ALTERNATION

Interdisciplinary Journal for the Study of the Arts and Humanities in Southern Africa Volume 25, Number 2 (2018)
Print ISSN 1023-1757; Electronic ISSN: 2519-5476

Crises, Contestations, Contemplations and Futures in Higher Education

* *Alter*nation is an international journal which publishes interdisciplinary contributions in the fields of the Arts and Humanities in Southern Africa.
* Prior to publication, each publication in *Alter*nation is reviewed by at least two independent peer reviewers.
* *Alter*nation is indexed in The Index to South African Periodicals (ISAP) and hosted online on the UKZN platform, on OJS, and by EBSCO
* *Alter*nation is published every semester. Special editions may be published p.a.
* *Alter*nation was accredited in 1996.

COVER

Abdulbaqi Badru

CORRESPONDENCE ADDRESS

The Editor: Alternation, Univ. of KwaZulu-Natal, Priv. Bag X10, Dalbridge, 4041, DURBAN, South Africa; Tel: +27-(0)31-260-7303; Fax: +27-(0)31-260-7286; Web: http://alternation.ukzn.ac.za
e-mail: smitj@ukzn.ac.za; Hlongwan1@ukzn.ac.za; chettd@unisa.ac.za; vencatsamyb@ukzn.ac.za

Print ISSN: 1023-1757; Electronic ISSN: 2519-5476

*Alter*nation

Interdisciplinary Journal for the Study of the Arts and Humanities in Southern Africa

Crises, Contestations, Contemplations and Futures in Higher Education

Guest Editors
Rubby Dhunpath, Nyna Amin & Chatradari Devroop

2018

CSSALL
Durban

Acknowledgement of Reviewers

We wish to acknowledge the participation of the following reviewers in the production of this issue of *Alter*nation.

Harold Abeles, Teachers College, Colombia University, USA
Busi Alant, University of KwaZulu-Natal, South Africa
Jeff Bruckman, Rhodes University, South Africa
Amanda Hlengwa, Rhodes University, South Africa
Bridget Horner, University of KwaZulu-Natal, South Africa
Angela James, University of KwaZulu-Natal, South Africa
Lizette King, University of Western Cape, South Africa
Natalie King, Georgia State University, USA, South Africa
Frans Kruger, University of the Free State, South Africa
Nicole Laliberte, University of Toronto, Canada, South Africa
Kathy Luckett, University of Cape Town, South Africa
Mary Masehela, University of Venda, South Africa
Sioux McKenna, Rhodes University, South Africa
Mary Mosha, MSN Support Team, Tanzania
Bert Olivier, University of the Free State, South Africa
Jean Pierre de la Porte, Editor, *Domus Africa*, Botswana
Labby Ramrathan, University of KwaZulu-Natal, South Africa
Mark Schofield, Edgehill University, UK
Sipho Seepe, Ministry of Public Service and Administration, South Africa
Gina Wisker, University of Brighton, UK
Miranda Young, University of KwaZulu-Natal, South Africa

***Alter*nation Volume 25 Number 2, 2018**
Print ISSN 1023-1757; Electronic ISSN: 2519-5476

Interdisciplinary Journal for the Study of the Arts and Humanities in Southern Africa

ARTICLES

Rubby Dhunpath, Nyna Amin, and *Chats Devroop* Crises, Contestations, Contemplations and Futures in Higher Education 1
C.K. Raju Decolonising Mathematics 12
Raazia Moosa A Policy Analysis of the Higher Education Qualifications Sub-Framework: Towards Achieving Decoloniality in the South African Higher Education System 44
Rubby Dhunpath, Heidi Matisonn, and *Michael Samuel* Towards a Model of Mentoring in South African Higher Education 78
Sharon Rudman The Conversation: Applying Gadamer's Theory on Seeking Understanding in a South African Context 106
Janine Lewis, and *Karina Lemmer* *Re atumela phetogo*: Africanisation in Embodied Actor-training Performance Platforms Incorporating Multimodal Learning 130
Rethabile Tekane, Ina Louw, and *Marietjie Potgieter* #FEESMUSTFALL: Science Teaching during Student Unrest 161
Emmanuel Matsebatlela, and *Anesu Gelfand Kuhudzai* Attitudes toward Plagiarism: The Case of Undergraduate Health Sciences Students at the University of Pretoria 181
Nkosinathi Emmanuel Madondo Locating the Experiences of Rural Science Students in Higher Education 210
Chatradari 'Chats' Devroop The Shifting Sands of Music Leadership: Searching for Disciplinary Space in a Research-led University 227
Zamambo Mkhize, and *Ansurie Pillay* Exploring Black Female Post-graduate Science Students' Experiences and Understandings of their Intersectional Identities 249
Contributors 273

PRINT CONNECTION Tel (031) 202-7766; 202-7766

Editorial: Crises, Contestations, Contemplations and Futures in Higher Education

Rubby Dhunpath
Nyna Amin
Chatradari 'Chats' Devroop

Introduction

The theme of this special edition once again derives from the Annual Teaching and Learning Conference hosted by the University of KwaZulu-Natal in 2017.

For ten years (2007 - 2016), the conference has engaged a cauldron of issues that emerged in Higher Education, South Africa. During that decade, the academy charted a path of what it deemed to be relevant concerns around curriculum transformation and innovation, African perspectives and paradigms, reconstruction, internationalisation, policy analyses, research and teaching excellence, and professional development, all of which were suggestive of deep engagement with issues that mattered to higher education. The student uprisings (#RhodesMustFall and #FeesMustFall) disturbed the reverie that had lulled the academy's senses to student concerns and aspirations. In fact, higher education students made explicit the ways in which the academy was complicit in the reproduction of inequalities and the marginalisation of local values and contexts. The outcome of academia's lethargy to action and its propensity to 'talk' rather than 'act' to enable relevant and appropriate transformation, has had devastating consequences, culminating in violent uprisings in South Africa. Simultaneously, though, it has also created new opportunities and improved access to higher education for those marginalised by race and class.

These uprisings have resonance with other student rebellions documented in history. For instance, one of the paradoxical features of the

Print ISSN 1023-1757; Electronic ISSN: 2519-5476; DOI https://doi.org/10.29086/2519-5476/2018/v25n2a1

Paris student movement of May 1968, which brought the French economy to a standstill, was its effect on civil society rather than on universities. When contrasted to South Africa, French civil society were philosophically and theoretically active before the student movement began, and was instrumental in influencing the minds and interests of the higher education students. The notions imparted to students were aligned to post-war idealisations of Europe which embraced Marxist/Communist conceptualisations, existentialist themes of renewal through authenticity via art, fiction, literature, critique of fiction and literature, and strong public opinion regarding French policies and politics. By the time French students moved towards the crisis of 1968, civil society had imbued them with the intellectual tools to challenge the status quo.

After May 1968, the reverse occurred: it was the students' activist posturing that shifted the provincial atmosphere of cultural France and public opinion towards structuralism, psychoanalysis, liberalism and American counter-cultural movements. Powerful motifs of French psychoanalysis underpinned by the *oeuvres* of Marx, Freud, and Nietzsche emerged. Interestingly, the latter, regarded as staples of French thought in the 1960s, did not appear in the pages of university journals in the post-protest era. Instead, these radical thinkers featured in the realm of public opinion, appearing in fringe magazines, graffiti, music, cinematic themes of young new directors, and theatre. It would be a while before Marxist, Freudian and Nietzschian thoughts were incurporated into university curricula and systems. Curriculum change in France was driven by students, not academia.

Are there some parallels to be drawn from the French experience which can be applied to the student protest movements (2015 - 2017) of South Africa? It may be too soon to say. Nevertheless, we recall that the movement began with grievances regarding colonial symbols and structures followed by discontent with the financial debt that students were accumulating in a climate of increasing poverty and hardship, and polarisation between rich and poor - naked classism – evident in the chasm between the most vulnerable in society and the rich élite. Thereafter, the movement shifted its attention to the origins of higher education institutions, and condemned the academy for being intrinsically tainted by its colonial origins.

The students' critique went beyond the relevance of universities: they raised concerns about employability, Africa's peripheral status in the knowledge economy and the relevance of the universities to their users. Is a university in its current configuration necessary? How do universities on the

continent reflect its African heritage and character? How can the university prepare students for successful careers in the creative arts, in music production, in acting or branding oneself? These questions have destabilised the notion of the university for a generation who are the first to type with thumbs, to have access to information without the mediation of the 'professor' and to challenge the censorship and silences exerted by the university. This is a generation which insists on the right to know and the right to act immediately on what they know, but are overwhelmed by what they find out and by the un-readiness of society to support their ideas and actions.

This anthology of *Alter*nation captures in part, the massive shift in public opinion brought about by the efforts, intentional and unintentional, of university scholars, which is markedly different to the outcomes in France. In South Africa, the academy is being shaped by student concerns while civil society's discourse is at odds with student activism and its leftist leanings.

The title of this anthology, 'Crises, contestations, contemplations and futures in higher education', is utopian in nature, in that it reflects an ideal sequence, with hope as the outcome of student dissatisfactions. We begin by presenting a review of the four phenomena captured in the title.

First, *crisis*, in classical Greek, is not a disaster; it is a turning point (Greek, *krinein* = to decide) imbued with possibilities of danger or hope, and for which decision-making is critical. A crisis is a high point in that it reflects the view that the issue at hand is unusual business, and occurs when there is a failure of sorts. A crisis is often explained as an episode between two periods of normalcy but, in some instances, it might be an unusually prolonged phase, especially in situations of inequality, discontent and contested worldviews, as seems to be the case of higher education institutions in the country. After all, it was Freud who said that there were three 'impossible professions'- leading, healing and teaching (Freud 1925). Is governing, therapy and pedagogy not simply the name for a never-ending crisis, or a position that has to brace itself for disappointment in spite of the interim gains it might have acquired thus far? As we see it, crises do reflect impractical desires. What has happened at South African universities (and perhaps in French, German, Italian and American ones too), was an unusual event of unimaginable proportions – to phrase it differently, an unexpected and vicious tsunami.

Second, *contestation* is a form of confrontation, a type of productive *agon,* that stops short of war and is expected to improve ideas and create a greater engagement between opposing sides and their understanding of each other.

It is seen, at the very least, as a practical kind of criticism. Contestation includes the possibility of agreeing to disagree. However, what occurred in South African universities is not contestation. Contestation here is a polite euphemism for a revolutionary violence, in effect, a declaration of war on the establishment.

Third, *contemplation* is a concept largely associated with the philosophy of Plato, who contended that it is an act of deep reflection in search of the truth. Contemplation embodies actions like examining, inspecting, observing, reflecting and scrutinising, as well as introspection on that which is not known. From Plato's perspective, it is between knowing (focussing on) the subject (the academy), and probing that which is not known, that truth becomes revealed.

Finally, *futures*. The university, envisioned by Alexander von Humboldt and others at the dawn of 19th Century as a space that inspires innovation, social experimentation, new forms of reflection and the production of knowledge, with the purpose of creating a better future for all those who live on the planet, has not achieved these satisfactorily. The divisions between the 'haves' and 'have-nots' have widened, the planet is threatened, there is wide-scale suffering, disparities and dejection. We have not been able to spread hope and optimism for those whose lives are ravaged by poverty, marginalisation and oppression. The feelings of hopelessness appear to be more prevalent in those under 35 years of age; the future, they fear, is already compromised. Paradoxically, those in universities who boldly theorised revolution, were unable to engage with the prickly realities of student protests. After May 1968, the word 'revolution' has had far less appeal and greater vagueness than it had had before then. It has even less appeal in our sphere of the world today. We should ask ourselves when reflecting on past revolts, whether they were simply a co-optation and creation of an ultra-liberalism, or a more pervasive set of possibilities than the collective idea of revolution, so influential in the early 19th and 20th Centuries. Therefore, we should ask, what if anything, has the student movement, the indolence of the university and the shifts in public opinions told us about the (im)possibility of (im)possibilities in SA and elsewhere? Despite our reservations, the articles in this anthology offer some suggestions for an optimistic future. A brief synopsis of each article is presented hereunder.

Curriculum Decolonisation

Raju, a keynote speaker at the conference to which this special issue is related,

made a number of presentations that generated debate among leading mathematics scholars and curriculum revisionists. Despite harsh reviews that disparaged and rejected the arguments made by Raju, we, the editors, felt that a high-status discipline like mathematics is useful to shatter the myths that some disciplines fall outside the decolonisation project. It is also useful as an exemplar of contestation and contemplation, and perhaps signals a hidden crisis that needs reckoning. We are convinced that there are sufficient grounds to support what many consider as subversive scholarship. The history of mathematics is contested; some of its historical origins have been erased, and as Raju argues, misinterpreted. Raju disputes the universality of mathematics. He contends that *normal* (traditional) mathematics, like science, accepts *both* deductive and empirical proofs. Colonial education replaced normal with formal mathematics; the unique feature of the latter is not the use of reasoning but *exclusion of the empirical.* Raju asserts that the coloniser did not critically compare normal and formal mathematics, and continues to obstruct comparative moves through the control of the means of knowledge production.

Raju's arguments are not without substantiation. He describes two decolonised math courses being taught: decolonised (string) geometry in school, and decolonised calculus in the university. He asserts that decolonised geometry, indigenous to Africa and India, is superior to the geometry currently taught in terms of conceptual clarity (points, angle, distance), ease of learning, and practical applications. Decolonised calculus teaches it as normal math, the way it originated in India as a numerical technique to solve differential equations, together with non-Archimedean arithmetic (instead of 'real' numbers) and zeroism (instead of limits) used to sum infinite series. He claims that the Europeans stole calculus from India, and falsely attributed it to Newton and Leibniz, who failed to understand how to sum infinite series. He concludes by stating that decolonised calculus is easy, requires almost no background, and results in better science. It enables students to solve more complex problems not covered in usual calculus courses. However, it excludes the ability to slip politically convenient dogmas into science through the metaphysics of formal math, and is, therefore, resisted by the coloniser in contemporary times.

The second article on decolonisation by Moosa investigates one of the foundations of the higher education structure. She argues that the relationship between quality assurance policies and decolonisation priorities has not been considered. Using a qualitative approach, she explores the possibilities of the Higher Education Qualifications Sub-Framework (HEQSF) to decolonise the

curriculum. Moosa argues that the HEQSF is aligned to a neo-liberal world view which militates against different ways of thinking and 'de-linking' from traditional perspectives. She emphasises re-examination of the notion of a qualifications framework and suggests that relevant alternatives to facilitate the decolonisation of the curriculum are required. She is of the view that since no alternative exists to replace the HEQSF, the possibility for change based on prescriptions in a decolonial context is questionable. Moosa concludes by raising challenges for decolonising the South African higher education system.

Higher Education Mentoring

Dhunpath *et al.* in *Towards a Model of Mentoring in South African Higher Education,* address the critical issue of the diminishing or aging professoriate. They argue that there have been several responses to the imperative to increase the number of senior staff at universities. One such response is the Staffing South Africa's Universities Framework (SSAUF). Dhunpath *et al.* note that the framework is silent about the potential of mentorship programmes to socialise emerging academics into the culture of the academy, and to navigate the intricacies regarding effective university teaching. Acknowledging the complexity inherent in the practice of mentoring and its attendant power relations, the proposed model is a departure from the individualistic performance management approach typically associated with the dominant master-apprenticeship model. Instead, the authors offer a non-hierarchical, co-constructed menu of possibilities based on negotiated reflection, arising out of the specific, situated contexts of mentor and mentee.

Curriculum Contemplations

In keeping with the theme of contemplation, Rudman explores the identity language nexus in the higher education arena. Amidst the turmoil and controversy which characterize much of the public debate on social concerns in South Africa, the issue of apartheid-type perceptions of identity continue to dictate the nature and outcome of social interactions in higher education spaces. Student feedback on a first-year English Language Studies module at a South African institution of higher education suggests that through the mediation of 'hermeneutic conversations' (as described by Gadamer), there is potential to both address and overcome ideologically-based obstacles to

transformation. The concept of conversation forms the core of Gadamer's explanation of the quest for understanding, and hermeneutics as establishing 'agreement', where there was none or where it had been disturbed in some way. Students were prompted to enter into conversations aimed at encouraging understanding between those from diverse backgrounds. In addition, the course aimed to prompt 'inner conversations' regarding everyday understanding of the world and that which is assumed as 'truth'. Conversations of the hermeneutic kind, we can agree, has the potential to heal the divide emanating from a troubled political history of separation.

Modes of Instruction

In dealing with the futures of disciplinary approaches, Lewis and Lemmer report on the implementation of creative training for embodied performance courses (physical theatre and voice studies for actors). They focused on the potential of a multimodal approach to challenge and re-imagine actor-training through performance platforms which incorporated embodied-learning/ performance/space(s). Using a reflective research design at the Tshwane University of Technology, student practices were identified through lecturers' observations and reflections on the teaching and assessment of acting-training Bachelor of Technology students. The authors' documentation and reflections serve a number of purposes: validation of multimodal (re)conceptualisations, support for performance creativity and enablement of autonomy of learning and co-creation of new knowledge of creative students.

In their reflection on science teaching during student unrest at a South African University, Tekane, Louw and Potgieter reported their concerns about the loss of teaching time due to protest action. In order to ensure that the year was not lost, they changed the mode of instruction at short notice from contact to online teaching. Using a phenomenographic approach to generate data on lecturers' experiences during so-called 'pecha kucha' events (very short PowerPoint presentations), the authors' insights into the incorporation of blended learning, demonstrate the possibilities for rescuing programmes and saving time. Its success suggests the possibility of using the approach even in times of stability.

Plagiarism in Higher Education

A direct consequence of the effortless access to information via multiple tech-

nological platforms in our very fast developing digital universe, is the problem of plagiarism which continues to vex higher education institutions worldwide, despite a proliferation of the digital tools to mitigate the problem, and the related systematic development of processes and procedures to not only deal with it, but also educate about it, and prevent it. Matsebatlela and Kuhudzai, in a study of plagiarism at a South African university, claim that students have poor understandings of plagiarism and the various ways in which it finds expression. Using quantitative analytical tools, the study investigated undergraduate health sciences students' perceptions, attitudes to and awareness of plagiarism. A significant percentage of the students' responses revealed statistically significant differences in attitudes to plagiarism and awareness across all levels of study. The paper advocates for clearly written plagiarism policies that are communicated to both students and their lecturers, particularly the consequences of plagiarism transgressions. Research (East 2006) acknowledges that what is deemed immoral in western contexts may be acceptable in others. Matsebatlela and Kuhudzai suggest that an earnest quest for alternative forms of assessment – that make reduced demands on lower levels of cognition such as memory and recall, could ignite students' imagination, making the prosaic ideas of others less appealing and, simultaneously, elevating the quality of their own ideas derived from their own lived experiences.

Students' Lived Experiences and Curriculum

Reflecting on the experiences of rural science students in higher education, Madondo bemoans the dis-connect between curricula and students' lived experiences. The students' ways of being at home is the source of increasing discontent with their marginalization and perceptions of the continuing élitist and exclusive nature of the institutions in which they are enrolled for study. Madondo contends that student's cultural knowledge is neither understood nor valued in university teaching and learning. He argues against 'absenting the experiences of these students in higher education'. Using Margaret Archer's social realism as a theoretical framework to access students' prior experiences, he recommends its inclusion in the science curriculum, asserting that curriculum design demands astute leadership to elevate marginalised epistemologies and identities which are constitutive of emancipatory knowledge.

Curriculum Contestations

Curriculum in contemporary higher education operates as a site of struggle in which competing discourses abound – about what it should be, how it should be conducted, who should be recruited for it, and who should engage in it (see Parkes 2013). Navigating a contested site requires deep theorising of the challenge in higher education – a task that cannot be entrusted to technocrats with managerial impulses. The problem of inappropriate leadership approaches is especially pronounced in disciplines related to the performing arts in higher education. Devroop, a leader in an arts-based discipline, examines certain fragilities within the university systems and calls for transformational leadership to respond to the complexities inherent in curricula which have shed their conventional borders. The appropriately titled 'Shifting sands of music leadership: searching for disciplinary space in a research-led university', is a personal reflective account. Located within an auto-ethnographic context, he highlights the experiences and challenges of an academic leader in the arts, specifically, the music discipline. The data he presents, affords insight into complex problems between leadership, management and more especially, the academic leadership of the discipline. Envisioning a different role for curriculum leadership within the contemporary university, he contends that it is imperative for the music discipline to engage with new media challenges in order to ensure its contemporary relevance.

Intersectional Identities

Moving from the auto-ethnographic account in Devroop's piece that draws on identity in leadership and management, Mkhize and Pillay affirm the importance of individual identities and epistemologies in the exploration of black female post-graduate science students' experiences and understandings of intersectional identities. They argue that Black women face oppression in various fields but that black women in the science, technology, mathematics and engineering fields face even more scrutiny. Underpinned by the theory of intersectionality, the authors focus on ten black female postgraduate science students. They deconstruct their experiences and understandings of their intersectional identities, and explain the impact on their professional career trajectories. They argue that the participants were by-products of three sites: schooling, socialization and the discipline science, prompting the authors to

question whether transformation is occurring in higher education in South Africa, or if classism is the new 'racism'. The study revealed that at a university in South Africa, black, female postgraduate science students appear unaware and dismissive of their intersectional identities, and ignorant of the impact those identities have on their career trajectories.

Concluding Observations

Do the articles in this volume serve as a barometer to indicate the level of seriousness of the academy to confront the challenges posited by the recent crises and contestations in higher education? It would seem that students' voices are being inscribed into higher education discourses, signalling that universities can no longer pursue 'business as usual' goals, especially as they relate to the curriculum, pedagogy and governance. There appears to be an acknowledgement in this compendium of articles that there are few universal principles on intellectual work, and need to shed idealised and received notions of 'the university' as we know it. As we contemplate the future of higher education, we have a perfect opportunity to consider alternative intellectual traditions and knowledge systems. As scholars explore indigenous modes of knowledge exploration that are experiential rather than abstract, communal and cooperative rather than individual and competitive, and produced in the context of relevant application rather than through esoteric indulgences, the notion of decolonised pedagogies and epistemologies is gaining currency.

We endorse the work of scholars validating and providing evidence that higher education, which is:

> ... devoid of philosophical reasoning, not based on any sound scholarly work, does not lead to new forms of civic or political activism … nor do they contribute to the emergence of new forms of creativity in the arts or in the field of literature, cinema, music or architecture (Mbembe in Blaine 2009: webpage).

References

Blaine, S. 2009. SOUTH AFRICA: What's an Idea Worth? *University World News* 07 June, Issue 79. Available at:

http://www.universityworldnews.com/article.php?story=20090604191251580
(Accessed on 25 October 2018.)

East, J. 2006. The Problem of Plagiarism in Academic Culture. *International Journal for Educational Integrity* 2,2:16 - 28.

Freud, S. 1925. Preface to Aichhorn's Wayward Youth. *The Standard Edition of the Complete Psychological Works of Sigmund Freud. Volume XIX (1923-1925): The Ego and the Id and Other Works.* Available at: http://freudians.org/wp-content/uploads/2014/09/Freud-Preface-to-Aichhorns-Wayward-Youth.pdf
(Accessed on 25 October 2018.)

Parkes, R.J. 2013. Challenges for Curriculum Leadership in Contemporary Teacher Education. *Australian Journal of Teacher Education* 38,7:112 - 128.
https://doi.org/10.14221/ajte.2013v38n7.8

Rubby Dhunpath
Director: Teaching and Learning
University of KwaZulu-Natal
dhunpath@ukzn.ac.za

Nyna Amin
Associate Professor: Curriculum Studies
School of Education
University of KwaZulu-Natal
amin@ukzn.ac.za

Chatradari 'Chats' Devroop
Academic Leader Research: School of Arts
University of KwaZulu-Natal
devroop@ukzn.ac.za

Decolonising Mathematics

C. K. Raju

Abstract

Mathematics is not universal. Traditional (normal) mathematics accepts *both* deductive and empirical proofs like science. Colonial education replaced it with formal mathematics, the unique feature of which is not the use of reasoning but *exclusion of the empirical.* The coloniser never critically compared normal and formal mathematics, and tries to block such a comparison today. In Western dogma (of the church theology of reason) deduction is infallible. In fact, deduction is fallible. (1) An invalid deductive proof may be mistaken as valid. Doubts about validity can only be settled inductively. In practice, doubts are settled by invoking authority. Hence, deductive proofs are always *more* fallible than empirical proofs. (2) The postulates of formal math cannot be empirically checked; they are metaphysics (a metaphysics of infinity is needed even for the formal math of 1+1=2). Thus, far from being eternal truths, formal mathematical theorems may not even be approximately valid knowledge. (3) Formal math dogmatically assumes two-valued logic (on the superstition that logic binds God). But logic is neither culturally universal (e.g. Buddhist logic) nor empirically certain (quantum logic). Therefore, the theorems of formal math (even if valid) are not even truths relative to postulates. Hence, colonial/formal math is inferior and should be rejected. This does not affect the practical value of math – what 'works' – which all comes from normal math which we should, accordingly, teach.

I describe two actual decolonised math courses being taught: decolonised geometry in school, and decolonised calculus in the university. Decolonised (string) geometry that is indigenous to Africa and India, is superior to the geometry currently taught in terms of conceptual clarity (points, angle, distance), ease of learning, and practical applications. Decolonised calculus teaches calculus as normal math, the way it originated in India as a

Print ISSN 1023-1757; Electronic ISSN: 2519-5476; DOI https://doi.org/10.29086/2519-5476/2018/v25n2a2

numerical technique to solve differential equations, together with non-Archimedean arithmetic (instead of formal 'real' numbers) and zeroism (instead of limits) used to sum infinite series. Europeans stole calculus from India, and falsely attributed it to Newton and Leibniz, who failed to understand how to sum infinite series due to the Western superstition (since Plato) that mathematics is eternal truth, and hence exact. Eventually, they introduced a metaphysics of infinity allied to church dogmas of eternity – set theory, formal real numbers, and limits – as taught in university today. This metaphysics is irrelevant for any practical application of calculus, such as sending a rocket to the moon, but makes calculus very difficult. Decolonised calculus is easy, requires almost no background, and results in better science. It enables students to solve harder problems not covered in usual calculus courses. However, it excludes the ability to slip politically convenient dogmas into science through the metaphysics of formal math, and is, hence, resisted by the coloniser today.

Keywords: fallibility of deduction, postulates of formal math, decolonised geometry, decolonised calculus

Introduction

As explained in my censored article[1] (Rhodes Must Fall Movement Oxford 2018: 26), decolonising mathematics involves addressing *both* the false history (myths) *and* bad philosophy (superstitions) of colonial mathematics. In this article, I address the bad philosophy of colonial (formal) mathematics.

Mathematics is *not* universal: the mathematics brought by colonial education replaced the traditional math taught for thousands of years (from before the Rhind papyrus). The purported 'universality' of math is thus double-speak for a claim of the superiority of colonial math over traditional math. Is this just another spurious claim of 'superiority' like the racist claim of superiority of whites? To decide, we must examine the matter critically even though colonial education never did so and any attempt to do so today is

[1] The censored article is posted on my blog at http://ckraju.net/blog/?p=117. It was reproduced by many others some of whom also later took it down, but it survives in some other locations, such as *The Wire*, etc. See, https://thewire.in/75896/to-decolonise-maths-stand-up-to-its-false-history/.

attacked. Colonialism cannot allow people to think critically. Instead, it indoctrinates children into that claim that 'Western math is superior' using myths, such as an elaborate falsehood about the supposed Euclid and his purported deductive proofs, neither of which exist.

The formal math which is taught today began at the turn of the 20th century with the analysis of the 'errors' in the *Elements* by Russell (1897) and Hilbert (1950) and their attempts to 'fix' those 'errors' (and save the myth). This already tells us that the origins of formal math are closely linked to church texts (such as the book *Elements* supposedly written by 'Euclid') and myths such as the belief that it contains (or intended) deductive proofs, and the related superstitions (that deductive proofs are superior).

The Double Speak about Reasoning

Formal math is based on the dogma that 'deductive proofs are infallible, and certain, unlike empirical proofs'. We can examine this superstition irrespective of its historical roots or church origins.

First, however, it is necessary to clarify that the claim involves double speak about 'reasoning' that is taken from racist historians and planted in our school texts. For example, the official Indian school text for class IX teaches that the math that the whole world did is wrong, and inferior, and that we must imitate 'superior' Greek math as the Greeks used reasoning. Most school children interpret the remark 'Greeks used reasoning' to mean that people other than Greeks did *not* use reasoning. This is completely false.

Reasoning was used in the Rhind papyrus. Reasoning or inference is an accepted means of proof in all Indian systems of philosophy (the exception of the *Lokayata* is considered below). The Indian proof of the 'Pythagorean theorem' uses reasoning (Raju 2001). Traditional Indian texts from the 7th century explain that the roundness of the earth is *inferred* from the fact that tall trees cannot be seen from afar (Lalla 1981), and that the horizon appears like a circle.

When this is pointed out, it emerges that the propaganda about the superiority of 'reasoning' refers to a special type of reasoning, called *formal* reasoning that is used in formal mathematics. The word 'reason' thus refers to formal reasoning which is fundamentally different from *normal* reasoning (used in traditional normal mathematics).

All traditional systems used *normal reasoning*; that is, they accepted empirical proofs and used empirical observations as the starting point for reasoning: e.g. the roundness of the earth was inferred from the empirical observation that far off trees cannot be seen. That is, just as science does today, normal math accepted reasoning (or inference) plus empirical proofs as the basis of knowledge.

The unique feature of 'reasoning' in both church theology and formal mathematics is exclusion of the empirical. This double-speak about 'reasoning' hides a key fact: that 'reasoning' in formal mathematics means reasoning *not* subjected to the discipline of empirical checks. Anything can be asserted to be true without fear of being contradicted by empirical facts. This special kind of 'reasoning' should be qualified and called 'theological reasoning' to avoid confounding it with normal reasoning as most people do. 'Reasoning' in formal mathematics refers to reasoning *minus* any empirical inputs: the Western belief is that the empirical is fallible while deductive proof is infallible, so that any attempt to mix the empirical in a deductive proof 'weakens' it and renders it fallible. It is thus argued that 'reasoning' *without* empirical facts is 'superior': mathematical truths are superior to scientific truths. But is this a con?

Once we pin down the real meaning ('reasoning' = formal reasoning = exclusion of empirical) it is easy to see that deductive proofs involving formal reasoning are actually inferior and a lot *more* fallible than proofs based on normal reasoning.

The Fallibility of Deduction

Deductive proofs are fallible for three reasons.

1. Errors of the Mind

First, *an invalid deductive proof may be mistaken for a valid one*. The classic example is the *Elements*: it has not a single valid deductive proof, but Western scholars believed for centuries that it was a model of deductive proofs. This false belief persisted from 1125, when the *Elements* first arrived in Christian Europe from Muslim Europe, to about 1900.

This possibility of error in a deductive proof is persistent. Can the doubt be eliminated by rechecking the proof three, four or five times? No, a philosophical doubt about the validity of a deductive proof may persist like a philoso-

phical doubt about observation. Trying to settle the doubt inductively does not eliminate doubt any more than it eliminates doubts about empirical proofs. Deductive proofs are therefore at least as fallible as empirical proofs.

However, the common practice in formal math is to rely on authority to validate a deductive proof, since the vast majority of people do not understand a formal mathematical proof. In practice, it is mathematical authority which is asserted to be infallible, like the belief that the pope is infallible. But authority is a far more fallible than empirical proofs regardless of what the coloniser says about the importance of his own authority. So, deductive proofs are actually *more* fallible than empirical proofs.

The *Elements* is not the only example. The case of the four-color theorem shows that checking the validity of complex formal proofs is often beyond almost all mathematicians. Computer-generated formal proofs may soon become so complex that no human can be sure if any complex deductive proof is valid. So much for the purported infallibility of deduction.

Everyone accepts that empirical proofs are fallible due to possible *errors of the senses* (the classic example in Indian philosophy is that one might mistake a snake for a rope or vice versa). However, the above fallibility of pure deductive proof relates to *errors of the mind*. Unlike the senses which err occasionally, the human mind *invariably* errs when asked to perform a complex mental task of deduction in real time, such as playing a game of chess. The errors are clear from the fact that computers invariably beat ALL humans in chess. The mind is far more fallible than the senses (especially when there is no sensory input to discipline its fantasies).

Fallibility is especially true of an indoctrinated mind (such as that of Westerners during the 'Dark Ages', the Crusades and the Inquisition) or the captured mind of the colonised. Like the church, colonialism used indoctrination of the mind as a key tool of political power. *Hence*, such 'errors of the indoctrinated mind', as happened in the case of the *Elements*, are far more persistent than errors of the senses. The error about a rope/snake is quickly resolved in practice by prodding the rope/snake with a stick, repeatedly if necessary. The elementary error about purported 'deductive proofs' in the *Elements* took almost eight centuries to resolve (and this falsehood is still being taught in Indian schools). Frequent and persistent errors of the mind in mistaking invalid deductive proofs for valid ones show that deductive proofs are *more* fallible than empirical proofs. That means that the coloniser's formal math is inferior to normal math and, consequently, must be rejected.

2. Deductive Proof Does Not Lead to Valid Knowledge

Second, *pure deductive proofs (disjointed from the empirical) are fallible as they do not lead to valid knowledge.* A postulate is always the first sentence of a formal proof. The exclusion of the empirical from a proof means it must also be excluded from the postulate. Therefore, a proof may begin with empirically faulty premises. We have already seen an example above: Russell began with the faulty premise that the author of the *Elements intended* deductive proofs, and reached the faulty conclusion that it was the author who erred (and not the myths about the author, which were false). Russell could have avoided this error had he tried to cross-check who the real author was, based on empirical evidence.

But Russell celebrated the fact that formal math is metaphysics. He asserted 'We ... take any hypothesis that seems **amusing**, and deduce its consequences. ... Thus [formal] mathematics may be defined as the subject in which we never know what we are talking about, nor whether what we are saying is true' (Russell 1917: 46 e.a.).

It was to drive this point home that 'deduction minus the empirical' leads to awful errors, that I gave the example of a rabbit with horns in my censored article[2]. The example went as follows. 1. All animals have two horns. 2. A rabbit is an animal. 3. Therefore, a rabbit has two horns. This is a valid deductive proof, a model example of *modus ponens*, but the conclusion is invalid knowledge because the premise (1) is *empirically* faulty. But, as Russell explained, this is irrelevant; what matters is that the hypothesis must be amusing, and I find the hypothesis that all animals have two horns distinctly amusing.

The *Lokayata* used a 'rabbit's horns' and a 'wolf's footprints' to illustrate the fallibility of deduction: by seeing a wolf's footprints (Suri 2000) villagers wrongly infer that a wolf was around. This is an error, as in actual fact the wolf's footprints were made by a man to demonstrate that inference may lead to defective knowledge as it may be based on empirically false premises.

2.1 Deductive Proof Helps Impose Authority

This fallibility of 'reasoning', due to the absence of the empirical, greatly suited church politics, *for by selecting appropriate premises (on the strength*

[2] See, also, 'Mathematics and censorship'. https://kafila.online/2017/06/25/mathematics-and-censorship-c-k-raju/.

of authority), one can deduce as a formal mathematical theorem absolutely any conclusions one likes. This method of using metaphysics to reach politically convenient conclusions is widespread. Today, mathematics is applied to a variety of fields, from cosmology to economics, and slipping in appropriate authoritative postulates results in persuasive, politically convenient conclusions that are detrimental to the colonised. Concrete examples are Kenneth Arrow's impossibility theorem in economics, or the creationism of Stephen Hawking's singularity theory (Raju 2003). Arrow's impossibility theorem goes against the common belief that the good of the many must prevail over the good of a few. This is put forward as a 'rigorous' mathematical theorem (aka eternal truth) and influences the economic policies of the colonised to their detriment. In a recent debate on decolonisation, it was pointed out that Hawking's singularity theory was used to claim the absurdity that physics has proved the truth of Judeo-Christian theology. Noticeably, the postulates used in formal mathematics, as taught today, are invariably those laid down and approved in the West: calculus is taught with formal real numbers, never with Indian non-Archimedean arithmetic.

