sciences* 14(3), 1–21.

Breed, B. & Bailey, R., 2016, 'The influence of a metacognitive approach to cooperative pair problem solving on self-directed learning', paper presented at the 7th Biennial International Conference of EARLI SIG 16 Metacognition, Radboud University, Nijmegen, 23–26 August.

Breunig, M., 2005, 'Turning experiential education and critical pedagogy theory into praxis', *Journal of Experiential Education* 28(2), 106–122, viewed 16 October 2018, from http://www.marybreunig.com/assets/files/Turning%20experiential%20education%20and%20critical%20pedagogy%20theory%20into%20praxis.pdf.

Brockett, R.G., 2006, 'Self-directed learning and the paradox of choice', *International Journal of Self-Directed Learning* 3(2), 27–33.

Burns, A.D., 2014, 'The jewel in the curriculum: Teaching the history of the British empire', *International Journal of Historical Learning, Teaching and Research* 12(2), 109–121.

Carl, A.E., 2012, *Teacher empowerment through curriculum development: Theory into practice*, 4th edn., Juta, Cape Town.

Guglielmino, L.M., 1978, 'Development of the self-directed learning readiness scale', PhD thesis, University of Georgia.

Guglielmino, L., 2008, 'Why self-directed learning?', *International Journal for Self-Directed Learning* 5(1), 1–14.

Havenga, H.M., 2015, 'Project-based learning in higher education: Exploring programming students' development towards self-directedness', *South African Journal of Higher Education* 29(3), 135–157.

Havenga, M., 2016, 'Students' accountability and responsibility in problem-based learning: Enhancing self-directed learning', in E. Mentz & I. Oosthuizen (eds.), *Self-directed learning research: An imperative for transforming the educational landscape*, pp. 72–98, AOSIS, Cape Town.

Hlebowitsh, P.S., 2005, *Designing the school curriculum*, Pearson, Boston.

Hoadley, U. & Jansen, J., 2012, *Curriculum: Organising knowledge for the classroom*, 3rd edn., Oxford, Cape Town.

Hornby, A.S., 2010, *Oxford advanced learner's dictionary of current English*, Oxford University Press, Oxford.

Johnson, D.W. & Johnson, F.P., 2013, *Joining together: Group theory and group skills*, 11th edn., Pearson, Upper Saddle River.

Johnson, D., Johnson, R. & Johnson Holubec, E., 2008, *Cooperation in the classroom*, 11th edn., Interaction Book Company, Edina.

Kereluik, K., Mishra, P., Fahnoe, C. & Terry, L., 2013, 'What knowledge is of the most worth', *Journal of Digital Learning in Teacher Education* 29(4), 127–140. https://doi.org/10.1080/21532974.2013.10784716

Knowles, M., 1975, *Self-directed learning: A guide for learners and teachers*, Cambridge Adult Education, Englewood Cliffs.

Krabbe, M.A., 1983, 'Self-directed learning of the basic skills', *The Clearing House: A Journal of Educational Strategies, Issues and Ideas* 56(8), 372–373. https://doi.org/10.1080/00098655.1983.10113811

Larson, L.C. & Miller, T.N., 2011, '21st century skills: Prepare students for the future', *Kappa Delta Pi Record* 47(3), 121–123. https://doi.org/10.1080/00228958.2011.10516575

Long, H.B., 1987, 'Self-directed learning and learning theory', *paper presented at Commission of Professors Conference*, Washington, D.C., United States of America, October 19–21, 1987, n.p.

Long, H.B., 2000, *Practice & theory in self-directed learning*, Motorola, Schaumburg.

Lubbe, A., Mentz, E. & Petersen, N., 2016, 'Student support through cooperative base groups and its contribution to the development of self-directed learning skills', in E. Mentz & I. Oosthuizen (eds.), *Self-directed learning research: An imperative for transforming the educational landscape*, pp. 99–128, AOSIS, Cape Town.

Makhathini, T.P., 2016, 'Work integrated learning competencies: Industrial supervisors' perspectives', *Perspectives in Education* 34(3), 56–71. https://doi.org/10.18820/2519593X/pie.v34i3.5

Makrakis, V. & Kostoulas-Makrakis, N., 2016, 'Bridging the qualitative-quantitative divide: Experiences from conducting a mixed methods evaluation in the RUCAS programme', *Evaluation and Program Planning* 54, 144–151. https://doi.org/10.1016/j.evalprogplan.2015.07.008

McConnell, D.A., Steer, D.N. & Owens, K.D., 2003, 'Assessment and active learning strategies for Introductory Geology courses', *Journal of Geoscience Education* 51(2), 205–216. https://doi.org/10.5408/1089-9995-51.2.205

McKeachie, W.J. & Svinicki, M., 2006, *McKeachie's teaching tips*, 12th edn., Houghton Mifflin, Boston.

Mentz, E. & Van Zyl, S., 2016, 'Introducing cooperative learning: Students' attitudes towards learning and the implications for self-directed learning', *Journal of Education* 64, 79–109.

Noss, R., 2012, '21st century learning for 21st century skills: What does it mean, and how do we do it?', in A. Ravenscroft, S. Lindstaedt, C. Delgado Kloos & D. Hernandez-Leo (eds.), in *Proceedings of the 7th European Conference on Technology Enhanced Learning*, Saarbrücken, Germany, 18–21 September, 2012, pp. 3–5.

Ornstein, A.C. & Hunkins, F.P., 2013, *Curriculum: Foundations, principles and issues*, 6th edn., Pearson, New Jersey.

Perez-Navarro, A.P., Martinez, M.A., Garcia, V., Berga, Q., Conejero-Arto, I., Conesa, J., et al., 2016, 'Evolving materials for the flipped e-classroom', in A.M. Teixeira, A. Szűcs & I. Mázár (eds.), *Re-imagining learning scenarios*, *Paper presented at 2016 EDEN Annual Conference*, Budapest, Hungary, June 14-17, 2016, p. 110.

Phan, T.N., Lupton, M. & Watters, J.J., 2016, 'Understanding of the higher education curriculum in Vietnam', *Higher Education Research & Development* 35(6), 1256–1268. https://doi.org/10.1080/07294360.2016.1149693

Pierce, R. & Fox, J., 2012, 'Instructional design and assessment: Vodcasts and active-learning exercises in a "flipped classroom" model of a Renal Pharmacotherapy module', *American Journal of Pharmaceutical Education* 76(10), 1–5. https://doi.org/10.5688/ajpe7610196

Posner, G.J., 1998, 'Models of curriculum planning', in L. Beyer & M. Apple (eds.), *The curriculum: Problems, politics and possibilities*, 2nd edn, pp. 79–100, State University of New York Press, New York.

Prince, M., 2004, 'Does active learning work? A review of the research', *Journal of Engineering Education* 93(3), 223–231. https://doi.org/10.1002/j.2168-9830.2004.tb00809.x

Radhoff, R., 2011, *Evolving life and transition to the world beyond: The fantastic journey of the body, mind and spirit*, Balboa Press, Bloomington.

Rotherham, A.J. & Willingham, D.T., 2010, '"21st century" skills: Not new, but a worthy challenge', *American Educator* 34(1), 17–20.

Saks, K. & Leijen, A., 2014, 'Distinguishing self-directed and self-regulated learning and measuring them in the e-learning context', *Procedia: Social and Behavioural Sciences* 112, 190–198. https://doi.org/10.1016/j.sbspro.2014.01.1155

Serfontein, C.P. & Breed, E.A., 2013, 'Lesson planning', in E. Mentz (ed.), *Empowering IT and CAT teachers*, pp. 19–58, Sun Press, Stellenbosch.

Silén, C. & Uhlin, L., 2008, 'Self-directed learning: A learning issue for students and faculty!', *Teaching in Higher Education* 13(4), 461–475. https://doi.org/10.1080/13562510802169756

South African Agency for Science and Technology Advancement (SAASTA), 2010, *SAASTA Science Advancement highlights report*, viewed 03 December 2016, from http://www.saasta.ac.za/wp-content/uploads/2015/10/SAASTA-Highlights-Report-2010-2011.pdf.

Stenhouse, L., 1975, *An introduction to curriculum research and development*, Heinemann, London.

Trilling, B. & Fadel, C., 2009, *21st century skills: Learning for life in our times*, Jossey-Bass, San Francisco.

Tyler, R., 1949, *Basic principles of curriculum and instruction,* University of Chicago press, Chicago.

Weimer, M., 2003, 'Focus on learning, transform teaching', *Change* 35(5), 49–54. https://doi.org/10.1080/00091380309604119

Ylimaki, R.M. & Uljens, M., 2017, 'Theorizing educational leadership studies, curriculum, and didaktik: NonAffirmative education theory in bridging disparate fields', *Leadership and Policy Schools* 16(2), 175–227.

Zimmerman, B.J. & Pons, M.M., 1986, 'Development of a structured interview for assessing student use of self-regulated learning strategies', *American Educational Research Journal* 23(4), 614–628. https://doi.org/10.3102/00028312023004614

Zimmerman, B.J. & Schunk, D.H., 2011, 'Self-regulated learning and performance: An introduction and an overview', in B.J. Zimmerman & D.H. Schunk (eds.), *Handbook of self-regulation of learning and performance*, pp. 1–13, Routledge, London.

Chapter 9

Ali, P.A., Watson, R. & Dhingra, K., 2016, 'Postgraduate research students' and their supervisors' attitudes towards supervision', *International Journal of Doctoral Studies* 11, 227–241. https://doi.org/10.28945/3541

Ang, R.P., Gonzalez, M., Liwag, M.E., Santos, B.S. & Vistro-Yu, C.P., 2001, *Elements of student-centred learning*, Office of Research and Publications, Loyola Schools, Manila.