2.2 The Postulates of Formal Mathematics are not Based on Experience

The postulates of formal mathematics are NOT based on experience. They cannot be. All these postulates, including those required to prove 1+1=2, involve *a metaphysics of infinity*; hence, they *cannot* be empirically checked. They are irrefutable metaphysics, not falsifiable on Popper's criterion. Hence, no computer can ever do formal Peano arithmetic because this involves a metaphysics of infinity; computers use ints (computer data types) instead.

Likewise, while real numbers are declared essential to calculus, and there is supposedly an uncountable infinity of irrational real numbers, no one can even write a single irrational real number exactly. Hence, computers, which must work with reality not fantasy, use floating point numbers.

Historically, the need for this metaphysics arose from the Western superstition that mathematics is exact, since it is eternal truth. Recall that Plato and the Neoplatonists thought that mathematics most easily arouses the *eternal* soul (by sympathetic magic) since it contains *eternal* truths. Although the church later cursed the Platonic and 'Neoplatonic' ('pagan') notion of soul, superstitious belief in the eternal truths of mathematics persisted, as in the

Thomist superstition that the 'eternal laws of nature' are written in the language of mathematics which embodies eternal truths. Westerners believed that mathematics must hence be exact, since the slightest error would be exposed at some time or the other during eternity. This superstitious belief in the exactitude of mathematics could not be reconciled with the highly practical value of the infinite series of the Indian calculus to derive the precise (but not exact) trigonometric values required for navigation (on which European dreams of wealth rested). This led Descartes and Galileo to reject infinite series. Descartes reasoned that the exact sum of an infinite series was beyond the human mind. However, the practical value of approximate sums of infinite series was overwhelming. Therefore, Newton imagined a metaphysical way of summing infinite series, which resulted in his absurdly confused doctrine of fluxions for calculus (See Raju 2003; 2006a; 2006b; 2007; 2015).

On the strength of these non-empirical postulates about infinity, formal math erects a fantasy world where various things may be proved. While, as Russell (1917) emphasised, formal math has neither truth nor meaning, some propositions may be so interpreted as to be valid, but the postulates about infinity may and do lead also to absurd conclusions. This is not restricted to the conclusions of Hawking and others. Thus, most formal math nowadays is done using set theory. The postulates of set theory lead to the Banach-Tarski paradox: contrary to reality, the belief that a ball of gold can be divided and reassembled into two identical balls of gold and so on, to obtain innumerable balls of gold from one! Hence, a formal mathematical proof provides no guarantee of epistemic certainty (or even epistemic probability) despite claims of 'rigour'.

3. A Formal Mathematical Theorem is Not Certain Truth Even Relative to Postulates

Third, *deductive proofs are fallible because the logic used for deductive proof may not correspond to reality* (Raju 2001). In an attempt to reduce mathematics to logic, Russell naively assumed (as his fellow Western philosophers had done for centuries) that logic is of one kind only—the two-valued logic attributed, without evidence, to Aristotle, naively conflating Aristotle of Toledo (based on 12th century Arabic texts) with the Aristotle of Stagira (Raju 2008). This building of vast philosophies on naive historical premises is a habit of Western philosophers; Kant also built his doctrines of reason on the false premise that

logic started with Aristotle and has not changed, and hence, has reached a state of perfection! (Kant 1996).

3.1 Alternative Logics

However, the fact is that logic is not unique. Long before even the historical Aristotle of Stagira, India had many systems of logic, such as Buddhist *catuskoti*, Jain *syadavada*, and the two-valued logic of *Naiyayikas*. In the *Brahmajala sutta*, of the *Digha Nikaya*, the Buddha accuses an opponent of wriggling like an eel, since he uses an eight-valued logic (Raju 2008).

If we use a different logic the theorems of formal mathematics (from the same postulates) will change. So, formal mathematics is not even certain relative truth relative to postulates, as is wrongly believed. It is, at best, fallible, relative truth – relative to both postulates AND a particular logic chosen from among an infinity of different possible ones.

As usual, the West lagged millennia behind, and became acquainted with other logical systems only after the 1930s. This issue is not merely one of 3-, 4-, or more valued logic: Buddhist logic, like quantum logic (Raju 1994), is *not even truth-functional*. Consequently, proofs by contradiction fail. Why should the colonised pay the price of Western ignorance and backwardness by imitating the West?

The uncertainty of logic is an additional reason why no epistemic certainty can be attached to pure deductive proofs: *which* logic to use for deduction can only be decided empirically by induction! As usual, the only answer that Westerners have had to this objection, in the past two decades, is to keep striking a pose of superiority and denounce the authors – that is the ultimate Western syllogism! It is time to topple this colonial pose of superiority by laughing at it.

3.2 Rational Theology and 2-valued Logic

As I have explained elsewhere (Raju 2006a), the reason for this Western parochialism about logic is the church dogma that logic binds God, a dogma which did not ask the obvious question: *which* logic binds God? As I have further explained, the dogma of Christian rational theology was derived from misunderstanding a casual concession made to Islamic rational theology by al Ghazali, that Allah is bound by logic (but not by cause and effect).

Nevertheless, today the demand is that, through formal mathematics, the world must remain bound by those incorrect church dogmas.

3.3 Quantum Logic

I emphasize that the argument for other logics does not come from culture alone: quantum logic is not two valued, or even truth-functional, and the empirical world is certainly quantum mechanical at the microphysical level. An electron may empirically be both here and there ('not-here'). This 'inconsistency' does not trivialise the world in the way an inconsistency trivializes a formal mathematical theory. That is, logic has to be empirically determined. Consequently, any purely logical proof (based on any logic) is always weaker than empirical proof. 'Deductive proofs' are inferior and not superior, which means formal math should be abandoned.

3.4 Summary

To summarise, pure deductive proofs (excluding the empirical) are more fallible than empirical proofs, for three reasons: (1) an invalid deductive proof may be mistaken for a valid one; the indoctrinated mind is far more easily deceived than the senses. (2) If the postulates are not empirically tested, they may lead to nonsensical conclusions. There is no way to empirically validate the postulates of formal mathematics which involve a metaphysics of infinity; one must rely on authority. This helps to insert authoritatively approved (and politically convenient) fictions into various applications of mathematics including science. (3) Formal mathematics is founded on a superstitious belief in the universality of logic, whereas logic is neither culturally universal nor empirically certain (though it is pretty certain that 2-valued logic is only *approximately* the case at the macrophysical level).

So, the colonised must abandon formal mathematics, and also start isolating and weeding out the political consequences of formal mathematics inserted into economics and science.

'It Works'

Though the colonised mind is unable to contest any of these arguments against

formal math, it doggedly persists in defence of its missionary indoctrination by piling on the guesswork based on stories. A common response to doubt is: 'it works'.

But *what* works? To reiterate, the practical value of math all relates to normal math. There is a general reason for this: all practical and real-world applications *must* involve the empirical. For example, how and where does the Pythagorean theorem work? It certainly does not hold exactly on the earth, for its surface is curved. Not in space either, for space too is curved. At best, it works as an inexact approximation. But, if the Pythagorean theorem can be applied *only* as an *inexact* approximation, then why reject the empirical (normal math) proof of the Pythagorean theorem?

This matter may be clarified by way of an analogy. Suppose one has an ailment such as arthritis, and a quack were to give one a powder and recite a chant and we find 'it works', what would one do? Uncritically accept the whole package or investigate the active ingredient? It may be that the chant is irrelevant and that the powder consists of crushed steroid pills, well-known to work for arthritis.

Something similar happens in the case of 'practical applications' of formal math: the only active ingredient is normal math. This argument applies to all formal math related to mathematics of practical value. The practical value pre-existed. A good way to clarify this is by examining the real history of mathematics.

Europeans' backwardness in elementary arithmetic made them backward in all other aspects of practical math: medieval and renaissance Europe was 3000 years behind Africa. Consequently, Europeans imported not only arithmetic, but also virtually all the practical mathematics taught in school today: algebra (Colebrooke 1817), trigonometry, calculus (Raju 2007), and probability and statistics (Raju 2011a). They did so in order to reap the benefits of the practical value of that math: arithmetic for commerce, calculus and trigonometry for navigation, and probability to make money in games of dice, amongst a host of others. More specifically, the infinite series of the calculus was imported from Cochin for its usefulness in deriving the precise trigonometric values required for European navigation (Raju 2007). Even in Europe, the practical value of calculus existed long before formal real numbers, set theory or limits, which are today deemed 'essential' for calculus. That same practical value (through numerical solution of differential equations) also persists to this day (as in calculating the trajectories of rockets and spacecraft).

Indeed, the practical value is obtained by using computers which *cannot* use real numbers.

Thus, all that the West did was to add a redundant layer of metaphysics to a pre-existing normal math, which added nothing to its practical value. The metaphysics involved a particular conceptualisation of infinity which suited (and still suits) church dogmas of eternity (Raju 2015). This normal math, wrapped in a metaphysics of infinity, and bundled with a false history (e.g. 'Newton and Leibniz invented the calculus') was declared 'superior' and returned to the colonised through colonial education. Under the influence of such education, the colonised accepted the claim without critically examining any aspect of it.

For those who do not know calculus or how rocket trajectories are calculated today, an easy analogy might assist in understanding the process by which the coloniser first learnt from the colonised, and then gave back a slightly altered product, declaring it to be superior. The game of chess went from India to Persia, as documented in Firdausi's *Shahnama*, and then on to Arabs, eventually reaching Europe. But, when it returned to India with the British, the king had acquired a symbolic cross on his head, the camel had been renamed 'bishop', and the rules of the game had changed. These new rules were declared 'internationally accepted' (= colonially authorised). Obviously, the cross on the head of the king is dispensable and irrelevant to the game, and the rules can always be changed back if we wish. The colonised must do that in math by reverting to normal math.

To summarise, the claim of colonial, white superiority in math has never been properly argued. It cannot be, because the white coloniser started off as inferior. Just as no Western historian could provide any evidence for Euclid, no Western philosopher has addressed my objections to formal mathematics in the past two decades. When pressed, they resort to the classical techniques of forcibly suppressing the critique by means of censorship, or witch-hunting, and other ways of disparaging and silencing the critic. This is an admission of total intellectual defeat by the West, and a signal to proceed with the decolonisation of mathematics.

Let us now examine two concrete examples of how mathematics can be and has been decolonised in school and university. Decolonisation in math – geometry and calculus – has been tried out both as pedagogical experiments and as regular university courses.

Decolonised Math 1: Geometry

The West imported African/Egyptian (religious) geometry through the Greeks (Plato and others). As noted above, the imported geometry was modified: reinterpreted by the church to fit its doctrine of persuasion by reason for use by missionaries. (The church needed this doctrine of reason, aka Christian rational theology, in the 12th century due to the military weakness of the Christian part of Europe compared to Muslim Europe, which accepted Islamic rational theology.) To enable church use, it was packaged with a false history of theologically-correct Greek origins (Euclid).

However, the Egyptians also had a practical geometry which is still in use across Africa. We find this depicted on the east wall of the tomb of Djeserkaseneb (or Djeserkareseneb) at Luxor (for an image see Clagett 1999). For practical geometry such as measuring the area of a field (to estimate crop yield and tax) Egyptians used a rope (or cord), and the cord bearers were called 'rope stretchers' or *harpedonaptae* in Greek.

We do not know how exactly Egyptians *did* cord geometry. However, a similar indigenous tradition of string geometry, the *sulba sutra*-s, exists in Indian tradition, and is reasonably well-documented (by masons, not mathematicians). Presumably, the two traditions of rope geometry (Indian and African) were similar as is evident in Herodotus' observation that ancient Egypt and ancient India had many things in common (such as the notion of soul also used by Plato, and in early Christianity, or the festival of lamps, or the tendency to take frequent baths to prevent infection). *Rajju ganit*, or calculations with the rope, was a standard part of math education in pre-colonial India.

String geometry[3] differs from school geometry as currently taught, both philosophically and in the use of a different instrument (a string) from those found in the school geometry box.

The philosophical difference is that, today, geometry is taught as 'superior' metaphysics. For example, the class VI NCERT text in India declares that geometric points are invisible. This is in tune with the key aspect of formal math, namely *the prohibition of the empirical*. Western philosophy asserts that there is something wrong if one can actually see a geometric point. In practice, of course, students invariably work with visible dots, for there is

[3] This string geometry, of course, has nothing whatsoever to do with modern-day (metaphysical) string theory in physics!

no other way. Teaching that reality is 'wrong' prevents students from applying common sense to objects they can see, as they may then not accept the authority of the text. If they are 'officially' allowed to learn from experience, someone will eventually notice that two visible dots can be connected by many straight lines which are all only *approximately* the same. Hence, colonial education teaches that practice and common sense are wrong and inferior! The only source of knowledge about the geometry of invisible points is the colonial authority of the text. Students are thus indoctrinated into accepting Western authority as the source of knowledge. Likewise, lines and planes must be invisibly thin[4].

A line segment is defined in the NCERT class VI text as the curve corresponding to the 'shortest distance' between two points. Students learn to measure 'distance' empirically by superposition: they superpose a (straight) ruler on a *visible* (straight) line segment. This empirical process of superposition is also used in the original *Elements,* e.g. in the proof of its proposition 4. However, the Western objection to this process, in the 19th century was the basis of formalism. This makes geometry teaching incoherent;

[4] At a panel discussion at the University of Cape Town, I asked who in the hall had ever worked with invisible points. I likened the foolishness of invisible points to the foolishness of the emperor's invisible new clothes and burst out laughing. No one could respond, either from the panel or the audience, as they would have had to explain how to deal with invisible points. A racist reporter was incensed by my laughter and declared it a conspiracy to dismantle the remnants of racism. He claimed authoritatively that mathematicians 'routinely' work with invisible points, but did not explain how. Or why anyone must believe the white man's authority. What is surprising is that other colonised folk did not stand up and laugh with me at the coloniser's ridiculous claim to do some strange magic with invisible points. For example, how does one measure the distance between two invisible points? What if two people disagree about the exact location of the invisible points? And how would such a disagreement be settled? A question in my pre-test is this: do the invisible points stay in one place or do they move about at random, and what is the source of your knowledge about invisible points? If fixed, are they fixed relative to the earth, or absolute space, or another invisible point? A video of the panel discussion is posted at:
https://www.youtube.com/watch?v=ckbzKfRIi6Q.

if such an empirical process of superposition is permitted for distance measurement, there should be no objection to its use in the proof of the fourth proposition of the *Elements*: the side-angle-side (SAS) proposition.

Superposition, therefore, should *not* be declared an error as Russell did, and the school text does. But accepting superposition defeats Hilbert's (1950) whole programme on the foundations of geometry. Indeed, superposition is prohibited in Hilbert's geometry, which was hence called 'synthetic' since distance measurement is also prohibited. Recall that Hilbert sided with Russell and tried to 'correct' the author of the *Elements* who 'erred' in not conforming to the baseless church myth. Following Hilbert, school texts today treat SAS as a *postulate* not a theorem. They hide the fact (for obvious reasons) that this also prohibits distance measurement. Of course, Hilbert's (1950) synthetic geometry is convoluted; though length is not defined (to explain the seeming prolixity of the *Elements*), area is (to be able to prove the Pythagorean theorem). Defining area without defining length is an example of how any nonsense is possible in formal mathematics.

Under these varied influences, the geometry taught to school children today is an incoherent hotchpotch of empirical and synthetic geometry. This conceptual confusion is also reflected in the confusion between 'congruence' (Hilbert's term) and equality (the original term in the *Elements*). Few students or teachers can explain the difference, any more than they can explain where exactly an invisible point is located or why multiple invisible straight lines do not pass through two given points (as is seen to be the case with dots).

As a matter of fact, after the Sputnik 'crisis', a frightened US invested billions of dollars to revamp its STEM education and route it towards practical value. Subsequently, the School Mathematics Study Group (School Mathematics Study Group 1961) recommended the teaching of Birkhoff's axiomatic metric geometry (Birkhoff 1932), a geometry that stuck to axiomatics, but did not try to present a convoluted apologia for the apparent prolixity of the *Elements*, as Hilbert attempted. However, even though Birkhoff's geometry defines distance axiomatically, rather than empirically, it trivialises the *Elements*; the 'Pythagorean' theorem still has a shorter and simpler formal proof in metric geometry, unlike the *Elements* in which 46 intermediate propositions are used. Therefore, it too is not a valid interpretation of the *Elements.* The school text makes no attempt to differentiate between the four distinct geometries it mixes up, and does not even differentiate between the axiomatic definition of distance and the empirical definition. (Nor, of

course, does it mention the Platonic connection between geometry and the religious notion of soul).

Thus, what is taught in schools in India today is an incoherent hotchpotch of four different and *incompatible* types of geometries: (1) Religious 'Euclidean' geometry; (2) Hilbert's synthetic geometry; (3) Birkhoff's axiomatic metric geometry; and (4) empirical compass box geometry. Students and even teachers do not seem to understand these incoherencies. Colonial education teaches them to accept everything on authority.

Later the class IX text teaches that a point cannot even be defined in other words, but it is not explained that an infinite regress arises only in formal math because it prohibits any reference to the empirical. Students are left befuddled, as it is not explained that the basic notions of point or line apply only to a fantasy world which is inconsistent with the real world. For example, in defining a straight line segment as the *shortest* distance between two points, it is not explained that this is not the real shortest distance between two points, on earth or in space.

It is no use offering the apologia that a straight line is *approximately* the shortest distance as the whole purpose of formalism is a claim to exactitude. No theory of approximation is taught which explains how to select one from the infinity of curved lines, which will also satisfy the criterion of 'approximately shortest'. Also, how can the degree of approximation be decided without reference to the empirical?

An angle is defined as something (what thing?) made by two straight lines. If so, why is a semi-circular protractor used to measure angles? Students are unable to explain. Does the size of a protractor matter? If not, why not? The pre-test shows that most students are unable to explain why. A protractor comes readymade, and students are also unable to explain *how* the circumference of the protractor is divided into 180 equal parts, or even what equal parts of a curved line mean. (One can superpose a string, but superposition is rejected. Defining the length of a curved line axiomatically requires calculus and a restriction to rectifiable arcs, which are beyond middle school).

The whole confusion is nicely topped up by the ritualistic inclusion in the geometry box of set squares and dividers which are almost never used. But all this teaches the main lesson of colonial education: that one must *ritualistically* imitate the master without asking why. Naturally, sensitive

minds rebel; instead of declaring them 'bad' at math they should be congratulated for their resistance!

In contrast, in string geometry, there is simplicity and conceptual clarity. Points are visible dots. A straight-line segment between two points is obtained empirically by holding the string taut between two points. There is no need for infinite lines. The length of a curved line is naturally defined by superposition: placing the flexible string along the curve, and straightening it and measuring it (or using a flexible measuring tape).

An angle is now defined as the *relative length of a curved arc*. This removes the mystery of the protractor. The little arc used to denote an angle IS the angle. It also explains the radian measure of angles, as the length relative to the radius of the circle, which students habituated to the protractor and the degree measure of angles are typically unclear about. While the number today called π is defined in the usual way as the ratio of the length of the circumference to the diameter, the length of the curved circumference is now meaningful, and there are easy ways to calculate that number.

The string is a superior replacement for the entire compass box (Raju 2009a). Thus, it replaces the ruler as above, but is superior since it can also be used to measure curved lines. It is a superior replacement for the protractor since one can directly measure the relative length of a curved arc, and thus get the angle in both degrees and radians. Holding one end of the string fixed enables a circle to be drawn; thus the string replaces the compass. By holding two fixed points, an ellipse may also be drawn, which is impossible with the instruments in a compass-box. As already noted, the set squares and dividers are irrelevant, and the string is superior as it teaches students to discard irrelevant Western ritual paraphernalia. Needless to add, a string can be made locally, unlike a compass box made of steel and plastic. It is low-cost and eco-friendly. By using the two-scale principle, a string can also be made highly accurate.

Note, further, that for actual practical measurements, such as the measurement of an agricultural field, a rope is a practical and superior instrument, unlike the toy instruments in a compass box, which are useful only on paper. Many other real-life practical applications, such as finding the time and the cardinal directions from the shadow of a gnomon, finding the radius of the Earth, and the local latitude and longitude, are explained in the draft text for *Rajju Ganit* which has been prepared as part of the experiments on teaching decolonised geometry in school.

Because empirical methods are used, the proofs of propositions are straightforward and very easy. SAS is now a theorem not a duplicitous postulate (duplicitous because superposition continues in practice). The 'Pythagorean theorem' can be proved in one step. This makes irrelevant the exact order of the propositions in the *Elements,* an order *required* to be ritualistically followed (Taylor 1893) even by the revised Cambridge syllabus of the late 19th century.

Approximations are an integral part of normal math. This is clear from the documentation in the *sulba sutra*-s. Thus, the Manava[5] *sulba sutra* 10.10 (Sen & Bag 1983) states the 'Pythagorean theorem' using square *roots,* though such a way of stating it is unheard of in Western tradition (but this is required to put the theorem to practical use). Note, first, that a right-angled triangle was regarded as half of a rectangle. (This seemingly trivial remark is important because Western historians have long asserted that Egyptians did not know what a right-angled triangle was (Gillings 1982; Appendix 5)). They certainly knew what a rectangle was. Now, if *a* and *b* are the two sides of rectangle, and *c* is the diagonal then instead of $c^2 = a^2 + b^2$ the Manava *sulba sutra* states $c = \sqrt{a^2 + b^2}$. Thus, if *a*=1, and *b*=1, we get $c = \sqrt{2}$. Square roots were known to Egyptians and Iraqis ('Babylonians'). Like Iraqi clay tablets, *sulba sutra*-s give a reasonably precise value of $\sqrt{2}$ (accurate to about five decimal places). A full-fledged *algorithm* for extracting square roots is documented in Indian tradition, and it was known that the algorithm does not terminate, so $\sqrt{2}$ can never be exactly evaluated. Consequently, all the *sulba sutra*-s call it *savisesa*, meaning 'with a remainder'.

The important thing is that the 'Pythagorean calculation' is not portrayed dishonestly as something exact (in a fantasy world, not explicitly declared a fantasy) but as only a *useful approximation* (in the real world), which can always be improved. This approximation is inevitable: on the earth, since it is curved, there is nowhere the 'Pythagorean theorem' holds exactly as

[5] The whole text of the Manava *sulba sutra* is archived at http://ckraju.net/geometry/manava_shulba_sutra.pdf, while an English translation of 10.10 is posted at http://ckraju.net/geometry/translation-Manava-10.10.pdf.

noted by the seventh century Indian mathematician Bhaskara I[6], a thousand years *before* the 'official' advent of non-Euclidean geometry in the West. The purported exactitude of the Pythagorean theorem is delusional, and students ought to be informed about it.

To summarise, string geometry leads to (1) conceptual clarity; (2) ease in understanding; (3) superior and practical instruments; (4) a better understanding of mathematics as approximate and not exact.

Pedagogical experiments have been initiated to teach this at the level of class IX in school. The workshops for teachers were conducted in several locations across India. They involved both teachers and students; after explaining the teaching methodology to teachers, it was demonstrated with students. The teachers and students came from some 40 schools in Nasik. Likewise, many teachers from Karnataka and Tamil Nadu were involved in workshops conducted at Chamrajnagar and Gundulupete. The second step is for those teachers to teach school students. This is a little tricky to implement, especially in government-run schools, since the teachers will now be teaching that what they earlier taught was wrong! However, the Karnataka government, which supported one of the workshops, agreed that school texts must be corrected if they are wrong. Field trials are currently being conducted.

String geometry links directly to trigonometry and decolonised calculus (and infinite series for π) as it first developed in India. Thus, the string geometry course is a preparatory course for the course on calculus without limits.

Decolonised Math 2: Calculus without Limits

Current university calculus texts run into over a thousand pages, in large font and two columns[7]. By the end of the course a student has learnt very little. Every student can rattle off that $\frac{d}{dx}e^x = e^x$ as one of the simplest formulae of calculus. But they cannot define e^x (or even the *e* or the *x* in it!), nor can they

[6] Bhaskar (1963: I.25). See also (Raju 2007: 227).

[7] E.g. Thomas, Weir & Giordano (2008) has 1228 + 34 +80 + 14 + 6 + 6 + xvi (=1384) pages, in 11 x 8.5 inch size, while Stewart (2007) has 1168 + 134 + xxv pp. (= 1327) pages in 10 x 8.5 inch size with a supplemental CD.

define $\frac{d}{dx}$. Thus, what students are taught is merely the ritualistic use of formulae they do not understand.

Some students do try to define the exponential function using an infinite series, but cannot explain how to sum an infinite series or define the sum as a limit, because this requires formal real numbers which are not taught in the fat calculus texts. For the same reason, since integrals and derivatives are formally defined as limits, students who have successfully completed a calculus course cannot define even the derivative or the integral. Clearly, all that they can do is to commit formulae to memory, and perform some tricks of symbolic manipulation, without understanding. They are effectively taught that they have no alternative but to accept mathematical authority localised in the West.

What the students take away are various 'intuitive' ideas, for example that the derivative is a tangent. But they were never taught what a tangent is, and are unable to define a tangent except by using an incorrect definition[8] that a tangent line 'just touches' the curve at one point. It would be better to admit that the purpose of teaching calculus is *not* to impart knowledge but to indoctrinate students into the wrong idea that formal real numbers and limits are needed for calculus. The other important 'intuitive' idea they take away is about Western authority, supported by the false history that calculus was the achievement of Westerners (Newton and Leibniz). To drive home the point about Western superiority, the history of calculus is Christianised on the infamous doctrine of Christian Discovery; various Indian techniques are named 'Euler's' method, 'Stirling's formula' and so on (see e.g. Raju 2007). This false history is a key part of calculus teaching today to bolster Western authority by glorifying Westerners.

Thus, the colonised calculus student emerges in awe of Western autho-

[8] Some of these problems are brought out in the pre-test for the calculus without limits course, administered to undergraduate students, posted at http://ckraju.net/sgt/3-question-paper-pre-test-sgt.pdf. The pre-test administered to postgraduate students was different and delved into deeper (formalistic) issues such as the connection between the Riemann and Lebesgue integral, university-text definition of derivative and the Schwartz derivative, probability and measure, etc.

rity, but ignorant of calculus, as per the colonial education plan. Recall that calculus is the major obstacle in the path of black university students who often come from poorer schools and have a weaker background in school-level calculus when they enter university. Decolonisation identifies the source of the difficulty of calculus as the junk metaphysics in it: the way junk metaphysics took Whitehead and Russell (1963) 378 pages to prove 1+1=2. Eliminating this junk metaphysics makes calculus so easy that it can be learnt in five days regardless of the student's disciplinary background.

This ease of teaching calculus without limits has been repeatedly demonstrated by experiments to teach calculus in five days. The first was performed in Sarnath, in 2009 and reported the same year (Raju 2009b). The next experiment was performed with four batches of students in the Universiti Sains Malaysia, in 2010. These were stratified samples with one batch of post-graduate students, one of undergraduate pure math students, and one of undergraduate applied math students. The fourth batch consisted of undergraduate non-math students (Raju 2011b; 2011c). Subsequently, the experiment was repeated in many places, such as Ambedkar University Delhi (as a course on 'Calculus for Social Scientists'), in Tehran, and is currently being taught as a regular undergraduate course in SGT University, Delhi-NCR, with a batch of almost 75 engineering students. These pedagogical experiences have repeatedly confirmed that it is very easy to teach calculus without limits to a variety of students, even those who come from a weak school background.

Decolonisation begins with the observation that the key concern of the colonised should be the practical value of math, not with imitating colonial practices. As noted earlier, all practical value (such as sending a rocket to moon) is achieved today by using computers, and solving differential equations numerically, as in the original method of Indian calculus. Practical value was also the reason for the theft of calculus and its infinite series to derive accurate trigonometric values which Europeans badly needed as their dreams of wealth were tied to a major scientific challenge, the European navigational problem (which others had solved long ago). Therefore, decolonised calculus focuses on practical value.

This results not only in practical value, but in a *huge gain in conceptual clarity*. For example, e^x is defined in decolonised calculus in a very simple and rigorous way as the solution of the differential equation $y' = y$ with $y(0) = 1$. (Most functions can be similarly defined). Using computers,

students can easily calculate its value, graph it and understand its properties. This also drives home the point that 'real' numbers and limits are completely irrelevant to the practical value of calculus. Computers use floating point numbers and can never use formal real numbers.

Note the difference, however. Like traditional normal mathematics, decolonised calculus uses a realistic philosophy of *inexactitude w*hich I call zeroism. It is not the numerical solution which is erroneous; one can increase its accuracy but never achieve exactitude. This stands the Western philosophy of formal math on its head by declaring the claim of exactitude as *erroneous* and a mere metaphysical fantasy divorced from the real world.

Because decolonised calculus is so easy, it enhances practical value and enables students to solve much harder problems. For example, while the existing calculus texts are confined to integrals of elementary functions, calculus without limits easily goes beyond that and teaches non-elementary elliptic integrals. This is clear from a stock tutorial sheet[9].

Such elliptic integrals arise in the first serious science experiment in school. The time period of oscillation of the simple pendulums depends upon the amplitude. But students are taught the wrong formula for its time period: $T = 2\pi\sqrt{\frac{l}{g}}$, where l is the length of the string and g the acceleration due to gravity. The excuse for teaching this wrong formula is simplification; the actual formula involves elliptic integrals, which are not taught as part of beginning university calculus courses. But since school teachers themselves do not learn elliptic functions, they treat the text book formula as exact and wrongly teach students that the time period is independent of the amplitude (Raju 2006b). The experiment performed by students (Raju 1999) easily shows the above formula to be wrong. Elliptic integrals are hardly the only example. What is the optimal angle of throw for a javelin? It is certainly not 45 degrees as I found out during an athletic competition! But explaining the theory requires a study of ballistics with air resistance. Likewise, the brachistochrone with air resistance becomes a school project (Raju 2012).

Exactitude vs Inexactitude

Decolonised calculus also sums infinite series in an easy and conceptually

[9] http://ckraju.net/sgt/Tutorial-sgt.pdf.

clearer way than limits. Consider an infinite series such as $\sqrt{2} = 1.414... = 1 + \frac{4}{10} + \frac{1}{100} + \frac{4}{1000} + ...$ How to sum such an infinite series *exactly*? If we add individual terms, each addition will take some time, so the entire infinite sum will take an eternity to sum. Therefore, an exact sum is physically impossible. For practical purposes, everyone accepts inexactitude as was done in traditional normal math; it is enough to know the value of $\sqrt{2}$ to 10 or 100 or 1000 decimal places. But, the West has been deluded into believing that mathematics is eternal truth and hence exact. Westerners, therefore, sought the *exact* sum, i.e., all the infinite decimal places. That is physically impossible, as simply writing down all infinite decimal places would take an eternity.

The West never understood the simpler Indian technique of using the *'avyakt' ganit* of the 7th century (Brahmagupta 1966), or how it was used to derive the first ever formula for the sum of the *infinite* geometric series (Raju 2007). (*Finite* geometric series are ancient, and found in the 'eye of Horus' fraction, and the Yajurveda 17.2.). An expository account is in Raju (2016a; 2016b).

Algebra was invented by Brahmagupta who referred to a polynomial such as $2x+3$ as an *'avyakt'* or 'unexpressed' number, as it acquires a value only after we assign a value to *x*. Naturally, there are also *'avyakt'* fractions, such as $\frac{2x+3}{3x+4}$ or what would today be called rational functions. Such rational functions constitute what is today called a non-Archimedean field (Moise 1963). That is, for $x>0$ we cannot find a definite natural number *n* such that $x<n$. Such an *x* is called infinite, and its reciprocal $\frac{1}{x}$ is called infinitesimal. (Note: infinitesimal does NOT mean imperceptible). In a non-Archimedean field there are no limits: instead of saying that $\lim_{n\to\infty} \frac{1}{n} = 0$, we simply say that $\frac{1}{n}$ in infinitesimal when *n* is infinite. There is no exactitude. However, we can get back 0 as an *approximate* limit, by *neglecting infinitesimals*, as in the

philosophy of zeroism (Raju 2016c). Thus, for finite geometric series, simple algebra tells us that $(1-x)(1+x+x^2+...+x^n)=1-x^{n+1}$ so the sum is $1+x+x^2+...+x^n=\frac{1-x^{n+1}}{1-x}$. If the common ratio $x<1$ then for infinite *n*, x^{n+1} is infinitesimal and can be discarded. This gives the formula for the sum of an infinite geometric series. Easy, isn't it?

Note that this involves a different concept of infinity from that used in the West; no Western magic happens at infinity to result in metaphysical exactitude. All we do is continue the normal practice of accepting inexactitude and discarding small numbers, but at infinity we discard infinitesimals.

By decolonising calculus, we thus remove all major conceptual difficulties of university calculus, and enable students to solve harder practical problems.

Advanced Applications

The colonised mind is full of superstitious fears of some great calamity if the master is disobeyed. It is therefore important to reiterate that decolonised calculus also results in better science. Newton's misunderstanding of calculus led to the conceptual confusion about flowing time in his physics and related fluxions in his mathematics. This has been corrected recently, along with the theory of gravitation.

However, let us look at some simpler aspects of the mischief created by colonial calculus. The equations of physics are formulated as differential equations. The use of the colonial calculus, and formal 'real' numbers results in something strange: it forces time, in physics, to be like the 'real' line, simply to enable the equations to be written down. The strange thing is that no physics went into this conclusion which is derived purely from metaphysics. (The differential equations of physics are local and do *not* depend on the global topology of time.)

This 'conclusion' about superlinear time does great damage to original African (and Egyptian, and Indian) religious beliefs (Raju 2003) which, like the Platonic belief in the soul, are based on the concept of quasi-cyclic time. (Early Christianity had the same belief which was changed by the post-Nicene church to suit its politics against equity by pronouncing a curse on the notion

of quasi-cyclic time (Raju 2003)). Recall, also, that the first creationist conflict took place in mathematics not biology, when in the sixth century John Philoponus wrote *On the Eternity of the World: Against Proclus* (who had said time was 'cyclic'). Philoponus' argument was that this would be contrary to the doctrine of creation described in the scriptures. This interest in eternity and the doctrine of one-time creation (Raju 2015) is a strong but little-known reason why the West wants to persist with its bad understanding of calculus.

More recently, Hawking and Ellis (1973) claimed that science had proved the truth of creation (in the Judeo-Christian sense): the laws of physics must break down at the moment of creation. This conclusion is the bottom line of their book: 'The actual point of creation, the singularity, is outside the presently known laws of physics' (Hawking & Ellis 1973: 364).

In fact (Raju 2003), Hawking & Ellis introduced a postulate – their 'chronology condition'. There is no way to empirically verify that postulate about time. The postulate is pure metaphysics, as is their conclusion about creation. Very few knowledgeable people will understand that this postulate corresponds **exactly** to the metaphysics of the church's politically motivated curse on 'cyclic' time against early Christianity. Hawking and Ellis justified their postulate using exactly Augustine's bad arguments against quasi-cyclic time.

Note that a big bang is not necessarily a moment of creation, so a singularity is required to assert anything like a moment of creation. For laypersons who do not understand the creationist meaning of a singularity, Hawking (1988) explained a singularity thus:

> At the big bang and other singularities, all the laws [of physics] would have broken down, so God would still have had complete freedom to choose what happened and how the universe began (Hawking 1988).

These conclusions that a particular notion of god and creation were backed by science were made quite explicit by Tipler:

> Theology is a branch of physics, ... physicists can infer by calculation the existence of God and the likelihood of the resurrection of the dead to eternal life ... [T]he central claims of Judeo-Christian theology are in fact true, ... these claims are straightforward deductions of the laws of physics (Tipler 1995: ix).

Tipler emphasises that we must accept this as 'mainstream' physics, derived from singularity theory, on the authority of the reputed journal *Nature*, in which he has published several articles.

This is an example of how formal math enables all sorts of Western superstitions to be portrayed as 'top-level science'. We are asked to believe these superstitions on the authority of science and few understand the twisted political purposes they serve.

But how exactly does a singularity correspond to a 'moment of creation'? There are other Western superstitions here, for example, about the 'laws of physics'. This superstition was first articulated by Thomas Aquinas in his *Summa Theologica* that 'God rules the world with eternal laws of nature', and I have examined it elsewhere. This is what enables Hawking and Ellis to assign a cosmic significance to the supposed breakdown of the 'laws' of nature.

But how exactly do we know that there is any 'breakdown' of those 'laws'? All that Hawking and Ellis proved, even within inferior formal math, is that some geodesics intersect at a singularity. At best, this means that **smooth** solutions of the differential equations of general relativity cannot be extended beyond a singularity. But why should solutions be smooth? Non-smoothness arises in many common situations such as a shock wave (Raju 1982a; 1982b). It is only in university calculus (according to which a differentiable function must be continuous) that smoothness is required because the differential equations of physics do not make sense at a discontinuity.

Decades ago when I still taught formal math I used to teach this theorem (differentiability implies continuity) in a beginning course on what is called 'Real Analysis'. Curiously, at the same time, in a more advanced course on 'Advanced Functional Analysis' I taught the exact opposite: that most discontinuous functions may be differentiated infinitely often, using the definition of derivative according to what is called the Schwartz theory of distributions (Rudin 1973). (Fortunately, there were no students common to both courses!).

The point is that it is pretentious to claim that the 'laws' of physics break down at a singularity; they do not. Even within formal math one can make sense of the differential equations of physics using the Schwartz theory and something called non-standard analysis (Raju 1989). This is technical and beyond the reach of even most formal mathematicians, and also solves a related difficulty in quantum field theory (Raju 1983). But the only active feature of non-standard analysis required for this solution is non-Archimedean

arithmetic, already present within decolonised calculus. So the 'laws' of physics can be saved from a breakdown if we use normal math (Raju 2007). Thus, decolonising calculus also helps to understand and block the colonial trick of passing off politically convenient metaphysics ('creation') as science.

Advancing Decolonisation: Exposing Colonial Shenanigans

At a panel discussion (or rather debate) on decolonising mathematics and science at the University of Cape Town (UCT), I submitted an advance abstract[10] where I explicitly proposed to discuss these technical and political issues separately in the mathematics department at UCT. Ellis has long been in that department, and has received the million dollar Templeton award for mixing religion with science. He seemed reluctant to engage in open debate. It also appeared that the UCT math department lacks the technical skills in formal math required for such a debate.

What would the church do if it were asked to openly debate its belief in virgin birth on which its ethical system is founded? Obviously it would do what it has done through the ages: try to control the narrative by attacking the challenger as a 'heretic' and burn him. Ellis and his student Jeff Murugan did something similar, planting falsehoods about me in the press and effectively mobilising a racist lynch mob. Had there been the slightest grain of truth in what they said, they would have spared an hour to debate it with me, and *then* gone to the press – but they knew a debate would expose them and the tricks used to promote superstitions as science through formal math. They were afraid of the resulting unending laughter of a mass of the colonised.

The non-violent transition of power in South Africa means that a large number of racists and racist stooges continued seamlessly in positions of power and authority. They will resist decolonisation which challenges that continuing power. Therefore, they are back to the old colonial tricks of retaining power by telling lies. The colonised need always to remember that the first step in decolonisation is to distrust Western authority; not only Rhodes, but all colonial authority must fall. Those who flourished during apartheid were those who helped the coloniser, not the colonised. This is true even in subjects like mathematics and science, which are supposedly, politically neutral. An easy

[10] http://ckraju.net/papers/uct-panel-decolonising-science-ckr-summary.pdf.

way to challenge authority in this case is to be highly sceptical and question it relentlessly. Why does Ellis, who flourished under apartheid, demand that his authority be trusted? Can Murugan explain his blatant falsehood about 'Bantuization'? How can it be reconciled with the demonstrated ability of students to solve elliptic integrals with the decolonised calculus? Those trying to derail the decolonisation agenda with brazen falsehoods should not only not be trusted, but criminally prosecuted as cheats as they misuse their authority to mislead a large number of people whose future interests depend critically upon decolonisation.

References

Bhaskara, I. 1963. *Laghu-Bhaskariya.* Shukla, K.S. (ed. & trans.) Lucknow: Department of Mathematics and Astronomy, Lucknow University.

Birkhoff, G.D. 1932. A Set of Postulates for Plane Geometry, Based on Scale and Protractor. *Annals of Mathematics* 33:329 - 345. https://doi.org/10.2307/1968336

Brahmagupta 1966. Brahmagupta's *Brahmasphutasiddhanta.* Sharma, A.R.S. (ed. & trans.). Delhi: Indian Institute of Astronomy and Sanskrit Research.

Clagett, M. 1999. *Ancient Egyptian Mathematics.* Philadelphia: American Philosophical Society.

Colebrooke, H.T. 1817. *The Algebra of Brahmegupta and Bhascara.* London: John Murray.

Gillings, R.J. 1982. *Mathematics in the Time of the Pharaohs.* New York: Dover Press.

Hawking, S. 1988. *A Brief History of Time.* New York: Bantam.

Hawking, S. & G.F.R. Ellis 1973. *The Large Scale Structure of Spacetime.* Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511524646

Hilbert, D. 1950. *The Foundations of Geometry.* La Salle: The Open Court Publishing Co.

Kant, I. 1996. *Critique of Pure Reason.* Chicago: Encyclopedia Britannica.

Lalla (Sisyadhivrddhidatantra) 1981. *शिष्यधीवृद्धिद.* Chatterjee, B. (ed. & trans.). Delhi: Indian National Science Academy.

Moise, E.A. 1963. *Elementary Geometry from an Advanced Standpoint.* New York: Addison-Wesley.

Raju, A. 2012. A Simple Way to Solve the Brachistochrone Problem with Resistance. *Physics Education (India)* 28,3:1 – 6. Available at: http://physedu.in/uploads/publication/3/65/Archishman_Brachistochrone13July.pdf.
(Accessed on 13 July 2013.)

Raju, C.K. 2017. Mathematics and Censorship. Available at: https://kafila.online/2017/06/25/mathematics-and-censorship-c-k-raju/.
(Accessed on 25 June 2017.)

Raju, C.K. 2016a. Calculus. In *Encyclopedia of Non-Western Science, Technology and Medicine*. Dordrecht: Springer. Available at: http://ckraju.net/papers/Springer/ckr-Springer-encyclopedia-calculus-1-final.pdf. (Accessed on 12 October 2018.)
DOI: https://doi.org/10.1007/978-94-007-3934-5_9555-2

Raju, C.K. 2016b. Calculus Transmission. In *Encyclopedia of Non-Western Science, Technology and Medicine*. Dordrecht: Springer. Available at: http://ckraju.net/papers/Springer/ckr-Springer-encyclopedia-calculus-2-final.pdf
(Accessed on 12 October 2018.)
DOI: https://doi.org/10.1007/978-94-007-3934-5_10326-1

Raju, C.K. 2016c. Zeroism. In *Encyclopedia of Non-Western Science, Technology and Medicine*. Dordrecht: Springer. Available at: http://ckraju.net/papers/Springer/zeroism-springer-f.pdf.
(Accessed on 12 October 2018.)
DOI: https://doi.org/10.1007/978-94-007-3934-5_10248-1

Raju, C.K. 2015. Eternity and Infinity: The Western Misunderstanding of Indian Mathematics and its Consequences for Science Today. *American Philosophical Association Newsletter on Asian and Asian American Philosophers and Philosophies* 14,2:27 - 33. Available at: http://ckraju.net/papers/Eternity-and-infinity-Pages-from-APA.pdf.
(Accessed on 03 March 2016.)

Raju, C.K. 2011a. Probability in Ancient India. In Dov, M., P.T. Gabbay & J. Woods (eds.): *Handbook of the Philosophy of Science*. Amsterdam: Elsevier. Available at: http://www.ckraju.net/papers/Probability-in-Ancient-India.pdf. (Accessed on 13 February 2012.)
https://doi.org/10.1016/B978-0-444-51862-0.50037-X

Raju, C.K. 2011b. Teaching Mathematics with a Different Philosophy, 1: Formal Mathematics as Biased Metaphysics. *Science and Culture* 77:275

- 280. Available at: http://www.scienceandculture-isna.org/July-aug-2011/03%20C%20K%20Raju.pdf. (Accessed on 13 February 2012.)

Raju, C.K. 2011c. Teaching Mathematics with a Different Philosophy, 2: Calculus without Limits. *Science and Culture* 77:281 - 286. Available at: http://www.scienceandcultureisna.org/July-aug-2011/04%20C%20K%20Raju2.pdf. (Accessed on 13 February 2012.)

Raju, C.K. 2009a. Towards Equity in Math Education 2. The Indian Rope Trick. *Bharatiya Samajik Chintan (New Series)* 7,4:265 - 269. Available at: http://ckraju.net/papers/MathEducation2RopeTrick.pdf. (Accessed on 07 July 2010.)

Raju, C.K. 2009b. *Calculus without Limits: Report of an Experiment. Paper Presented at The 2nd People's Education Congress.* Mumbai: Homi Bhabha Centre, TIFR 5 - 8 October 2009. Available at: http://ckraju.net/papers/calculus-without-limits-paper-2pce.pdf. (Accessed on 12 October 2018.)

Raju, C.K. 2008. Logic. In *Encyclopedia of Non-Western Science, Technology and Medicine.* Dordrecht: Springer. Available at: http://ckraju.net/papers/Nonwestern-logic.pdf. (Accessed on 12 October 2018.) https://doi.org/10.1007/978-1-4020-4425-0_8706

Raju, C.K. 2007. *Cultural Foundations of Mathematics: The Nature of Mathematical Proof and the Transmission of Calculus from India to Europe in the 16th C. CE.* New Delhi: Pearson Longman.

Raju, C.K. 2006a. The Religious Roots of Mathematics. *Theory, Culture & Society* 23:95 - 97. https://doi.org/10.1177/0263276406023002147

Raju, C.K. 2006b. Time: What is It that It can be Measured? *Science & Education* 15,6:537 - 551. https://doi.org/10.1007/s11191-005-5287-z

Raju, C.K. 2003. *The Eleven Pictures of Time: The Physics, Philosophy, and Politics of Time Beliefs.* New Delhi: Sage. https://doi.org/10.4135/9788132102854

Raju, C.K. 2001. Computers, Mathematics Education, and the Alternative Epistemology of the Calculus in the Yuktibhāṣā. *Philosophy East and West* 51,3:325 - 362. https://doi.org/10.1353/pew.2001.0045

Raju, C.K. 1994. *Time: Towards a Consistent Theory.* Dordrecht: Springer. https://doi.org/10.1007/978-94-015-8376-3

Raju, C.K. 1989. Distributional Matter Tensors in Relativity. In Blair, D., M.J. Buckingham & R. Ruffini (eds.): *Proceedings of the Fifth Marcel Grossman Meeting on General Relativity*. Singapore: World Scientific arXiv: 0804.1998. Available at: https://arxiv.org/abs/0804.1998

Raju, C.K. 1983. On the Square of x^{-n}. *Journal of Physics A: Mathematical and General* 16:3739 - 3753. https://doi.org/10.1088/0305-4470/16/16/013

Raju, C.K. 1982a. Junction Conditions in General Relativity. *Journal of Physics A: Mathematical and General* 15:1785 - 1797. https://doi.org/10.1088/0305-4470/15/6/017

Raju, C.K. 1982b. Products and Compositions with the Dirac Delta Function. *Journal of Physics A: Mathematical and General* 15:381–396. https://doi.org/10.1088/0305-4470/15/2/011

Raju, S. 1999. Pendulum Project. Available at: http://ckraju.net/11picsoftime/pendulum.pdf. (Accessed on 12 October 2018.)

Rhodes Must Fall Movement Oxford 2018. *Rhodes Must Fall: The Struggle to Decolonise the Racist Heart of Empire*. London: Zed Books.

Rudin, W. 1973. *Functional Analysis.* New Delhi: Tata McGraw Hill.

Russell, B. 1897. *An Essay on the Foundations of Geometry.* Cambridge: Cambridge University Press.

Russell, B. 1917. *Mysticism, Logic, and Other Essays*. London: George Allen and Unwin. https://doi.org/10.5962/bhl.title.19117

Sen, S.N. & A.K. Bag 1983. *The Sulbasutras of Baudhayana, Apastamba, Katyayana and, Manava*. New Delhi, India: Indian National Science Academy.

School Mathematics Study Group 1961. *Geometry.* New Haven: Yale University Press.

Stewart, J. 2007. *Calculus: Early Transcendentals.* Delhi: Thomson Books.

Suri, H. 2000. *षटदर्शन समुच्चय.* Jain, M. (ed. & trans.) New Delhi: Bharatiya Jnanapeeth.

Taylor, H.M. 1893. *Euclid's Elements of Geometry.* Cambridge: Cambridge University Press.

Thomas, G.B., M.D. Weir & F.R. Giordano 2008. *Thomas' Calculus.* New Delhi: Dorling Kindersley.

Tipler, F.J. 1995. *The Physics of Immortality, Modern Cosmology, God and the Resurrection of the Dead*. London: Macmillan.
Whitehead, A.N. & B. Russell 1963. *Principia Mathematica*, *Volume 1*. Cambridge: Cambridge University Press.

C.K. Raju
Indian Institute of Education
Mumbai University, Kalina Campus
Mumbai
ckr@ckraju.net

Tutorial-1
Calculus without Limits

1. (a) Define an angle
   (b) Convert 32°into radians.
   (c) Convert 0.78 radians to degrees.

2. (a) Solve the ODE $y' = y$ with $y(0) = 1$.
   (b) Hence, calculate the value of e.
   (c) Define the exponential function e^x.

3. (a) Convert the second order ODE $y'' = -y$ to two first order ODEs.
   (b) Solve the system of two simultaneous ODEs with the initial data $y(0) = 0$, $y'(0) = 1$.
   (c) Calculate π correct to 4 decimal places.

4. (a) Define the function $\cos(x)$.
   (b) Calculate $\cos(42°)$.

5. (a) The equation for damped harmonic motion is often written as

$$\ddot{y} = -k^2 y - b\dot{y}$$

   . Convert this to a system of 2 ODEs, and solve with the initial data $y(0) = 0$, and $k = 1$, and $b = 0.1$.
   (b) How does the solution change if we use the initial data $y(0) = 1$?
   (c) Re calculate the solution for $b = 0.2$, $b = 0.3$. Can you guess the solution for a general b?

6. The equation of motion for a simple pendulum is

$$y'^2 = (1 - y^2)(1 - k^2 y^2). \tag{1}$$

   The substitutions

$$y = \mathrm{sn}(x) = y_1 \tag{2}$$
$$1 - y^2 = \mathrm{cn}^2(x) = y_2^2 \tag{3}$$
$$1 - k^2 y^2 = \mathrm{dn}^2(x) = y_3^2. \tag{4}$$

converts this to 3 equations in Jacobi's form

$$y_1' = y_2 y_3, \tag{5}$$
$$y_2' = -y_3 y_1, \tag{6}$$
$$y_3' = -k^2 y_1 y_2, \tag{7}$$

Solve the above equations with the initial data $y_1(0) = 0$, $y_2(0) = 1$, $y_3(0) = 1$, and parameter k=0.4.
(b) Compare the Jacobian elliptic function $\mathrm{sn}(x)$ with $\sin(x)$.
(c) The time period of the simple pendulum is the first zero of $\mathrm{sn}(x)$. Calculate it.

7. (a) Van der Pol's equation is

$$y'' + \epsilon(y^2 - 1)y' + y = 0, \tag{8}$$

Convert this equation to two first order ODEs.
(b) Solve the resulting ODEs for $y(0) = 2$, and $y'(0) = 0$, and parameter value $\epsilon = 1$

8. (a) Solve the system of equations for the Lorenz model

$$y_1' = -\sigma y_1 + \sigma y_2, \tag{9}$$
$$y_2' = -y_1 y_3 + r y_1 - y_2, \tag{10}$$
$$y_3' = y_1 y_2 - b y_3. \tag{11}$$

for the parameters $b = \frac{8}{3}$, $\sigma = 10$, $r = 28$, and initial data $y_1 = 8$, $y_2 = -8$, $y_3 = 27$, over the range $[\ 2, 2|$.
(b) Draw the resulting phase plots.
(c) Switch to 3 d view, and animate.

9. A ball is thrown upwards at an angle θ from a height of 10 meters. Assuming a simple model of air resistance proportional to velocity, and assuming its coordinates at any instant are (y_1, y_2), the equations of motion are given by

$$y_1' = y_3, \tag{12}$$
$$y_2' = y_4, \tag{13}$$
$$y_3' = -\frac{b}{m} y_3, \tag{14}$$
$$y_4' = -g - \frac{b}{m} y4. \tag{15}$$

where b is the drag coefficient and m is the mass of the ball.
(a) The mass of a cricket ball is 155.9 gram and the mass of a tennis ball is 58.5 gram. Assume $b = 0.01$. Both balls are thrown with the same velocity 10 m/s, at an angle of 45°. Which ball will travel further? By how much?
(b) If the angle of throw is changed to 44° (for either ball) will it travel a larger or a smaller distance?

An Analysis of the Higher Education Qualifications Sub-Framework: Towards Decoloniality in South African Higher Education

Raazia Moosa

Abstract

As a national policy imperative, transformation has dominated efforts towards change in higher education in South Africa in the post-1997 period. Twenty years later, students are echoing continuous calls for transformation by the government and scholars, with renewed attention to student fees and decolonisation of the curriculum. Recent violent national protests necessitate interventions at the national higher education policy level as well as at an institutional level. However, the relationship between quality assurance policies and decolonisation priorities has not been considered. The Higher Education Qualifications Sub-Framework (HEQSF) is proposed as a guide to inform curriculum development and programme accreditation. This qualitative study explored how the HEQSF could contribute to calls to decolonise the curriculum. As a national government directive, transformation was interpreted and implemented differently in the various higher education institutions. Due to a lack of adequate debate on how decoloniality should be implemented nationally, transformation and decoloniality will continue to co-exist as discourses in higher education until this is resolved. The analysis of the HEQSF indicates the possibilities and limitations of both the HEQSF and decoloniality to contribute to calls to decolonise the curriculum. The HEQSF was designed in line with a neo-liberal world view which militates against shifts towards embracing different ways of thinking and 'de-linking' from traditional perspectives. Re-examining the very notion of a qualifications framework and proposing relevant alternatives to facilitate the decolonisation of the

Print ISSN 1023-1757; Electronic ISSN: 2519-5476; DOI https://doi.org/10.29086/2519-5476/2018/v25n2a3

curriculum, is required. Since no alternative exists to replace the HEQSF, the possibility for change based on prescriptions in a decolonial context are questionable. The article concludes with possibilities and challenges for moving towards decoloniality in the South African higher education system.

Keywords: Decolonisation, decoloniality, Africanisation, curriculum, transformation, Higher Education Qualifications Sub-framework, policy analysis, higher education, South Africa

Introduction

Transformation has been on the higher education (HE) policy agenda since the late 1990s when it was foregrounded in the Education White Paper 3: A Programme for the Transformation of Higher Education (DoE 1997). Twenty years later, students are echoing continuous calls for transformation by the government and scholars, with renewed attention to student fees and decolonisation of the curriculum. Recent violent national protests necessitate interventions at a national HE policy level as well as at institutional level. South Africa underwent double colonisation, first under the Dutch until the 1800s and then under the British until 1910. Remnants of coloniality persisted in the apartheid regime from 1948 and into the subsequent democratic society from 1994 onwards. Equity and quality were identified as the guiding principles to transform the country's segregated, fragmented and inequitable HE system (DoE 1997). Public HE institutions are funded by the South African government and as such, it has an interest in ensuring standards and combining policy imperatives such as quality and equity in public policies. According to Cloete *et al*. (2004), the post-1994 period was informed by transformation. However, at policy level, the relationship between quality assurance policies and decolonisation priorities has not been considered. Previous studies on decolonising the curriculum, which are relevant to this study (Leibowitz 2017; Le Grange 2016; Luckett 2016) focused on dehegomonising colonial knowledge which harmed both the colonisers and the colonised (Leibowitz 2017). Studies have also examined what a decolonisation project would entail (Le Grange 2016) and the cultural and structural constraints of knowledge practices in the curriculum (Luckett 2016).

In consultation with the Council on Higher Education, the South African Qualifications Authority, professional bodies and representatives from

industry, the Department of Higher Education promulgated the Higher Education Qualifications Framework (HEQF) in October 2007 (DoE 2007). The purpose was to establish a single qualifications framework for HE and to facilitate the development of a single national co-ordinated HE system, as envisaged in the Education White Paper 3 (DoE 1997). In 2013, three sub-frameworks for qualifications were promulgated, the General and Further Education and Training Sub-framework, the Higher Education Qualifications Sub-Framework (HEQSF) and the sub-framework for Trades and Occupations (DHET 2013). The HEQF was revised in 2013 as a sub-framework, in order to address gaps and to include new qualification types.

Recent student protest focused on decolonising curricula in HE, which provides a rationale for analysing the HEQSF as a HE framework, rather than the other two sub-frameworks. This article thus explores how a national quality assurance sub-framework, namely the HEQSF, could assist with calls to decolonise the HE curriculum. It argues that there are possibilities and limitations of both the HEQSF and decoloniality to contribute to calls to decolonise the curriculum. Transformation and curricula are viewed through the lens of equity and quality imperatives in order to problematise the need for decoloniality as a separate process. Decoloniality of power, being and knowledge are then explored. This is followed by an outline of the analytic strategy that guides the analysis of the political, socio-cultural and historical contexts, as well as the orders of discourse in the formulation of the HEQSF. The final section analyses the HEQSF and discusses decoloniality within this context. The article concludes with possibilities for moving towards decoloniality in the South African HE system.

Transformation

Transformation has dominated efforts towards change in HE in South Africa in the post-1997 period. Examples of structural changes in HE include the establishment of a single national system, merging of institutions, the establishment of new universities in the Northern Cape and Mpumalanga, quality assurance processes, enrolment planning and growth in black student enrolment (CHE 2016a). In South Africa, the term transformation has been used to refer to promoting efficiency at the systemic level as well as racial transformation (Francis & Hemson 2010). As such, it is an on-going social

process aimed at reconstructing and developing universities to achieve a democratic society (Universities South Africa (USA) 2015). Transformation thus focuses on social and individual transformation which is informed by quality in HE (CHE 2004a). Transformation policies such as the White Paper 3 (DoE 1997) aimed to achieve equity, focusing on growth and redress. Cloete (2004) argues that the pillars of transformation include democracy, equity, responsiveness and efficiency. However, this is not sufficiently nuanced to cover knowledge and curricula choices. In this article, transformation is regarded as, 'the active removal of any institutional, social, material and intellectual barriers in the way of creating a more equal, inclusive and socially just higher education system' (USA 2015: 2). Viewed as such, recent student protests illustrate that HE transformation has not altered students' lived experiences. Contestations remain with regard to elitism and the 'whiteness' of institutions which marginalise black students (Heleta 2016: 1), power relations, inclusion, recognition, identity and a sense of being in HE institutions. This could be attributed to the modernist neo-liberal paradigm which informed transformation. The process of decoloniality needs to inform how we create a socially just, equitable and inclusive HE system (USA 2015). It also needs to directly address what knowledge and what and who are privileged to facilitate change at the institutional and national level. Using decoloniality as a lens to re-assess current calls for change provides a more inclusive means to inform change in HE. Equity, quality and decoloniality are thus regarded as integral policy imperatives to spearhead change in this sector.

Equity and Quality Assurance

Major policy threads in HE include equity and quality assurance (Martin 2010a). Equity has been on the national policy agenda in countries such as the United States, United Kingdom, Australia, Mexico, Brazil, India and New Zealand (Martin 2010a). South Africa is no exception (DHET 2013; DoE 1997) but it has included access as an aspect of transformation in HE (Machingambi 2011). Equity of access and equity of outcomes are important to address the revolving door syndrome in which almost half the cohort of contact students in HE, does not graduate within five years (CHE 2013). A tension thus exists in achieving equity of access and retention, quality and learning outcomes. While access is important, attention should be devoted to

epistemological access (Morrow 2007), access to knowledge, in order for students to succeed. Epistemological access would enable students to access the kinds of knowledge afforded by HE institutions. However, interrogating whose epistemology informs curricula is integral to achieving equity. To date, admissions policies, assessments and institutional cultures have alienated and excluded the majority of students by not being inclusive and cognisant of students' needs, identity formation, hierarchies and power relations within institutions. Revising the curriculum is an integral part of transformation. However, it has largely been de-contextualised and is socially indifferent to students' experiences; this has contributed to the low levels of student success (Cooper & Subotsky 2001). To date, those responsible for transformation in institutions have not interrogated who defines admission policies and how admission requirements, assessment and progression rules impact on equity. Different modes of assessment in curricula could foster inclusion and success for the majority of students. Who the university and the curriculum are designed for and how equity is incorporated into curricula in terms of whose knowledge is taught, needs to be revisited at national level.

The South African government has an interest in ensuring standards and combining transformation imperatives such as quality and equity in HE policies. As such, it considers equity imperatives parallel to the quality of the educational experience (DoE 1997). Quality is thus envisaged as one of the mechanisms to lead the HE sector to transformation (Moosa & Murray 2016). Ristoff (2010) argues that quality and equity are often viewed as antagonistic concepts since a tension exists between reducing inequality and promoting social inclusion. In contrast, Martin (2010a) asserts that quality and equity could reinforce each other as well as coexist in a HE policy. In order to contribute to real change, equity and quality should be framed at policy level in a manner that builds on past achievements, is inclusive and takes account of national imperatives as well as international trends.

National qualification frameworks have become an international phenomenon (Fernie & Pilcher 2009) and frameworks for quality assurance such as HE frameworks have emerged to assure quality as well as meet transformation imperatives. The assumption is that quality assurance policies imbue international confidence and are mechanisms to address equity imperatives in HE (Martin 2010b). Accreditation is used to ensure quality and meet industry standards set by professional bodies and quality councils as well as to facilitate and increase international student mobility (Haakstad 2001).

Murray (2009) argues that accreditation assures the public of graduates' competence. Martin (2010a) notes that where equity is a national concern, countries have developed quality assurance policies that address this issue as well as quality concerns. Examples of HE qualification frameworks can be found in South Africa, the UK, Belgium (CHE 2004b; QAA 2014; Higher Education Qualifications Framework in Flanders 2008) and more recently on the African continent. Lange and Singh (2010) argue that the relationship between equity and quality is a challenging one that is not understood by all stakeholders. As such, the relationship between transformation policies and national equity, quality and recent decolonial priorities, needs to be considered. The following section discusses decolonisation and decoloniality.

Decolonisation

Inequality in society has been approached from various perspectives. Some studies have focused on the reasons for social segregation as well as the dominance of certain groups (Leibowitz 2017; Martin 2010a). Martin (2010a) argues that inequalities in Brazil, India, South Africa and Australia stem from colonisation. Similar to most societies in which inequality has achieved policy recognition, South Africa's history is an important point of departure (Martin 2010b). The shift from being a colony to apartheid and the subsequent democratisation of South Africa continues to warrant policy attention as we strive for social inclusion in HE. Mbembe contends that we need to decolonise 'to undo the racist legacies of the past' (2016b: 32). This began with the first process of Afrikaner decolonisation through the establishment of the Union of South Africa in 1910, which was followed by the second process of undoing the segregated and racist apartheid legacy in the post-1994 period. This provides the context for decolonisation in the South African context.

Decolonisation has its origins in colonisation, since resistance began at the point when colonisation took place. Decolonisation is not a new uncontested call; it has been mooted in former colonies in Africa, Latin America and Australia and America. Decolonisation in America is depicted in the US War of Independence in the 1770s, which ended European control of South and North America (Rickard 2003). It is a complex and multifaceted process and must be approached as such. The literature on decolonisation has presented concepts such as decolonisation, decoloniality and Africanisation within the decolonisation debate. Ndlovu-Gatsheni (2013) regards decoloni-

sation as a historical process, which relates to the withdrawal of colonial powers from the colonies. It could thus be understood as a political process geared towards independence **(**Maldonaldo-Torres 2007). However, it does not end once independence is achieved. Colonial structures and cultures persist and the system that perpetuates epistemic, material and aesthetic resources is termed coloniality (Ndlovu-Gatsheni 2013).

Scholarship from the Latin-American region (Grosfoguel 2011; Maldonaldo-Torres 2007; Quijano 2000) provides insights into coloniality and decoloniality through concepts such as power, being and knowledge. Dastile and Ndlovu-Gatsheni argue that the 'decolonial epistemic perspective builds on decolonization discourse but adds the concepts of power, being and knowledge as constitutive of modernity/coloniality' (2013: 109). Latin American scholars such as Quijano (2000) and African researchers such as Ndlovu-Gatsheni (2013), argue that coloniality of power can be understood through binary asymmetrical power structures which are characterised by unequal power relations between developed and developing nations. Coloniality of being relates to integrity of being (Ndlovu-Gatsheni 2013). Ndlovu-Gatsheni (2013) views epistemicides of resources during colonialism and the notion of the 'discovery' of non-Euro-American countries, as a representation of coloniality of being. Maldonaldo-Torres (2007) describes coloniality of being as the disintegration and dehumanisation of being and states that coloniality of being is the effect of coloniality on lived experiences that outlive colonialism in socio-historical contexts. Maldonaldo-Torres (2007) adds that as a practice and a discourse, modernity cannot exist without coloniality and that the outcome of modern discourse is coloniality. It is thus essential for decolonisation to address gender, sexual and racial hierarchies in order to oppose coloniality of knowledge, power and of being (Maldonaldo-Torres 2007). Coloniality of knowledge privileges and legitimises hegemonic forms of thinking and knowledge and is perpetuated through the modern Westernised university (Grosfoguel 2011). By extension, national policies and frameworks which inform practices in HE institutions perpetuate the status quo which is informed by modernism.

Le Grange (2016) argues that decolonisation is a complex process and that in order to decolonise the curriculum, we need to rethink how we currently understand the term curriculum. The notion of curriculum-as-plan and curriculum-as-lived experiences by teachers and students (Lovet & Smith 1995) should be interrogated. While the content must be rethought, Le Grange

(2016) argues that lived experiences should inform the process of decolonising the curriculum. We need to question how knowledge is a carrier of colonialism. Le Grange (2016) and Garuba (2015) thus advocate for current dominant conceptions of curriculum to be rethought. The process of curriculum development is therefore integral to decolonising the curriculum. However, curriculum development is politically laden; for example, Hlebowitsh (2010) argues that through its conception, curriculum development could exclude individuals based on race, class and gender. Hlebowitsh (2010) also notes that curriculum development is an imperialist concept. Sensitivity to the political context in which it takes place is essential. At the Africa Centre for Scholarship and African University Day celebrations on 24 November 2017 at Stellenbosch University, Jonathan Jansen argued that the concern with curriculum in South Africa has been a 'corrective orientation' to knowledge which focuses on the past as opposed to a 'prospective orientation' that privileges knowledge of the future (Makoni 2017). Jansen stated that the decolonisation movement will not have an effect on curricula because the rules that frame what counts as knowledge remain unchanged and that decolonisation provides the 'wrong response to a real problem' (Makoni 2017). Rather than being passive, those committed to transforming the curriculum should continue to propose changes to institutions and curricula within the context of decolonisation.

Calls for decolonising the curriculum thus involve transforming what is taught and how it is taught. This ontological pluralism requires ecologies of knowledge and Mbembe advocates for a 'new understanding of ontology, epistemology, ethics and politics' (2016b: 42). Using inclusive approaches and taking the student's lived experiences as the starting point, the challenges confronting curriculum development are how ecologies of knowledge are incorporated into disciplines and the power relations between them. These require time to implement. During the 2015 and 2016 protests, students demanded the decolonisation of the curriculum. Calls to transform epistemic spaces at universities have thus been mooted. Consequently, curriculum structures need to be cognisant of contextual realities, which serve as barriers to knowledge systems. The process of curriculum development ensures that lecturers design the curricula, and thus select the content, then lecture and ultimately assess courses (Mbembe 2016b). The organisational structure of the university thus needs to be decolonised in as far as it serves as a structure that sets up assessment systems to assess student performance (Mbembe 2016b). Mbembe (2016a) argues that, through 'epistemic coloniality', thinking is

subject to the colonial order and colonial perceptions of knowledge are allowed to persist and achieve hegemony over other forms of knowledge production. Ndlovu-Gatsheni describes this as 'epistemicides' (2013: 11), which refers to the killing of knowledge practices other than hegemonic epistemologies. Mbembe (2016b) thus advocates that the pursuit of credits needs to be decolonised and that pluriversity of knowledge should replace the current Eurocentric model. This is challenging as there are currently no alternatives to credits as a currency to achieve qualifications.

The pedagogy within the decolonising process needs to be rethought in order to support changes to curricula. There is a need to decolonise both knowledge and systems of knowing (Nakata 2002). Drawing on the Australian experience, Nakata, Nakata, Keech and Bolt (2012) note that decolonising pedagogies have become a means of promoting socially just curricula in that country. Indigenous perspectives, knowledge and content have been inserted in course content at some Australian universities (Nakata *et al*. 2012). Although attempts have been made to decolonise Western pedagogy through indigenous studies, the distinction between what is indigenous and what is colonial and what serves as indigenous knowledge practices is complex and remains unclear (Nakata *et al*. 2012). Pedagogic changes are required to transform the way teaching happens in the classroom. Mbembe (2016a) argues that classrooms in South African HE institutions are characterised by outdated forms of knowledge and pedagogies, which are no longer appropriate, calling for alternative relationships between students and teachers. Odora Hoppers (2001) focuses on the incorporation of indigenous knowledge systems in the curriculum and argues that diverse cosmologies of knowledge should inform policy formulation. In contrast, Horsthemke (2009) asserts that a focus on African indigenous knowledge systems lacks the plausibility to drive the transformation process in South Africa. As such, efforts to including indigenous knowledge in the curriculum remain on the fringes of mainstream curriculum development and pedagogy. The process of decoloniality has thus not been realised.

Decoloniality

Decoloniality has sometimes been used interchangeably with Africanisation to describe the process of transformation that is required in Africa. Africanisation promotes a vision of South African Universities as 'being in Africa and of

Africa' (Manganyi 1981: 160). Local knowledge should thus be the starting point for knowledge-building in all contexts. According to Manganyi (1981), the global context is an integral component of Africanisation. A transformative process is assumed in both Africanisation and decoloniality since they seek to locate Africa at the centre of its understanding of itself and the curriculum (Ngũgĩ wa Thiong'o 2004). It is also recognised that there is a need to break with the current hegemonic epistemic tradition at our institutions of higher learning. Decoloniality and Africanisation in the African context become the focus of the transformative process to militate against the structures of coloniality such as the university and its processes, traditions and organisational structures. As an exercise in modernism, in the 1960s the South African apartheid government set out to divide universities along racial and language lines in order to distinguish between Afrikaans and English medium universities. Decoloniality could be used to address shifts in epistemology and mindsets. Ndlovu-Gatsheni (2013) argues that it involves moving from the West as the epistemic locale to ex-colonised epistemic sites to describe the world. As such, he defines decoloniality as 'a pluriversal epistemology of the future – a redemptive and liberatory epistemology that seeks to de-link from the tyranny of abstract universals' (Ndlovu-Gatsheni 2013: 13). According to Ndlovu-Gatsheni (2013), decoloniality could allow us to firstly, convey the history of humanity and knowledge using epistemic sites that were previously misrecognised or unrecognised. Secondly, it would highlight the generation of knowledge as 'borrowings, appropriations, epistemicides, and denials of humanity of the other people as part of the story of science' (Ndlovu-Gatsheni 2013: 15). Similarly, Mbembe (2016a) calls for a shift from the current 'epistemic coloniality', which is based on a Eurocentric model, to theorising alternatives. The north-south divide in the production of knowledge highlights the reality which perpetuates the hegemonic Eurocentric Western epistemic model, since no knowledge currently exists to replace Western knowledge. Jansen stated that African and Western knowledge need to co-exist due to the deficit in knowledge production from the South (Makoni 2017). Alternatives will thus take time and need to be crafted in a context which acknowledges this reality.