Auf der Heyde, T., 2015, *Mail & Guardian*, viewed 30 July 2017, from https://mg.co.za/article/2015-02-09-phs-hold-key-to-sas-development.

Baty, P., 2009, *Academics fear PhD quality is slipping*, viewed 20 April 2017, from https://www.timeshighereducation.com/news/academics-fear-phd-quality-is-slipping/404928.article.

Bengtsen, S.S., 2014, *Review of the handbook literature on doctoral supervision,* Centre for Teaching Development and Digital Media, Aarhus University, Denmark, viewed 10 August 2017, from http://phd.arts.au.dk/fileadmin/grads.au.dk/AR/Review_doctoral_supervision.pdf.

Capella University, 2015, *How do I balance getting a doctoral degree with my family and career?* viewed 10 August 2017, from https://www.capella.edu/blogs/cublog/balancing-family-career-doctoral-programs/.

Department of Higher Education and Training, 2014, *National qualifications Act (67/2008): Higher Education Qualifications Sub-Framework*, Government Printers, Pretoria.

Department of Higher Education and Training., 2015, *National Qualification Framework Act, 2008 (Act no. 67 of 2008). Revised Policy on the Minimum Requirements for Teacher Education Qualifications*, Government Printers, Pretoria.

Deuchar, R., 2008, 'Facilitator, director or critical friend?: Contradiction and congruence in doctoral supervision styles', *Teaching in Higher Education* 13(4), 489–500. https://doi.org/10.1080/13562510802193905

Drennan, J. & Clarke, M., 2009, 'Coursework master's programmes: The student's experience of research and research supervision', *Studies in Higher Education* 34(5), 483–500. https://doi.org/10.1080/03075070802597150

Dysthe, O., Samara, A. & Westerheim, K., 2006, 'Multi-voiced supervision of Master's students: A case study of alternative supervision practices in higher education', *Studies in Higher Education* 34(5), 299–318. https://doi.org/10.1080/03075070600680562

Engels-Scharzpaul, A.C., 2015, 'The ignorant supervisor: About common worlds, epistemological modesty and distributed knowledge', *Educational Philosophy and Theory* 47(12), 1250–1264. https://doi.org/10.1080/00131857.2015.1041443

Grant, B.M., 2005, 'Fighting for space in supervision: Fantasies, fairytales, fictions and fallacies', *International Journal of Qualitative Studies in Education* 18(3), 337–354. https://doi.org/10.1080/09518390500082483

Jacobs, L. & Coetzee, D., 2017, 'Quality assurance: It's a juggling act!', *Paper presented at the NADEOSA Conferenc*e, South Campus, Bloemfontein, July 21–22, 2017, n.p.

Kern, B. & Fritz, A., 2017, 'From the cognitive revolution to constructivism', in L. Ramrathan, L. le Grange & P. Higgs (eds.), *Education studies for initial teacher development*, pp. 332–351, Juta and Company, Cape Town.

Kiley, M., 2009, 'Identifying threshold concepts and proposing strategies to support doctoral candidates', *Innovations in Education and Teaching International* 46(3), 293–304. https://doi.org/10.1080/14703290903069001

Lawhern, R.A., 2002, *Why very few people need a PhD*, viewed 23 June 2017, from http://www.lawhern.org/PhD.htm.

Leal, M.A., 2017, 'Commodity versus common good: Internationalization in Latin-American Higher Education', in N. Popov, C. Wohuter, J. Kalin, G. Hilton, J. Ogunleye, E. Niemczyk & O. Chigisheva (eds.), *Current business and economics driven discourse and education: Perspectives from around the World. BCES Conference Books*, vol. 15, pp. 39–44, BCES, Sofia.

Lee, A.M., 2007, 'Developing effective supervisors: Concepts of research supervision', *South African Journal of Higher Education* 21(4), 680–693. https://doi.org/10.1016/j.nedt.2009.02.004

Lee, N.-J., 2009, 'Professional doctorate supervision: Exploring student and supervisor experiences', *Nurse Education Today* 29, 641–648. https://doi.org/10.1016/j.nedt.2009.02.004

McAlpine, L. & Asghar, A., 2010, 'Enhancing academic climate: Doctoral students as their own developers', *International Journal for Academic Development* 5(2), 167–178. https://doi.org/10.1080/13601441003738392

McNulty, N. & Shirley, Z., 2010, *Battle of Prestige: Ph.D. versus Ed.D*, viewed 20 May 2017, from geekyartistlibrarian.pbworks.com/f/PHd+vs+EdD.pdf.

Merriam, S., 2009, *Qualitative research. A guide to design and implementation*, Jossey-Bass, San Francisco.

Mitsis, A., 2015, 'Redeveloping a business undergraduate honours research degree to improve educational outcomes: Implications for PhD supervision', *Teaching in Higher Education* 20(8), 807–820. https://doi.org/10.1080/13562517.2015.1085853

National Planning Commission, 2011, *National Development Plan. Vision for 2030*, Government Printers, Pretoria.

Ozer, O., 2004, 'Constructivism in Piaget and Vygotzky', *Fountain,* p. 48, viewed 20 May 2017, from https://fountainmagazine.com/2004/issue-48-october-december-2004/CONSTRUCTIVISM-in-Piaget-and-Vygotsky.

Ramsden, P., 1992, *Learning to teach in Higher Education*, Routledge, London and New York.

Rose, M., McIntosh, S. & Junke, M., 2011, *The professional doctorate: An overview*, viewed 20 July 2017, from https://brocku.ca/webfm_send/17805.

Rossouw, J.P., 2015, 'Quality, social justice and accountability – Crucial determinants of excellence in education', in N. Popov, C.C. Wolhuter, K. Ermenc, G. Hilton, J. Ogunleye & E. Niemczyk (eds.), *Quality, social justice and accountability in Education Worldwide. BCES Conference Books*, vol. 13, pp. 17–26, BCES, Sofia.

Sambrook, S., Stewart, J. & Roberts, C., 2008, 'Doctoral supervision: A view from above, below and the middle!', *Journal of Further and Higher Education* 32(1), 71–84. https://doi.org/10.1080/03098770701781473

Schulze, S., 2012, 'Empowering and disempowering students in student–supervisor relationships', *Koers – Bulletin for Christian Scholarship* 77(2), 1–8. https://doi.org/10.4102/koers.v77i2.47

Severinsson, E., 2012, 'Research supervision: Supervisory style, research-related tasks, importance and quality', *Journal of Nursing Management* 20, 215–223. https://doi.org/10.1111/j.1365-2834.2011.01361.x

The South African Qualifications Authority, 2012, *Level descriptors for the South African National Qualifications Framework*, SAQA, Waterkloof.

Ültanır, E., 2012, 'An epistemological glance at the constructivist approach: Constructivist learning in Dewey, Piaget, and Montessori', *International Journal of Instruction* 5(2), 1308–1470.

Whitelock, D., Faulkner, D. & Miell, D., 2008, 'Promoting creativity in PhD supervision: Tensions and dilemmas', *Thinking Skills and Creativity* 3(2), 143–153. https://doi.org/10.1016/j.tsc.2008.04.001

Wisker, G., Robinson, G., Trafford, V., Warnes, M. & Creighton, E., 2003, 'From supervisory dialogues to successful PhDs: Strategies supporting and enabling the learning conversations of staff and students at postgraduate level', *Teaching in Higher Education* 8(3), 383–397. https://doi.org/10.1080/13562510309400

Zhang, Y. & Su, Y., 2016, 'Quality assurance in Higher Education: Reflection, criticism, and change', *Chinese Education & Society* 49(1–2), 7–19.

Chapter 10

African National Congress, 1994, *A policy framework for education and training*, Department of Education, African National Congress, Johannesburg, South Africa.

Anzai, S. & Paik, C.M., 2012, 'Factors influencing Japanese women to choose two-year colleges in Japan', *Community College Journal of Research and Practice* 36(8), 614–625. https://doi.org/10.1080/10668920903182559

Association of Canadian Community Colleges, ACCC, 2016, *Canadian International Development Agency projects*, viewed n.d., from www.accc.ca/english/about/strat_focus06-07.htm.

Australian Agency for International Development, 2016, *AusAID Aid Program*, viewed n.d., from http://dfat.gov.au/aid/pages/australias-aid-program.aspx.

Ayalon, H. & Yogev, A., 2006, 'Stratification and diversity in the expanded system of higher education in Israel', *Higher Education Policy* 19(2), 187–203. https://doi.org/10.1057/palgrave.hep.8300119

Barabasch, A., Huang, S. & Lawson, R., 2009, 'Planned policy transfer: The impact of the German model on Chinese vocational education', *Compare: A Journal of Comparative and International Education* 39(1), 5–20. https://doi.org/10.1080/03057920802265566

Chen, D., 2009, *Vocational schooling, labor market outcomes, and college entry*, Policy Research working paper. No. WPS 4814, The World Bank, Washington D.C, viewed n.d., from http://documents.worldbank.org/curated/en/2009/01/10164014/vocational-schooling-labor-market-outcomes-college-entry.

Creswell, J.W., 2014, *Research design: Qualitative, quantitative and mixed methods*, 4th edn., Sage, Thousand oaks, CA.

Department of Higher Education and Training, 2012, *Green paper for Post-School education and training*, Council on Higher Education, Pretoria.

Du Pré, R., 2010, 'Universities of technology in the context of the South African higher education landscape', *Kagisano* 7, 1–41.

Du Toit, H., 1992, *Memorandum: The state's view on the possible role of community colleges in South Africa*, Department of National Education, Pretoria.

Fisher, G., 1993, *Access to post-secondary education in South Africa: Taking the community college route*, Working paper, National Education Policy Investigation, Pretoria, South Africa.

Fisher, G., 2015, 'Public further education and training colleges in south Africa an update', in P.A. Elsener, G.R. Boggs & J.T. Irwin (eds.), *Global development of Community Colleges, technical colleges, and further education programs*, pp. 36–42, Revised Edition, Paul Elsner & Associates, Los Vientos, Inc., Prescott.

Fisher, G. & Jaff, R., 2003, 'Work in progress and progress towards the world of work: Education, training and skill formation in South Africa. The case of Further Education and training colleges', *paper presented at the annual Further Education and Training Convention*, Midrand, South Africa, n.d., n.p.

Fisher, G., Jaff, R. & Scott, M., 2003, *Some policy implications of recent research and experience: Accelerating the development of the FET college sector*, National Business Initiative, Johannesburg, South Africa.

Fisher, G. & Scott, M., 2008, 'Public further education and training colleges in South Africa', in P.A. Elsner, G.R. Boggs & J.T. Irwin (eds.), *Global development of Community Colleges, technical colleges, and further education programs*, pp. 19–41, Community College Press, American Association of Community Colleges, Washington D.C.

Gallacher, J., 2017, 'Higher education in the college sector: Widening access or diversion? Questions and challenges from the Scottish experience', *Journal of Education and Work* 30(7), 712–721. https://doi.org/10.1080/13639080.2017.1380753

Jansen, B., 2003, 'The state of higher education in South Africa: From massification to mergers', in J. Daniel, A. Habib & R. Southall (eds.), *State of the Nation: South Africa 2003–2004*, pp. 290–311, HSRC Press, Pretoria.

Krishnamurthy, S. & Wolhuter, C.C., 2018, 'The upgrading of Polytechnic of Namibia to the Namibia University of Science and Technology and the post-secondary education niche in Namibia', in R.L. Raby & E.J. Valeau (eds.), *Handbook of comparative studies on community colleges & global counterparts*, pp. 637–685, Springer, Dordrecht.

Kruger, E., 1986, 'Technical education in the Republic of South Africa', in E.G. Kruger (ed.), *Education – Past, present*, Euro, Pretoria.

Kruger, C. & Wolhuter, C.C., 2018, 'Developments in the Postsecondary Education Niche in South Africa', in R.L. Raby & E.J. Valeau (eds.), *Handbook of comparative studies on community colleges & global counterparts*, pp. 99–115, Dordrecht, Springer.

Le Roux, A., 1991, 'Community colleges – an alternative model for the tertiary sector', Unpublished document, Edgewood College of Education, Durban.

Levin, R., 1991, 'People's education and the struggle for democracy in South Africa', in E. Unterhalter, H. Wolpe, T. Botha, S. Badat, T. Dlamini & B. Khotseng (eds.), *Apartheid education and popular struggles*, pp. 117–130, Ravan Press, Johannesburg.

McGrath, S. & Akoojee, S., 2007, 'The emergence of marketing and communications strategy in South African further education and training colleges', *Education, Knowledge and Economy: A Journal for Education and Social Enterprise* 1(3), 301–323. https://doi.org/10.1080/17496890701647009

National Institute for Community Education (NICE), 1994, *NICE response to ANC education and training framework: A framework for the provision of adult basic and further education*, NICE, Braamfontein.

Organisation for Economic Cooperation and Development (OECD), 2015, *Skills beyond school synthesis report*, viewed n.d., from http://www.oecd.org/edu/skills-beyond-school/skills-beyond-schools-synthesis-report.htm.

Powell, L., 2012, 'Reimagining the purpose of VET – Expanding the capability to aspire in South African further education and training students', *International Journal of Educational Development* 32(5), 643–653. https://doi.org/10.1016/j.ijedudev.2012.01.008

Raby, R.L., 2000, 'Globalization of the community college model: Paradox of the local and the global', in N.P. Stromquist & K. Monkman (eds.), *Globalization and education: Integration and contestation across cultures*, pp. 149–173, Rowman & Littlefield, New York.

Raby, R.L., 2009, 'Globalization and community College Model Development', in R.L. Raby & E. Valeau (eds.), *Community college models: Globalization and higher education reform*, pp. 21–39, Springer Publishers, Dordrecht.

Raby, R.L., 2010, 'Patterns of internationalization in the field: A review of the 2009 CER bibliography', *Comparative Education Review* 53(3), 415–427. https://doi.org/10.1086/653543

Raby, R.L., 2018, *Chapter 2 community colleges and global counterparts*, IGI Global, n.p.

Raby, R.L. & Valeau, E., (eds.), 2009, *Community college models: Globalization and Higher Education Reform*, Springer Publishers, Dordrecht.

Raby, R.L. & Valeau, E., 2012, 'Educational borrowing and the emergence of Community College Global Counterparts', (Manuscript # M1701), in A.W. Wiseman, C.-M. Audree, T. Janis & A. Sachdev (eds.), *Community colleges worldwide: Investigating the global phenomenon*, pp. 19–26, vol. 17, International Perspectives on Education and Society Series, Emerald Publishing, London.

Raby, R.L. & Valeau, E.J., 2018, 'Community colleges and global counterparts as evolving forms', in R.L. Raby & E.J. Valeau (eds.), *Community colleges and global counterparts: Defining a higher educational sector*, pp. 799–811, Springer Publishers, Dordrecht.

Ratcliff, J. & Gibson-Berninger, B., 1998, 'Community colleges in a global context', in A.H. Strydom & L.O.K. Lategan (eds.), *Introducing community colleges to South Africa*, pp. 2–36, University of the Free State Publications, Bloemfontein.

Schofield, C. & Dismore, H., 2010, 'Predictors of retention and achievement of higher education students within a further education context', *Journal of Further and Higher Education* 34(2), 207–221. https://doi.org/10.1080/03098771003695478

Scott, P., 2010, 'International education: Alternatives to the market', *International Higher Education* 61(1), 1–2.

Skolnik, M., 2016, 'What does the decline in the international ranking of the United States in educational attainment mean for Community Colleges?', *Community College Journal of Research and Practice* 1(6), 310–326. https://doi.org/10.1080/10668926.2015.1113148

Steiner-Khamsi, G. & Quist, H.O., 2000, 'The politics of educational borrowing: Re-opening the case of Achimota of British Ghana', *Comparative Education Review* 44(3), 272–299. https://doi.org/10.1086/447615

Strydom, A.H., Bitzer, E.M. & Lategan, L.O.K., 1995, *Community colleges for South Africa*, University of the Orange Free State, Bloemfontein.

Strydom, A.H. & Lategan, L.O.K. (eds.), 1998, *Introducing community colleges to South Africa*, University of the Free State Publications, Bloemfontein.

Teichler, U., 2004, 'The changing debate on internationalisation of higher education', *Higher Education* 48(1), 5–26. https://doi.org/10.1023/B:HIGH.0000033771.69078.41

Trow, M., 1973, *Problems in the transition from elite to mass higher education*, Carnegie Commission on Higher Education, McGraw-Hill, Berkeley, viewed n.d., from http://www.eric.ed.gov/PDFS/ED091983.pdf.

Ural, I., 1998, 'International community college models: A South African perspective', in A.H. Strydom & L.O.K. Lategan (eds.), *Introducing community colleges to South Africa*, pp. 106–119, University of the Free State Publications, Bloemfontein.

Wilson, D., 2009, 'Reverse transfer constraints upon planning post-secondary programmes in Ontario, Canada', in R.L. Raby & E.J. Valeau (eds.), *Community College Models: Globalization and Higher Education Reform*, pp. 401–417, Springer Publishers, Dordrecth.

Wilson, K.B. & Van Alebeek, W., 2018, 'Analyzing the media narratives in South Africa's #FeesMustFall movement', in R.L. Raby & E.J. Valeau (eds.), *Handbook of comparative studies on community colleges & global counterparts*, pp. 235–255, Springer Publishers, Dordrecht.

Wolhuter, C.C., 2009, 'Community college model: Desideratum in the South African higher education landscape', in R.L. Raby & E.J. Valeau (eds.), *Community college models: Globalization and higher education reform*, pp. 359–373, Springer Publishers, Dordrecht.

Wolhuter, C.C., 2011, 'Community colleges in South Africa? Assessment of potential from comparative international perspectives', *South African Journal of Higher Education* 25(6), 1205–1218.

Wolhuter, C.C., 2012, 'The promise of the community college model in South Africa', in A.W. Wiseman, A. Chase-Mayoral, T. Janis & A. Sachdev (eds.), *Community colleges worldwide: Investigating the global phenomenon*, pp. 245–269, Emerald Publishing, Bingley.

World Bank, 2009, *Accelerating catch-up: Tertiary education for growth in Sub-Saharan Africa*, World Bank, Washington, D.C.

World Federation of Colleges and Polytechnics, 2008, *Japanese international cooperation agency to South African colleges*, viewed n.d., from www.wfcp.org/worldcongress/2008.

Zuma, M.S., 1996, 'A review of Community College Development in South Africa', in R.L. Raby & N. Tarrow (eds.), *Dimensions of the community college: International and inter/multicultural perspectives*, pp. 303–327, Garland Pub., Inc., New York.

Chapter 11

Academy of Science of South Africa (ASSAF), 2009, *Scholarly books: Their production, use and evaluation in South Africa today*, ASSAF, Pretoria.

American Association of University Professors (AAUP), 1970, *1940 statement of principles on academic freedom and tenure: With 1970 Interpretive Comments*, viewed 15 April 2018, from https://www.aaup.org/report/1940-statement-principles-academic-freedom-and-tenure.