A shift from the traditional to alternatives can be understood through the concept of 'de-linking' (Mignolo 2000). 'De-linking' (Mignolo 2000) from the past within the context of decoloniality allows contestation to take place and provides a place of 'doing' where traditional content can be contested.

Economic and social disadvantage as well as deficit perspectives which informed policy and curricula can be disrupted in the place of 'doing'. Unequal power relations within universities and between universities and national policy formulators are possible in such places. The marginalised are able to exercise agency and propose alternatives to their lived experiences. Silences and traditional uncontested ways of viewing the world can thus be exposed and challenged. However, there is lack of understanding of the structures and traditions of the university coupled with government financial models and the categorisation of materials through categorising education subject matter (CESM), which dictate funding. Curricula cannot be changed without addressing the form (university) in which the content (curriculum) resides.

The global internationalisation agenda is set by a Western conception of this phenomenon and has largely focused on programmes involving the movement of staff and students from the South to the North. A new hegemony through Africanisation of the curriculum will not suffice; space is also required for curricula interplay between different and diverse knowledge systems with different cultural viewpoints and international and local case studies (Leask & de Wit 2016). According to Horsthemke (2009), the construct of 'African knowledge' is a contradiction that invites more problems than it solves. Nevertheless, institutions have grappled with the complexities of implementing internationalisation of the curriculum in various fields such as the Arts, Humanities and Social Sciences. Tensions between Africanisation (with its local, regional and African focus) and internationalisation (with its outward, global and Western focus), need to be interrogated in debates on decoloniality, in order to give effect to policy changes. Internationalisation and Africanisation are integral to curriculum reform and create space for epistemic diversity as they become subsumed in the process of curriculum development. Jansen emphasised that during the student protests, a call was made for a focus on African identity and not hierarchies of power, since some students reflected that 'they studied curricula full of white men while their own scholars were being undermined' (Makoni 2017). Tensions between Africanisation and internationalisation need to be debated in disciplines. In theory, decoloniality would have us believe that this could be easily achieved. However, there are limitations to how it could be implemented such as resistance to change in institutions and disciplines. Power relations between diverse epistemes are also not easily resolved. Gatekeepers may function to entrench institutional cultures and maintain the status quo and may include 'those who worked hard to

maintain Apartheid and white domination' (Heleta 2016: 6). The analytic strategy that informs the analysis of the HEQSF is presented in the following section.

Analytic Strategy

It is prudent to begin with a definition of how policy is viewed in this article. Guba (1984) argues that prior to any analysis, the analyst should explicitly state the definition of policy that is adopted in order to be ethical. He considers various definitions of policy. Those that are relevant to this analysis view policy as policy-in-intentions. These include 'policy is an assertion of intents or goals' and 'policy is a strategy undertaken to solve or ameliorate a problem' (Guba 1984: 64). Fischer and Miller (2007) argue that policy analysis emerged to elucidate the policy making process and to provide decision makers with knowledge to solve economic and social problems. The legislative process involving the formulation of the HEQSF was undertaken in a similar manner to a policy. As a system of principles and intentions to guide decisions and actions towards achieving accreditation of qualifications, the HEQSF, as a legislative sub-framework, is analysed in a similar manner to a policy.

The policy process has been conceptualised in the form of a policy cycle. Pülzl and Treib (2007) argue that this cycle provides a conceptual framework in policy research. The chronology of the policy process involves agenda setting, formulation and decision-making, implementation and evaluation and finally, termination or reformulation (Jann & Wegrich 2007; Muller, Maasen & Cloete 2004). I have chosen to analyse the design of the HEQSF rather than its implementation and my focus is on the policy formulation and decision-making stage in the policy cycle.

The design of this study is based on a qualitative methodological approach to analyse text. The epistemological view adopted is framed by a social constructivist lens, in which I use an interpretivist approach. This qualitative research design involves a case study of the HEQSF, which is the qualification sub-framework for HE in South Africa. The other two frameworks are devoted to General and Further Education and Training and Trades and Occupations. The central research question explored is: to what extent, if any, could the HEQSF reflect a framework for decolonising the curriculum in the South African HE system?

In order to guide policy analysis, post-structuralist and social-constructionist theories have focused on knowledge production and the nature of knowledge. Bacci (2009) formulated an analytic framework to analyse 'policy as discourse' with a focus on understanding a policy by connecting power relations with language where political and social struggles are shaped by the socio-historical context. The What's the Problem Represented to be? (WPR) framework (Bacci 2009) serves as an approach to analyse the discursive aspects of a policy with a focus on 'how problems are represented in the policy and how policy subjects are constituted through problem representation' (Goodwin 2011: 161). This framework offers an alternative way of approaching both policy and practice. The WPR serves as an analytical tool to guide the analysis process and is similar to the discourse analysis frameworks proposed by Fairclough and Parker (Goodwin 2011). Written, nonverbal and verbal text can be interpreted and studied and the timeframe for analysis is both the distant and recent past. Epistemologically, this approach aims to produce representations of the truth to de-familiarise a policy (Goodwin 2011). The WPR framework proposes six questions with associated goals and strategies to analyse how problems are represented in policy discourse (Bacci 2009). The six steps include the following questions:

1. What is the problem represented to be?
2. What presuppositions or assumptions underlie this representation of the problem?
3. How has this representation of the problem come about?
4. What is left unproblematic in the problem representation? Where are the silences? Can the 'problem' be thought about differently?
5. What effects are produced by this representation of the problem?
6. How/where is this representation of the problem produced, disseminated and defended? How could it be questioned, disputed and disrupted? (Goodwin 2011: 173; Bacci 2009).

Goodwin's (2011: 173) summary of the WPR framework is presented in the table below.

Table 1: A summary of the WPR analytic framework

Question	Goal	Strategy
1. What's the problem represented to be?	To identify the implied problem representation.	Identification of the problem as it is expressed in the policy.
2. What presuppositions or assumptions underlie this representation of the problem?	To ascertain the conceptual premises or logics that underpin specific problem representations.	Foucauldian archaeology involving discourse analysis techniques such as identifying binaries, key concepts and key categories.
3. How has this representation of the problem come about? Aims	To highlight the conditions that allow a particular problem representation to take shape and assume dominance.	Foucauldian genealogical analysis involving tracing the 'history' of a current problem representation to identify the power relations involved in the prevailing problem representation.
4. What is left unproblematic in the problem representation? Where are the silences? Can the 'problem' be thought about differently?	To raise for reflection and consideration issues and perspectives that are silenced in identified problem representations.	Genealogical analysis and cross-cultural, historical and cross-national comparisons in order to provide examples of alternative representations.

5. What effects are produced by this representation of the problem?	To ascertain discursive effects, subjectification effects, and lived effects.	Discourse analysis techniques including identification of subject positions, dividing practices where subjects are produced in opposition to one another and the production of subjects regarded as 'responsible' for problems. Impact analysis; considerations of the material impact of problem representation on people's lives becomes a strategy to ascertain discursive effects, subjectification effects and lived effects.
6. How/where is this representation of the problem produced, disseminated and defended/ how could it be questioned, disputed and disrupted?	To pay attention to both the means through which some problem representations become dominant, and to the possibility of challenging problem representations that are judged to be harmful.	Identification of institutions, individuals and agencies involved in sustaining the problem representations. Mobilising competing discourses or reframing the 'problem'.

Source: Bacci (2009); Summary depicted in Goodwin (2011: 173).

A limitation of this approach, as with other discourse analysis techniques, relates to partiality in the selection of the text analysed (Goodwin 2011). The WPR is limited in that it focuses on text produced to offer directives to guide implementation (Bacci 2009). However, it is appropriate to analyse text in a document such as the HEQSF, which seeks to prescribe guidelines to achieve accreditation of qualifications and programmes. The WPR forms the basis of an analytic strategy which draws on Foucauldian discourse analysis, archaeological analysis and genealogical analysis as well as interpretive analysis and critical policy analysis (Bacci 2009; Goodwin 2011). A further limitation of my analysis relates to a focus on the formulation and decision-making stage of the HEQSF, rather than a comprehensive analysis or an implementation analysis, which would highlighted implementation challenges. However, this was beyond the scope of this article. I now turn to the design of the HEQSF in order to analyse how the political, historical and socio-cultural contexts, as well as the orders of discourse were formulated.

Design of the HEQSF

A Single Qualifications Framework

The National Qualifications Framework (NQF) serves as the umbrella body for the three qualifications sub-frameworks: the General and Further Education and Training Sub-framework, the HEQSF and the sub-framework for Trades and Occupations (DHET 2013). Legislated national frameworks such as the HEQSF, regulate the quality of HE provision and qualifications (Ballim, Scott, Simpson & Webbstock 2016). The HEQSF functions in the interface between quality and equity concerns in HE in order to meet transformation imperatives and could thus be located in the intersection between transformation imperatives such as equity and quality.

The HEQSF, which was gazetted in 2013 was a reformulation of its previous version, the Higher Education Qualifications Framework (HEQF) (DHET 2013). The problem represented in the reformulation is stated in the purpose which is to 'consider the need for new qualification types to facilitate access, including ensuring the responsiveness of the HEQF to address emerging skills and knowledge needs, and to enhance the coherence of the higher education system' (DHET 2013: 10). The reformulation was a result of consultation to address 'inconsistencies and gaps' (DHET 2013: 10) in the

design of the HEQF. The original formulation placed less emphasis on professional qualifications and also restricted qualification pathways at the postgraduate level (Webbstock & Fisher 2016). The reformulated HEQSF stipulates the rationale for the revised version and the need for a HE sub-framework in the objective to 'enable the articulation of programmes and the transfer of students between programmes and higher education institutions' (DHET 2013: 9). The structure of the framework includes qualification standards as well as the roles and responsibilities of various stakeholders (the Minister, the South African Qualifications Authority, the Council on Higher Education and professional bodies). The roles of stakeholders beyond legislative bodies such as university staff and students, graduates, employers and employees are not considered.

Language is contested and remains a challenge in HE. The language of academic transcripts and qualification certificates is regulated in the HEQSF (DHET 2013: 22) as well as in the language policy of the issuing institution. While multilingualism is encouraged in the HEQSF, language policies at the institutional level are not as yet fully developed in the entire sector, since some institutions still issue transcripts and certificates only in English or in English and Afrikaans. In addition, the HEQSF is written and published in a monolingual language, English. Whose language is positioned as the hegemonic language, who is subjected to learning in the hegemonic language, how the hegemonic language militates against success in HE and how alternative languages could contribute to minimising 'epistemicides' are important considerations highlighted by decoloniality which are required to decolonise the curriculum and institutions.

Qualifications frameworks set out to provide frameworks for comparability, credibility, legitimacy and recognition of national qualifications within a national and international context. At a systemic level, the HEQSF facilitates the 'comparability of qualifications' in HE (DHET 2013: 12). It aims to provide a common understanding of qualifications and assure the credibility and legitimacy of the qualifications and programmes offered in HE. Qualification frameworks can thus be used to assess the international comparability of qualifications. International frameworks also serve to instil public confidence in programmes and enable the public to understand the standards set for HE qualifications and their characteristics (QAA 2014). Strengthening regional and international links and ensuring that programmes remain internationally comparable and regionally relevant have been incorporated in the formulation

of the HEQSF. Accreditation of qualifications and recognition in an international context, are goals for incorporating quality standards in the qualification using frameworks. This is problematic within a context which seeks to decolonise since this sub-framework is an integral means of informing curriculum development and national confidence in the first instance but these traditional views militate against 'de-linking' from current world views.

Three progression routes, general, professional and vocational, are conceptualised in the HEQSF and these allow for articulation between HE, further education and training and work-based education and training. Integration between levels is achieved through a single system with three progression routes, vertical, horizontal and diagonal. Vertical progression is conceptualised as progression into a qualification at a higher NQF level, horizontal progression occurs with a cognate qualification at the same level and diagonal progression is based on a completed qualification or presenting credits towards a qualification in a cognate field (DHET 2013). While multiple progression routes are proposed, they are regulated by credits, which are defined in traditional ways and influence articulation between qualification types. Articulation between qualification types, sectors and institutions remains a major policy objective (DHET 2013; DoE 1997), to allow students to progress both vertically and horizontally within a coherent NQF. Simkins, Scott, Stumpf and Webbstock argue that, '[a]rticulation of this kind is as yet an imperfectly realised objective' (2016: 328). While articulation is important, the articulation gap between HE qualifications and those offered in the Technical and Vocational Education and Training Colleges have not been sufficiently addressed in the formulation of the HEQSF (DHET 2013). This militates against efforts geared towards inclusion and dispensing with hierarchies of power between different sectors that offer qualifications.

How different knowledge types influence curriculum and the purpose of a qualification has become a recent focus (Webbstock & Fisher 2016). Higher Education comprises three loosely categorised institutions: universities, universities of technology and comprehensive universities (CHE 2016a). The difference relates to 'the mix of purely academic and vocationally-oriented programmes' (CHE 2016b: 39) that they offer. Universities generally offer academic qualifications and programmes, universities of technology mainly offer vocationally-oriented qualifications and programmes and comprehensive universities offer a mix of academic and vocationally-oriented qualifications and programmes. Comprehensive universities thus have the

greatest opportunity to achieve integration of education and training, due to the diverse nature of qualifications they offer. The appropriateness of work-based qualifications on the Trades and Occupations Qualifications Sub-Framework, beyond level 6, has not been resolved. This silence is positioned as being subject to consultation and advice. Nevertheless, it prevents an integrated and co-ordinated system and is an issue that needs to be finalised in order to integrate qualifications from Trades and Occupations into higher levels. Historically, professional and vocationally-oriented qualifications such as teaching and engineering were offered at colleges. Engineering and some Health Sciences qualifications which were originally offered at technikons and colleges, were later also offered at universities. More recently, with the mergers of institutions, post-2005, colleges of education were incorporated into HE (CHE 2016c). However, vocationally-oriented qualifications above NQF level 6 have not been incorporated into the HEQSF. This highlights the coloniality of power in the unequal power relations between academic qualifications and those in Trades and Occupations. While diplomas are needed to meet national imperatives related to the development of mid-level skills, Webbstock and Fisher (2016) argue that degrees are now favoured by universities of technology, resulting in the devaluing of industry experience in favour of academic qualifications. Universities of technology have their origin in the former technikons, which were an invention of the apartheid government. As HE institutions, they were subsequently renamed universities of technology and were given a new mission in the post-2005 period. A decolonial lens could assist in determining how vocationally-oriented qualifications could be positioned taking into consideration epistemic coloniality, coloniality of being and coloniality of power. Policy-makers have recognised that the post-schooling sector is dominated by HE, which comprises 990,000 students in the public sector and 120,000 in the private sector (USA 2015). There is thus a need for further integration and systemic changes with improved articulation pathways between HE, Technical and Vocational Education and Training Colleges and the Trades and Occupation sectors, to address a transformed HE sector.

Access and Admissions

The equity imperative in the HEQSF is achieved through two objectives. The first is ‘to create a single integrated national framework for learning achieve-

ments' and the second, to '[f]acilitate access to, and mobility and progression within, education and training career paths' and to, '[a]ccelerate the redress of past unfair discrimination in education, training and employment opportunities' (DHET 2013: 5). Quality is envisaged through the objective to '[e]nhance the quality of education and training' (DHET 2013: 5). The formulation of the HEQSF focuses on access and admissions with a view to widening access and creating alternative admission pathways. The Higher Education Act allows HE institutions to determine their admission policies and the HEQSF states that admission to HE is governed by institutions' admissions policies and practice. Widening access has been addressed in the HEQSF in order to, '[f]acilitate qualification articulation across the HE system and assist learners to identify potential progression routes, particularly in the context of lifelong learning' (CHE 2013: 17). Alternative access routes such as life-long learning, recognition of prior learning (RPL) and provision for credit accumulation and transfer (CAT), are envisioned in the HEQSF. Although widening access is central to achieving equity, RPL and CAT are not prominently represented in the HEQSF. Credit accumulation and transfer thus serves as a mechanism to 'circulate knowledge in an organised framework' (Ensor 2004: 182). Setting quality standards through the use of credits is integral to the transfer of skills. The notion of credits needs to be reviewed if it is to inform the decolonisation of the curriculum. On the one hand, equity of access is implied through admission requirements and alternative admissions such as RPL and on the other, equity of outcomes is implied by setting quality assurance standards for qualifications, which are internationally comparable. In order to change access and admission policies at institutional level, it is essential to interrogate who gains access to the university, who formulates admissions policies and what and whose purposes admission policies perpetuate.

Standards Setting

Quality is seen as integral to achieving transformation in HE. The HEQSF provides a starting point for standards development and quality assurance of qualifications. Quality assurance of qualifications and programmes is formulated in the HEQF in terms of benchmark standards, which guide the development and accreditation of qualifications. Qualification types are formulated on each level of the HEQSF for academic and professional

qualifications. In seeking a decolonised curriculum, how the design of the HEQSF shifts from this hierarchy is a challenge. Qualification descriptors are specified per qualification and include the NQF exit level, minimum total credits, minimum credits at particular levels, and the designators, qualifiers and abbreviations (DHET 2013). The level descriptors 'provide generic standards for qualifications on the HEQSF in terms of predictable levels of complexity of knowledge and skills at each NQF level' (DHET 2013: 15). However, they are not part of this sub-framework, but are contained in a separate document (SAQA 2011). The importance of learning outcomes is signalled in the formulation and design of the HEQSF and assessment is understood as providing an indication of having achieved learning outcomes. However, outcomes per qualification are not included in the qualification descriptors, but merely referred to. While assessment is integral within the curriculum development process, it is not dealt with in the HEQSF. Various assessment strategies should be explored if assessment is to positively influence students' lived experiences in terms of inclusion and success as a consequence of decolonising the curriculum. Students who enter HE are not a homogenous group. They emanate from diverse socio-economic and cultural backgrounds and disparate school quintiles. These disparities present challenges to HE institutions and call for nuanced approaches to bridge the gap between schooling and HE.

Furthermore, an appropriate funding framework to support the HEQSF is not included. While the HEQSF stipulates the various qualification types, reform that underpins appropriate curricula, which includes decolonising curricula, requires innovative, creative and sustainable solutions. Funding is underplayed in the formulation of the HEQSF. In light of the recent protests, the proportion of national funding allocated to HE as well as the fee amount allocated to qualifications needs to be viewed in the context of decoloniality. A new funding model is required to steer the system since the current funding framework in unsuitable for the HEQSF and undermines it as it cannot support the proposed framework. The funding framework thus remains a policy issue that requires attention.

Decoloniality within the Context of the HEQSF

Modernity brought with it the promise of improvement and removal of obstacles that are part of the modern world (Dastile & Ndlovu-Gatsheni 2013).

Dastile and Ndlovu-Gatsheni (2013) argue that a myth of decolonisation exists in Africa where global imperial designs such as neo-liberalism persist. Modernity's ability to address socio-cultural, economic and political issues is no longer tenable. The political, socio-cultural and historical context within which the HEQSF was formulated is essential to understand its potential to contribute to decolonising the curriculum. South Africa is unlike any other African country, in that it experienced double colonisation, firstly under the Dutch until the 1800s and then under the British until 1910. Remnants of coloniality persisted in the apartheid regime and the subsequent democratic society. The HEQSF was proposed in 2013 by the democratic government. However, the NQF upon which it is structured is based on a modernist episteme which advocates for modernist forms of administrative governmentality. Processes such as teaching and learning and the curriculum are viewed as products. These products are then reformulated into abstract objects such as credits that become a form of currency which can be exchanged in a global labour market. This modernist administrative domination of the academy is cited by decolonisation theorists (Mbembe 2016a; Mbembe 2016b) as an impediment to decolonisation of institutions and the curriculum. The HEQSF is thus unable to allow a movement from the Western locale to other epistemic sites, since it was designed for and serves a neo-liberal world view. Its ideology challenges a move towards embracing different ways of thinking and 'de-linking' from traditional perspectives. The socio-political and historical context within which the HEQSF was designed necessitated a sub-framework which would provide South African qualifications with credibility nationally and internationally. More recently, credibility by whom, has been questioned at national level, by staff and students who have called for curricula, as the building blocks of qualifications, to be re-examined for relevance to their lived experiences. The asymmetrical global power relations which necessitate qualification frameworks cannot be easily dispensed of since they have a reach beyond the academy.

Broadening current conceptions of knowledge to incorporate epistemic diversity is essential to support efforts to decolonise the curriculum. Decolonisation allows 'de-linking' beyond current knowledge systems to reconceptualise the purpose of HE through a decolonised curriculum development process. Decolonisation theorists acknowledge that a shift in knowledge production is essential (Le Grange 2016; Luckett 2016; Mbembe 2016b; Maldonaldo-Torres 2007). The reality is that unequal power relations

between diverse epistemes such as Africanisation, internationalisation and indigenisation, cannot easily be resolved. In addition, the colonialist administrative top-down procedures of control advocated in the HEQSF deviate from more inclusive decolonial efforts. Debates at disciple level are required on how traditional ways of being can be contested to make room for epistemic diversity over a period of time.

Concepts such as vocational and academic as well as knowledge and skills in the HEQSF are placed in opposition to one another. The modern university in Africa and South Africa, is modelled on the German Humboldtian university proposed in the 19th century (Kruse 2006) which later spread to other European counties and America. European countries colonised Africa, and brought this concept with them. It combines research and teaching but distinguishes between academic and vocational education. The binary opposition between academic and vocational training highlights perceptions of a hierarchy in power relations between education provision which previously privileged and positioned academic qualifications, based on whole qualifications, above vocational qualifications, which may be based on unit standards. This brings into question the consideration of coloniality of power and being that plays out in which qualifications institutions are able to offer as well as the currency of qualifications in the market place. Coloniality of knowledge is represented in concepts such as skills and knowledge which are juxtaposed and highlight the asymmetry between what knowledge counts as skills and what counts as knowledge. This has implications for HE curriculum policy due to the emphasis on learning outcomes in the HEQSF, which is based on what knowledge is taught, to whom at various qualification levels as well as the credits accumulated and transferred between qualifications. The binary nature of academic and vocational qualifications in the HEQSF informed by modernism perpetuates the status quo in HE institutions. The assumption is that the HEQSF will provide credibility, legitimacy and recognition as well as assurance of quality nationally and internationally. More recently the curricula informing qualifications have been challenged nationally as non-responsive to the needs of students in HE, without any knock on effect internationally.

The assumptions on which qualification descriptors are based have their origins within the colonial gaze. The inability of the HEQSF to create parity and include the various qualification types above certain levels needs attention. In order to use qualification descriptors to decolonise the curriculum, questions should be raised such as, who determines credits and exit level

outcomes, for what reason and whose purpose do they serve? This could serve as a starting point for developing a decolonised version. Whilst I do not propose an alternative to credits, envisioning a decolonised version will require theorising and national commitment, which is currently not high on the policy agenda. Since no alternative exists to replace the HEQSF, the possibility for change based on these prescriptions in a decolonial context are questionable.

Incorporating decolonisation in university discourses should be a bottom-up process led by staff and students who are committed to positively influencing the lived experiences of students through the curriculum. At national level, policy makers could take advantage of the opportunity to capitalise on and continue to place decoloniality high on the policy agenda. Higgs (2016) argues that we need to develop an awareness of when the status quo needs to be challenged, in order to realise the possibilities inherent in transformation. The time has come to conceptualise how a different paradigm, decoloniality, could inform HE. In order to impact on policies and practices in universities, decoloniality conversations require national commitment and a shift from institutional conversations to those that involve all HE institutions and representation of all levels. Decolonial epistemic perspectives allow discourses to emerge from Africa and the Global South (Dastile & Ndlovu-Gatsheni 2013). Opportunities should be created to theorise the university's vision for decolonising the institution and the curriculum as well as influencing national policies. Those who engage in the decolonisation debate should exercise their agency to promote change not only on institutional transformation committees, but also on those that approve curricula and programmes such as curriculum committees, school teaching and learning committees, faculty boards, senate teaching and learning committees, and programme accreditation and review committees as well as senate committees.

A relationship exists between institutional culture and curriculum. Institutional culture has the potential to embrace the process of 'de-linking' from past and present world views, which exclude students, to consider alternative ways of being that are informed by relevance to students. Decolonising the apartheid regime requires a focus on inclusive language policies beyond English and Afrikaans and should thus be a collective effort with a commitment to changing processes and involving university leadership, not just a call from students and a few academics.

Programme accreditation is a mechanism for quality assurance that relates to the entire HE sector. Ryan (2015) argues that a challenge exists for

educational programmes to meet both local and international standards. Programme accreditation is also an integral component of curriculum development and not a substitute for it, if qualifications are to remain internationally comparable. However, the very notion of programme accreditation and international comparability as espoused in the HEQSF, is antagonistic to decolonial theory. Dispensing with the HEQSF will spiral the HE sector into disarray without alternatives to replace it. Those who develop curricula could reflect on what could be done differently through a process of 'de-linking' from traditional colonial perceptions, which inform the curriculum before accrediting programmes and qualifications. The intersectionality of programme accreditation, curriculum development, pedagogy and the ecology of knowledge, 'lecturer's subjectivity and cultural positioning' (McLaughlin & Whatman 2008), should triumph over any tick box approaches to decolonising the curriculum. Structural changes to the curriculum need to take place in order to decolonise it. Such a curriculum should focus on efforts towards decoloniality and be embedded in individual courses where they are able to impact on the educational experiences of all students.

While the quality standards stipulated in the HEQSF are designed to inform the curriculum development process, they are diametrically opposed to decolonial theory. How the quality standards articulated in the form of credits, admission requirements and progression inform curriculum development in a decolonised form, is not clear. Curriculum development is viewed as separate from the accreditation process although in reality, it draws on the standards set in the HEQSF in order for a programme or qualification to be accredited. However, programme accreditation is not a substitute for curriculum development. Curriculum development could incorporate the requirements for programme accreditation as stipulated in the HEQSF, but needs to be undertaken as a process, which precedes programme accreditation and becomes the basis upon which any qualification is designed. This allows room to revise the curriculum in a manner that is more relevant to students, although not in a decolonised context.

Decoloniality should also be viewed as a process rather than a project. Mbembe (2016b) suggests that decolonising the university should be an intellectual project. Projects have a start and end date; thus decolonising the curriculum needs to be viewed as a process within HE. A decolonised curriculum should be contextualised within institutions and over a period of time.

Concluding Remarks

Transformation began as a political imperative to address past inequalities in HE and it remains highly relevant to the national policy agenda and policy formulation. The Higher Education Summit acknowledged that, 'curriculum change is at the core of university transformation initiatives' (USA 2015: 2). However, based on its modernist neo-liberal paradigm and in its current form embodied in the HEQSF, transformation is unable to facilitate the decolonisation of the curriculum. Without a viable alternative to replace it, transformation in HE will need to co-exist alongside decoloniality efforts.

An ideological critique of the HEQSF indicates that the theory informing it is based on a modernist neo-liberal paradigm. As such, the HEQSF needs to be re-envisioned to support efforts to decolonise the curriculum. The HEQF represents a place of 'doing' which currently informs curriculum development but needs to be explored in a manner that highlights how 'de-linking' and struggles over meaning take place and contribute to decolonising the curriculum. Re-examining the very notion of a qualifications framework, then designing relevant alternatives to facilitate the decolonisation of the curriculum is required in a context of decoloniality. Both the decolonial theory and the neo-liberal worldview of the HEQSF, have limitations for curriculum development in HE. I have shown that the HEQSF is a product of democracy and is limited in terms of its potential to inform a decolonised curriculum, since its origins lie in a modernist paradigm. I have also shown how decoloniality is limited as a theory to inform curriculum development based on implementation challenges and the need for further debate to give effect to change at discipline level. This analysis of the HEQSF highlighted the 'orders of discourse' and the socio-cultural and historical contexts in which it was formulated and thereafter (mis)interpreted and (mis)implemented in the South African context to give effect to international comparability of qualifications. Based on the modernist neo-liberal paradigm that informed the HEQSF, the extent to which it is compatible with a decolonial approach is questionable. Current reality warrants disruption of the system without abruptly dispensing with what has been achieved in HE.

Student success in HE requires new directions with concrete strategies to decolonise the curriculum. The HEQSF provides a framework for minimum standards but does not directly address curriculum issues. These standards, guidelines for admission, qualification levels, articulation pathways, credits and the certification of qualifications could be used in the curriculum develop-

ment process. However, translating different knowledge structures into curricula, creating space for multiple languages and reconceptualising credits is a challenge within a decolonial context. Inequalities and injustice in South Africa from the initial attempt to decolonise after the Dutch and British eras as well as from the apartheid regime have continued into the post-1994 period. Fanon (1963) thus argued that the way in which colonialism persists in structures of injustice and oppression, needs to be questioned. Le Grange (2016) and Garuba (2015) propose a process which reconsiders how the curriculum is constituted. Ngũgĩ wa Thiong'o (2004) argues that the relevance of the curriculum to the African continent could serve as a starting point to guide efforts towards decoloniality. A move away from Western hegemony as the locus of the curriculum and institutions is required in order for decolonisation to take place (Leibowitz 2017; Helata 2016). These are important imperatives but pose challenges to institutions. Dispensing with what Macedo termed 'wilful blindness' (1993: 189), which masks the struggles of marginalised students in South African HE institutions, and recognising and confronting the realities of the majority of students, could be used to decolonise universities. Institutional cultures which are rooted in a decoloniality posture (Maserumule 2015) need to be cultivated. Changing institutional culture could thus foster a culture of decoloniality and kick-start the process of decolonising the curriculum and ultimately lead to a decolonised university. However, theories of decolonisation need to be taken a step further where they are able to influence change processes in a university and lead to appropriate implementation strategies. Implementing language policies was highlighted during student protests, but remains a challenge. The national reality includes insufficient funding and institutional capacity to turn these into transformative practices. At policy level, attention should be given to systemic change that focuses on epistemological access, different modes of assessment and expanded pathways which accord value to academic and vocationally-oriented qualifications. Changes to institutional culture and concrete implementation strategies which focus on change and the relevance of curricula are required. Designing curricula with a focus on skills and knowledge as well as prospective knowledge that will enable South Africa to be at the forefront of knowledge production and development needs to be foregrounded. Universities will also need to create structures that embrace change and diverse worldviews to meet the needs of a generation of students who are demanding decoloniality of our institutions and curricula.

References

Bacci, C. 2009. *Analysing Policy: What's The Problem Represented to Be?* Frenchs Forest, NSW: Pearson.

Ballim, Y., I. Scott, G. Simpson & D. Webbstock 2016. Regulation. In Ballim, Y., I. Scott, G. Simpson & D. Webbstock (eds.): *South African Higher Education Reviewed: Two Decades of Democracy. Eight Task Team Reports*. Pretoria: Council on Higher Education.

Cloete, N. 2004. Policy Expectations. In Cloete, N., P. Maassen, R. Fehnel, T. Moja, H. Perold & T. Gibbon (eds.): *Transformation in Higher Education: Global Pressures and Local Realities in South Africa*. Netherlands: Kluwer Academic Publishers.

Cloete, N., P. Maassen, R. Fehnel, T. Moja, H. Perold & T. Gibbon 2004. *Transformation in Higher Education: Global Pressures and Local Realities in South Africa.* 2nd Edition. Netherlands: Kluwer Academic Publishers.

Cooper, D. & G. Subotzky 2001. *The Skewed Revolution: Trends.* In *South African Higher Education, 1988-1998*. University of the Western Cape: Education Policy Unit.

Council on Higher Education (CHE) 2016a. *South African Higher Education Reviewed: Two Decades of Democracy. Eight Task Team Reports*. Pretoria: Council on Higher Education.

Council on Higher Education (CHE) 2016b. *Annual Report 2014/15*. Pretoria: Council on Higher Education.

Council on Higher Education (CHE) 2016c. *Recognition of Prior Learning, Credit Accumulation and Transfer, and Assessment in Higher Education.* Pretoria: Council on Higher Education.

Council on Higher Education (CHE) 2013. *A Proposal for Undergraduate Curriculum Reform in South Africa: The Case for a Flexible Curriculum Structure. Report of the Task Team on Undergraduate Curriculum Structure*. Pretoria: Council on Higher Education.

Council on Higher Education (CHE) 2004a. *Institutional Audit Framework.* Pretoria: Council on Higher Education.

Council on Higher Education (CHE) 2004b. *Framework for Programme Accreditation.* Pretoria: Council on Higher Education.

Dastile, N.P. & S.J. Ndlovu-Gatsheni 2013. Power, Knowledge and Being: Decolonial Combative Discourse as a Survival Kit for Pan-Africanists in

the 21st Century. *Alternation* 20,1:105 - 134.

Department of Education (DoE) 2007. *Higher Education Qualifications Framework*. Government Gazette General Notice 30353 of 5 October 2007. Pretoria: Department of Education.

Department of Education (DoE) 1997. *Education White Paper 3. A Programme for the Transformation of Higher Education*. Government Gazette General Notice 1196 of 1997. Pretoria: Department of Education.

Department of Higher Education and Training (DHET) 2013. *Higher Education Qualifications Sub-Framework*. Government Gazette General Notice 6003 of 14 December 2012. Pretoria: Department of Education.

Ensor, P. 2004. Curriculum. In Cloete, N., P. Maassen, R. Fehnel, T. Moja, H. Perold & T. Gibbon (ed.): *Transformation in Higher Education: Global Pressures and Local Realities in South Africa*. 2nd Edition. Netherlands: Kluwer Academic Publishers.

Fanon, F.1963. *The Wretched of the Earth*. New York: Grove Press.

Fernie, S. & N. Pilcher 2009. National Qualification Frameworks: Developing Research Perspectives. *Quality in Higher Education* 15,3:221 - 232. https://doi.org/10.1080/13538320903343099

Fischer, F. & G.J. Miller (eds.) 2007. *Handbook of Public Policy Analysis: Theory, Politics, and Methods*. New York: CRC Press.

Francis, D. & C. Hemson 2010. South African Journal of Higher Education Issue on Transformation: Initiating the Debate. *South African Journal of Higher Education* 24,6:875 - 880.

Garuba, H. 2015. What is an African Curriculum? *Mail & Guardian* 17 April. Available at: http://mg.co.za/article/2015-04-17-what-is-an-african-curriculum/ (Accessed on 24 September 2018.)

Goodwin, S. 2011. Analysing Policy as Discourse: Methodological Advances in Policy Analysis. In Markauskaite, L., P. Freebody & J. Irwin (eds.): *Methodological Choice and Design: Scholarship, Policy and Practice in Social and Educational Research.* (Methodos Series 9.) Springer Science+Business Media B.V.

Grosfoguel, R. 2011. Decolonizing Post-Colonial Studies and Paradigms of Political-Economy: Transmodernity, Decolonial Thinking, and Global Coloniality. *Transmodernity: Journal of Peripheral Cultural Production of the Juso-Hispanic World* 1,1:1 - 38.

Guba, E.G. 1984. The Effect of Definitions of Policy on the Nature and

Outcomes of Policy Analysis. *Educational Leadership, the Association for Supervision and Curriculum Development* 42,2:63 - 70.

Haakstad, J. 2001. Accreditation: The New Quality Assurance Formula? Some Reflections as Norway is about to Reform its Quality Assurance System. *Quality in Higher Education* 7,1:77 - 82. https://doi.org/10.1080/13538320120045102

Heleta, S. 2016. Decolonisation of Higher Education: Dismantling Epistemic Violence and Eurocentrism in South Africa. *Transformation in Higher Education* 1,1:1 - 8. https://doi.org/10.4102/the.v1i1.9

Higgs, D.M. 2016. What is the Role of the University in the Digital Age? *World University News* 409.