American Association of University Professors (AAUP), n.d., *Looking the other way? Accreditation standards and part-time faculty*, viewed n.d., from https://www.aaup.org/report/looking-other-way-accreditation-standards-and-part-time-faculty.

American Library Association (ALA), n.d., *Academic Freedom*, viewed n.d., from http://www.ala.org/advocacy/intfreedom/academicfreedom.

Bailey, P.M. & Sayers, J., 2018, 'Tenured Kentucky professors could be fired under a late addition to the state budget', *Courier Journal*, viewed 25 April 2018, from https://www.courier-journal.com/story/news/politics/ky-legislature/2018/03/28/tenured-kentucky-professors-fired-state-budget/464060002/.

Barker, K., 2007, 'The UK Research Assessment Exercise: The evolution of a national research evaluation system', *Research Evaluation* 16(1), 3–12. https://doi.org/10.3152/095820207X190674

Blackford, L., 2018, 'EKU board finalizes program closures and 153 job cuts. Two sports teams eliminated', *Lexington Herald*, viewed 25 April 2018, from http://www.kentucky.com/news/local/education/article208167414.html.

Boyer, E.L., 1990, *Scholarship reconsidered: Priorities of the professoriate*, The Carnegie Foundation for the Advancement of Teaching, New York.

Centre for Higher Education Trust, n.d., SAHE Open Data, viewed 28 April 2018, from https://www.chet.org.za/data/sahe-open-data.

Collier, C.W., 1991, 'Cultural Critique and Legal Change', *Florida Law Review* 43, 463–475.

Council on Higher Education South Africa (CHE), n.d., *The Higher Education Act*, viewed 12 October 2018, from www.che.ac.za/media_and_publications/legislation/higher-education-act-101-1997.

Deem, R., 2014, 'New managerialism and higher education: The management of performance and cultures in universities in the United Kingdom', *International Studies in Sociology of Education* 8(1), 47–70. https://doi.org/10.1080/0962021980020014

Deem, R. & Brehony, K.J., 2007, 'Management as ideology: The case of a new managerialism in higher education', *Oxford Review of Education* 31(2), 217–235. https://doi.org/10.1080/03054980500117827

Department of Home Affairs, n.d., Critical Skills Visa, viewed n.d., from http://www.dha.gov.za/index.php/immigration-services/scarce-skills-work-permits.

Eastern Kentucky University (EKU), 2018, *Eastern Kentucky University Budget Information*, viewed 25 April 2018, from http://www.eku.edu/bip.

Encyclopedia Britannica, 2018, *Shelton v. Tucker, 1960, 364 U.S. 487, Law Case*, viewed 30 November 2018, from https://www.britannica.com/event/Shelton-v-Tucker.

French, D., 2017, 'Progressives Are Now Arguing that the First Amendment Is Profoundly Limited on College Campuses', *The National Review*, viewed n.d., from https://www.nationalreview.com/2017/10/progressives-radical-first-amendment-restrictions-campus-wrong/.

Higgins, J., 2017, 'Humanities Book Award 2017: Deep scholarship in action', *South African Journal of Science* 113(5/6), 2–3. https://doi.org/10.17159/sajs.2017/a0210

Higher Education South Africa, 2014, Higher Education South Africa (HESA) renamed Universities South Africa. Report on Remuneration of academics at South African universities, viewed 22 April 2018, from http://www.justice.gov.za/commissions/FeesHET/docs/2014-HESA-SummaryReport-RemunerationOfAcademicStaff.pdf.

Hillman, N., 2015, 'Why Wisconsin matters to you', *Inside Higher Ed*, viewed 25 April 2018, from https://www.insidehighered.com/views/2015/06/05/move-undermine-tenure-wisconsin-has-national-implications-essay.

Hutchings, P., Huber, M.T. & Ciccone, A., 2011, *The scholarship of teaching and learning reconsidered*, The Carnegie Foundation for the Advancement of Teaching, New York.

Flaherty, C., 2017, 'Killing Tenure', *Inside Higher Ed*, 13 January, 2017, viewed 01 May 2018, from https://www.insidehighered.com/news/2017/01/13/legislation-two-states-seeks-eliminate-tenure-public-higher-education.

Jaschik, S., 2007, 'Scholarship reconsidered' as tenure policy', *Inside Higher Ed*, viewed 25 April 2018, from https://www.insidehighered.com/news/2007/10/02/wcu.

Keeling, R., 2006, 'The Bologna Process and the Lisbon Research Agenda: The European Commission's expanding role in higher education discourse', *European Journal of Education* 41(2), 203–223. https://doi.org/10.1111/j.1465-3435.2006.00256.x

Liu, N.C., Cheng, Y. & Liu, L., 2005, 'Academic ranking of world universities using scientometrics – A comment to the "fatal attraction"', *Academia Kiado* 64(1), 101–109. https://doi.org/10.1007/s11192-005-0241-z

Marshall, J.M., Brooks, J.S., Brown, K.M., Hazle Bussey, L.H., Fusarelli, B., Gooden, M.A. et al., 2012, *Juggling flaming chain saws: Academics in educational leadership try to balance work and family*, Information Age Publishing, Inc., Charlotte.

Menges, R.J. & Schuster, J.H., 1999, *Faculty in new jobs: A guide to settling in, becoming established, and building institutional support*, Jossey-Bass, San Francisco.

Ministry of Higher Education and Training, 2017, Internal Question Paper 15 of 2017, viewed 30 April 2018, from http://www.dhet.gov.za/Parliamentary%20Matters/PQ%202017/June/970%20Retaining%20competent%20TVET%20lecturers.pdf.

National Centre for Educational Statistics (NCES) 2017, *Digest of education statistics 2016*, viewed 28 April 2018, from http://nces.edu.gov/programs/digest/d16/tables/dt16_317.40.asp.

Neave, G., 2002, 'Anything goes: Or, how the accommodation of Europe's universities to European integration integrates an inspiring number of contradictions', *Tertiary Education and Management* 8(3), 181–197. https://doi.org/10.1080/13583883.2002.9967078

North-West University Statutes, 2017, *Statute of the North-West University*, viewed 21 April 2018, from http://www.nwu.ac.za/sites/www.nwu.ac.za/files/files/i-governance-management/documents/NWU%20statute%202017_e.pdf.

Rabban, D.M., 2015, 'The regrettable under enforcement of incompetence as cause to dismiss tenured faculty', *Indiana Law Journal* 91, 39–56.

Ranga, M. & Etzkowitz, H., 2013, 'Triple Helix Systems: An analytical framework for innovation policy and practice in the knowledge society', *Industry & Higher Education* 27(3), 237–262. https://doi.org/10.5367/ihe.2013.0165

Royal Society South Africa, n.d., *Universities – A historical perspective*, viewed 18 April 2018, from http://www.royalsocietysa.org.za/?page_id=2017.

Sapa, 2014, 'Government sets aside R169m for academic staff shortages', *Mail & Guardian*, 15 October, 2014, viewed 22 April 2018, from https://mg.co.za/article/2014-10-15-government-sets-aside-r169-million-for-academic-staff-shortages.

Scholtz, G.F., Gerber, L.G. & Henry, M. (n.d.), *The faculty role in regional accreditation*, viewed 25 April 2018, from https://www.aaup.org/report/faculty-role-regional-accreditation.

Schuman, R., 2016, 'The end of research in Wisconsin', *Slate*, viewed 25 April 2018, from http://www.slate.com/articles/life/education/2016/03/university_of_wisconsin_and_the_aftermath_of_destroying_professor_tenure.html.

Snyder, T.D., De Brey, C. & Dillow, S.A., 2018, D*igest of education statistics 2016 (NCES 2017-094)*, National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education, Washington D.C.

Staffing South African Universities Framework (SSAUF), 2015, *A comprehensive, transformative approach to developing future generations of academics and building staff capacity*, Department of Higher Education, Pretoria.

Statistics South Africa, n.d., Home, viewed n.d., from http://www.statssa.gov.za/.

Sugar, J.A., Pruitt, K., Anstee, J.L.K. & Harris, S.G., 2005, 'Academic administrators and faculty retirement in a new era', *Educational Gerontology* 31, 405–418. https://doi.org/10.1080/03601270590921672

Teichler, U., 2004, 'The changing debate on internationalisation of higher education', *Higher Education* 48(1), 5–26. https://doi.org/10.1023/B:HIGH.0000033771.69078.41

Terblanche, E., 2017, 'Technical and vocational education and training (TVET) colleges in South Africa: A framework for leading curriculum change', PhD thesis, Faculty of Education, Stellenbosch University.

Tiede, H-J., n.d., *Tenure and the University of Wisconsin system*, viewed 25 April 2018, from https://www.aaup.org/article/tenure-and-university-wisconsin-system#.WuIFBpch2Uk.

TVET colleges South Africa, n.d., Public TVET Colleges, viewed 21 April 2018, from http://www.tvetcolleges.co.za/Site_Public.aspx.

University of Cape Town (UCT), n.d., *The Council Code of conduct*, viewed n.d., from https://www.news.uct.ac.za/images/userfiles/files/media/email/UCT-Code-of-Conduct_Council-23-June-2018.pdf.

University of South Africa, 2016, *Research and Innovation Policy of the University of South Africa*, viewed 22 April 2018, from http://www.unisa.ac.za/static/corporate_web/Content/Library/Library%20services/research%20support/Research%20and%20Innovation%20Policy.pdf.

University of Stellenbosch, n.d., *Guidelines for appointment and promotion of lecturers at the University of Stellenbosch*, viewed 22 April 2018, from http://www.sun.ac.za/english/policy/Documents/Guidelines%20for%20the%20appointment%20and%20promotion%20of%20Lecturers.pdf.

US Census Bureau, n.d., Population, viewed n.d., from https://www.census.gov/topics/population.html.

US Supreme Court, 1967., *Keyishian v. Board of Regents, 1967, 385 U.S. 603*, viewed n.d. from https://supreme.justia.com/cases/federal/us/385/589/.

US Supreme Court, 1957, *Sweezy v. New Hampshire, 1957, 354 U.S. 234*., viewed n.d. from https://supreme.justia.com/cases/federal/us/354/234/.

Wilson-Doenges, G. & Gurung, R.A.R., 2013, 'Benchmarks for scholarly investigations of teaching and learning: SoTL and assessment', *Australian Journal of Psychology* 65, 63–70. https://doi.org/10.1111/ajpy.12011

Chapter 12

Anonymous, 2015, 'High dropout rates in South Africa's school system', *eCNA*, 06 January, 2015, viewed 03 March 2018, from https://www.enca.com/south-africa/high-dropout-rate-sas-school-system.

Arnove, R.F., Torres, C.A. & Franz, S., 2013, *Comparative education: The dialectic of the global and the local*, Littlefield & Roman, New York.

Balodimas-Bartolomei, A., 2016, 'Comparative and international education in teacher training programs: The case of North Park University in Chicago', *FIRE: Forum for International Research in Education* 3(1), 1–22, viewed 15 October 2018, from https://preserve.lehigh.edu/cgi/viewcontent.cgi?article=1065&context=fire.

Bereday, G.Z.F., 1957, 'Some methods of teaching comparative and international education', *Comparative and International Education Review* 1, 3–4.

Bereday, G.Z.F., 1964, *Comparative method in education*, Holt, Rinehart & Winston, New York.

Bergh, A.-M. & Soudien, C., 2006, 'The institutionalization of comparative education discourses in South Africa', *South African Review of Education* 12(2), 35–59.

Bergmann, H., 1996, 'Quality of education and the demand for education – evidence from developing countries', *International Review of Education* 42(6), 581–604. https://doi.org/10.1007/BF00601404

Bray, M., 2014, 'Comparative education: Actors and purposes', in M. Bray, B. Adamson & M. Mason (eds.), *Comparative education: Approaches and methods,* pp. 19–46, Springer and the Comparative Education Research Centre, the University of Hong Kong, Hong Kong.

Chaudhuri, A., 2016, 'The long read: The real meaning of Rhodes must fall', *The Guardian*, 16 March, 2016, viewed 23 March 2018, from https://www.theguardian.com/uk-news/2016/mar/16/the-real-meaning-of-rhodes-must-fall.

Christie, P., 1991, *The right to learn: The struggle for education in South Africa*, 2nd edn., Ravan Press, Braamfontein.

Coombs, P.H., 1968, *The world education crisis: A systems approach*, Oxford University Press, New York.

Coombs, P.H., 1985, *The world crisis in education: The view from the eighties*, Oxford University Press, New York.

Crossley, M., 2016, 'Reconceptualising the teaching of comparative education', in P.K. Kubow & A.H. Blosser (eds.), *Teaching comparative education: Trends and issues informing practice*, pp. 41–55, Symposium, Oxford.

Department of Higher Education and Training, 2015, *Revised Policy on the Minimum Requirements for Teacher Education*, Government Printer, Pretoria.

Epstein, E.H., 2011, 'Presentation during the inaugural meeting of the Teaching of Comparative Education SIG (Special Interest Group), CIES (Comparative and International Education Society)', *2011 Annual CIES Conference*, Montreal, Canada, May 1–5, 2011, n.p.

Farrell, J.P., 1982, 'Educational expansion and the drive for social equality', in P.G. Altbach, R.F. Arnove & G.P. Kelly (eds.), *Comparative education*, pp. 45–62, Macmillan, New York.

Gumede, W. & Dikeni, L., 2009, *The poverty of ideas: South African democracy and the retreat of intellectuals*, Jacana, Pretoria.

Hahn, C., 1998, *Becoming political: Comparative perspectives on citizenship education*, SUNY, New York.

Hahn, C., 2018, 'Using comparative methods in educational research', *Presentation at the Education University of Hong Kong*, n.p., March 13, 2018, n.p.

Harbison, F. & Myers, C.A., 1964, *Education, manpower, and economic growth: Strategies of human resource development*, in F. *Harbison* & C.A. *Myers* (eds.), McGraw-Hill, New York.

Harricombe, L.J. & Lancaster, F.S., 1995, *Out in the cold: Academic boycotts and the isolation of South Africa*, Information Resources Press, Arlington.

Hayhoe, R. & Li, J., 2017, 'Philosophy and comparative education: What can we learn from East Asia?', in K. Bickmore, R., Hayhoe, K. Mundy & R. Read (eds.), *Comparative and international education: Issues for teachers*, pp. 29–58, Canadian Scholars, Toronto.

Hayhoe, R., Manion, C. & Mundy, K., 2017, 'Why study comparative education?', in K. Bickmore, R. Hayhoe, K. Mundy & R. Read (eds.), *Comparative and international education: Issues for teachers*, pp. 1–26, Canadian Scholars, Toronto.

Kosmützky, A. & Krücken, G., 2014, 'Growth or steady state? A bibliometric focus on international comparative higher education research', *Higher Education: The International Journal of Higher Education and Educational Planning* 67(4), 457–472. https://doi.org/10.1007/s10734-013-9694-9

Kubow, P. & Fossum, P., 2007, *Comparative and international education. Exploring issues in international context*, Pearson Education Inc., Princeton.

Kubow, P.K. & Blosser, A.H., 2016, *Teaching comparative education: Trends and issues informing practice*, pp. 41–55, Symposium, Oxford.

International Education Association of South Africa (IEASA), 2014, *Study South Africa: 20 years of internationalisation of South African Higher Education*, IEASA, Pretoria.

Lutz, W. & Klingholz, R., 2016, *Wer Überlebt? Bildung entscheidet über die Zukunft der Menschheit*, Campus, Frankfurt.

Manzon, M., 2011, *Comparative education: The construction of a field*, Springer and the comparative Education Research Centre, the University of Hong Kong, Hong Kong.

Manzon, M., 2016, 'Comparative educations to what ends?', in P.K. Kubow & A.H. Blosser (eds.), *Teaching comparative education: Trends and issues informing practice*, pp. 133–150, Symposium, Oxford.

Mingyuan, G.O., 2014, *Cultural foundations of Chinese Education*, Brill, Leiden.

Mphahlele, M.C.J. & Mminele, S.P.P., 1997, *Education through the ages, part 3*, Kagiso, Pretoria.

Mullis, I.V.S., Martin, M.O., Foy, P. & Hooper, M., 2017, *PIRLS 2016 international results in reading*, viewed 30 December 2017, from http://timssandpirls.bc.edu/pirls2016/international-results/.

Noah, H.J., 1986, 'The use and abuse of comparative education', in P.G. Altbach & G.P. Kelly (eds.), *New approaches to comparative education*, pp. 153–165, The University of Chicago Press, Chicago.

O'Sullivan, M., 2008, 'Primary student teachers' perceptions of and motivations for comparative education: Findings from a comparative study of an Irish and South African comparative education course', *Compare: A Journal of Comparative Education* 38(4), 401–414. https://doi.org/10.1080/03057920701766052

Phillips, D.P. & Schweisfurth, M., 2014, *Comparative and international education: An introduction to theory, method and practice*, 2nd edn., Bloomsbury, London.

Planel, C., 2008, 'The rise and fall of comparative education in teacher training; should it rise again as comparative pedagogy?', *Compare* 38(4), 381–383. https://doi.org/10.1080/03057920701467867

Prinsloo, E.H., 2016, 'The role of humanities in decolonising the academy', *Arts and Humanities in Higher Education* 15(1), 164–168. https://doi.org/10.1177/1474022215613608

Psacharopoulos, G., 1990, 'Comparative education: From theory to practice: Are you a A;\neo or a B\ist?', *Comparative Education Review* 34, 369–380. https://doi.org/10.1086/446952

Raby, R.L. & Valeau, E.J. (eds.), 2018, *Handbook of comparative studies on community colleges and global counterparts*, Springer Nature, Dordrecht.

Republic of South Africa (RSA), 2016, *National Education Management System (NEIMS) 2016 Report*, viewed 17 November 2017, from https://www.education.gov.za/Portals/0/Documents/Reports/NEIMS%20STANDARD%20REPORT%20JUNE%202016.pdf?ver=2016-07-14-131548-930.

Republic of South Africa (RSA), 2017, *Budget Review*, viewed 1 November 2017, from http://vm.fi/documents/10623/1982710/Budget+review+2017/9a163ffc-c71b-4487-8088-c6b8f0706b33?version=1.0.

Roberts, D.L., 2014, 'International comparative student affairs: How international and comparative higher education impacts our work with students', *Journal of College and Character* 15(1), 45–50. https://doi.org/10.1515/jcc-2014-0007

Rust, V.D., 1996, 'From modern to postmodern ways of seeing social and educational change', in R.G. Paulston (ed.), *Social cartography and educational change,* pp. 29–51, Garland, New York.

Shah, R., McCormick, A. & Thomas, M.A.M., 2017, 'Shifting tides: Reflecting on regional aspects of our roles as comparative and international educators', *International Education Journal: Comparative Perspectives* 16(3), 49–68.