Higher Education Qualifications Framework in Flanders (Belgium) 2008. *A Presentation for Compatibility with the Framework for Qualifications of the European Higher Education Area. Towards the European Higher Education Area Bologna Process.* Available at: http://www.unc.edu/ppaq (Accessed on 4 March 2017.)

Hlebowitsh, P. 2010. Curriculum Development. In Kridel, C. (ed.): *Encyclopedia of Curriculum Studies.* Los Angeles, CA: Sage. https://doi.org/10.4135/9781412958806.n116

Horsthemke, K. 2009. The South African Higher Education Transformation Debate: Culture, Identity and African Ways of Knowing. *London Review of Education* 7,1:3 - 15. https://doi.org/10.1080/14748460802700512

Jann, W. & K. Wegrich 2007. Theories of the Policy Cycle. In Fischer, F. & G.J. Miller, (eds.): *Handbook of Public Policy Analysis: Theory, Politics, and Methods*. New York: CRC Press.

Kruse, O. 2006. The Origins of Writing in the Disciplines: Traditions of Seminar Writing and the Humboldtian Ideal of the Research University. *Written Communication* 23,3:331-352. https://doi.org/10.1177/0741088306289259

Lange, L. & M. Singh 2010. Equity Issues in Quality Assurance in South African Higher Education. In Martin, M. (ed.): *Equity and Quality Assurance: A Marriage of Two Minds*. Paris: UNESCO, International Institute for Educational Planning.

Leask, B. & H. de Wit 2016. Reimagining the HE Curriculum for the 21st Century. *University World News* 438, 28 November 2016.

Le Grange, L. 2016. Decolonising the University Curriculum: Leading Article. *South African Journal of Higher Education* 30,2:1 - 12.

Leibowitz, B. 2017. Power, Knowledge and Learning: Dehegomonising Colonial Knowledge. *Alternation* 24,2:98 - 118. https://doi.org/10.29086/2519-5476/2017/v24n2a6

Lovet, T. & D. Smith 1995. *Curriculum: Action on Reflection Revisited.* 3rd Edition. Wentworth Falls, NSW: Social Science Press.

Luckett, K. 2016. Curriculum Contestation in a Post-Colonial Context: A View from the South. *Teaching in Higher Education* 21,4:415 - 428. https://doi.org/10.1080/13562517.2016.1155547

Machingambi, S. 2011. Is Access to Higher Education a Sufficient Condition for Social Equity in South Africa? A Critical Analysis. *Journal of Social Science* 28,1:13 - 20. https://doi.org/10.1080/09718923.2011.11892924

Makoni, M. 2017. The Limitations of the Decolonisation 'Moment'. *University World News* 211. Available at: http://www.universityworldnews.com/article.php?story=20171215123042991 (Accessed on 15 December 2017.)

Maldonaldo-Torres, N. 2007. On the Coloniality of Being. *Cultural Studies* 21,2-3 March/ May: 240 - 270.

Manganyi, N.C. 1981. *Looking through the Keyhole.* Johannesburg: Ravan Press.

Martin, M. 2010a. Equity and Quality: Can they Come Together? An Introduction to the Problematic. In Martin, M. (ed.): *Equity and Quality Assurance: A Marriage of Two Minds*. Paris: UNESCO, International Institute for Educational Planning.

Martin, M. 2010b. Equity and External Quality Assurance: A Marriage of Two Minds. In Martin, M. (ed.): *Equity and Quality Assurance: A Marriage of Two Minds*. Paris: UNESCO, International Institute for Educational Planning.

Maserumule, M.H. 2015. Why Africa's Professors are Afraid of Colonial Education Being Dismantled. *The Conversation* 25 November. Available at: http://theconversation.com/why-africas-professors-are-afraid-of-colonial-education-being-dismantled-50930. (Accessed on 15 December 2017.)

Mbembe, A.J. 2016a. Decolonizing Knowledge and the Question of the Archive. Public presentation. Johannesburg: Witwatersrand.

Mbembe, A.J. 2016b. Decolonizing the University: New Directions. *Arts and Humanities in Higher Education* 15,1:29 - 45. https://doi.org/10.1177/1474022215618513

McLaughlin, J.M. & S.L. Whatman 2008. Embedding University Perspectives in University Teaching and Learning: Lessons Learnt and Possibilities for Reforming/ Decolonising Curriculum. In Heber, R.W. (ed.): *Indigenous Education: Asia/ Pacific.* Canada, Regina. Saskatchewan: Indigenous Studies Research Centre, First Nations University of Canada.

Mignolo, W.D. 2000. Delinking: The Rhetoric of Modernity, the Logic of Coloniality and the Grammar of De-Coloniality. *Cultural Studies* 21,2:449 - 514.

Moosa, R. & L.J. Murray 2016. Institutional Research and Academic Planning in the Context of Higher Education Steering Instruments. In Botha, B.J. & N.J. Muller (eds.): *Institutional Research in South African Higher Education: Intersecting Context and Practices*. Stellenbosch: Sun Press. https://doi.org/10.18820/9781928357186/07

Morrow, W. 2007. *Learning to Teach in South Africa*. Cape Town: HSRC.

Murray, F.B. 2009. An Accreditation Dilemma: The Tension between Program Accountability and Program Improvement in Programmatic Accreditation. *New Directions for Higher Education* 145:59 - 68. https://doi.org/10.1002/he.335

Muller, J., P. Maassen & N. Cloete 2004. Modes of Governance and the Limits of Policy. In Cloete, N., P. Maassen, R. Fehnel, T. Moja, H. Perold & T. Gibbon (eds.): *Transformation in Higher Education: Global Pressures and Local Realities in South Africa*. Netherlands: Kluwer Academic Publishers.

Nakata, M. 2002. Indigenous Knowledge and the Cultural Interface: Underlying Issues at the Intersection of Knowledge and Information Systems. *IFLA Journal* 28:281 - 291. https://doi.org/10.1177/034003520202800513

Nakata, M., V. Nakata, S. Keech & R. Bolt 2012. Decolonial Goals and Pedagogies for Indigenous Studies. *Decolonization: Indigeneity, Education & Society* 1,1:120 - 140.

Ndlovu-Gatsheni, S.J. 2013. Why Decoloniality in the 21st Century? *The Thinker* 48:10 - 15.

Ngũgĩ wa Thiong'o 2004. *Decolonizing the Mind. The Politics of Language in African Literature*. Nairobi: East African Educational Publishers Ltd.

Odora Hoppers, C.A. 2001. Indigenous Knowledge Systems and Academic Institutions in South Africa. *Perspectives in Education* 19,1:73 - 86.

Pülzl, H. & O. Treib 2007. Implementing Public Policy. In Fischer, F. & G.J. Miller (eds.): *Handbook of Public Policy Analysis: Theory, Politics, and Methods*. New York: CRC Press.

Quality Assurance Agency (QAA) 2014. *UK Quality Code for Higher Education. Part A: Setting and Maintaining Academic Standards. The Framework for Higher Education Qualifications of UK Degree-Awarding Bodies*. UK Quality Assurance Agency. Available at: http://www.qaa.ac.uk/en/Publications/Documents/qualifications-frameworks.pdf (Accessed on 4 March 2017.)

Quijano, A. 2000. Coloniality of Power, Eurocentrism, and Latin America. *Nepentla: Views from the South* 1,3:533 - 580. https://doi.org/10.1177/026858090001500200 5

Rickard, J. 2003. *American War of Independence (1775-1782).* Available at: http://www.historyofwar.org/articles/wars_american_independence.html (Accessed on 24 September 2018.)

Ristoff, D. 2010. Equity and Quality Assurance in Brazilian Higher Education. In Martin, M. (ed.): *Equity and Quality Assurance A Marriage of Two Minds*. UNESCO, Paris: International Institute for Educational Planning.

Ryan, P. 2015. Quality Assurance in Higher Education: A Review of Literature. *Higher Learning Research Communications* 5,4: 626.

South African Qualifications Authority (SAQA) 2011. *Level Descriptors for the South African National Qualifications Framework*. Pretoria: South African Qualifications Authority.

Simkins, C., I. Scott, R. Stumpf, & D. Webbstock 2016. Funding. In Simkins, C., I. Scott, R. Stumpf, & D. Webbstock (eds.): *South African Higher Education Reviewed: Two Decades of Democracy. Eight Task Team Reports*. Pretoria: Council on Higher Education.

Universities South Africa (USA) 2015. The Ministerial Oversight Committee on Transformation in South African Public Universities. *Annexure 8: The Transformation of South African Higher Education*. Concept paper prepared for the Second National Higher Education Summit, September 2015.

Webbstock, D. & G. Fisher 2016. Overview. In *South African Higher Education Reviewed: Two Decades of Democracy. Eight Task Team Reports*. Pretoria: Council on Higher Education.

An Analysis of the Higher Education Qualifications Sub-Framework

Raazia Moosa
Academic Support Unit
University of the Witwatersrand
Johannesburg
South Africa
Raazia.moosa@wits.ac.za

Towards a Model of Mentoring in South African Higher Education

Rubby Dhunpath
Heidi Matisonn
Michael Samuel

Abstract

The imperative to replenish the South African higher education professoriate has inspired varied responses, ranging from aggressive recruitment of post graduate students to the induction of academics from outside the academy. One such response is the Staffing South Africa's Universities Framework (SSAUF), which recognises the challenges facing early career academics (ECAs), especially as they relate to higher education pedagogies, curriculum development, supervising students, and developing scholarship in teaching. Notable in this framework is the absence of any substantive discussion around mentorship, and its potential to socialise emerging academics into the distinctive culture of the academy in all its manifestations, especially what it means to be an effective university teacher. This article surveys some of the literature on mentoring in higher education, as a precursor to introducing a proposed mentoring model, developed for a South African university. Acknowledging the complexity inherent in the practice of mentoring and the attendant power relations, the proposed model is a departure from the individualistic performance management approach typically associated with the dominant master-apprenticeship model. Instead, the authors offer a non-hierarchical, co-constructed menu of possibilities based on negotiated reflection, arising out of the specific, situated contexts of mentor and mentee.

Keywords: mentorship, professional development, collaboration, higher education

Print ISSN 1023-1757; Electronic ISSN: 2519-5476; DOI https://doi.org/10.29086/2519-5476/2018/v25n2a4

Introduction

Traditionally, mentorship in higher education has typically occurred formally, between individuals through the 'master-apprenticeship' model, where an experienced individual is paired with a junior staff member to facilitate the requisite transfer of learning, which is expected to generate opportunities for professional development. Mentorship is considered a valuable mechanism for mobility and is regarded as essential in fostering students' intellectual development and fulfilling the career aspirations of staff (Darwin & Palmer 2009). While it has proved beneficial to both those offering mentorship and beneficiaries thereof, research has shown that mentorship opportunities are not easily accessible to those that need it (Darwin & Palmer 2009; Pfleeger & Mertz 1995). In response, the then Minister of Higher Education released a set of proposals in 2015, which constitute the Staffing South Africa's Universities Framework (SSAUF), a 'multi-pronged, nationally coordinated' initiative which 'aims to provide effective induction into and development of all aspects of academic work: teaching, research, social engagement, academic leadership and management' (Nzimande 2015: 1). The Framework signals 'growing realisation that the development of academics' knowledge and skills in relation to teaching and community engagement requires the same deliberate nurturing that the development of research capacity has always enjoyed in some institutions' (Quinn & Vorster 2012). Research published by the Council for Higher Education (CHE) in 2017 concludes that:

> the conditions which enable and constrain the professional learning of academics in their role as teachers have not received serious attention in South Africa. The efficacy of various approaches to academic staff development using certified courses, workshops, collaborative research projects or grants and symbolic awards, has not been studied extensively, nor in comparative projects across higher education settings (Leibowitz *et al.* 2017: 17).

Like the SSAUF, the CHE study does not explicitly refer to mentoring. This may be because the implementation of mentoring in South Africa has been relatively uncoordinated, especially in higher education. As such, it remains an unexplored phenomenon and little is known about the effects on those who have experienced mentoring. While context is critical and has a significant impact on academics' mentoring experiences, global trends have influenced

academic development in South Africa (Darwin & Palmer 2009; Foote & Solem 2008). For this reason, much of what we learn from the literature is from non-South African contexts.

One explanation for the limited mentoring opportunities is the real and perceived challenges of identifying appropriate mentors – not only those who are able, but those who are willing. Quinn and Vorster (2012) point out that because of powerful neoliberal forces in higher education, academics tend to be competitive and often preoccupied with the 'publish or perish' imperative. Finding mentors, given the multiple demands on academics' time, might not be easy (Quinn & Vorster 2012). This is regrettable, given that mentorship has long been regarded as an essential component in nurturing and developing early career academics 'to grow into confident, competent, scholarly teachers – teachers who are able to design relevant curriculums, facilitate learning and assess students who come from increasingly diverse social, cultural, linguistic and educational backgrounds' (Quinn & Vorster 2012). As Quinn and Vorster (2012: webpage) suggest, 'the "sink or swim" orthodoxy in relation to new staff joining academia is no longer tenable'.

Mentorship in Higher Education

Scholars have long pointed to the 'ill-defined and elusive' nature of the concept of mentoring (Welch 1996; Foote & Solem 2009). In the context of higher education, Rockquemore, founder of the National Center for Faculty Development and Diversity in Detroit argues that mentoring is not 'a reliable and valid construct'. She adds that 'mentoring is one of the most misunderstood concepts in faculty development' and that if you ask 10 different faculty members what mentoring is … you will get 10 different responses ranging from a once-a-year coffee date to a quasi-parental, lifelong relationship' (Rockquemore 2016: webpage).

In recent times, there have been efforts to define mentorship, which may be expressed in the following typology listed by the School of Medicine at Wake Forest University (cf. Hanover Research 2014).

- **One-to-One mentoring**: one mentor and one mentee/protégé
- **Group mentoring**: one mentor and multiple mentees/protégés
- **Team mentoring**: multiple mentors and a single mentee/protégé

- **Peer mentoring**: a junior faculty member provides guidance to another junior faculty member
- **E-mentoring**: one mentor and one mentee/protégé where the relationship is conducted over the internet
- **Informal mentoring**: the mentee self-selects their mentor, no formal agreement in place
- **Reverse mentoring**: junior faculty member offers expertise in a particular area to a senior faculty member

However, despite the abundant classifications of mentoring and the different mentoring types that have surfaced in the discourse over the years; the current literature demonstrates a lack of consensus on a specific definition of what mentorship is, the roles of a mentor, how mentors select protégés or how protégés are drawn to certain mentors (Crisp & Cruz 2009). The duration of mentorship relationships also seems to vary: while some have been found to be as short as one meeting between the parties involved, others last several months or longer. Mentorship relationships can be informal or formal, long term or short lived, and planned or spontaneous. Informal relationships have been recognised to be unstructured, unmanaged, and not formally recognised by the institution (Crisp & Cruz 2009). They often develop organically between parties who need each other's assistance and are typically established with the aim of achieving long term goals (Crisp & Cruz 2009). On the other hand, formal mentoring relationships have been found to be sanctioned by an institution and there is usually a third party who matches the mentor with the mentee (Foote & Solem 2009).

One of the most common factors in designing mentorship programmes is the age of the mentor and mentee. While it is deemed important that the mentor is old enough to have attained the requisite experience to benefit the mentee, Hunt and Michael (1983) found that where he/she is older by 20 years or more, such relationships can lead to negative outcomes. In this context, the mentorship relationship has been observed to approximate a parent-child one, where the mentee is likely to experience instances of inability to express their needs due to the mentor's desire to adopt a parental role.

On the other hand, an age difference of less than 6 to 8 years has been found to have minimal mentoring benefits since the participants are most likely to relate as peers (Hunt & Michael 1983). Mentors and mentees of the same age are deemed to be less likely to have networks that would be beneficial to

the psychosocial development of the mentee. It has been argued, that for mentorship relationships to be effective, there should be an age gap of at least half a generation; where the mentor is roughly older by 8 to 15 years (Hunt & Michael 1983). Needless to say, these generalisations are by no means absolute categorisations, as the context and culture influence relationships.

The classic older mentor-younger mentee model signalled above is advocated as an effective succession-planning tool, because it prevents the knowledge 'brain drain' (Pfleeger & Mertz 1995) that would otherwise take place when a senior academic retires. In the South African context, which is experiencing a decline in the number of 'senior' academics and an increase in the number of 'junior' early career academics, it is worth acknowledging that there is a wealth of expertise and experience at both levels which the model presented in this article attempts to harness.

Like age, the gender composition of the mentor-mentee relationship has been found to play a crucial role in determining its success. Typically, both participants have to deal with sexual tensions and fears, public scrutiny and stereotypical male/female roles (Hunt & Michael 1983). Kram (1980) found that female mentees are most likely to experience greater social distance and general discomfort when the mentor is male. Similarly, some of the women in Gibson's (2006) study did not feel that male mentors are able to address 'women-concerns' due to a lack of experience and/or understanding. In contrast, Stewart (1977) found that female mentees are most likely to forge emotional ties with their male mentors. While the challenges posed by mixed gender mentorship relationships have long been noted in the literature, little information exists on female mentor-female mentee or female mentor-male mentee relationships. The lack of female mentors could be due to the fact that senior positions in many professions, including higher education, are occupied by men.

Perhaps more than any other factor, race is a critical consideration in mentoring relationships in South African higher education. Given the country's history, in most South African institutions, including higher education, 'the higher the rank the fewer the number of women, Africans, Coloureds and Indians' (Gilmore, Coetzee & Schreuder 2005: 28). Racial diversity and inequality are, of course, not unique to South Africa; Aminian's (2018) study of the impact of same race mentoring on adult female students enrolled at an American College found that 'although some African-American students have been successful in their mentoring relationships with mentors outside of their

race and gender, they all expressed their preference to have a female African-American mentor (2018: iv). Similarly, Richard *et al.* conclude that 'within a sample of 197 employees from various U.S. companies, racial dissimilarity was negatively related to mentoring quality' (2017: 1).

Despite mentees' expressed preference for same-race mentors, cross race mentoring is deemed necessary because of the skewed racial make-up among academics – the more senior the staff, the more likely he/she is to be white. This underscores the need to be aware that cross-race mentoring 'requires extra sensitivity because racial, cultural, and ethnic differences strongly influence how individuals view and experience the world' (Hunter 2014: 2). Variables such as 'cultural differences regarding communication style, power and authority, individualism versus collectivism, and conflict management may hinder relationships' (Hunter 2014: 2).

In light of the literature on the effects of age, gender, and race on mentorship relationships, many argue for the concept of homophily in such relationships. Homophily is defined by Rogers and Bhowmik (1970) as the degree to which a group or pairs of individuals who interact are similar with regard to attributes, beliefs, values, and social factors. It rests on the notion that the psychosocial functions of mentoring – role modelling, respect, confirmation, and assistance in coping with work demands (Hunter 2014) – are more easily provided by mentors of the same race, age, and/or gender as the mentee. In a study by Holmes *et al.* (2007), black women:

> ... described both positive and negative experiences with same-race and same-gender mentors, and mentors who were a different race and gender. The most important factor was mentor's commitment to the mentee's success, regardless of the race and gender of the mentor (College of Medicine – Phoenix n.d.: 2).

Other research affirms this view. Hunter (2014: 16) quotes Smith *et al.*'s study that 'finds no significant differences in career mentoring or psychosocial support when comparing homogenous mentoring pairs (same gender and race) and diversified pairings (different gender or race)'. She concludes that while race and gender matter in some areas, they are not the most important factors.

Perhaps the most important of Hunter's claims in terms of their relevance to our proposed model, is that 'numerous studies have shown that women and faculty of colour have fewer mentors, face more isolation, and may

be less entrenched in informal departmental networks' (Hunter 2014, referring to Fox 2001; Preston 2004; Thompson 2008; Wasburn 2007). She explains:

> Because mentors may unintentionally gravitate toward people like themselves, women and minorities may be mentored less frequently than white males and therefore be less likely to reap the many rewards of receiving mentoring. Majority faculty members may also be hesitant to mentor underrepresented faculty simply because they are inexperienced with it (Hunter 2014: 18).

In order to reduce the challenges a diverse faculty can face in terms of mentorship, our model is also informed by the idea of 'Mutual Mentoring' developed by Yun, Baldi and Sorcinelli. They provide compelling evidence that this model has had a 'successful and sustainable impact' (2016: 449):

> 'Mutual Mentoring' distinguishes itself from the traditional model by encouraging the development of a broader, more flexible network of support that mirrors the diversity of real-life mentoring in which no single person is required or expected to possess the expertise of many. Within this model, early-career faculty build robust networks by engaging multiple 'mentoring partners' in non-hierarchical, collaborative partnerships to address specific areas of knowledge and experience, such as research, teaching, tenure, and work-life balance. These partnerships should be designed to benefit not only the person traditionally known as the 'protégé', but also the person traditionally known as the 'mentor', thus building on the idea that all members of an academic community have something to teach and learn from each other (Yun, Baldi & Sorcinelli 2016: 449).

The assumption underpinning this approach is that a single mentor may not embody all the attributes that constitute an academic's work. The multiple mentor/partnership seeks to harness the collective wisdom and expertise which allow different needs to be met through the diverse range of expertise available. It may also reduce the burden on mentors who would otherwise be overwhelmed in an effort to be all things to all people. It recognises that mentoring is not an innate attribute for many of us – in that we do not possess

pre-wired knowledge about how to mentor or be mentored. Rather, it is a skill that needs to be learned, cultivated and internalised.

Peer mentoring is another model formulated as a response to traditional mentoring, and evident in both academia and industry. Like traditional mentoring, it has been found to be beneficial in promoting career enhancement and psychosocial wellbeing between the parties involved (Angelique, Kyle & Taylor 2002). While traditional mentoring is a relationship between an older, experienced individual, and a younger novice who is still navigating the academy, peer mentoring involves participants of similar age, rank and experience. It is understood to be reciprocal in nature, since all participants usually have something of value to contribute and gain from one another (Angelique, Kyle & Taylor 2002).

Although peer mentoring is a familiar approach, Cassese and Holman acknowledge that a 'systematic assessment of peer-mentoring programs is largely absent from the literature' (2018: 4). There is some evidence however, that amongst other benefits, peer mentoring promotes information sharing, career planning, and job related feedback (Angelique, Kyle & Taylor 2002). While it has been effective in eliminating hierarchies between the parties involved, it has been found to limit career enhancing functions (Angelique, Kyle & Taylor 2002), since peers have lesser exposure to the field of academia and their networks are not as broad as those offered by mentors in traditional relationships. Furthermore, due to the fact that peers have the same level of experience and are bound by similar perspectives, they are often unable to assist one another with the wisdom gained from hindsight (Angelique, Kyle & Taylor 2002).

While mentorship in higher education has long been acknowledged as a valuable tool for professional development and upward mobility (Welch 1996) it is not without its hazards and is not always beneficial to the mentee and mentor. Eby, McManus, Simon and Russell (2000 cited in Hezlett & Gibson 2005) identified five negative mentorship relationships: mismatches between dyads; distancing behaviour; manipulative behaviour; lack of mentor expertise; and general dysfunctionality. Such negative relationships often result in feelings of depression and job withdrawal and sometimes prompt the mentee to terminate the relationship. In addition, consistent with Bandura's (1977) social learning theory, mentees who admire their mentors may be more likely to assimilate their behaviour, which may be productive, but, which also may not be, in some cases.

Blunt and Conolly's (2006) study in South Africa found that mentoring was different from managing, coaching and supervising. Upon initiation of the mentoring relationship, mentors were found to be less focused on a defined outcome and seemed to expect 'whatever comes up' (Blunt & Conolly 2006: 205). Unlike managing, coaching and supervising; mentoring has also been found to be confidential with a strong emphasis on trust (Blunt & Conolly 2006).

Analysing mentoring relationships, Kram (1985) cautions that classical relationships where individuals are assigned to each other by a higher authority may not be as beneficial as relationships that develop spontaneously between individuals. Noe (1998) recognised that personality conflicts may arise between individuals where the supervisor may perceive his/her ability to supervise the protégé to have been eroded by the presence of a mentor. Moreover, forced mentorship relationships may cause protégés to perceive that they are unable to make autonomous decisions.

In what follows, we elucidate mentorship development in relation to professional development at the University of KwaZulu-Natal (UKZN). This is followed by the elucidation of a model which was designed in response to the UKZN context, underpinned by universal principles gleaned from the literature. The model is a combination of traditional and peer mentoring practices, drawing on the work of Sorcinelli and Yun (2009). They propose 'non-hierarchical, collaborative, and cross-cultural partnerships' (2009: 369).

Mentorship and Professional Development

Although it may be argued that mentoring in the South African higher education context is largely ad hoc in practice and under-explored in research, professional development in higher education has a much longer history. For example, consonant with the SSAUF, UKZN has approximately 20 policies designed to 'promote professional practice and enhance the productivity of its staff' (Subbaye & Dhunpath 2016: 4). The University has also introduced the On-Boarding Line Manager Tool Kit – a 12-month process aimed at welcoming new employees to UKZN, ensuring 'effective integration of employees into the University' and helping to create a 'positive and supportive working environment through defining performance expectations, maintaining motivation and identify training and development needs to assist them perform their duties effectively and efficiently'.

On-boarding takes place between the new employee (irrespective of academic level) and his/her line manager. The process is supposed to begin at least one month before the new employee's arrival and continues for a year during which the line manager conducts performance reviews at six-month intervals. However, there is no mention of mentorship in this process. At most, the line manager is expected to schedule meetings with 'key role players who will be working with the new employee (e.g. colleagues, finance, academic administration)'.

UKZN also has a formal University Education Induction Programme (UEIP), distinct from a typical mentorship programme, which all new and existing academic staff (below the level of senior lecturer) are required to complete. The 80-hour programme comprises four modules taken over two years: teaching and learning in higher education, assessing teaching and learning in higher education, designing and evaluating curricula in higher education, and research supervision in higher education. While there has been significant compliance with this requirement, given that academic staff at or above the level of senior lecturer are exempted, many academics have not completed this – or any other – programme aimed at developing and promoting teaching and learning and research excellence.

Emphasising the importance of both 'relevant theoretical knowledge for underpinning practice and that of supportive networks for collaborative learning from experience, critical reflection on practice and wider participation', CHE researchers, Leibowitz *et al.* (2017: 28), suggest that academic staff development could be 'located along a continuum, with largely theory-based learning at the one end of the continuum, and informal, practice-based acquisition at the other end' (Leibowitz *et al.* 2017: 29).

While UKZN has institutionalised the formal aspects of staff development – PhD qualifications and the requirement of Teaching Portfolios for promotion – limited attention has been paid to less formal aspects such as reading circles, work groups, and mentoring. Comments taken from a survey of UKZN academics who participated in the UEIP indicate that this gap is felt acutely by staff:

> We are not mentored or shown the ropes by anyone, and have to fumble our way around finding our feet. Nothing is made easy and we aren't told what we need to do (Lecturer 48, CLMS, quoted in Subbaye & Dhunpath 2016: 11).

> I would have loved to have a mentor because sometimes when you keep asking colleagues about things some of them start to look at you like you are lazy or stupid while all what you need is to understand how things are done (Lecturer 34, CHS, quoted in Subbaye & Dhunpath 2016: 11).

As a result of the institutionalisation of the formal aspects of staff development, it may be argued that the emphasis is on compliance with legislative requirements rather than on the creation and promotion of an ethos of professional development. At the time of concluding this article, the UKZN Human Resources Division was in the process of developing a mentorship programme for its early career academics. The structural location of a mentorship programme within a Human Resources Division could arguably have the effect of privileging compliance to preferred institutional identities which emanate largely from a centralised managerial discourse. Matters foregrounding adherence to staff conditions of service could potentially dominate the discourse when evaluating the impact of the interventions chosen. Instead, the goal for the unfolding mentorship initiative recognises that it is academics themselves who should exercise their agentic capabilities to define the nature and direction of the growth trajectories they select whilst cognisant that such choices are not independent of ambient institutional expectations and wider societal contextual imperatives.

Towards an Inclusive Model of Mentorship in Higher Education

In its quest to activate knowledge that is socially responsive and contributes to the realisation of social justice, UKZN's Strategic Plan emphasises four domains of professional development: teaching, learning, and assessment; research development and dissemination; community engagement; and university service and administration. The proposed model of mentorship is designed to respond to these four domains, taking cognisance of the fact that they expand and intersect, revealing changing, and sometimes competing, roles and expectations.

The UKZN Strategic Plan adopts a people-centred approach and aims to recast the notion of the academic as individual – to the individual as part of

the collective. As such, the model for professional development moves away from the procedural to the substantive, from the atomistic to the relational. As Pithouse-Morgan *et al.* argue, there is a need to see:

> ... collegial relationships as critical to the growth of self-belief and self-resourcefulness in becoming and being academics … how, through collective participation, novice and experienced academics can become valuable sources of learning and support for each other (Pithouse-Morgan *et al.* 2016: 224).

Central to this model is the mentee who is the primary determiner of goals and needs. As Gee explains, 'universities are vastly diverse' (Gee 2017: webpage) and as such, an 'institution must understand why – or if – they need a mentor programme' (ibid.). We take this a step further and suggest that in the context of diversity, it is the mentee rather than the institution that makes decisions about mentoring needs and goals, where the mentee self-selects a mentor and a formal agreement is not an expectation. This is due to the problems associated with the most common approach to mentoring programmes, in which mentors are matched with mentees based on some real (or perceived) skill that the mentor has and the mentee lacks and needs. This 'guru' model assumes a number of things: that a single person (the mentor) can meet all the mentee's needs; and that someone external to the relationship (usually non-academic human resources personnel) can determine the suitability of and chemistry between the members of the match.

The matrix below serves as a generic menu of possibilities for establishing growing levels of complexification of possible targets. Each cell is illustrative of potential rather than the expansive coverage of the continuum of possibilities for the creation of a professional development plan. While the grid suggests that different ranks of lectureship (lecturer, senior lecturer, associate professor, and full professor) might operate at different levels (A, B, or C), it is more likely that each academic might be more accomplished in some than other levels across the grid. This opens the official recognition of diversity and the recognition of diverse strengths and areas of expertise and exceptionalism, as well as areas of excellence, and the acknowledgement of individual performance in the high stakes of various forms of merit. This though, does not detract from the desirability, nor the fostering of skills and knowledge in the various generic performance areas.

		A	B	C
		Some baseline elements	**Further dimensions**	**More advanced levels**
	Targeted level→	**Lecturer/ Senior Lecturer (L/SL)**	**Lecturer/ Senior Lecturer/ Associate Professor (L/SL/AP)**	**Associate Professor/ Full Professor (AP/FP)**
1. TEACHING				
1.1	Classroom/ lecture room pedagogy	Includes classroom strategies to manage the pedagogical space to promote 'systematic organisation of learning' (Morrow 1997) (*Teacher as Skilled Practitioner*)	Includes designing appropriate teaching, learning, and assessment strategies to respond to targeted students (Chikoko 2016) (*Teacher as knowledge organiser*)	Includes developing publishable teaching/ learning material related to 'signature pedagogy' (Shulman 2016) in the discipline (*Teacher as knowledge producer*)
1.2	Curriculum Design	Includes being able to select relevant material and pedagogical strategies to scaffold learning for the targeted learning	Includes remaining abreast of disciplinary knowledge within the field of expertise through networking with the academic	Includes knowledge of (higher education) policy requirements in formulation of new courses, including quality assurance and regulatory procedures for such. This extends to the role of regulating/ assuring/ developing the quality of their curriculum activity.

		group (students) (*Teacher as curriculum designer*)	community (Lave & Wenger 1991) (*Teacher as discipline expert*)	(*Teacher as curriculum policy developer*) of an academic in self-
1.3	Developing scholarship of teaching and learning	Includes developing competences to research one's own practice, and monitor and evaluate pedagogical inputs, processes and outputs (Samuel 2017) (*Teacher as researcher of pedagogy*)	Includes foregrounding student success with classroom pedagogy and curriculum choices. This includes debates around curriculum choices/ selections which could accept/ exclude particular knowledges related to agendas such as social justice, hegemonic demarcations and contestions, knowledge privileging, decolonisations, etc. (Dhunpath & Vithal 2012) (*Teacher as facilitator of learning*)	Includes publication around higher education pedagogy and curriculum, evaluated against social responsiveness and social justice considerations (Singh 2001) (*Teacher as publisher*)

2. RESEARCH				
2.1	Completing a (postgrad-duate) qualification	Includes reviewing selected pragmatic strategies for designing a research study; Conducting research and literature review; Selecting a research focus and topic; Establishing supervisor-supervised expectations; Managing time and budget for research (*Researcher as student*)	Includes engaging with theoretical development of the chosen field of research *(Researcher as reader/ commentator developer of the theoretical landscape of discipline/s)*	Includes completing/ overseeing the target examination process and product requirements (e.g. proposal defence, thesis writing, language editing, oral defence, response to examiners' reports) (Traffford & Leshem 2008) (*Researcher as 'the examined'/ the examiner)*
2.2	Designing and conducting fieldwork research	Includes developing relevant socially responsive research design projects (small scale) with coordinated fieldwork, time frames and budget	Includes understanding and engaging the possibilities and limitations of inter-/ trans-/ juxta-/ multi-disciplinary research (Nikitinia 2006)	Includes developing grant proposals for funding of large scale research projects which involve management of multiple partners in the collaborative research process; Engaging with regional, national and/or international research collaborations; Setting up research partnerships across inter-

		(Researcher as manager of a small research project)	*(Researcher as mediator across disciplines)*	institutional partners (*Researcher as team worker*)
2.3	Supervising research	Includes managing, coordinating and overseeing the research design, development and dissertation/ thesis construction of individual postgraduate students (*Researcher as supervisor of postgraduate students*)	Includes managing and coordinating teams of supervisors and students in collaborative study projects (*Researcher as supervisory manager of teams in collaborative research projects*)	Includes development and advisory role in a network of supervisors within, between, and/or across disciplinary focal areas in large-scale projects involving multiple institutions, students, researchers, research partners to address macro-systemic issues. Could involve policy-making processes (*Researcher as developer, innovator of theories, models, policy designs*)
2.4	Developing a(n) (inter)nationa l research profile	Includes planning, co-ordination and engaging with institutional, local, regional networks to disseminate and participate in research dialogues: presentations seminars,	Includes responding to the target of being (inter) nationally recognised for one's scholarship in research; Leading the design and delivery of research forums to	Includes being involved in sharing research knowledge as a key shaper of/ contributor to the direction of the discipline/ field (e.g. being invited as keynote speaker at conferences, plenary panel member at an (inter)national conference/ research forum; lead and conduct colloquia in

		workshops, colloquia, conferences (*Researcher as participator in research forums*)	activate the body of inter-/trans-/ /juxta-/multi-disciplinary knowledge and practice (*Researcher as knowledge mediator*)	new focal areas; organise and develop conference agendas and themes to establish the field) (*Researcher as international expert*)
2.5	Publication	Includes being able to successfully submit and publish articles in conference proceedings, and/or an accredited journal. Mentors should guide mentees about the 'publication industries' which have commodified academic publication outputs, as well as alert them to the hostile 'predatory' publishing houses and journals'	Includes widening the scope of publications such as chapters in books, editorial compilations of anthologies; Includes peer reviewing for academic publishing in publishing houses, and /or journals (*Researcher as quality assurer of research publications)*	Includes publication of single authored books outlining a targeted areas of expertise; shaping the development of international handbooks in targeted disciplines/ fields; Includes serving on editorial boards and serving as Guest Editor of special issues of journals Includes single-authored research monographs scoping the development of(new) directions for the discipline/field (*Researcher as informed shaper of the field*)

		practices which prey on novice/ unsuspecting victims in academia (*Researcher as knowledge disseminator through reputed publications outlets*)		

3. COMMUNITY ENGAGEMENT				
3.1	Linking academic work and the social world	Includes developing operational strategies and practices for collaboration between the world of academia (higher education institutions) and the targeted social community in small scale projects (*Community developer as social agent*)	Includes organising and managing the intersection of multiple teams of research partners, community participants and targeted collaborative sites for co-defined growth and innovation (Preece 2016) (*Community engager as team builder of socially relevant knowledges*)	Includes the development of relevant and socially just (institutional, national and international) policy and practice related to activating the scholarship of the field of academia within, with and for the social context (*Community engagers as shapers of systemic responses*)

3.2	Service the needs of the community	Includes development of scoping of challenges and opportunities within targeted community to activate scholarship, research or innovative practices (*Community developers raising awareness of social challenges and opportunities*)	Includes designing the processes of addressing challenges, harnessing strengths within a targeted community to address, expand, contribute to the development of a more socially just community (*Community engager as agent of community assuring the value of knowledge in, of, for and with partners*)	Includes the alignment of appropriate macro-political/ social/ economic/ cultural resources, practices, knowledges to activate a more systemic socially just response to the needs of targeted communities; Responses might include a variety of public awareness raising and dissemination strategies including development of policy, communication strategies, media involvement, publications outlining the limits and potential of communities, distribution of human, physical and/or financial resources (*Community engager as systemic developer*)

4. UNIVERSITY SERVICE AND ADMINISTRATION				
4.1	Within discipline/ school	Includes familiarity with the policies and practices within the School with respect to areas listed above (# 1, 2, 3 and 4) *(University academic as employee)* [Induction/orientation]	Includes participation in team work to critique discipline/ School practices and policies; Includes reviewing the limits and	Includes the development of policy and practices to shape the operational and conceptual worlds of the School's activities (e.g.

			potential of existing policies and practices within the discipline and schools; Includes promoting the blurring of boundaries across disciplines and schools. (*University service as shared dialogue amongst discipline/ School*)	through participation in sub-committees of the discipline, cluster; being a member of School Board committees and structures) (*University service as service to discipline/School development*)
4.2	Within the institution	Includes familiarity with the policies and practices within the College, the institution with respect to areas listed above (# 1,2, 3 and 4) (*University academic as employee*) [Induction/orientation]	Includes participation in team work to critique College and institutional policies and practices; Includes reviewing the limits and potential of existing policies and practices within the College and institution; Includes promoting the blurring of boundaries across Colleges	Includes the development of policy and practices to shape the operational and conceptual worlds of the institution's activities through e.g. involvement in College, Senate institutional committees; participation in institutional committees/ structures/ processes Includes involvement in national policy

			and across different higher education institutions (*University service as shared dialogue amongst College, institution collaborators*)	making processes (e.g. national departmental policy consultation and/or development processes; involvement in international networks systemically related to high education) (*University administrator as shaper of systemic institutional, regional, national, international processes*)

The model attempts to shift the conversation about mentoring 'from one that is centred around the ability to find a relationship with a senior faculty member on campus to one that focuses on identifying needs and getting them met' (Gee 2017: webpage). The underlying principle is that successful mentors intervene appropriately in response to the selected goals of the individual mentee – related to their specific contexts, circumstances, rank, and their network of available peers, together with their responsiveness to the broader social context. Together, mentor and mentee tailor-make unique pathways for mutual development, providing opportunities for monitoring achievement of such. As such, mentoring resists the hierarchical imposition of targets in favour of an agenda co-constructed through *collaborative negotiated reflection,* arising out of the specific contexts of the mentor and mentee. The model acknowledges the importance of embracing the complexities of the world of work as well as connecting with the personal and psycho-social and affective domains which mediate the quality of engagement of the mentee within institutional spaces. Simultaneously, personal, home,

community and institutional expectations coalesce to activate mentee selections, redefining both the mentee and the institutional space. This necessarily includes attention to both mentee's being (present status) and becoming (projected status) in a planned career trajectory. Finally, the model acknowledges the current competence level of the mentee and the projected short-medium-and long-term goals for their professional development. Each plan is necessarily unique and requires selected formal, informal, and non-formal interventions.