Sobe, N., 2016, 'Comparative education, globalization and teaching with/against the nation-state', in P. Kubow & A. Blosser (eds.), *Teaching comparative education: Trends and issues informing practice*, pp. 151–162, Symposium, Oxford.

Sutherland, L. & Wolhuter, C.C., 2002, 'Do good researchers make good teachers', *Perspectives in Education* 20(3), 77–83.

Takayama, K., Sriprakash, A. & Connell, R., 2016, 'Toward a postcolonial comparative and international education', *Comparative and International Education* 61(S2), n.p.

Teichler, U., 2014, 'Opportunities and problems for comparative higher education research: The daily life of research', *Higher Education* 67(4), 393–408. https://doi.org/10.1007/s10734-013-9682-0

UNESCO, 2015, *UNESCO data*, viewed 02 January 2015, from http://data.uis.unesco.org/.

UNESCO, 2017, *Global Education Monitoring Report 2017/8. Accountability in Education: Meeting our commitments*, United Nations Educational, Scientific and Cultural Organization, Paris.

UNESCO, 2018, *UNESCO data*, viewed 03 March 2018, from http://data.uis.unesco.org/.

Watson, K., 2012, 'South-east Asia and comparative studies', *Journal of International and Comparative Education* 1(1), 31–39. https://doi.org/10.14425/00.36.42

Weeks, S., Herman, H., Maarman, R. & Wolhuter, C.C., 2006, 'SACHES and comparative, international and development education in Southern Africa: The challenges and future prospects', *Southern African Review of Education* 12(2), 5–20.

Welch, A., 2013, 'Technocracy, uncertainty, and ethics: Comparative education in an era of postmodernity and globalization', in R.F. Arnove, C.A. Torres & S. Franz (eds.), *Comparative Education: The dialectic of the global and the local*, pp. 27–54, Rowman and Littlefield, Lanham.

Wilson, D.N., 1994, 'Comparative and international education: Fraternal or siamese twins: A preliminary genealogy of our twin fields', *Comparative Education Review* 38, 449–486. https://doi.org/10.1086/447271

Wilson, D.N., 2003, 'The future of comparative and international education in a globalised world', *Comparative Education* 49(1/2), 15–33.

Wiseman, A.W., 2012, 'A framework for understanding international perspectives in education', in N. Popov, C.C. Wolhuter, B. Leutwyler, G. Hilton, J. Ogunleye & P.A. Almeida (eds.), *International perspectives on education*, pp. 1–21, Bulgarian Comparative Education Society, Sofia.

Wolhuter, C.C., 1994, 'Vergelykende Perspektief op Vergelykende Opvoedkunde in Suid-Afrikca', *Suid-Afrikaanse Tydskrif vir Opvoedkunde* 14(3), 155–159.

Wolhuter, C.C., 1999, 'Sociaal-wetenschappelijke literatuur over onderwijs in Zuid-Afrika: Van verzuiling tot eensgezindheid vanuit verscheidenheid', *Pedagogische Studiën* 76(6), 361–370.

Wolhuter, C.C., 2003, 'Die beoogde stelsel van tweeledige beroepsonderwys en-opleiding in Suid-Afrika: Potensiaalbepaling vanuit 'n vergelykende perspektief', *South African Journal of Education* 23(2), 145–151.

Wolhuter, C.C., 2007, 'The development of comparative education', in C.C. Wolhuter, E.M. Lemmer & C.N. De Wet (eds.), *Comparative education: Education systems and contemporary issues*, pp. 2–12, Van Schaik, Hatfield.

Wolhuter, C.C., 2010, 'Teacher training in South Africa: Reforms and challenges', in K.G. Karras & C.C. Wolhuter (eds.), *Handbook on teacher education World Wide*, pp. 861–875, vol. 1, Atrapos, Athens.

Wolhuter, C.C., 2011, 'The spectrum of international educational development', *Journal of Educational Planning and Administration* 25(3), 235–247.

Wolhuter, C.C., 2012, 'Also a door to the inside of a New House – Yet another use for comparative education', in N. Popov, C.C. Wolhuter, B. Leutwyler, J. Ogunleye & P.A. Almeida (eds.), *International perspectives on education. BCES Conference Books*, vol. 10, pp. 23–28, Bulgarian Comparative Education Society, Sofia, viewed 15 October 2018, from https://files.eric.ed.gov/fulltext/ED567040.pdf.

Wolhuter, C.C., 2014a, 'State of published research on the teaching of comparative education', in N. Popov, C.C. Wolhuter, K. Skubic-Ermenc, G. Hilton, J. Ogunleye & O. Chigisheva (eds.), *Education's role in preparing globally competent citizens*, pp. 17–23, Bulgarian Comparative Education Society, Sofia.

Wolhuter, C.C., 2014b, 'Weaknesses of South African education in the mirror image of international educational development', *South African Journal of Education* 34(2), 1–20. https://doi.org/10.15700/201412071120

Wolhuter, C.C., 2015a, 'Comparative and international education: Conceptual clarification and significance', in C.C. Wolhuter, L. Jacobs & H.J. Steyn (eds.), *Thinking about education systems*, pp. 13–32, Keurkopie, Noordbrug.

Wolhuter, C.C., 2015b, 'The case of the education system of South Africa on the World Map: Inspiring case or call for guidance from abroad?', in C.C. Wolhuter, L. Jacobs & H.J. Steyn (eds.), *Thinking about Education Systems*, pp. 57–77, Keurkopie, Noordbrug.

Wolhuter, C.C., 2015c, *'Quisnam Sum Ego? Crises of identity in comparative education and the call for a comparison of comparative studies'*, in A.W. Wiseman & N. Popov (eds.), *Comparative sciences: Interdisciplinary Approaches, International Perspectives on Education and Society*, Volume 26, pp.15–35, Emerald Group Publishing Limited, n.p.

Wolhuter, C.C. 2017a, 'Economics and comparative and international education: Past, present, future,' in N. Popov, C.C. Wolhuter, J. Kalin, G. Hilton, J. Ogunleye, E. Niemczyk & O. Chigisheva (eds.), *Current Business and Economics Driven Discourse and Education: Perspectives from Around the World*, pp. 17–23, vol. 15, Borovets, Bulgaria, n.d.

Wolhuter, C.C., 2017b, 'The Philanthropic Mission of comparative and International Education Bequeathed by *Jullien:* Continuing Capstone of the field', *Compare: A Journal of Comparative and International Education* 47(3), 303–316. https://doi.org/10.1080/03057925.2017.1302317

Wolhuter, C.C., 2018, 'Leading the way to impact-making research: The role of comparative international perspectives in research on leadership in education in South Africa', in C.C. Wolhuter (ed.), pp. 21–40, *Raising the Impact of Education Research in Africa*, AOSIS, Cape Town. https://doi.org/10.4102/aosis.2018.BK53.02

Wolhuter, C.C., Higgs, P., Higgs L.G. & Ntshoe, I., 2010, 'How affluent is the South African higher education sector and how strong is the academic profession in the changing international academic landscape?' *South African Journal of Higher Education* 24(1), 196–213.

Wolhuter, C.C., Popov, N., Leutwyler, B. & Ermenc, K.S. (eds.), 2013, *Comparative education worldwide, 3rd expanded edition*, Faculty of Arts, University of Ljubljana & Bulgarian Comparative Education Society, Sofia.

Wolhuter, C.C., Sullivan, M.O., Anderson, E., Wood, L., Karras, K.G., Mihova, M. et al., 2011, 'Students' expectations of and motivations for studying comparative education: A comparative study across nine countries in North America, Europe, Asia, Africa and Latin America', *Educational Research* 2(8), 1341–1355.

Želvys, R. & Wolhuter, C.C., 2015, 'Lyginamosios edukologijos raida pasaulyje ir Lietuvos universitetuose', *Acta Paedagogica Vilnensia* 2014(32), 59–71. https://doi.org/10.15388/ActPaed.2014.32.7388

Chapter 13

Brazilian Ministry of Education, 2014, *National Plan for Education – PNE 2014–2024 (2014)*, viewed 01 March 2018, from http://pne.mec.gov.br/.

BRICS5, 2013a, *Fifth BRICS Summit*, Durban, South Africa, viewed 02 February 2018, from www.brics5.co.za.

BRICS5, 2013b, *Summit declaration*, viewed 12 June 2014, from http://www.brics5.co.za/about-vrics/summit-declaration/second-summit/.

BRICS6, 2014, *BRICS6*, viewed 10 February 2018, from http://en.brics.itamaryty.gov.br/.

BRICS7, 2015a, *Memorandum of understanding on the establishment of the BRICS University*, viewed 04 February 2018, from http://en.brics2015.ru/documents/.

BRICS7, 2015b, *Third Meeting of the BRICS Education Ministers: Moscow declaration*, Moscow, viewed 20 February 2018, from http://en.brics2015.ru/documents/.

BRICS16a, 2016, *8th BRICS Summit*, Building Responsive, Inclusive & Collective Solutions, viewed 22 February 2018, from http://brics2016.gov.in/content/innerpage/8th-summit.php.

BRICS, 2017, *What is BRICS*, viewed 09 March 2018, from https://brics2017.org/English/AboutBRICS/BRICS/.

BRICS, 2018, *Information about BRICS*, viewed 03 March 2018, from http://brics. itamaraty.gov.br/about-brics/information-about-brics.

BRICS16a, 2016, *8th BRICS Summit*, Building Responsive, Inclusive & Collective Solutions, viewed 22 February 2018, from http://brics2016.gov.in/content/ innerpage/8th-summit.php.

BRICS2017, 2017, *BRICS 2017: CHINA*, viewed 12 February 2018, from https:// www.brics2017.org/English/Documents/Summit/201709/t20170908_2021. html.