Concluding Comments

In this discussion, we have sought to demonstrate that the roles, identities, accountabilities and responsibilities of academics (i.e. 'academic work') are not necessarily uni-dimensional, stable or coherent. These roles shift over time and space, in different disciplines, units, or teams and some may conflict with others. The role of the mentor is to assist the mentee to make judgements across these multiple roles and identities in relation to targeted goals of advancement and the mentee's career planning. Mentorship relies strongly on the knowledge, commitment, and experiences of both the mentor and mentee. It is a relationship of trust to set and review manageable and feasible goals to assist mentees to achieve their prospective plans toward personal and professional growth.

It is also critical that we recognise that not all (senior) (experienced) staff are automatically skilled mentors. Targeted programmes may need to be designed to activate specific competences of mentors to achieve the range of goals set out in the above matrix. These programmes are a form of 'mentoring the mentor'. Furthermore, we should not assume that mentors need to be sourced only from within full-time university staff members. Outside experts/consultants/veterans, retired university staff members and other community-based experts who can share knowledge from the wider social world could also be drawn in to serve as mentors.

Finally, while there is a place for 'institutionalised mentorship programmes which enable early career academics and more experienced academics to share their individual experiences through critical conversations' (Subbaye & Dhunpath 2016: 15), there is no 'one-size-fits-all' approach to a mentorship model; context matters. Because every model has its benefits and burdens, we should be less concerned with ranking types of mentoring and focus more on

understanding which mentorship approaches best fulfil the mentorship needs at hand. While the waters surrounding the concept of mentorship may be muddy, we do need to wade through them because, as Lundquist and Misra point out, 'while academe lacks day-to-day structures to encourage mentoring, long-term tenure and promotion prospects essentially rely on it' (Lundquist & Misra 2017: webpage).

Acknowledgement

We express our gratitude to Nolwazi Zama, a UTLO Research Intern, who undertook the literature search for this article. We also acknowledge the contribution of the UKZN Mentorship Development Pilot Group of 2018.

References

Aminian, Z. 2018. Impact of Same-Race Mentoring on Adult Female African-American Students Enrolled at a Regional State College. *All Theses and Dissertations 151*. Available at: http://dune.une.edu/theses/151. (Accessed on 11 February 2018.)

Angelique, H., K. Kyle & E. Taylor 2002. Mentors and Muses: New Strategies for Academic Success. *Innovative Higher Education* 26,3:195 - 209. https://doi.org/10.1023/A:1017968906264

Bandura, A. 1977. *Social Learning Theory*. New York: General Learning Press.

Blunt, R.J.S. & J. Conolly 2006. Perceptions of Mentoring: Expectations of a Key Resource for Higher Education. *South African Journal of Higher Education* 20,2:195 - 208.

Cassese, E. & M. Holman 2018. Writing Groups as Models for Peer Mentorship among Female Faculty in Political Science. *Political Science and Politics* 51,2:401 - 405. https://doi.org/10.1017/S1049096517002049

Chikoko, V. 2016. Issues in Africanising Higher Education Curricula. In Msila, V. & M.T. Gumbo (eds): *Africanising the Curriculum: Indigenous Perspectives and Theories*. Stellenbosch: SUNMeDIA.

College of Medicine – Phoenix. n.d. Diversity Issues in Mentoring. Available at:

http://phoenixmed.arizona.edu/sites/default/files/faculty/facdev/mentoring/diversity-issues-mentoring.pdf (Accessed on 11 February 2018.)

Crisp, G. & I. Cruz 2009. Mentoring College Students: A Critical Review of the Literature between 1990 and 2007. *Research in Higher Education* 50,6:525 - 545. https://doi.org/10.1007/s11162-009-9130-2

Darwin, A. & E. Palmer 2009. Mentoring Circles in Higher Education. *Higher Education Research and Development* 28,2:125 - 136. https://doi.org/10.1080/07294360902725017

Dhunpath, R. & R. Vithal 2012. *Alternative Access to Higher Education: Under-prepared Students or Under-prepared Institutions*. Cape Town: Pearson.

Foote, K.E. & M.N. Solem 2009. Toward Better Mentoring for Early Career Faculty: Results of a Study of US Geographers. *International Journal for Academic Development* 14,1:47 - 58. https://doi.org/10.1080/13601440802659403

Gee, C. 2017. 5 Fairy Tales People Believe about Mentoring in Higher Education: Academic Impressions. Available at: https://www.academicimpressions.com/5-fairy-tales-people-believe-about-mentoring-in-higher-ed/. (Accessed on 08 March 2018).

Gibson, S.K. 2006. Whose Best Interests are Served? The Distinction between Mentoring and Support. *Advances in Developing Human Resources* 7,4:470 - 488. https://doi.org/10.1177/1523422305279678

Gilmore, N., M. Coetzee & D. Schreuder 2005. Experiences of the Mentoring Relationship: A Study in a Mining Company. *South African Journal of Resource Management* 3,3:27 - 32. https://doi.org/10.4102/sajhrm.v3i3.71

Hanover Research 2014. Faculty Mentoring Models and Effective Mentoring. Hanover: Academy Administration Practice. Available at: http://www.umass.edu/ctfd/mentoring/guidelines.shtml (Accessed on 02 February 2018.)

Hezlett, S.A. & S.K. Gibson 2005. Mentoring and Human Resource Development: Where We are and Where We Need to Go. *Advances in Developing Human Resources* 7,4:446 - 469. https://doi.org/10.1177/1523422305279667

Holmes, S.L., L.D. Land & V.D. Hinton-Hudson 2007. Race Still Matters:

Considerations for Mentoring Black Women in Academe. *The Negro Educational Review* 58,1-2:105 - 129.

Hunt, D.M. & C. Michael 1983. Mentorship: A Career Training and Development Tool. *Academy of Management Review* 8,3:475 - 485. https://doi.org/10.2307/257836

Hunter, L. 2014. Faculty Mentoring Handbook, University of Arizona. Available at: http://live-uarizona-diversity.pantheon.arizona.edu/sites/default/files/diversity_issues.pdf. (Accessed on 18 February 2018.)

Kram, K.E. 1980. *Mentoring Processes at Work: Developmental Relationships in Managerial Careers*. Unpublished Doctoral Dissertation, Yale University, New Haven.

Lave, J. & E. Wenger (eds.) 1991. *Situated Learning: Legitimate Peripheral Participation*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511815355

Leibowitz, B., V. Bozalek, J. Garraway, N. Herman, J. Jawitz, P. Muhuro, C. Ndebele, L.Quinn, S. van Schalkwyk, J-A. Vorster & C. Winberg 2017. *Learning to Teach in Higher Education in South Africa: An Investigation into the Influences of Institutional Context on the Professional Learning of Academics in their Roles as Teachers.* Pretoria: Council on Higher Education. (Higher Education Monitor 14.) Available at: http://www.che.ac.za/sites/default/files/publications/PUB_HE%20Monitor%2014_20170401.pdf (Accessed on 16 June 2018.)

Lundquist, J. & J. Misra 2017. Faculty-to-Faculty Mentoring. *Inside Higher Education* 13 July 2017. Available at: https://www.insidehighered.com/advice/2017/07/13/how-find-mentors-and-be-good-one-yourself-essay (Accessed on 08 March 2018.)

Morrow, W. 1997. *Learning to Teach in South Africa*. Cape Town: Human Sciences Research Council Press.

Nikitinia, S. 2006. Three Strategies for Interdisciplinary Teaching: Contextualising, Conceptualising and Problem-centring. *Journal of Curriculum Studies* 38,3:251 - 271. https://doi.org/10.1080/00220270500422632

Noe, R.A. 1998. Women and Mentoring: A Review and Research Agenda: *The Academy of Management Review* 13,1:65 - 78. https://doi.org/10.2307/258355

Nzimande, B.E. 2015. Foreword by the Minister. Available at: http://www.ssauf.dhet.gov.za/Content/Foreword%20by%20Minister.pdf. (Accessed on 11 February 2018.)

Pithouse-Morgan, K., I. Naicker, D. Pillay, D. Masinga & T. Hlao 2016. Sink or Swim? Learning from Stories of Becoming Academics within a Transforming University Terrain. *South African Journal of Higher Education* 30,1:224 - 244. https://doi.org/10.20853/30-1-561

Pfleeger, S.L. & N. Mertz 1995. Executive Mentoring: What Makes it Work? *Communications of the ACM* 38,1:63 - 73. https://doi.org/10.1145/204865.204880

Preece, J. 2016. Mediating Power through a Pedagogy of Dialogue and Listening in Community Engagement. In Samuel, M.A., R. Dhunpath & N. Amin (eds): *Disrupting Higher Education Curriculum: Undoing Cognitive Damage*. Rotterdam: Sense Publishers. https://doi.org/10.1007/978-94-6300-896-9_10

Quinn, L. & J-A. Vorster 2012. Training New Academics is a Complex Challenge. *Mail & Guardian*. Available at: https://mg.co.za/article/2012-10-05-00-training-new-academics-is-a-complex-challenge. (Accessed on 11 February 2018.)

Richard, O.C., P.F. McKay, S. Garg & S. Pustovit 2017. The Impact of Supervisor – Subordinate, Racial - Ethnic and Gender Dissimilarity on Mentoring Quality and Turnover Intentions: Do Positive Affectivity and Communal Culture Matter? *The International Journal of Human Resource Management* 1 - 28. https://doi.org/10.1080/09585192.2017.1344288

Rogers, E.M. & D.K. Bhowmik 1970. Homophily-heterophily: Relational Concepts for Communication Research. *Public Opinion Quarterly* 34,4:523 - 538. https://doi.org/10.1086/267838

Rockquemore, K.A. 2016. Why Mentor Matches Fail. *Inside Higher Education* 03 February 2016. Available at: https://www.insidehighered.com/advice/2016/02/03/most-mentoring-today-based-outdated-model-essay. (Accessed on 08 March 2018.)

Samuel, M.A. 2017. Developing a Syntax for SOTL. *Scholarship of Teaching and Learning in the South* 1,1:19 - 38.

Shulman, L. 2016. Between Research and Practice: Situating a Scholarship of Teaching and Learning within the Professional, Intellectual and Moral Landscape of the Academy. Keynote address presented at University Teaching and Learning 10th Annual Conference. Durban. September 2016. Available at: http://utlo.ukzn.ac.za/Libraries/Documents/Lee_Shulman.sflb.ashx (Accessed on 7 July 2017.)

Singh, M. 2001. Re-inserting the 'Public Good' into Higher Education Transformation. In *Kagisano: Higher Education Discussion Series* 1:8 - 18.

Sorcinelli, M. & J. Yun 2009. *Mutual Mentoring Guide*. Amherst, MA: University of Massachusetts.

Stewart, W.A. 1977. *A Psychosocial Study of the Formation of the Early Adult Life Structure in Women*. Unpublished Doctoral Dissertation. Teachers College, Columbia University, New York.

Subbaye, R. & R. Dhunpath 2016. Early-Career Academic Support at the University of KwaZulu-Natal: Towards a Scholarship of Teaching. *Studies in Higher Education* 41,10:1803 - 1819. https://doi.org/10.1080/03075079.2016.1221657

Traffford, V. & S. Leshem 2008. *Stepping Stones to Achieving your Doctorate: by Focusing on Your Viva from the Start*. Berkshire: OUP.

Welch, O. 1996. An Examination of Effective Mentoring Models in the Academy. Paper Presented at the Annual Meeting of the American Educational Research Association, New York. Available at: https://archive.org/stream/ERIC_ED394464/ERIC_ED394464_djvu.txt. (Accessed on 7 July 2017.)

Yun, J., B. Baldi & M. Sorcinelli 2016. Mutual Mentoring for Early-Career and Underrepresented Faculty: Model, Research, and Practice. *Innovative Higher Education* 41:441 - 451. https://doi.org/10.1007/s10755-016-9359-6

Yun, J., B. Baldi & D. Sorcinelli 2016. Mutual Mentoring Model. Available at: http://www.umass.edu/ctfd/mentoring/guidelines.shtml (Accessed on 02 February 2018.)

Rubby Dhunpath
University Teaching and Learning Office
University of KwaZulu-Natal
dhunpath@ukzn.ac.za

Towards a Model of Mentoring in South African Higher Education

Heidi Matissonn
School of Religion, Philosophy and Classics
University of KwaZulu-Natal
matisonnh@ukzn.ac.za

Michael Samuel
School of Education
University of KwaZulu-Natal
Samuelm@ukzn.ac.za

The Conversation: Applying Gadamer's Theory on Seeking Understanding in a South African Context

Sharon Rudman

Abstract

Amidst the turmoil and controversy which characterises much of the public debate on social concerns in South Africa, the issue of apartheid-type perceptions of identity continues to dictate the nature and outcome of interactions. Student feedback on a first-year English Language Studies module at Nelson Mandela University suggests that through the medium of 'hermeneutic conversations' (as described by Gadamer), there is potential to both address and overcome many of these ideologically-based obstacles which appear so persistent in our struggle for transformation. The concept of conversation forms the core of Gadamer's explanation of the quest for understanding. Gadamer describes the task of hermeneutics as establishing 'agreement, where there was none or where it had been disturbed in some way' and he claims that it is through the format of a hermeneutical conversation that such understanding is achieved. This article considers Gadamer's theory on gaining common understanding in terms of student interactions which form part of the above-mentioned first-year module. Students are prompted to enter into conversations aimed at encouraging understanding between those of diverse backgrounds. In addition, the course aims to prompt 'inner conversations' regarding everyday understanding of the world and that which is assumed as 'truth'.

Keywords: hermeneutic conversation, understanding, fusion/stretching of horizons, hermeneutic circle, language, ideology, phronesis, transformation

Print ISSN 1023-1757; Electronic ISSN: 2519-5476; DOI https://doi.org/10.29086/2519-5476/2018/v25n2a5

Introduction

> To become always capable of conversation – that is, to listen to the Other – appears to me to be the true attainment of humanity (Gadamer 2006: 358).

South African society continues to grapple with a number of issues, many of which emanate from the pre-democratic period of apartheid. As we try to engage with matters such as decolonisation and the land reform issue, the schisms in our society are highlighted by the struggle to come to shared understandings, or even interact with one another in a constructive manner. Whether explicit or implicit, the schisms based on apartheid-type divisions in our society remain one of the key factors in our misunderstanding and mistrust of one another. Reflecting on the persistence of racist ideologies and their destructive impact on our society, Makhanya (2018: webpage) writes:

> All our debates are laced with racial suspicion, leading them to be unnecessarily polarised. They are riddled with myths, suppositions and disdain for fact. All this makes it impossible to have rational conversations, as evidenced by perspectives on employment, economic empowerment, transformation of sport and the current debate on land reform and land restitution.

As Makhanya reflects, racial and ethnic divisions in our society, based on stereotyped assumptions of one another, continue to dictate our experience of one another. As he notes, not only does this impact on interactions but also on the potential of successfully reaching agreements in everyday as well as larger strategic issues.

South African society is, of course, not alone in displaying race-based and ethnocentric ideologies, but is unique in the sense that such ideologies laid the basis for legislation during a forty-five year period of our history. Alexander (2002: 105) suggests that, although South Africa has entered a new political phase, identities are still constructed and perceived within the context of apartheid-type ideologies. The 'strategic essentialism' upon which the South African society was based during the apartheid years formed a racialised context in which all information was processed (Soudien 2012: 15). Soudien

(2012: 21) explains that these ideological structures grew to be so dominant and all-encompassing that they eventually became the 'obvious' and 'natural' way to understand things. It is the naturalisation of such essentialised notions of race in South Africa which explains why these have not only remained but also 'come to settle in the popular imagination as an entirely neutral concept' (Soudien 2012: 21). Thus the 'situation appears to be ideologically empty', rendering it 'impervious to any form of critique and deconstruction' (Soudien 2012: 15).

These ideology-based obstacles not only cause but also maintain many of the crises, contestations and conflicts in our society. The persistence of these habits of thought, disguised as 'truth', has brought to the fore the complexities involved in seeking a commonality of understanding between members of an 'apartheid-scarred' society. It is clearly not just theoretical insight which is required, but also acumen regarding the practicalities of actually living out this commonality in a day-to-day reality – not only because of the implications of this for relations and interactions with others, but also, importantly, to increase broad collective agreement in the way we understand and make sense of the world. Praeg (2014: 4) suggests that the platforms provided in higher education provide valuable opportunities for prompting critical thought which would interrogate such ideologies. Most South African students, he claims, are unaware of how their membership of particular groupings in society 'both determines and limits their perceptions of the world' and it is in the context of higher education, he proposes, that possibilities exist to address these limitations.

This article suggests that Gadamer's theory regarding 'hermeneutic' conversations can be constructively applied in the context of seeking understanding of, and with, one another in the South African context. The context of investigation will be the potential inherent in an encounter embedded within a module presented to first-year English Language Studies students at the Nelson Mandela University in Port Elizabeth. The 'encounter' is in the form of a module section on Language and Ideology and incorporates exposition, application, discussion and reflection on aspects which potentially function to perpetuate schisms in our post-apartheid South African society.

Gadamer's 'Conversation'

The concept of conversation forms the very core of Gadamer's explanation of

the quest for understanding and is, according to him, 'the heart and soul of hermeneutics' (Wiercinski 2011b: 41). Hermeneutics refers to the process of understanding (which is primary) and interpretation (which is the explication of understanding) and functions to enable agreement and 'a proper understanding' where such does not exist – or where it has been 'disturbed' (Gadamer 2004: 292/387).

Gadamer distinguishes between a normal, everyday conversation and a 'hermeneutic' conversation (2004: 384). In the former, a common understanding of the world lays an implicit foundation for what is discussed, and these assumptions facilitate the smooth, reciprocal flow of communication. In such a conversation, a commonality of meaning is presumed and concepts are not interrogated but their meaning rather assumed. A conversation in the true hermeneutic sense, however, is initiated when understanding on a particular subject is contested (2004: 387/389) and differing perspectives need to be taken into account in coming to a mutual understanding.

The Goal of a 'Hermeneutic Conversation'

The goal of a hermeneutic conversation would be, as Gadamer (2004: 390) explains it, the 'fusion of horizons'. A 'horizon', in the physical sense, constitutes the limits of one's vision and in the same way Gadamer's metaphorical horizon points to the limits of one's ability to understand and make sense of that which one encounters. One's immediate assumption in trying to understand or interpret something, is that it will 'make sense' within the realm of meaning to which one has access, thus that it will fit into the world as one knows it.

Gadamer speaks of the process of gaining understanding as a circle (2004: 293/294) comprising an interplay between the part and the whole. The starting point would be the (mostly unconscious) particular framework within which one perceives reality, one's understanding of the world in its 'completeness' ('as a whole'). When one encounters an element which cannot be reconciled to this framework and one chooses not to ignore but to investigate this issue, a process of reflection and interaction is initiated. Dallmayr (2011: 64) describes the process as one in which the initial perception of the 'whole' is 'shipwrecked' because parts encountered 'refuse to be integrated'. This triggers an ongoing adjustment of parts and whole'. Every adjustment of one's

horizon implies that subsequent interaction with the world is affected and now processed via the new perception of the 'whole'.

The Form of a Hermeneutic Conversation

In a hermeneutic conversation, agreement is attained, not by attempting to assume the mind of another but by trying to understand the position from which his/ her views emanate, trying to understand how what he (or she) is saying could be right (Gadamer 2004: 292). The outcome of this process is not that one sees the world *exactly* as someone else sees it, but that one's own horizon expands to overlap with that of another – a fusion of horizons (Gadamer 2004: 390).

The concept of understanding as a conversation is also used by Gadamer to describe the inner thought process which facilitates the attempt to make sense of matters for oneself (Gadamer 2004: 422). He explains that:

> Because our understanding does not comprehend what it knows in one single inclusive glance, it must always draw what it thinks out of itself, and present it to itself as if in an inner dialogue with itself. In this sense all thought is speaking to oneself.

Gadamer's words imply that sometimes we can sense knowledge or perhaps even know things in an unconscious form – but this does not mean we understand them. In order to understand, we need to draw out that 'knowing' – unravel it – by trying to explain it to ourselves. Gadamer's view is of 'the conversation with oneself as an inner dialogue of the soul seeking understanding [as] an infinite dialogue' (Wiercinski 2011a: 17).

Embarking on a Hermeneutic Conversation

As previously mentioned, Gadamer (2004: 295) describes the role of hermeneutics as clarifying 'the conditions in which understanding takes place'. As such, he suggests that certain conditions will increase the potential for success in such a process.

Firstly, a conversation should be approached in an appropriate spirit, with participants jointly committed to the goal of reaching an understanding

(2004: 388). The purpose of such a conversation should be explicitly understood as the attainment of a commonality of understanding rather than the attempt to debate or convince one another (Gadamer 2004: 389).

Secondly, Gadamer emphasises the value of understanding that, as an inevitable consequence of 'belonging' to a specific society or community', we all inherit prejudices and are thus, whether implicitly or explicitly, moulded by them. A consequence of one's inevitable ideological bias is that one most likely has (albeit unconscious) preconceptions and assumptions regarding the particular subject at hand in a conversation (Gadamer 2004: 271). Gadamer refers to Heidegger's description of such assumptions as 'imperceptible habits of thought' – as opposed to authentic knowledge (Heidegger 1962: 153). However, through making explicit our ideological assumptions and acknowledging them as constitutive of our present horizon, we are able to enter the hermeneutic circle and test the validity of such prejudices through interaction with new aspects of the world which we encounter (Bernstein 1982: 828). The quest for true understanding should thus be focused on 'the thing itself', rather than influenced by our 'habits of thought' or related projections (Gadamer 2004: 270).

A third aspect to note is the role of language as a medium for a hermeneutic conversation. Language is the medium in which communication and explanation happen and the context in which potential agreement can be reached. In embarking upon a hermeneutic conversation aimed at interpretation of meaning and understanding, commonalities of signification should not be taken for granted, particularly where contextual differences (for example cultural or temporal) exist. In a hermeneutic conversation, where understanding and agreement are consciously sought rather than assumed, 'language as the medium of understanding must be consciously created by an explicit mediation' (Gadamer 2004: 386).

It is worth noting that beyond accommodating agreement and commonality of comprehension, Gadamer (2004: 399) also accedes that language has the potential of initiating relationships:

> Thanks to the verbal nature of all interpretation, every interpretation includes the possibility of a relationship with others. There can be no speaking that does not bind the speaker and the person spoken to.

Gadamer suggests that this process of coming to an agreement (even if it is the

proverbial 'agreement to differ', one might add), holds the inherent possibility of initiating a bond between participants – no matter that the initial perception of one another may be as 'alien' or 'other'.

Finally, Gadamer warns that because every conversation has 'a spirit of its own', it is futile to try to control the outcome of such a linguistic interaction (2004: 384). In discussing Gadamer's theory of conversation, Wiercinski (2011a: 17/21/22) cautions against assessing an 'awkward' or 'difficult' dialogue as problematic. The readiness to share and discuss diverse views may very well lead to confrontation, but this need not be seen as counter-productive, as long as participants persist in the quest for a common understanding. In fact, it is often the 'psychologically difficult dynamics' in such a conversation that contribute vitality and creativity to the interaction (Wiercinski 2011a: 17). It is, of course, important in such a situation for participants to consciously persist in the application of empathy and the resolve to 'treasure the otherness of the other' (Wiercinski 2011a: 20). However, even if, at the end of the conversation, an issue remains unresolved, the interaction remains a tangible reminder of 'the intrinsic power of speaking and the power of listening'. For this reason, a controversy which is not resolved should not be perceived as a failure. Even in such a case, the question and answer structure of a dialogue 'leads to liberation from the personal goals toward a new communion with the partner and an enriched understanding of the matter in question' (Wiercinski 2011a: 7).

Phronesis: The Goal of 'Understanding'

Gadamer (2004: 823) claims that whilst understanding certainly requires interpretation, an essential part of it is 'application'. In this respect, he employs the term 'phronesis' as used by Aristotle in referring to 'practical knowing or practical reasoning, for human living' (Johnson 2012: 145) or as 'moral knowledge' (Duvenage 2015: 78). This kind of understanding involves a synthesis of knowledge and virtue, of understanding and application – particularly as it relates to the manner in which we live side-by-side with others in the world. He (Gadamer 1975: 288) explains that phronesis:

> … appears in the fact of concern, not about myself, but about the other person. Thus it is a mode of moral judgement … The question here,

> then, is not of a general kind of knowledge, but of its specification at a particular moment …. The person with understanding does not know and judge as one who stands apart and unaffected; but rather, as one united by a specific bond with the other, he thinks with the other and undergoes the situation with him.

This kind of knowledge is thus not an 'objective', detached form of reasoning but rather the act of applying understanding to a specific human context in which one's focus is the good of the other (Duvenage 2015: 80).

It is through the appropriate interrogation of our own ideas, as well as those of others, that the potential lies for working towards an agreement in terms of understanding. Furthermore, it is through this process – as we encounter and learn about one another – that we gain insight into the most suitable way in which to apply this understanding. As Gadamer often points out, understanding is not a one-time event, nor is it simply a destination; it is, instead, a journey which constantly unfolds, a journey which is, as much as any conclusions reached, a part of the process of gaining this understanding. Gaining phronesis or 'practical wisdom' is a major aspect of this process.

The Academic Context: English Language Studies 111

Encounters between students in a first-year English Language Studies module at NMU appear to reflect much of what is described by Gadamer as a 'hermeneutic conversation'. In addition, individual student reflections imply that such 'conversations' were not limited to the literal interpersonal interactions but also prompted 'inner dialogues' in an attempt to make sense of what was encountered. In an attempt to better understand the dynamics of these events, Gadamer's theory on hermeneutic conversations has been applied to student responses.

The English Language Studies 111 (LES111) course is a semester offered in the first half of the year. The class always comprises between 450 and 700 students, most of whom have just commenced their university studies. The contact sessions for the module are made up of two double lectures per week as well as a weekly tutorial. During the first semester, four weeks are taken up by a section entitled Language and Ideology which is structured around the idea that language, as discursive interaction between human beings,

is reflective of ideological orientations (Belsey 1980: 45) and needs to be understood within this context. The module is coordinated and co-taught by myself and a colleague, Dr Jacqueline Luck. The assessment for this section is partly through a task which comprises three sections – one completed as a group and two as individual narratives. As lecturers, we emphasise that all parts of the task are evaluated only for relevance to the questions, and marks are not influenced by individual opinions.

The first five lectures (and accompanying tutorials) prompt students to consider the ideological nature of language by referring to, amongst others, Saussure's theory on language as a system of signs (a sign consisting of a signifier and signified), ideology as an interpretation of reality and the manner in which the latter inhabits the former as discourse. The link between discourse and common sense assumptions is discussed, with particular reference to the construction of identity. At the beginning of the sixth lecture, students hand in Part A of the task (a reflection on common sense assumptions made about different South African language groups) and commence Part B, the 'group interaction' section of the task. Groups for this section comprise five or six students with representatives of at least three different mother tongue languages among them. Each student is required to hand in a section summarising the ideas expressed by the group on a particular question. The questions relate to the ideas of 'prejudice' as presented through commonly held assumptions of the different South African language groups and how these impact on interpersonal relationships in South Africa. The marker of language, rather than race or ethnicity, is intentionally used because of the generally overwhelming political nature of the discourses surrounding the latter categories in contemporary South Africa. In addition, racial distinctions are often very closely related to those concerning language, and would thus still provide for discussion in those areas (Jansen 2013:225). Ideological assumptions related to race are mostly deeply entrenched and highly emotive and it was hoped that by approaching the issue (which is, in essence, the same) via a different route, students would be more willing to engage and perhaps risk vulnerability in engaging on this topic.

Part C of the task is in the form of an individual narrative and is completed after the last lecture in the section. This last section of the task requires students to write more or less a page relating to the module as a whole and whether it challenged their perceptions of their own language groups as well as those of others. The questions guiding the narrative are as follows:

- Over the period of this module and your group discussions, have you encountered anything that challenged/ changed how you thought of the identities of,

    - your own language group/s and
    - other language groups?

- Has any of the content/ have any of your reflections influenced the way you think about language and the way it is used to speak about the identities of others?

This last task sums up the students' own experiences of the Language and Ideology section of the course and allows them the opportunity to reflect upon any relevant insights or opinions. As these reflections were written after the group discussions, many students used this opportunity to share their thoughts on these conversations. This section of the task has been used as data for this study because it grants insight into the students' perceptions of these interactions and highlights any 'shifts' which may have occurred throughout the module. Approximately 60 narratives were consulted in the collection of data; however, the excerpts referred to reflect themes common to the feedback as a whole. Although students are identified only by a letter of the alphabet (e.g. Student A), a grid at the end of the article reveals the home language and gender of each student.

In terms of ethical considerations, students were asked to consent (in writing) to allow excerpts of their narratives to be included in this research. The topic of research was explained to them and they were assured of anonymity if they were to consent. It was emphasised that the participation or non-participation in this study would *have no impact on their assessment*.

With regard to Gadamer's theory, the LES group interactions are seen as a 'conversation' in which participants (often with very different perspectives) seek clarification and understanding alongside one another. In addition, students are encouraged to dialogue not only in the conventional form with one another, but also with themselves in the form of reflection in terms of their own self-understanding (as required by Part A and Part C of the task). Through this approach, it is hoped that insight will be gained on how to better understand each other and then incorporate this understanding into everyday interactions.

The aspects noted by Gadamer as prerequisites for a 'successful' conversation are taken into account in the preparation for these discussions. The concepts of language, ideology, discourse, common sense and identity are conceptualised in the preceding lectures in order to ensure that, during the group conversations, students will have a common frame of reference in using such terms. Of course, as Gadamer notes, the willingness of participants to engage upon a quest for commonality of understanding is essential. By explaining the manner in which meaning-making is achieved through the concepts of ideology and discourse, it is hoped that students would be persuaded, not only to interrogate their own perceptions and prejudices, but also to consider the manner in which others arrive at their own conclusions. In this sense, they are encouraged to acknowledge their own 'fore-conception of completeness' and thus understand the 'horizon' with which they start their quest for understanding. That which is addressed in the course would only relate to a very small part of a student's mindset as a 'whole' – namely only that of identity-perception as regards language usage. But it is encountering such 'parts', Gadamer claims, which prompts the activation of the hermeneutic circle and potentially then results in the revision of the 'whole'.

Although much effort is made to persuade students to enter into these conversations in an appropriate spirit, it would be unrealistic to expect that *all* would indeed exhibit the desired attitude. There are always those who resist any negotiation of their ideologically mediated perceptions of the world. However, the reflective feedback indicates that many, if not most, enter into these conversations with a desire to hear the 'other' and give of themselves in the negotiation of a common understanding. As the following section will show, the conversations which take place in this module (whether they be in the form of interactions or 'self-talk') appear to display numerous aspects of Gadamer's description of a 'good' conversation.

Findings

Entering the Conversation with an 'Appropriate Spirit'

Although students were aware that the module task included a section to be done as a group, they were not aware of the logistics of such until the class in which the groups were assigned. In terms of approaching the conversation with a 'good attitude', it must be said that many students express their initial

reluctance to work in groups with those perceived as 'other'. Student A expresses his dismay at realising that he had to do the task in a group comprising members of other language groups:

> **Student A:** My excitement was cut short when it was later said your group must consist of people that speak a different language from yours.

This student's initial apprehension at working with those he had previously considered 'other' is also reflected in the feedback of many others. But one of the themes that emerge from the narratives is the general sense of relief in encountering friendliness and acceptance from fellow group-members. Student A (from above) continues:

> **Student A:** As I started speaking with them, I discovered what nice people they are. We connected as if we had known each other for a long time. This was a moment of realization … The whole experience changed and challenged the way I thought about other languages and being more open-minded and [it] reminded me [that] we can all connect regardless of our groups as long as we are still human beings.