Canen, A., 2012, 'Brazil; lifelong learning and the role of University in Brazil: Some reflections', in M. Slowey & H. Schuetze (eds.), *Global perspectives on higher education and lifelong learners*, pp. 266–278, Routledge, London.

Carnoy, M., Marotta, L., Louzano, P., Khavenson, T., Guimarães, F.R.F. & Carnauba, F., 2017, 'Intranational Comparative Education: What state differences in student achievement can teach us about improving education – the case of Brazil', *Comparative Education Review* 61(4), 726–759. https://doi. org/10.1086/693981

De Beer, Z.L., 2017, *Die BRICS-Organisasie: Betekenis vir onderwysvoorsiening in die lidkande*, viewed 12 March 2018, from https://repository.nwu.ac.za/ handle/10394/26316.

Edu Connect, 2018, *Diploma in teaching vs. Degree in teaching*, viewed 07 March 2018, from https://educonnect.co.za/diploma-teaching-vs-degree-teaching/.

Forestier, K. & Crossley, M., 2014, 'International education policy transfer – borrowing both ways: The Hong Kong and England experience', *Compare: A Journal of Comparative and International Education* 45(5), 664–685. https:// doi.org/10.1080/03057925.2014.928508

Gao Declaration, 2016, *Goa declaration and action plan*, viewed 02 February 2018, from http://brics2016.gov.in/upload/Goa%20Declaration%20and%20 Action%20Plan.pdf.

Gu, J., Shankland, A. & Chenoy, A. (eds.), 2016, *The BRICS in International Development*, Springer Nature, Dordrecht.

Ivenicki, A., 2015, 'Adult education and cultural diversity in Brazil: National policies and contributions of higher education', in M. Milana & T. Nesbit (eds.), *Global perspectives on adult education and learning policy*, Palgrave MacMillan, Hampshire.

Jia, W., 2018, 'What the Western Belt and Road Sceptics are missing', *South China Morning Post*, 10 March, 2018, A12.

JICA, 2015, *Japanese International Cooperation Agency*, viewed 02 January 2018, from http://www.jica.go.jp/english/about/mission/index.html.

Mundy, K. & Read, R., 2017, 'Education for all: Comparative sociology of schooling in Africa and beyond', in K. Bickmore, R. Hayhoe, K. Mundy & R. Read (eds.), *Comparative and international education: Issues for teachers*, pp. 304–344, Canadian Scholars, Toronto.

NWU Subject group Comparative and International Education, 2015, *Journal regarding education in the BRICS countries*, NWU, Potchefstroom.

NWU Subject group Comparative and International Education, 2018, *Association for academics interested in education in BRICS countries*, NWU, Potchefstroom.

O'Niell, J., 2001, *Building Better Global Economic BRICs*, viewed 02 February 2018, from http://www.goldmansachs.com/our-thinking/archive/archive-pdfs/build-better-brics.pdf.

Paton, M., 2015, 'China's economy will overtake the US in 2016', *Advisor Network Foreign Affairs* 29 April 2016, viewed 15 March 2018, from https://www.forbes.com/sites/mikepatton/2016/04/29/global-economic-.

Paulo, S., 2014, *International cooperation and development: A conceptual overview*, Deutches Institut für Politik, Bonn.

Pawlak, P., 2016, 'Capacity building in cyberspace as an instrument of foreign policy', *Global Policy*, 23 February, 2016, viewed 14 October 2018, from https://onlinelibrary.wiley.com/doi/full/10.1111/1758-5899.12298.

Russian Federation, 2009, *Joint statement of the BRIC Counties' Leaders*, viewed 15 May 2015, from http://archive.kremlin.ru/eng/text/docs/2009/06/217963.shtml.

Schwartzman, S., Pinheiro, R. & Pillay, P., 2015, 'The rise of the BRICS and higher education dynamics', in S. Schwartzman, P. Pillay & R. Pinheiro (eds.), *Higher Education Dynamics*, vol. 44, pp. 1–10, Springer, New York.

Republic of South Africa (RSA), 2015, 'Department of Higher Education and Training', (Notice 111), *Government Gazette,* 38487, 19 February 2015, Government Printers, Pretoria.

Republic of South Africa (RSA), 2017, 'Draft Policy framework for the Internationalisation of Higher Education in South Africa', (Notice 389), *Government Gazette*, 40815:622, 28 April 2017, Government Printers, Pretoria.

Steyn, H.J., Wolhuter, C.C., Vos, D. & De Beer, Z.L., 2017, *South African education system: Core characteristics in focus*, Keurkopie, Potchefstroom.

Takayama, K., Sriprakash, A. & Connell, R., 2016, 'Toward a postcolonial comparative and international education', *Comparative and International Education* 61, 4.

UN, 2018, *United Nations, DESA/ POPILATION DIVISIO*, viewed 02 January 2018, from https://esa.un.org/unpd/wpp/DataQuery/.

UNESCO, 2015, *Introducing UNESCO*, viewed 25 February 2015, from http://en.unesco.org/about-us/introducing-unesco.

Van Agtmael, A., 2012, 'Think again: The BRICS', *Foreign Policy* 196, 76–79.

Wolhuter, C.C., 2000, 'A comparative education course: Experience and views of students at a South African university', *Paper presented at the Comparative and International Education Society (CIES) annual conference*, San Antonio, United States of America, n.d., n.p.

Wolhuter, C.C., 2003, 'Die beoogde stelsel van tweeledige beroepsonderwys en–opleiding in Suid-Afrika: Potensiaalbepaling vanuit 'n vergelykende perspektief', *Suid-Afrikaanse Tydskrif vir Opvoedkunde* 23(2), 145–152.

Wolhuter, C.C., 2011, 'The spectrum of international educational development', *Journal of Educational Planning and Administration* 25(3), 235–247.

Wolhuter, C.C., Thomas, M., Mashau, T.S. & Steyn, H.J., 2018, 'Comparative and International Education: A Tool for Powerful Global Impact Available to South African Scholars', in C.C. Wolhuter (ed.), pp. 253–284, *Raising the Impact of Education Research in Africa*, AOSIS, Cape Town. https://doi.org/10.4102/aosis.2018.BK53.12

Chapter 14

Alikor, O., 2014, 'A critical analysis of the Universal Basic Education Policy (1999) in Nigeria: Consequences of the extent of the implementation of free and compulsory education', Unpublished MEd dissertation, University of the Free State, Bloemfontein.

Alston, P.J., 2018, 'Turning around a dysfunctional school: An auto-ethnography', Unpublished MEd dissertation, University of Pretoria.

Chisholm, L., 2013, 'The textbook saga and corruption in education', *Southern Africa Review of Education* 9(1), 7–22.

Cooper, D.R. & Schindler, P.S., 2003, *Business research methods (International Edition ed.)*, McGraw-Hill/Irwin, New York.

Cundill, G., Lotz-Sisitka, H., Mukute, M., Belay, M., Shackleton, S. & Kulundu, I., 2014, 'A reflection on the use of case studies as a methodology for social learning research in sub Saharan Africa', *NJAS – Wageningen Journal of Life Sciences* 69, 39–47. https://doi.org/10.1016/j.njas.2013.04.001

Dagne, T., 2012, 'Kenya: Current conditions and the challenges ahead', in J.S. McQueen (ed.), *Economic, political and social issues of Africa*, pp. 99–120, Nova Science Publishers, Inc., New York.

Department of Education and Skills, 2011, *Literacy and numeracy for learning and life*, *The National Strategy to Improve Numeracy and Literacy amongst children and young people 2011–2020*, Dublin, Ireland.

Educate Kenya, 2015, *Educate Kenya*, viewed 10 March 2018, from http://educatekenya.com/.

Fredriksen, B., Brar, S. & Trucano, M., 2015, *Getting textbooks to every child in sub-Saharan Africa: Strategies for addressing the high cost and low availability problem*, International Bank for Reconstruction and Development, The World Bank, Washington D.C. https://doi.org/10.1596/978-1-4648-0540-0

Idowu, O.E., 2016, 'Criticisms, constraints and constructions of case study research strategy', *Asian Journal of Business and Management* 5, 184–188.

Index Mundi, 2018, *Kenya demographics profile 2018*, viewed 19 March 2018, from https://www.indexmundi.com/kenya/demographics_profile.html.

International Study Centre, Boston College, 2018, *TIMSS & PIRLS*, viewed 10 March 2018, from https://timssandpirls.bc.edu/.

Jacobs, L., 2016, 'Education provision to everyone: Comparing perspectives from around the world', in N. Popov, C.C. Wolhuter, J. Kalin, G. Hilton, J. Ogunleye & E. Niemczyk (eds.), *BCES Conference Book*, Vol. 14, pp. 11–18, BCES, Sofia.

Jacobs, L. & De Wet, C., 2014, 'Essential values for global citizenship: How do South African learners fare?', in N. Popov, C.C. Wolhuter, K. Ermenc, G. Hilton, J. Ogunleye & O. Chigisheva (ed.), *Education's role in preparing globally competent citizens. BCES Conference Books*, vol. 12, pp. 59–66, BCES, Sofia.

Jacobs, L., Stals, E. & Leroy, L., 2016, 'Providing books to rural schools through mobile libraries'. in N. Popov, C.C. Wolhuter, J. Kalin, G. Hilton, J. Ogunleye & E. Niemczyk (eds.), *BCES Conference Book*, vol. 14, pp. 58–64, BCES, Sofia.

Jansen, J. & Blank, M., 2014, *How to fix South African schools*, Bookstorm (Pty) Ltd., Johannesburg.

Kenya Institute of Curriculum Development, 2015, *Report on needs assessment for primary level school curricula in Kenya*, viewed 02 March 2017, from https://kicd.ac.ke/curriculum-reform/need-assessment-reports-for-cbc/.

Kenya National Examinations Council, 2016, *Examinations offered by the Council*, viewed 19 March 2018, from https://www.knec.ac.ke/home/index.php?option=com_content&task=view&id=17&Itemid=33.

Kenya Primary Schools, 2017, *Kenya Primary Schools*, viewed 15 March 2018, from www.kenyaprimaryschools.com.

Leste, A. & Benstrong, E., 2011, *The SAQMEC III project in Seychelles. A study of the conditions of schooling and the quality of education.* The Southern and Eastern Africa Consortium for Monitoring Educational Quality, SAQMEC, Gaborone.

Lewin, K.M., 2009, 'Access to education in sub-Saharan Africa: Patterns, problems and possibilities', *Comparative Education* 2, 151–174. https://doi.org/10.1080/03050060902920518

Lindegger, G., 2006, 'Research methods in clinical research', in M. Terre Blanche, K. Durrheim & D. Painter (eds.), *Research in practice. Applied methods for the Social Sciences*, pp. 455–465, University of Cape Town Press (Pty) Ltd., Cape Town.

Manzon, M., 2007, 'Comparing places', in M. Bray, B. Adamson & M. Mason (eds.), *Comparative education research approaches and methods*, pp. 85–122, Springer, Hong Kong.

Merriam, S., 2009, *Qualitative research. A guide to design and implementation*, Jossey-Bass, San Francisco.

Mertens, D.M., 2010, *Research and evaluation in education and psychology*, Sage, Thousand Oaks.

Ministry of Education Science and Technology, 2005, *Kenya Education Sector Support Programme 2005–2010. Delivering quality equitable education and training to all Kenyans*, Government Printers, Nairobi, viewed from 10 March 2018, from http://chet.org.za/manual/media/files/chet_hernana_docs/Kenya/National/Kenya%20Education%20Sector%20Support%20Programme%20 2005-2010.pdf.

Mullis, I.V., Martin, M.O., Foy, P. & Hooper, M., 2016, *TIMSS 2015 International Results Report*, viewed 22 March 2017, from http://timssandpirls.bc.edu/timss2015/international-results/.

Ngware, M.W., Oketch, M., Exeh, A.C. & Mutisya, M., 2013, 'The effect of free primary education policy on late school entry in urban primary schools in Kenya', *International Review of Education* 59, 603–625. https://doi.org/10.1007/s11159-013-9389-6

Nieuwenhuis, J., 2011, *Growing human rights and values in education*, 2nd edn., Van Schaik, Pretoria.

OECD, 2018, *PISA 2015. Results in focus*, Organisation for Economic Co-operation and Development (OECD), Paris.

Oketch, M. & Mutisya, M., 2013, *Evolutional of educational outcomes in Kenya*, Background paper prepared for the Education for All Global Monitoring Report 2013/4, UNESCO, viewed 22 March 2018, from http://unesdoc.unesco.org/images/0022/002259/225934e.pdf.

Plowright, D., 2011, *Using mixed methods. Frameworks for an integrated methodology*, Sage, London.

Republic of Kenya, 1964, *Kenya Education Commission Report*, Government printers, Nairobi.

Republic of Kenya, 1976, *Report of the National Committee on Educational Objectives and Policies*, Government Printers, Nairobi.

Republic of Kenya, 1999, *Totally integrated quality education and training*, Government Printers, Nairobi.

Republic of Kenya, 2005, *Policy framework for education, training and research: Sessional Paper No.1 of 2005*, Government Printers, Nairobi.

Rotich, D.C., 2004, 'The affordability of School Textbook in Kenya: Consumer experiences in the transformation to a liberalized economy', *Nordic Journal of African Studies* 13(2), 175–187.

Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ), 2018, *Kenya*, viewed 19 March 2018, from http://www.sacmeq.org/?q=sacmeq-members/kenya.

Shabalala, J., 2011, *SACMEQ Policy Brief Number 2. Quality of primary school inputs in Swaziland*, Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ), Gaborone.

Simam, R.C., Rotich, D.C. & Kemoni, H., 2012, 'Educational publishing and provision of quality primary school textbooks in Kenya', *Inkanyiso: Journal of Humanities and Social Sciences* 4(2), 117–127.

Somerset, A., 2009, 'Universalising primary education in Kenya: The elusive goal', *Comparative Education* 45(2), 233–250. https://doi.org/10.1080/03050060902920807

UNESCO, 2016, *Global Education Monitoring Report 2016, Education for people and planet: Creating sustainable futures for all*, United Nations Educational, Scientific and Cultural Organization, Paris.

UNESCO, 2017, *Global Education Monitoring Report 2017/8. Accountability in Education: Meeting our commitments*, United Nations Educational, Scientific and Cultural Organization, Paris.

UNESCO, (n.d.). *Education for all movement,* viewed 10 March 2018, from http://www.unesco.org/new/en/education/themes/leading-the-international-agenda/education-for-all/.

United Nations, 2015, *Transforming our world: The 2030 agenda for sustainable development*, viewed 10 March 2018, from https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf.

Uwezo, 2016, *Are our children learning? Uwezo Kenya Sixth Learning Assessment Report*, Twaweza East Africa, Nairobi.

Van Breda, C., Reynders, A. and De Wet, C. 2018, 'An Evaluative Study of a Family Math programme that Forms an Integral Part of a Mathematics Module for Intermediate Phase Students', in C.C. Wolhuter (ed.), pp. 79–101, *Raising the Impact of Education Research in Africa*, AOSIS, Cape Town. https://doi.org/10.4102/aosis.2018.BK53.05

Van der Riet, M. & Durrheim, K., 2006, 'Putting design into practice: Writing and evaluating research proposals', in M. Terre Blanche, K. Durrheim & D. Painter (eds.), *Research in practice. Applied methods for the social sciences*, pp. 80–111, University of Cape Town Press (Pty) ltd., Cape Town.

World Data Atlas, 2018, *Kenya – Consumer price inflation*, viewed 20 March 2018, from https://knoema.com/atlas/Kenya/topics/Economy/Inflation-and-Prices/Inflation-rate.

Chapter 15

Amuzegar, J., 1991, *The dynamics of the Iranian revolution: The Pahvalis' triumph and tragedy*, SUNY Press, New York.

Chehabi, H.E., 2016, 'South Africa and Iran in the Apartheid Era', *Journal of Southern African Studies* 42(4), 687–709. https://doi.org/10.1080/03057070.2016.1201330

HakimZadeh, R., 2008, 'A study of philosophical foundations of Global Education Program and its comparison with philosophical foundations of educational system of the Islamic Republic of Iran', *New Educational Thoughts* 4(3), 79–104 [in Farsi].

Huntington, S.P., 1993, 'The clash of civilizations?', *Foreign Affairs*, viewed n.d., from https://www.foreignaffairs.com/articles/united-states/1993-06-01/clash-civilizations.

Isazadeh, A. & Sharaf al-Din, H., 2017, 'Theory of clash of civilizations: The conceptual framework for understanding Islamophobia', *Journal of Fundamental Occident Study* 7(2), 37–62 [in Farsi], viewed n.d., from http://occidentstudy.ihcs.ac.ir/article_2658_6db6a7e4ef9046e682905358815c9017.pdf.

Madandar, A.A., 2015, 'Researching shadow education in Iran: Methodological experiences in an Islamic Republic', in M. Bray, O. Kwo & B. Jokic (eds.), *Researching private supplementary tutoring: Methodological lessons from diverse cultures*, pp. 133–146, Springer & CERC, Hong Kong.

Ministry of Education, n.d.a, *Social Studies Textbook: Grade 5*, Ministry of Education, Iran.

Ministry of Education, n.d.b, *Social Studies Textbook: Grade 6*, Ministry of Education, Iran.

Ministry of Education, n.d.c, *Social Studies Textbook: Grade 8*, Ministry of Education, Iran.

Ministry of Education, n.d.d, *Social Studies Textbook: Grade 9*, Ministry of Education, Iran.

Ministry of Education, n.d.e, *Sociology Textbook: Grade 10*, Ministry of Education, Iran.

Ministry of Education, n.d.f, *Sociology Textbook: Grade 11*, Ministry of Education, Iran.

Ministry of Education, n.d.g, *Sociology Textbook: Grade 12*, Ministry of Education, Iran.

Ministry of Education, n.d.h, *Geography Textbook: Grade 11*, Ministry of Education, Iran.

Ministry of Education, n.d.i, *Geography Textbook: Grade 12*, Ministry of Education, Iran.

Sciolino, E., 1998, 'The United Nations: IRAN; Iranian President paints a picture of peace and moderation', *New York Times*, 22 September, 1998, viewed n.d., from http://www.nytimes.com/1998/09/22/world/united-nations-iran-iranian-president-paints-picture-peace-moderation.html.

Vahdat, F., 2014, 'The two faces of modernity in Iran – Analysis', *The Guardian*, 09 December, 2014, Guardian News and Media Limited, viewed n.d., from https://www.theguardian.com/world/iran-blog/2014/dec/09/-sp-modernity-iran-after-revolution.

Index

The book is extremely important as it addresses issues in education and research. It is well written and informative. Important topics are clearly presented in this book. It has important and rich information that strengthens its value.

Prof. Dr Mokgadi Moletsane, Educational Psychology Department, University of the Western Cape, South Africa

The book is relevant and pertinent in the field of education research.

Prof. Dr Raj Mestry, Department of Education Leadership and Management, University of Johannesburg, South Africa