This student speaks of 'a moment of realisation', prompted by the manner in which his group members received him with warmth and immediately made him feel at home. For him this initial experience, even before the conversation had commenced, was influential in prompting him to approach the discussion with a 'good spirit'. Similarly, Student B joins his group with a sense of trepidation but is immediately reassured by the reception he receives from group members, sensing that he and his contribution will be valued:

> **Student B**: I also felt intimidated by members of my group because I believe I regarded myself as inferior and what I say was not to be taken into consideration. As a result I concluded that I must isolate myself. But what I recognised was the friendly attitude that they gave me and I believe that I am valued by others and my contribution counts regardless of my language or race.

Because of his initial perception ('I regarded myself as inferior and what I say

was not to be taken into consideration'), it seems likely that this student would not usually offer his opinion in a discussion. However, because of the attitude of his group members, he felt valued and thus willing to share his ideas.

Foregrounding Ideological Starting Points

A second requirement of a hermeneutic conversation, according to Gadamer, is an awareness of one's preconceptions or 'fore-knowledge' when approaching the task of understanding. Because Part A required students to explicitly note common sense assumptions regarding their own and other language groups (as well as their opinions on these), they enter into the group discussions with at least some awareness of their own ideological positions. Student C below speaks of an awareness of his own ideas regarding 'Afrikaners':

> **Student C:** Sometimes we get intimidated by the way they speak or maybe by the way their body are constructed or rather the experience we have with just one of them then decide they [are] all like this. I for one am guilty of that because I thought that Afrikaners are rude, violent, racist abusers and I just thought they [are] bad people that was the common assumption I had and the identity I imposed on them, and this was all because of the apartheid. I just hated them, till I decided to zoom in.

Student C brings his perceptions of 'Afrikaners' to the fore and, by making such explicit, is then able to 'zoom in' and examine the validity of these in terms of his own experience. He does so in the context of his group discussion, where an encounter with an Afrikaans classmate challenges his initial ideas:

> **Student C:** I met a sweet Afrikaner. She is the sweetest girl I have ever came across in NMU. She invited me to dinner with her family. At first I didn't want to go because I had all of this bad imaginations of how the dinner was going to be. When I got there they were so loving and caring we laughed and had a great time. It was not what I expected from Afrikaners but just the opposite of what I had in mind ... So the discussions and classes have changed the way I thought about

> Afrikaners and changed the identity I had for them, I realised that I just had a single story about them … I have realised that in our use of language we represent a particular identity at the same time that we construct it.

Despite his reluctance to attend the supper, Student C obviously went ahead with the arrangements, resulting in a complete change of heart regarding his assumptions. In the narrative of this student one senses the initial confusion in his encounter with a 'part' which does not make sense within his 'fore-conception of completeness' – his understanding of the world ('It was not what I expected from Afrikaners but just the opposite of what I had in mind'). Gadamer claims that it is such an encounter with a 'part' that does not fit into the 'whole' that provides the potential to 'stretch' and 'reset' the limits of one's understanding of the world (one's 'horizon'). As a consequence of this experience and the resultant process of trying to make sense of it, Student C is prompted to reset the parameters of his understanding (or 'horizon' as Gadamer refers to it) regarding Afrikaners ('changed the way I thought about Afrikaners and changed the identity I had for them').

Conversation Creates Relationship

This narrative also reflects Gadamer's suggestion of the potential within a hermeneutic conversation for creating a sense of community between participants (Wiercinski 2011a: 22) and initiating a relationship between participants. Student C and his Afrikaans group mate obviously formed some sort of bond during the group discussions, resulting in his invitation to supper at her home. Not only did this particular hermeneutic conversation lead to a new understanding of the 'other' but also, it appears, a friendship previously thought impossible.

Although this is one of the more exceptional stories to emerge in the feedback, it illustrates how the act of engaging in 'real' conversation can initiate a process of reconciliation and personal transformation. The interaction provided for in the class discussions enabled the student to encounter not only the Afrikaans student, but also her whole family as fellow human beings and, based on this, prompted the realisation that relationships previously considered unthinkable are indeed possible. This proves to be a particularly touching

illustration of Gadamer's suggestion regarding the relationships which may form through 'hermeneutic' conversations.

Being Led by 'the Thing Itself'

In becoming aware of his own prejudices, Student C heightened the possibility of allowing the 'thing itself' to lead the conversation. In Student D's feedback below, one senses her group's commitment to this goal:

> **Student D:** We had a very good time working with the English and Xhosa speaking people. We did not once say anything bad about them and there [was] peace all the time. We accepted everything they said about us or themselves good or bad. …...I realised not all isiXhosa speaking people are loud or racist. The isiXhosa speaking person did not have a bad attitude, he didn't have an attitude that said 'I don't want to be here because you are Afrikaans or English speaking people' or 'I'm here because I have to be here not because I want to be here'. the English speaking person did not think that she is better than the rest of the group because she speaks English and she also gave us a chance to give our opinions, she didn't talk alone or act like she knows everything and that she was smarter than us …We need to talk to them to find out what their beliefs, disbeliefs and values are before we say this and that.

Student D's feedback implies that she was perhaps expecting the 'Xhosa' or 'English' people to act differently. On the contrary, she found that everyone was committed to working together towards the goal of the task, no matter that it sometimes involved saying something 'good or bad' about themselves or others. On the surface, she seems to contradict herself ('we did not once say anything bad about them … we accepted everything they said about us or themselves good or bad') but, read in context, the first phrase appears to refer to offensive behaviour whereas the second implies the discussion of assumptions (as was required by the task). The positive attitude of group members within the discussion is reflected in her phrase: 'there [was] peace all the time'. The dialogic nature of the task is reflected in the assertion that: 'We need to talk to them to find out what their beliefs, disbeliefs and values are

before we say this and that', reminding one that understanding is to be gained from engagement with the 'thing itself' rather than in assumptions or preconceptions of such.

Defending Difficult Dialogues

It would be safe to say that the overwhelming majority of students appear to have found the group discussions to be a positive and, for many, even ground-breaking experience. However, as one would expect, this was not necessarily an easy task to engage in and a number of students speak of feeling challenged, uncomfortable and even offended during some point of the discussions. The students below were some of those who expressed such thoughts:

> **Student E**: I found it a challenge to actually accept some of the common assumptions that are associated with my language group.
>
> **Student F**: What was challenging about the task was that some assumptions made were insulting … assumptions made about my language are that we are rude, mean and violent meanwhile I am none of those assumptions. I am shy, quiet and I keep to myself.

The feedback of these students reflects some of the 'difficult' or awkward moments in these discussions. But, as discussed in the theory section, tension and awkwardness within a discussion are not necessarily a cause for concern. In fact, Wiercinski (2011a: 17) points out that it is often within such 'difficult' conversations that the most creative and vital interactions occur, as is intimated in the excerpt from Student G:

> **Student G**: We couldn't settle on an answer we both approved of which for me I saw that as a challenge I had to deal with. I am Afrikaans speaking which is a long stretch to isiXhosa speaking you can imagine and because there is such a huge space between our worlds and past feud between us assumptions were made against us and that made that he shy away from Afrikaans speaking people. Certain assumptions were made about us and I struggled to argue otherwise and vice versa, therefore our communication was affected, because we both had so much to tell each other.

Student G reflects on the discussion with her isiXhosa group mate, musing that their difficult interaction could be due to different backgrounds and cultures as well as the 'past feud'. In her own words, she felt it to be 'a long stretch' from her identity to that of her group mate. Nevertheless, they engage in conversation and attempt to come to some agreement on the topic – which proves difficult ('we couldn't settle on an answer we both approved of'). As Wiercinski (2011a: 20) reminds one, a controversy which is not resolved should not be seen as a failure. Even though one is unsure whether they eventually came to a resolution in this case, she emerges from the encounter with a resolve, in Wiercinski's (2011a: 20) words, to 'treasure the otherness of the other':

> **Student G**: I am more open minded to change and accept the fact that we are all different ... but that is the beauty of having and being part of such a diverse society that you get to explore new things everyday about language and learning from each other.

This excerpt emphasises that an awkward conversation with no obvious 'resolution' should not be seen as a failure because it still has the potential to effect within participants 'an enriched understanding of the matter in question' (Wiercinski 2011a: 7).

The Role of Inner Conversations

Gadamer suggests that the process of understanding is facilitated by both such dialogue with others as well as the 'self-talk' which characterises reflective thought, as borne out in the feedback of Student H:

> **Student H**: In partaking in this assignment and the course in general I have been forced to look at myself critically, thus question each and every single ideology I had about a people who speak a certain language. Especially being a Sotho man in a city that's dominated by Xhosa people, it is quite challenging ergo your ideologies about a certain group are deep rooted in the fact that verbal communication is quite a hurdle. Thus you make up tales and stories in your head about the people you're observing, using the slightest indicators to construct validity within he stories you make up. This becomes your way of

> dealing with this foreign group which you've just been embedded into, you at the very least feel a sense of comfort as the foreign group becomes less and less foreign through all the tales you've created about them. As people we are afraid of what we do not understand which is why we always find ways to cope whether the basis of our coping is accurate or inaccurate we not really concerned, we 'know' what we 'know' and that becomes what we see.

In a piercingly honest manner, this student exhibits self-awareness in his assessment of his previous strategy in meaning-making. His questioning of himself regarding his own ideologies reveals his use of assumptions as a basis for understanding. He admits that, in an attempt to protect himself, he resorted to ideological assumptions in trying to make sense of the unfamiliar 'others' around him. His reasoning illustrates Gadamer's point that the quest for understanding involves a continual process of projection as one attempts to understand every new aspect which is revealed concerning the focus of one's attention. This student is very honest in revealing the dangers of imposing one's own ideological interpretation on a situation, resonating with Heidegger's warning that by doing so there is the danger of such preconceptions 'guiding' our understanding, and indeed creating a potentially misleading or downright inaccurate 'story' of its own (Heidegger 1962: 153). However, this student's readiness to admit this reveals his willingness to render himself vulnerable in order to critically examine his ideologies 'about a people who speak a certain language'. His self-talk concludes with the realisation that, as human beings, we are resistant to examining or changing that which we 'know', attributing this very aptly to an underlying fear of that which we do not understand. It appears that this student, through engaging in self-dialogue and applying concepts discussed in the module, was prompted to reason his way to an understanding of his own (previously) biased thoughts and perceptions.

Stretching Horizons

In a similar manner, Student I, an English home language speaker, tells of how the dynamics of the group engagement prompted a thought process leading to a deeper understanding of how non-mother-tongue English speakers often experience communication with her (and other English mother-tongue speakers):

> **Student I:** I was the only person in my language group whose home language is English. It was kind of hard to express myself in the group or to become a part of the group because I could not fit in with the different kinds of home languages. My group members could see the way I felt and there was one time that I brought the topic across that I could not understand what they were saying. They decided to negotiate their identities in order to make sure that I knew what they were talking about and for the first time ever I finally realise that people whose home language is isiXhosa or isiZulu, negotiate their identities in order to make us feel comfortable.

Although she enters the discussion with a focus on herself and her own discomfort, the student moves to view the situation from the perspective of the other. Perhaps it was the experience of feeling awkward herself which then prompted the realisation that, in order to assuage this, her group members adjusted their own approach in order to accommodate her. Although there is no indication that this 'adjustment' was explicitly discussed (except for this student bringing up her own discomfort), it seems that she noted the manner in which the group members accommodated her. The dialogic nature of the interactions, both verbal and non-verbal, and the attitude of the group members play a key role here in enabling a deeper understanding of the 'other' and how the same situation can be experienced differently by those different from oneself.

Prompting Practical Knowledge

It is understanding of this kind which appears to have the potential, not only of prompting a realisation of some sort (interpretation), but also of application indicative of the concept of 'phronesis'. Many students link their new knowledge to resolutions regarding their behaviour, for example, Student J and Student K:

> **Student J**: This has taught me to be open-minded with people, accepting them despite their appearance or language group, because people are not always as they seem.
>
> **Student K**: I'm even going the extra mile to learn Xhosa. I've learned new short sentences and I am very excited to learn more.

Student J resolves to change his attitude towards others whilst Student K has already implemented his resolutions and started learning a new language in order to communicate better. Similarly, Student L reflects on what he has learnt about assumptions regarding his language group, and resolves to counteract these in his personal communication in future:

> **Student L:** It had me thinking about the way I usually talk when I interact with different language groups within the university society and I decided to challenge myself to maybe just to try and talk a little bit smoother, ease down on my tone and maybe look at my body language. Maybe though my efforts it will help different language groups be comfortable around Afrikaans speaking people. I am even more keen to learn more languages and the way they do things after I had these discussions with different language groups.

Through the group discussions, this student becomes aware of how tone and body language may affect the manner in which he comes across, thus influencing the potential for effective communication. Having come to this understanding, he applies it to his own actions with the hope of eradicating such obstacles in future interactions. In this student's response one senses an illustration of Gadamer's (1975: 288) reference to phronesis as 'concern, not about myself, but about the other person*'* and the related resolve to 'think[s] with the other and undergo[es] the situation with him'.

Paving the Way for a Common Understanding

The group discussions allowed for interaction between students who would, it appears, normally not enter into conversation with one another regarding the sensitive but critical aspect of how they perceive one another. For many students, this appears to have been a valuable experience, resulting in a number of perceived benefits, some of which are expressed by the students below:

> **Student M:** This module actually showed me how to live with other people from different language groups and how to accept and acknowledge other languages.
>
> **Student N:** The influence that this module has had on me is that it has taught me to really evaluate the way I think.

Students express various ways in which they perceive themselves to have grown through doing the module (and particularly through taking part in the group discussions). For Student M, she perceives this benefit primarily in terms of her relationship with others, whereas Student N comes away with an increased sense of self-awareness and an awareness of the need to evaluate her own thought processes. Each of these aspects has emerged through a process of understanding, not only regarding the core concepts discussed in class (for example, ideology and discourse) but also insight based on the opportunity to personalise such through interaction with others as well as individual reflection. In this sense, whether in conventional form comprising interlocutors, or in metaphorical terms comprising a dialogue with oneself, Gadamer's suggestion that conversation is key to understanding appears to have been borne out.

Conclusions

Through setting up a medium for interaction between students of diverse language backgrounds, the LES module provides a forum for dialogue between students who often consider one another as 'other'. The topic of these discussions, revolving around the very sensitive issue of ideologically mediated perceptions of one another, brings pertinent, but also divisive issues to the table.

The group discussions provide the opportunity to both ask questions of the other as well as the chance to clarify potentially obscure issues. Much of the 'success' of some of these conversations could be due to Gadamer's requirements for a successful conversation having, to some degree, being met. Key linguistic concepts were clarified beforehand, 'fore-knowledge' in the form of assumptions was foregrounded and, through the lecture content, students were given insight into how a particular ideologically 'tweaked' perception of the world could influence one, thus prompting them to enter into the interactions with a sense of interest in and tolerance towards their fellow participants. In addition, the initial application of these theories (as required by Part A of the task) helped students to foreground their initial assumptions and thus be able to refer back to them, as mentioned, in their final reflections (Part C).

Gadamer (2004: 386) describes a conversation as 'a process of coming

to an understanding'. Student feedback on the group discussions which formed part of this module implies that, for many, an increased sense of understanding was certainly gained through their participation in these. Firstly, students speak of gaining understanding regarding their own ideological positions and of an increased sense of self-awareness. The opportunity to bring assumptions about the 'other' to the table in conversation with those to whom such preconceptions related appears to be significantly effective in working through both the validity of such assumptions and in addressing the barriers set up by them. Although painful at times, the opportunity to hear the assumptions made about themselves seemed to raise important questions in the minds of students. For one, they realised that the invalidity of most of the assumptions that others made about them suggested the possible invalidity of the assumptions they make about others. In relation to this, the barriers constructed by such assumptions were shown to be largely mythical as well as destructive to both relationships and community. Finally, and most importantly, many students indicated that the realisations they had come to would influence their actions in future – here attesting to what Gadamer refers to as 'phronesis', i.e. practical wisdom or the application of knowledge. For us as South Africans, this is a particularly valuable outcome as it implies the possibility of new relationships and co-operation where these were previously thought impossible.

These dialogic encounters appear to have facilitated a 'bridging' of divisions which were based on assumptions of difference and distrust, in this way contributing to a sense of a shared understanding among students. The latter point thus refers to a 'fusion of horizons', where participants in a dialogue are able to 'stretch' their individual horizons to accommodate an overlap with that of another. There are also indications that in attaining this 'merging of horizons', many previously existing obstacles to interactions and relationships with the 'other' were removed, setting the stage for new and fruitful alliances.

Reflection on the data gained from students in this module suggests that, if approached in a manner aligned with Gadamer's principles of conversation, a dialogic encounter between those of different backgrounds and cultures may very well provide the platform necessary to achieve a better understanding of one another. Both the theory of Gadamer and the experiences of the LES students suggest that it is upon our willingness to enter into these conversations as South Africans that the vision of a reconciled and truly transformed society depends.

References

Alexander, N. 2002. *An Ordinary Country: Issues in the Transition from Apartheid to Democracy in South Africa.* Pietermaritzburg: University of Natal Press.

Belsey, C. 1980. *Critical Practice*. New York: Routledge. https://doi.org/10.4324/9780203328439

Bernstein, R.J. 1982. From Hermeneutics to Praxis. *The Review of Metaphysics* 35,4:823 - 845.

Dallmayr, F. 2011. Hermeneutics and Intercultural Dialogue. In Wiercinski. A. (ed.): *Gadamer's Hermeneutics and the Art of Conversation.* (International Studies in Hermeneutics and Phenomenology. Volume 2.) Berlin: Lit Verlag.

Duvenage, P. 2015. Practical Wisdom (Phronesis) and Hermeneutical Politics. *Phronimon* 16,1:77 - 95

Gadamer, H-G. 2004. *Truth and Method*. Weinsheimer, J. & D. Marshall (trans.). 2nd Edition. New York: Continuum.

Gadamer, H-G. [1972] 2006. The Incapacity for Conversation. Vessey, D. & C. Blauwkamp (trans.). *Continental Philosophy Review* 39,4:351 - 359.

Gadamer, H-G. 1975. *Truth and Method*. New York: The Seabury Press.

Heidegger, M. 1962. *Being and Time*. Macquarrie, J. & E. Robinson (trans.). Oxford: Blackwell Publishers.

Jansen, J. 2013. *We Need to Act*. Johannesburg: Bookstorm and McMillan.

Johnson, P.A. 2012. The Enigma of Practical Reasoning. In Portocarrero, M., L. Umbelino & A. Wiercinski (eds.): *Hermeneutic Rationality*. *International Studies in Hermeneutics and Phenomenology.* Volume 3. Berlin: Lit Verlag.

Makhanya, M. 2018. Dear IRR, Racism is Real. *News24*. (25 March 2018). Available at: https://www.news24.com/Columnists/Mondli-Makhanya/dear-irr-racism-is-real-20180323 (Accessed on 26 March 2018.)

Praeg, L. 2014. *A Report on Ubuntu*. Pietermaritzburg: University of Kwa-Zulu Natal Press.

Soudien, C. 2012. *Realising the Dream: Unlearning the Logic of Race in the South African School*. Cape Town: HSRC Press.

Wiercinski, A. 2011a. The Primacy of Conversation in Philosophical Hermeneutics. In Wiercinski, A. (ed.): *Gadamer's Hermeneutics and the*

Art of Conversation. (International Studies in Hermeneutics and Phenomenology. Volume 2.) Berlin: Lit Verlag.

Wiercinski, A. 2011b. 'Sprache ist Gespräch': Gadamer's Understanding of Language as Conversation. In Wiercinski, A. (ed.): *Gadamer's Hermeneutics and the Art of Conversation*. (International Studies in Hermeneutics and Phenomenology. Volume 2.) Berlin: Lit Verlag.

Student References

Student Letter	Home Language and Gender
A	Xhosa Male
B	Xhosa Male
H	Xhosa Male
I	Afrikaans Female
D	Xhosa Male
C	English Female
E	Afrikaans Female
F	Sotho Male
G	English Female
J	Xhosa Male
K	English Female
L	Afrikaans Male
M	Afrikaans Male
N	Xhosa Female

Sharon Rudman
Department of Applied Languages
Nelson Mandela Metropolitan University
Nelson Mandela Bay
Sharon.Rudman@mandela.ac.za

Re atumela phetogo[1]: Africanisation in Embodied Actor-training Performance Platforms Incorporating Multimodal Learning

Janine Lewis
Karina Lemmer

Abstract

This article reports on the implementation of multimodal creative training employed for embodied performance courses that include physical theatre and voice studies for actors. Awareness of embodiment is imperative for training actors, which in turn underpins the inherent nature of a visceral African performer and conceptual performance. However, attention to embodiment as a site of learning has been sporadic and paradoxically under-documented within the area of adult performing arts education. This article focuses on the potential of multimodality to challenge and re-imagine actor-training through implementation of performance platforms incorporating embodied-learning/ performance/ space(s) (embodied-LPS). The performance platform training was initially designed for the physical theatre training of Tshwane University of Technology (TUT) students in 2000, and this article reflects on how this multimodal training approach may be validated when reflecting on its application to the voice course since 2011. Using a reflective research design, association of practice was identified through lecturer's observation and reflection on the teaching and assessment strategies employed to cluster sample groups of acting-training Bachelor of Technology (BTech) students. Strategies embrace multimodal, self-directed and cooperative learning, that integrate reflexive practice-based principles. The performance platforms are primarily practical applications of theoretical underpinnings that are explored, reflected

[1] English translation of the Setswana: 'we welcome the change'.

Print ISSN 1023-1757; Electronic ISSN: 2519-5476; DOI https://doi.org/10.29086/2519-5476/2018/v25n2a6

upon and interpreted. Within the South African higher-education environment, the documentation and reflection in this article serve to validate that such multimodal (re)conceptual performance creativity facilitates transformation for the creative student through ownership learning and co-creation of new knowledge.

Keywords: embodied learning; embodied performance; experiential; adult performing arts education; Africanisation; multimodal learning

Introduction

To concede, theatre is essentially an unavoidable hybrid of inherited, borrowed, stolen, and invented practices and ideas (Murray & Keefe 2007; Sánchez-Colberg 2007). Therefore, a framework in which to define any one practice as 'embodied' more than another is nearly impracticable.

This article describes the embodied-learning/performance/space(s) multimodal learning performance platform, named embodied-LPS, implementted at Tshwane University of Technology (TUT). Embodied-LPS in this context is primarily employed for embodied actor-training. The performance platform training draws on experiential learning[2] and applies multimodal teaching[3] and creative practice. It serves to concretise the effective utilisation

[2] Experiential learning is also referred to as learning through action, learning by doing, learning through experience, and learning through discovery and exploration. Experiential Learning emphasises the central role that experience plays in the learning process, an emphasis that distinguishes it from other learning theories. The term 'experiential' is used to differentiate Experiential Learning from cognitive learning theories, which tend to emphasise cognition over affect, and behavioural learning theories that deny any role for subjective experience in the learning process (Kolb, Boyatzis & Mainemelis 2001). Experiential learning theory defines learning as 'the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience' (Kolb 2015:49).

[3] Multimodal learning and teaching environments allow instructional elements to be presented in more than one sensory mode (visual, aural, written), therefore, through several different sensory modalities, simultaneously or in tandem.

of performance platforms from our perspective as actor-training lecturers within a diverse multicultural and multilingual South African higher education context. To achieve this, our lived experiences and observations are juxtaposed and related to relevant literature to frame the training which centres on embodiment. Specifically, the performance platform employs a three-pronged approach to embodiment: embodied-learning/performance/space(s)[4] (embodied-LPS). The coalescing of these three distinct embodiment contexts will be delineated in this article towards promoting a comprehensive decolonised and Africanised actor-training through multimodal performance platforms. Further, the validation of such a performance platform as a means of andragogy actor-training, how they have evolved, and how they integrate the three embodied-LPS practices has been articulated.

The embodied-LPS training facilitates transformation of the creative student through ownership of the learning. The implementation through a multimodal training performance platform was designed in 2000 for the TUT Drama students specialising in physical theatre. This article reflects on how the performance platform may be validated as an embodied-LPS training approach when applied to the voice course since 2011. Using reflective research design, our assessment stems from observation and reflection on a cluster sample of a 120 BTech[5] drama students from TUT over six consecutive years (2011 - 2016). On average, 20 BTech students complete this process as a study elective per academic year. Data gathering included observation, reflective, and reflexive approaches. Thereby further enabling a qualitative argument for the actor's body-and-voice development in a diverse setting.

[4] *Embodied learning* is interpreted as a somatic approach to learning that considers both the individual's entire experienced history and current experience. *Embodied performance* is applied as an interplay between efficiency, productivity, acting, and entertainment, thus incorporating acting within the broader scope of performance. *Embodiment* in relation to the utilisation of *space* is considered both as a psychological place of being, as well as the physical thoughts on space as a site for literal activation and participation.

[5] A BTech (Bachalareous Technologaie) refers to a four-year degree proffered within a University of Technology in South Africa that places emphasis on pragmatic and vocational training.

Context

This article frames the use of embodied-LPS and primarily outlines these practices/metaphysical approaches within African perspectives due to the context that the performance platform unfolded and developed.

Embodied performance in Africa may be as ingrained in culture as is theatre, where 'African theatre can be seen as a habit that is as old as organized human communities' (Motsa 2001: 35). Further, Kamlongera (2005: 134) endorses the indigenisation of theatre by shifting away from the Western tradition of literary drama where the African theatre practitioner is urged to undo the 'shackles that bind him to the colonial heritage'. Storytelling and text are enhanced through physicality, which is in turn informed by performance traditions (Lewis 2013). Akin to its pre-colonial indigenous dramatic forms, African theatre[6] continues to be a visual and performing art dependent on forms of communication other than verbal language (Amankular & Akafor 1988).

Schechner (2013) substantiates that performance is a cultural process and an unfolding performance rather than a refined structure. In the contemporary world, cultures are constantly interacting, and subsequently, performance displays intercultural influences. Within this evolving practice the body of the performer in space is fundamental. Thus, it may be posed that embodiment is a central component in any performance.

Particularly in a South African performance context, Fleishman (1997) suggests that for most people making theatre in South Africa, the written word alone is insufficient to portray or explain the full complexity of the reality they face. Rather, these demands should be met or understood through the physical engagement of an embodied actor through performance (Lewis 2010). The need for embodied-actor training is therefore imperative within the South African context, as it shifts focus to 'organic congruencies' which Munro (2018: 5) describes as the similarities all humans share on anatomical, physiological, and psychological levels. Therefore, through embodiment in performance and organic congruencies, a collective culture or communication may be forged.

Similarly, Msila (2007) states that classrooms cannot be divorced from the societies they reflect and that is certainly true of the diverse contexts present within the learning performance platform discussed. The necessity of

[6] In African theatre the performative traditions of dance, acting, and music are not separate, they all form a coalesced performance mode.

multimodality in learning expressed through creative practice is also paramount to 'complex and diverse transitional educational contexts' (Archer & Newfield 2014: xvi). While these wide-ranging multimodal creative practices are present in arts, specific pedagogical offerings are possible (Andrew 2014).

Although the act of acting could be deemed as an embodied activity, certain methodologies may be deemed more effective in the training of a well-round African actor, where applied acting methods have long since included emphasis on both the physical and the mind. While embodied acting is understood as the systemic interplay between non-verbal communication, thought, voice and gesture, self and character, as well as empathy, imagination, and emotion; embodied performance incorporates acting within the broader scope of performance.

Findings in cognitive science pertaining to acting suggest that the inner and outer cannot be separated due to the reflexive integrated relationship between physicality, thought, emotion, and expression (Kemp 2012). This inner-outer inseparability suggests that, in acting, it may not be viable to refer to psychological approaches or physical approaches independently if body and mind work holistically. Therefore, the inner-outer inseparability implies all acting is embodied.

If all acting is indeed to be considered as embodied, one could also argue that this is of specific relevance in a multicultural and multilingual context as the actor's lived experience will be central to the development of embodied acting. This serves as a point of departure for the multimodal learning and application that is discussed within this article as it is concerned with the conceptual, physical, and vocal development of the actor-in-training within diverse cultural contexts. Archer and Newfield (2014: xvi) recognise the role of the trainer in the actor's context, 'The pedagogic potential of multimodality to challenge, re-think, and re-make educational practices in a complex and diverse transitional education context, such as South Africa, in which both teachers and students are understood as designers of meaning'.

Towards embodied-actor training, both performative applications in physical theatre, as well as the performing voice, offer a participatory embodied learning approach to performance that deals more with the direct translation of a process or concept into theatre. Lerman (in Schenck 2013: webpage) describes, '(W)hen you embody a process, you start to realise what you don't understand, and you begin to ask questions because you want to get the movements right'.

This suggests that an embodied approach in the actor's physical and vocal development may be deemed crucial for holistic training. In embodied learning, the holistic bodily processes are the medium through which we internalise knowledge. Applied in conjunction with theatre-making the holistic bodily process is where the conceptual practice is externalised in/through performance. Performative principles of body, space, and time apply.

A holistic approach to learning and knowing is inherent within many non-Western perspectives (Merriam & Bierema 2014). In these contexts, knowledge acquisition is not sought merely for individual development, but rather to benefit the whole community. The holistic view towards learning is found in African *ubuntu* – basic respect and compassion for others in society through spirituality, consensus-building, and dialogue (Nafukho 2006; Higgs 2003). However, 'to accomplish more holistic learning raises the stakes for educators to build accessible and motivating learning environments for a range of learners' (Merriam & Bierema 2014: 245).

To this end, learning and diversity will be briefly explored within Africanisation to further construct the intent towards a diversified-learning within the discussions of the training platform.

Africanisation

Various authors writing on Africanisation offer varied viewpoints on what they understand Africanisation to mean or entail (Letsekha 2013). Notable voices in the discourse include: Makgoba (1997) who emphasises culture and identity, noting that Africanisation is a process of inclusion that stresses the importance of affirming African cultures and identities in a world community; and Ramose (1998: ii-xii) who frames Africanisation as Afrocentrism that embraces the understanding that 'the African experience' is the 'foundation' of, and 'source' for, the construction of the knowledge at hand. Altogether, the term Africa has been retained by post-colonial Africans and strategically adopted and extended as a political move towards self-definition, self-identity, and self-assertion (Lebakeng, Phalane & Dalindjebo 2006). Seeking to reaffirm this aspiration of Africanness within andragogy[7] as applicable towards this training performance platform, it is necessary to understand the dynamics of such a paradigm.

[7] Andragogy is the method and practice of teaching adult learners; adult-focused education. Within the context of higher education where this training

Within an African learning context, a Yoruba proverb states, 'Anyone who fails to learn … is regarded as *oku eniyan* (the living dead)'. Within African andragogy the paradigm expectation includes that active citizens are continually sharing their knowledge with each other to benefit the community (Merriam & Bierema 2014). Further, as recommended by Merriam and Bierema (2014), there appears to be more benefit in merging the cultural practices than in maintaining a dichotomous approach when trying to achieve highly effective, varied learning for diverse students. This supports a multimodal learning environment, and it is the intention to provide varied learning that reinforces the Africanisation of the training performance platform. The embodied-LPS platform can start to be Africanised by acknowledging that Africanisation 'should not be constructed as an absolute rejection of European thinking on African scholarship, but rather as a rejection of assumed European intellectual hegemony' (Lebakeng, Phalane & Dalindjebo 2006). Garuba (2015: webpage) advocates that:

> Transforming the curriculum involves contrapuntal thinking at every level; it [requires] a contrapuntal pedagogy that brings the knowledge of the marginalised to bear on our teaching. A transformed curriculum is one that encourages contrapuntal thinking and pedagogy.

The contrapuntal notion is borrowed from music where it implies that two or more relatively independent melodies have been used in or in counterpoint within a composition. Within Africanised andragogy this would imply 'tak[ing] into account the perspectives of both the colonised and the coloniser, their interwoven histories, their discursive entanglements – without necessarily harmonising them or attending to one while erasing the other' (Garuba 2015: webpage). From a visual arts perspective, this may be akin to juxtaposition – where two things with contrasting effect that are seen or placed close together will contribute to the formation of a third unified interpretation. Kamwendo (2016) agrees that scholarship of African and non-African origins must feed into each other and strengthen each other, he warns that working in isolation within the globalised world cannot be fruitful.

The focus on physical actions in South African theatre and training can

strategy is found, the reference to andragogy as opposed to pedagogy is favoured.

be traced back to the rich and ancient performative elements in the oral traditions of indigenous knowledge systems (Coplan 1986). Significant in the performance narratives is that textual elements (oral tradition) have a high physical and non-verbal component. The communicative nature of physical actions in performance, and the meaning transfer, is a dominating factor to understanding conceptual narratives in a South African context. The physical action is therefore relevant to a professional performance ethic developed through physicality in theatre that transcends textual language (Lewis 2012).

The embodied-LPS training performance platform has conformed to these Africanised contrapuntal and physical theatre actions, notions and paradigms. Conformity was achieved by structuring the embodied learning coursework towards a metacognitive approach, where reflection is key to facilitating lasting learning experiences and developing lifelong learning. The threefold embodied approach proposed in this article, embodied-LPS, is central towards underpinning the development of multimodal performance platforms. To this end, the term *embodied* will be briefly explored in the three contexts learning/performance/space(s) as a fundamental synergetic aspect for the actor-training.

Embodied Learning

Embodied implies involving more than the mind (brain) and includes the involvement of bodily structures and processes (Rowlands 2010). Rowlands describes that embodiment belongs within the cluster of related philosophical theories regarding mental processes that are attributed to enactivism. According to Thompson (2007), enactivism proposes an alternative to dualism as a philosophy of mind, in that it emphasises the interactions between mind, body, and the environment, seeing them all as inseparably intertwined in mental processes.

The term *enactivism* is close in meaning to *enaction*, defined as 'the manner in which a subject of perception creatively matches its actions to the requirements of its situation' (Protevi 2006: 169-170). As Rocha (2011: 4) describes:

> Enaction is the idea that organisms create their own experience through their actions. Organisms are not passive receivers of input

> from the environment but are actors in the environment such that what they experience is shaped by how they act.

Further, the connection between enaction and enactivism may be positioned in embodiment. Where enactivism is closely related to both the ideas of cognitive development and social constructivism (Amineh & Asl 2015; Kim 2010; Thompson 2007). Enaction introduced within education is supported by the phrase 'learning by doing' as part of discovery learning by psychologist Jerome Bruner (1996) and resultant product of the learning process that provides 'pride, identity, and a sense of continuity to those who participate' (Bruner 1996: 22; Takaya 2013: 42). Both enaction and enactivism point towards an embodied learning state. Wilson and Foglia (2016) describe this fundamental concept of 'learning by doing' as a premise of embodied learning, through embodied cognition.

In philosophy, embodied cognition holds that a person's cognition is strongly influenced by aspects of a person's body, beyond the brain itself (Wilson & Foglia 2016). Further, it is surmised by embodied cognition that the nature of the dependence of cognition on the body is quite unexpected and suggests new ways of conceptualising and exploring the mechanics of cognitive processing. Researchers in education have argued that learning is a much more holistic experience encompassing the senses as much as the brain (Jarvis 2006; Jarvis & Parker 2007; Kelan 2011).

Bresler (2004: 9) refers to 'a mode of knowing', suggesting enquiry is constantly conducted by the body through sensory experience. Gärdenfors (2007) poses that through action and reaction to sensory stimulus, human beings create patterns employed to reason and ensure connected meaningful experience with the world. Such patterns order actions and perceptions and these patterns manifest as meaningful structures for bodily movements in space and perceptual interactions.

Johnson (2008) advocates that meaning is grounded in the body and that reason is an embodied process, thus suggesting that mind and body cannot be separated in the individual's unique experiences. This implies that what is often categorised as body (doing), mind (thinking), and emotion (feeling), interact as a dynamic integrated system. It could thus be posed that one's experiential embodiment is essentially the source of all that is known to the individual (Csordas 2003), as embodiment is the perspective from which the world is experienced (Campbell *et al*. 2009).

Further, according to Dourish (2004) embodiment implies that humans process and act through the physical manifestation of the world. This embodiment includes the physical embodiment of the body as an object. Thus embodiment encompasses bodily skills and situational responses humans develop; as well as cultural skills and understandings that sprout from the cultural context in which one is rooted (Dourish 2004). Such a notion contrasts with the separation of body and mind rooted in Western philosophical and religious traditions (Kemp 2012). That separation advocates a dualism in which the body is viewed as a machine controlled by the mind and subject to the laws of physics (Northoff 2014).

Embodied Performance

The construct of embodiment in performance could be summarised as 'the mind is of the body and the body is of the mind' (Lutterbie 2011: 30), as established through embodied learning. Within this construct the body and mind cannot be separated. The body houses the mind and the body is the means of interpreting and expressing what is deemed as the 'mind'. Therefore, it could be posed that the act of thinking does not occur separately from being (Dourish 2004).

An integrated body and mind is akin to indigenous African cultural performance modes and practices, where embodiment implies a sense of self connected by reflection of self. The connection marks the coming together of mind and body that results in reflection in lived experiences and results in the reflection becoming the experience (Varela, Rosch & Thompson 2016). According to Meyer-Kalkus (2007), it is the kinaesthetic dimension that merges what is heard and what is seen into a bodily reality. Humans apply kinaesthetic learning and perceptual experiences to navigate metaphorical abstract concepts, therefore embodiment could thus be described as a process rather than a state (Carroll 2011). This process occurs in both space and context and determines the body's orientation and movement in space and time, as well as the personal cultural identity and sociocultural context the individual body engages.

Merleau-Ponty (2002) and Ladkin (2012) further maintain that we conceptualise through our bodies. Others have suggested that it is with the body itself in space and time that can be a source of learning and insight, where the

somatic knowing is integrated in the learning (Beaudoin 1999; Mathews 1998). This in turn validates the African embodied performance-making initiative. It may be noted that it is arguably the body's movement in space and time that generates the actors' understanding and portrayal of space and time, placing embodiment central to the navigation of human existence.

Subsequently, power relations regarding sound, inferred in language and accent, affect the individual's experience, as the individual senses 'own sound' connected to 'linguistic expression'; thereby voice training implies the individual actor's subjective experience (Mills 2009: 84). Human experiences are dependent on contexts, and as a result the body and the embodiment experience are always concrete and individual (Bowman 2004). This implies that the system or process of embodiment reaches beyond personal cultural identity and self-awareness and extends into sociocultural contexts. Thus, the body and its lived experience is always social and cultural (Bowman 2004). Further, if performance considers how the body performs its social identity in terms of speaking, acting, and dressing (Schechner 2013), the performance implies that perception of voice and speech is heavily influenced by socio-cultural and environmental factors (McAllister-Viel 2007).

Bendelow and Williams (1998) state that natural expression is coded by the body, determined by culture and controlled by social demands, indicating that embodiment is subject to cultural and social context. It could therefore be argued that the context in which the body lives will affect embodied experiences and how the individual perceives and reflects upon the lived experience. Consequently, how the actor interprets and portrays lived experiences within fictional circumstances.

If the body is deemed a dynamic system and the actor is indeed a body in space, then the actor is a dynamic system of body and mind. Findings in cognitive science pertaining to acting suggest that the inner and outer cannot be separated due to the reflexive integrated relationship between physicality, thought, emotion, and expression (Kemp 2012). This suggests that it may not be viable to refer to psychological approaches or physical approaches in acting if body and mind work holistically. The cognitive science findings imply all performance and acting is embodied.

Bryon (2014) provides some insight into the discussion surrounding embodied holistic understanding of self in performance by pointing out that through integrative interdisciplinary performance the actor may break out of the constraints of dualistic thinking and being, with regards to self:

> (T)o think is one emergent property of self, not the one defining factor of self. This shift does two things: it takes us out of the mechanical dualism of mind/body and also out of the idea that self is born of linear and reductive models. It might also affect what performers value as correct, proper, and good discipline, in the act of training, learning, and performing (Bryon 2014: 17).

Lugering (2015: 28-29) contributes that:

> This perfect organisation of thinking, feeling, moving, breathing, sounding, and speaking is human expression at its best … Ideally, the actor should not focus on what is wrong with the body or the voice, but on how the body and voice are designed to work right.

Lugering adds that the most proficient acting is acting which gives the illusion that no training or technical skill is required. Simultaneously, voice plays a central role in cultural performance traditions where meaning is created through collective voicing. Thus, the vocal development of the actor in training in a multicultural and multilingual context demands a balanced interplay between the self and the cultural/linguistic collective. A performance training space in which the physically embodied exploration of the 'vocal self' can be freely and creatively asserted as individual and representative of a vocal collective could tangibly facilitate this balance.

The emphasis on the body working holistically (body and voice) along with the mind (focus) is imperative in acting and consequently in actor training. This is epitomised by a body and mind approach to acting that is mostly discussed and popularised through scholars and contemporary practitioners as 'psychophysical actor training' (Zarrilli 2009; Kim 1993; Rojo 2000). Later, acting and actor training coined the term *bodymind* alongside psychophysical.

Zarrilli (2009: 4) refers to *bodymind* connectivity in acting as a 'deeply-felt resonant inhabitation of the subtle psychological dimensions of the body and mind at work together in one moment'. Such an awareness is so open that the actor is totally focused on the action in the moment. This implies cultivating an awareness of the subtle synergy between body and mind in the act of performance. Enabling attention to these inner messages of the bodily experience could enhance how messages are translated into external expression, which is further associated with the concept of being embodied. In

the scope of this article *bodymind* is considered within the context of the actor-in-training's movement and voice preparation – as embodied performance.

Embodied Space/s

The above discussions of embodiment in relation to learning and performance relate the utilisation of space as a psychological place of being, as well as the metaphysical thoughts of space as a site for being/learning/knowing/activation. Therefore, space has been included in the discussions on embodiment towards using the constructs of space and referencing both the physical and psychological for learning and performance opportunities.

Towards a physical use of space, the embodied-LPS performance platforms discussed in this article requires the literal use of space/s for performance. Brook (1996: 9) says:

> I can take any empty space and call it a bare stage. A man walks across this empty space whilst somebody else is watching him, and this is all that is needed for an act of theatre to be engaged.

All activation of spaces (literal and figurative), is a vital element to the growth and evolution of this training platform.

Space also speaks to this training's perspective of diversity: that people in any community have access to and draw from multiple resources and means to make sense of the/their world. Hybridity theory looks at how being 'in-between' (Bhabha 2004) various spaces of knowledge and discourses can be both fruitful and limiting for identity development, literate, social, and cultural practices. This alludes to and introduces third-space theory that acknowledges the difficulty of examining people's different 'spaces and literacies' (Bhabha 2004: 42).

The third-space concept represents the in-between, or hybrid spaces (Bhabha 2004), where the seemingly oppositional first and second spaces work together to generate new third-space knowledges, discourses, and literacy forms (Bhabha 2009; Pane 2007). Pane (2007) clearly articulates that this generated third-space concept is optimal for learning.

Although people have varied spaces and literacies, being performance literate offers the opportunity to be active, critical, and creative, using print,

spoken, and visual language. As a holistic sensorial literacy, performance uses the body in space and time. Therefore, performance may be an embodied third-space activation for the actor/performer who then simultaneously engages with the performative elements of: concept/ text/ stage/ action/ spectator. As an inherently human experience, performance offers this possible third-space encounter with performative elements towards constructing meaning-making and (re)conceptual interpretations. This meaning-making is as applicable to the actor and the spectator, through being literate of the performance elements. Moreover, according to Bauman (2000: 2), '(T)he best performances tend to affect their audience viscerally and proceed from instinctive rather than intellectual motivation'. Therefore, the third-space concept is additionally active as a transferal learning experience for the spectator.

Performance Platforms

Body and voice are the actor's primary tools for expressing emotion (Krasner 2012). Therefore, the development of the physicality-in-performance, as well as the body-voice as creative and expressive tools is a fundamental component in the actor's training. At the crux of the performance for vocational actor-training employed in the TUT drama programme is the use of multimodal performance platforms. The platforms allow the student to conceptualise and present embodied work as the practical application of the praxis learning environment. The performance platform was first created for use within the TUT physical theatre[8] course and the benefits and effectiveness can be validated through the application of this mode within the TUT voice training.[9]

[8] The training of the actor within the constructs of physical theatre includes understanding the elements of movement, somatic principles, non-verbal communicative tools, and conceptual application within performance. These elements combine to form a holistic view of such training. As proposed by Murray and Keefe in that physical theatre must also be contextualised within the historical and ongoing practices named 'physical in theatres' which are founded in all performance modes centred on the (moving-speaking) body (Murray & Keefe 2007: 6). The 'physical in theatres' are akin to the characteristic visceral African performance modes.

[9] Voicing and speaking are an unconscious and conscious activity that all humans conduct. In performance, however, it becomes a crucial and often

Verve Physical Theatre Performance Platform

The Verve Performance Platform project was started in 2000 for TUT BTech drama students specialising in physical theatre to have a public performance opportunity of their conceptual works. Shortened to the informal title of *Verve*[10], this platform has become an anticipated ongoing annual event where drama students[11] present the practical application of their studies. *Verve* is pragmatic in its approach to using embodied performance-making as a multimodal learning and peer-education tool.

Presented as a montage comprised of each student's individual work (10-minute offerings), an annual production of *Verve* can last up to two hours. The platform is structured so that each physical theatre student may include as many/few performers as desired for their offering. The only prescription is that the student performs in their own piece. This is due to the course being focused on the physical performer and not necessarily advocating or addressing the external vantage obligations or function of a choreographer. The entire scenographic design is also conceptualised and managed by the physical theatre student. An entrepreneurial quality is thereby fostered through the application of the embodied learning activity. Further, collaboration with the TUT Department of Entertainment Technology has afforded students the

deliberate tool. Munro (2018) states that performance-centred voice training could include body-voice-integration, voice-building, speech-building, connecting voice to emotion, character development, accent acquisition, and applying voice in various performance spaces. Within a Western text-based context such training tends to emphasise the actor's need to activate language within the text (Berry 2012). In a broader performance context, however, the performer's embodiment and interaction with the observer is central (Bala 2013). Thus, it may be posed that embodiment achieves prominence in non-scripted performance traditions. Brown, Rothman and Sapienza (2000) propose that focus should be placed on the physical act of voicing, with a focus on the expressive act rather than imitating or striving towards a proposed ideal acoustic model.

[10] As a noun, the definition of 'verve' is 'great energy and enthusiasm'.

[11] The actor-training within Tshwane University of Technology is presented in the Department of Drama and Film. Thereby the reference to the students being 'drama students' – essentially part of the drama programme.

opportunity to participate in simulated workplace practice by operating and administrating a complex production presented in a festival approach.

Many students have elected to do solo pieces and others have included up to eight other performers. These supplementary performers are sourced from the undergraduate drama student body and a prerequisite is that the supplementary performers are students enrolled for movement studies. *Verve* includes peer mentoring by including the supplementary performers and this adds to the complexity of the layered learning. Ownership by the student as performer/creator/scholar/mentor in this holistic training process has had a profound effect on fostering self-regulation and self-efficacy. Students emerge stronger and more resilient because many choose to develop pieces that articulate their life experiences or make commentary on sociocultural norms. Because they explore sensitive topics and find individual uniqueness in their conceptual handling of the subject matter, the process has proven unmatched for co-creating new meaning and understanding.

Verve also provides alternative conceptual performance opportunities in the greater Tshwane[12] metropolitan area. Initially, the Rostrum Theatre[13] was utilised as a venue, but the project has grown exponentially and found spaces/venues in and around the theatre and on the Arts campus.

As site-specific performances on location throughout the Arts campus, *Verve* saw the audience taken on a travelling theatre experience. Undergraduate students performing with masks and mime lead the crowds and demarcate the route to follow. The travelling theatre aspect gives undergraduate students engaging with performative modes an outlet for their designated performance applications.

The dynamics of such a walkabout theatrical experience is also audience development and has become an enticing drawcard – hardened theatre-goers, first-timers, as well as random spectators who join the crowds in passing, return year after year to view these alternate performances in interesting spaces. *Verve* has become a trend and has solicited a great following over the years. So much so that in 2014 the logistics were reformulated to offer

[12] Tshwane is a metropolitan region in the province of Gauteng, South Africa.
[13] The Rostrum Theatre is a black box theatre that is an experimental space primarily used to showcase student coursework and directorial prowess. The Rostrum is located on the TUT Faculty of the Arts campus in Arcadia, Pretoria, South Africa.

double performances per night. The audience had grown in number upwards of 200 attending a single performance. This proved a safety hazard for the theatre that only seats 110 and spectators were jostling for space at the site-specific performances and running from piece to piece to ensure that they could secure a space. Since 2014, the platform includes two parallel programmes to accommodate the additional audience members. The audience is divided into two, with one half watching the first programme, whilst the other half concurrently watches the second programme. The performances then swop over so that by the end of the evening all spectators have watched both programmes.

The *Verve* performance platform offers the audience an engagement through performance as a co-performative witnessing (Conquergood 2016) that further affects the ways of knowing that are emergent from such performance-making. Conquergood's (2016: 9) shift from dialogical exchange between performer and receiver (initially framed as 'the researcher and the researched' in an ethnography) to co-performance in that 'the power dynamic of the research situation changes when the [spectator] moves from the gaze of the distanced and detached observer to the intimate involvement and engagement of 'co-activity' or 'co-performance'.

Having to perform each piece twice, in relatively close succession, in one evening, has resulted in other considerations for the physical theatre student, such as costuming and staging/design elements. This too emulates in training, a possible taxing element of the embodied performance environment where the actor needs to simultaneously be able to maintain the *bodymind* emotional development in performance and be able to 'reboot' to begin again almost directly after concluding.

The use of various alternative spaces and only limiting each performer to one piece has helped in structuring the duplication of performances in one night. By limiting performers to one piece, performers do not have to rush frenetically between pieces, and more students are afforded an opportunity to participate – on average there are over fifty students involved in the platform annually. The dual-mode performance has proved a successful alternative, despite the complex logistical planning.

Verve has the potential to draw the Arts campus into a practical learning opportunity. Additional drama students from other courses such as Arts Administration are brought on board to facilitate this structured chaos, further widening the learning opportunities. The soft-skills learning is met

through engagement with discipline, focus, metacognition, and tenacity. The learning is in turn fuelled by the collaborative environment and encompasses the spirit of *ubuntu*[14] (Higgs 2003).

Figure 1. A collage derived from previous original *Verve physical theatre performance platforms*

[14] *Ubuntu* means 'I am because you are, and you are because I am', and here ubuntu is facilitated by the mutual learning experience

Lifeskills benefits are an outcome to both student and spectator. Within the performance platform, each student is afforded the opportunity to imagine, explore, and develop their own unique creative voice, justified through their research underpinning their concept. This aspect has always been respectfully and appreciatively received and each offering is graciously supported by the respective audiences. Presented as a mixed bag, there is always something inviting on offer for each spectator.

As a process of Africanisation of the curriculum, *Verve* is a multicultural and intercultural event. No ideas rooted in creative and performance practice are excluded. This inclusivity and freedom along with this site-specificity has opened the creative space/s and welcomed thoughts on holistic learning, creativity, and performance. This led some students to explore a hybrid mix of physicality for performance that the mix includes: performance and installation art; ritual practice; protest and body art; multimedia; and physical storytelling. Also, collaboration with local artists and invited guest performers over the years has fostered exchange and has developed the platform to include a variety of creative elements and offerings. Therefore, the official name of the event was adapted to include this development: *Verve Physical Theatre and Performance Art Platform*.

From the individual conceptualisations, an annual overarching linking theme is identified for the showcase and is used to frame the performances for that year. Themes have included: *id* (2010); *somatic self* (2011); *[trans]mogrify* (2012); *[non]duality* (2013); *(dis)possessed* (2014); *confluence* (2015); *Kinesis* (2016). Topics broached and addressed in the individual pieces include feminism and constructing an African female identity; patriarchy as embedded in African identity; abuses of power/sex/drugs/self; understanding and (re)conceptualising rituals and rites within a contemporary setting; and spirituality and acceptance of other/self.

Voice Performance Platform

Initiated in 2011, the *Voice Performance Platform* was intended to create an opportunity for BTech students who specialise in voice training to translate their written work into a performance. Prior to 2011, students conducted research into an aspect of voice production or vocal performance and submitted a written essay only. The performance was included in 2011 to enable

embodied interpretation and application of their engagement with literature. Additionally, performance was included to encourage students to engage creatively with the theory and techniques surrounding the performance voice. Mills (2009) poses that a vocal utterance can evoke an acoustic image and the performer's voice could deliberately be applied as an aesthetic and interpretative tool in the theatre-making process. The possibility of an acoustic image emphasises a representative 'vocal self' as the overarching objective of the *Voice Performance Platform*.

Each student researches an aspect of performance voice and creates a 10-minute performance with their own creative scope in terms of concept, design and staging. The pieces are then presented as a cohesive public performance. When this performance platform was applied in 2011 and 2012, most students elected to conduct solo performances in the Rostrum Theatre. The *Voice Performance Platform* has grown significantly and has organically adopted a structure that echoes the *Verve Physical Theatre Platform*, with larger casts performing in a variety of spaces. The voice version is not as established or large scale as the physical theatre platform, although it has also afforded many of the applied learning opportunities that the *Verve Physical Theatre Platform* has afforded students.

The themes that are examined in the performances are discussed in the production classes and the synergies that are uncovered are then translated into a title for the performance. In 2013, rhythm and the presence or absence of sound was a common thread and the students named the platform *Pause*. Africanisation of themes are often present. An example of which would be the title *Switch* that was used in 2014 as a play on the term 'code-switch' or the switching between various languages and embodied personal/social-cultural understanding of being, as most students examined their multilingualism and elements of linguistic prowess as a further extension of their identity. In 2015 the celebratory title *#TurnUp* was used as the performances celebrated vocal elements of culture and gender. *Lentswe*, the Setswana term for 'voice', was used as a title in 2016, as the performance interrogated several elements of vocal identity.

An increasing number of BTech students (fifty at the time of writing) are engaged annually in the *Voice Performance Platform* that facilitates peer-learning and ensemble work created and performed with junior students. Simultaneously, the *Voice Performance Platform* exposes a larger body of performance students to the creative potential of voice and allows them to

engage with their own vocal identity and technique, while enabling the BTech students to develop peer-to-peer coaching skills.

Figure 2. A collage derived from previous original *Voice performance platforms*

The deeply subjective nature of voice as an expresser has led to students examining theory around voice and topics that are deeply personal and

socio-culturally relevant. Recurring topics have included gender and gendered roles as expressive representation of the relationship between space and time/ life and art within the African paradigm; language and identity; power; violence; acceptance of self and other; spirituality; and the reinterpretation and rediscovery vocal elements of traditional ritual and traditional vocal practices.

Although the *Voice Performance Platform* has only been established recently, it performs to full houses and has been an evolving training performance platform that develops technique, creativity, critical thinking, and conceptual skills in a non-prescriptive manner that celebrates the personal uniqueness and universality of the performance voice.

Conclusion

The three-pronged embodiment approach to the training strategy includes: **learning** (through enaction that encompasses bodily skills as well as cultural skills and understandings); **performing** (the dynamic system of body and mind that generates the actor's understanding and portrayal of space and time, manifesting as *bodymind* connectivity in the actor-in-training's movement and voice preparation being an embodied performance); and **space/s** (referencing both the physical and psychological for learning and performance opportunities through literal use of space/s for performance; and the hybrid spaces that generate new third-space knowledges, discourses, and literacy forms). Combined, embodied-LPS, as a means of andragogy actor-training, integrates Africanisation and collaboration, as well as multimodal learning opportunities. This approach was validated through the application of *Verve physical theatre platform* principles to the *Voice performance platform*. Offering insight into Africanisation in embodied actor-training performance platforms that incorporate multimodal learning prospects.

Training strategies that enable students to assert identity is crucial in a diverse context (Msila 2007). Therefore, training in a diverse context requires constant navigation of approaches and activities that honour individual identities. Based on our observations, informal feedback and the reflection of past participants,[15] the training performance platform described in this article

[15] Students were expected to reflect on their themes, experiences, and practical explorations in their applied assignments submitted as partial fulfilment of their course requirements.

has the potential to honour that individual within diversity as it focuses on the organic congruencies that all actors in training share, embodiment. This is articulated through framing the context of embodiment in learning, performance and space/s.

We concede that the qualitative description in this article merely scratches the surface of the potential impact of the multimodal performance platform and future research that analyses the experiences and performances of students could be conducted.

The performance platform, design, and application within embodied learning and training of actors has been refined over the years and has now manifested towards transformation. This transformation is an acknowledgement of the learning environment through metacognition and an acknowledgement of the epistemological access and co-creation of new knowledge. Engaged through embodied-actor training and rooted in Africanisation, this training performance platform embraces multiple perspectives and the praxis relationship. Evident in the cultural etiquette and exchange individually, collaboratively, and interdepartmentally, the contrasting (or even contradictory) ideologies are contrapuntal and are pragmatically juxtaposed within the montage-platform offerings. The Africanisation influence of the inclusive cultural differences and/or synergies, alongside power struggles, and marked in peer-activities, are what defines this relationship between theory and practice. The relationship also advocates for the student to approach the learning from their preferred vantage point – cognitive or pragmatic.

Chapman (2011) advocates for producing theory, not just taking theory. At the same time underpinning self-regulation in learning encourages trying new things and thinking differently. The embodied learning inspires action and inquiry towards reflecting both *in* action and *on* action.

The body of the performer is central to the exploration of theory and practice, and as such is a complex and unique learning site where culture integrates and influences the body/voice relationship and the expression of self. This embodied multimodal learning enables non-biased expression of the self and employs the inclusivity of collaborative peer education. The peer education element and collaborative aspects speak directly to the African holistic paradigms of learning and performance that extend beyond the Western bias towards interdependent creative practice. Generated through third-space opportunities, by shared embodied learning presented holistically,

ways of knowing are recognised and respected beyond the cognitive to include the physical, emotional, and spiritual. These ways of knowing result in a highly effective, varied, and multimodal learning for diverse students.

In the training performance platform acknowledges the Africanisation perspective by not focusing on the curriculum alone. Africanisation of the curriculum occurs by advocating for self-definition, self-identity, and self-assertion, as well as identifying and including an African essence within the research and practice. The focus is on the application of the teaching and learning by centring this training as a viable approach towards generating multimodal means of learning within higher education.

By situating the student at the centre of the learning objective, through embodied space/s, the performance platform immerses the student in the learning/research/practice. Where the embodied space is unavoidably affected and dependant on the student towards the development of innovative practice, vocational, and life-long learning. Granted, this approach has been successfully implemented at a senior-student level. However, the integration of students from various levels (first to fourth year) within the performance training endeavour, has strengthened the emphasis on socio-cultural learning aspects and rooted the seeds for self-actualised learning early. Doing so has borne fruit when the undergraduate students have progressed to a level where they are facilitating this process for themselves, and in turn passing the training forward to the next student generation.

The emphasis on the three-pronged embodiment approach in learning, performing, and space/s (embodied-LPS) also allows for a boost in the development of specialised skills and abilities in areas that students identify they are interested in or show a strong affinity/ability towards, over and above what is offered at the various levels in the curriculum. This results in confident students advancing quickly in their areas of strength towards more grounded practice that may later lead to more security in their knowledge, which in turn gives rise to ingenuity and manifests in innovation.

The embodied-LPS approach has ensured that this training is more effective as a means towards life-long learning. This training strategy has ensured that the students who have passed through both the physical theatre and voice courses (successfully and not) and have participated in the *Verve Physical Theatre Platform* and the *Voice Performance Platform*, are able to think laterally, theorise, synergise, and critique. Because the student actor-in-training can successfully create, as well as make themselves understood, they

are able to co-create new knowledge while fostering self-regulation and self-efficacy to own the/ their uniqueness and the independence of their work. These outcomes all echo the Setswana sentiment used in the title: *Re atumela phetogo* (we welcome the change).

References

Amankular, J. & C. Akafor 1988. Continuity and Change in Traditional Nigeria among the Igbo in the Era of Colonial Politics. *Ufahamu: Journal of the African Activist* 16,3:35 - 50.

Amineh, R. & H. Asl 2015. Review of Constructivism and Social Constructivism. *Journal of Social Sciences, Literature and Languages* 1,1:9 - 16.

Andrew, D. 2014. An Aesthetic Language for Teaching and Learning: Multimodality and Contemporary Art Practice. In Archer, A. & N. Newfield (eds.): *Multimodal Approaches to Research and Pedagogy: Recognition, Resources, and Access*. New York: Routledge.

Archer, A. & N. Newfield (eds.) 2014. *Multimodal Approaches to Research and Pedagogy: Recognition, Resources, and Access*. New York: Routledge. https://doi.org/10.4324/9781315879475

Bala, S. 2013. The Entangled Vocabulary of Performance. *Rupkatha Journal on Interdisciplinary Studies in Humanities* 5:12 - 21.

Bauman, M. 2000. *Physical Theatre.* Available at: http://www.mimeguy.com/Zen%20of%20Marc%20Bauman.htm. (Accessed on 09 May 2005.)

Beaudoin, C. 1999. Integrating Somatic Learning into Everyday Life. *Canadian Journal of Education* 24,1:76 - 80. https://doi.org/10.2307/1585773

Bendelow, G. & S. Williams (eds.) 1998. *Emotions in Social life: Critical Themes and Contemporary Issues.* London and New York: Routledge.

Berry, C. 2012. *The Actor and the Text.* 8th Edition. London: Virgin Publishing Ltd.

Bhabha, H. 2004. *The Location of Culture.* Abingdon: Routledge.

Bhabha, H. 2009. In the Cave of Making: Thoughts on Third Space. Communicating in the Third Space. In Ikas, K. & G. Wagner (eds.):

Communicating in the Third Space. New York: Routledge.

Bowman, W. 2004. Cognition and the Body: Perspectives from Music Education. In Bresler, L. (ed.): *Knowing Bodies, Moving Minds: Towards Embodied Teaching and Learning.* Dordrecht: Kluwer Academic Publishing. https://doi.org/10.1007/978-1-4020-2023-0_3

Bresler, L. (ed.). 2004. *Knowing Bodies, Moving Minds: Towards Embodied Teaching and Learning.* Dordrecht/Boston/London: Kluwer Academic Publishers. https://doi.org/10.1007/978-1-4020-2023-0

Brook, P. 1996. *The Empty Space.* 2nd Edition. Hammondsworth: Penguin.

Brown, W., H. Rothman & C. Sapienza 2000. Perceptual and Acoustic Study of Professionally Trained Versus Untrained Voices. *Journal of Voice* 14:301 - 309. https://doi.org/10.1016/S0892-1997(00)80076-4

Bruner, J. 1996. *The Culture of Education*. Cambridge: Harvard University Press.

Bryon, E. 2014. *Integrative Performance: Practice and Theory for the Interdisciplinary Performer*. New York: Routledge.

Campbell, S., L. Maynell & S. Sherwin (eds.). 2009. *Embodiment and Agency*. Pennsylvania: Pennsylvania State University.

Carroll, R. 2011. In Search of a Vocabulary of Embodiment. *Body, Movement and Dance in Psychotherapy* 6,3:245 - 257. https://doi.org/10.1080/17432979.2011.617132

Chapman, V. 2011. Attending to the Theoretical Landscape in Adult Education. In Merriam, S. & A. Grace (eds.): *The Jossey-Bass Reader on Contemporary Issues in Adult Education.* San Francisco: Jossey-Bass.

Conquergood, D. 2016. *Cultural Struggles: Performance, Ethnography, Praxis.* 4th Edition. Michigan: University of Michigan Press.

Coplan, D. 1986. Ideology and Tradition in South African Black Popular Theatre. *Journal of American Folklore* 99:394. https://doi.org/10.2307/539971

Csordas, T. (ed.) 2003. *Embodiment and Experience: The Existential Ground of Culture and Self.* 6th Edition. Cambridge: Cambridge University Press.

Dourish, P. 2004. *Where the Action is: The Foundations of Embodied Interaction.* Cambridge: Massachusetts Institute of Technology.

Fleishman, M. 1997. Physical Images in the South African Theatre. In Davies,

G.V. & A. Fuchs (eds.): *Theatre and Change in South Africa.* New York and London: Routledge. https://doi.org/10.1080/10137548.1997.9688204

Gärdenfors, P. 2007. Representing Actions and Functional Properties in Conceptual Spaces. In Ziemke, T., J. Zlatev & R. Frank (eds.): *Cognitive Linguistics Research: Body, Language, and Mind. Volume 1 - Embodiment.* Berlin: Mouton de Gruyter.

Garuba, H. 2015. What is an African Curriculum? *Mail and Guardian* 17 April: Available at: https://mg.co.za/article/2015-04-17-what-is-an-african-curriculum/ (Accessed November 2015.)

Higgs, P. 2003. African Philosophy and the Transformation of Educational Discourse in South Africa. *Journal of Education* 30,1:5 - 22.

Jarvis, P. 2006. *Towards a Comprehensive Theory of Human Learning.* London: Routledge.

Jarvis, P. & S. Parker 2007. *Human Learning: A Holistic Approach.* London: Routledge.

Johnson, M. 2008. *The Meaning of the Body: Aesthetics of Human Understanding.* 5th Edition. Chicago: University of Chicago Press.

Kamlongera, C. 2005. *Theatre for Development in Africa.* Argentina: Latin American Council of Social Sciences (CLACSO).

Kamwendo, G. 2016. Unpacking Africanisation of Higher Education Curricula: Towards a Framework. In Msila, V. & M. Gumbo (eds.): *Africanising the Curriculum: Indigenous Perspectives and Theories.* Stellenbosch: African Sun Media.

Kelan, P. 2011. Moving Bodies and Minds: The Quest for Embodiment in Teaching and Learning. *Higher Education Research Network Journal* 3:39 - 46.

Kemp, R. 2012. *Embodied Acting: What Neuroscience Tells Us about Performance.* London: Routledge. https://doi.org/10.4324/9780203126110

Kim, B. 2010. Social Constructivism. In Orey, M. (ed.): *Emerging Perspectives on Learning, Teaching, and Technology.* Zurich: The Global Text Project, Jacobs Foundation.

Kim, S. 1993. *Psychophysical Approaches to Acting: A Multimodal Experience.* Madison: University of Wisconsin.

Kolb, D. 2015. *Experiential Learning: Experience as the Source of Learning*

and Development. 2nd Edition. New Jersey: Prentice-Hall.

Kolb, D., R. Boyatzis & C. Mainemelis 2001. Experiential Learning Theory: Previous Research and New Directions. In Sternberg, R. & L. Zhang (eds.): *Perspectives on Cognitive, Learning, and Cognitive Styles*. New Jersey: Lawrence Erlbaum.

Krasner, D. 2012. *An Actor's Craft: The Art and Technique of Acting.* London: Palgrave Macmillan. https://doi.org/10.1007/978-0-230-35772-3

Ladkin, D. 2012. Perception, Reversibility, 'Flesh': Merleau-Ponty's Phenomenology and Leadership as Embodied Practice. *Integral Leadership Review 12.01.2012:*1 - 9. Available at: http://integralleadershipreview.com/6280-perception-reversibility-flesh-merleau-pontys-phenomenology-and-leadership-as-embodied-practice/ (Accessed on 18 February 2018.)

Lebakeng, J., M. Phalane & N. Dalindjebo 2006. Epistemicide, Institutional Cultures and the Imperative for the Africanisation of Universities in South Africa. *Alternation* 13,1:70 - 87.

Letsekha, T. 2013. Revisiting the Debate on the Africanisation of Higher Education: An Appeal for a Conceptual Shift. *The Independent Journal of Teaching and Learning* 8:5 - 18.

Lewis, J. 2010. Physical Actions as Expressive Performance Narratives: A Self-reflexive Journey. *South African Theatre Journal – SATJ* (Special Issue: Movement and Physical Theatre in South Africa) 24:175 - 198. https://doi.org/10.1080/10137548.2010.9687928

Lewis, J. 2012. *Devising and Montage: The Use of Physical Actions to Create (Re)conceptual Performance*. Unpublished PhD Thesis, Pretoria: Tshwane University of Technology.

Lewis, J. 2013. Collusion or Chaos? A Self-reflexive Journey to Chart the Experiential Explorations in the Devising Process. In Igweonu, K. & O. Okagbue (eds.): *Performative Inter-Actions in African Theatre 3: Making Space, Rethinking Drama & Theatre in Africa*. Newcastle: Cambridge Scholars Publishing.

Lugering, M. 2015. *Expressive Actor*. New York: Taylor and Francis.

Lutterbie, J. 2011. *Toward a General Theory of Acting: Cognitive Science and Performance.* New York: Palgrave and Macmillan. https://doi.org/10.1057/9780230119468

Makgoba, M. 1997. *Mokoko: The Makgoba Affair – A Reflection on Trans-*

formation. Florida: Vivlia.

Mathews, J. 1998. Somatic Knowing and Education. *The Educational Forum* 62,3:236 - 242. https://doi.org/10.1080/00131729808984349

Merleau-Ponty, M. 2002. *The Phenomenology of Perception.* 2nd Edition. London: Routledge. https://doi.org/10.4324/9780203994610

Merriam, S. & L, Bierema 2014. *Adult Learning: Linking Theory and Practice.* San Francisco, CA: Jossey-Bass.

Meyer-Kalkus, R. 2007. Work, Rhythm, Dance: Prerequisites for a Kinaesthetics of Media and Arts. In Krois, J., M. Rosengren, A. Steidele & D. Westerkamp (eds.): *Embodiment in Cognition and Culture.* Amsterdam: John Benjamins Publishing. https://doi.org/10.1075/aicr.71.14mey

Mills, L. 2009. Theatre Voice: Practice, Performance and Cultural Identity. *South African Theatre Journal* 23,1:84 - 93. https://doi.org/10.1080/10137548.2009.9687903

McAllister-Viel, T. 2007. Speaking with an International Voice? *Contemporary Theatre Review* 17,1:97 - 106. https://doi.org/10.1080/10486800601096204

Msila, V. 2007. From Apartheid Education to the Revised National Curriculum Statement: Pedagogy for Identity Formation and Nation Building in South Africa. *Nordic Journal of African Studies* 16,2:146 - 160.

Motsa, Z. 2001. The Missing Link in siSwati Modern Drama. In Losambe, L. & D. Sarinjeive (eds.): *Colonial and Postcolonial Drama and Theatre in Africa.* Claremont: New Africa Books.

Munro, M. 2018. Principles for Embodied Learning Approaches. *South African Theatre Journal* 31,1:5 - 14. https://doi.org/10.1080/10137548.2017.1404435

Murray, S. & J. Keefe (eds.) 2007. *Physical Theatres: A Critical Introduction.* New York and London: Routledge.

Nafukho, F. 2006. Ubuntu Worldview: A Traditional African View of Adult Learning in the Workplace. *Advances in Developing Human Resources: Worldviews of Adult Learning in the Workplace* 8,3:408 - 415. https://doi.org/10.1177/1523422306288434

Northoff, G. 2014. *Minding the Brain: A Guide to Philosophy and Neuroscience.* Hampshire: Palgrave Macmillan.

https://doi.org/10.1007/978-1-137-40605-7

Pane, D. 2007. Third Space Theory: Reconceptualizing Content Literacy Learning. In Nielson, S. & M. Plakhotnik (eds.): *Proceedings of the Sixth Annual College of Education Research Conference: Urban and International Education Section.* Miami: Florida International University.

Protevi, J. (ed.). 2006. *A Dictionary of Continental Philosophy.* Connecticut: Yale University Press.

Ramose, M. 1998. Forward. In Seepe, S. (ed.): *Black Perspectives on Tertiary Institutional Transformation*. Johannesburg: Vivlia.

Rocha, M. 2011. *Cognitive, Embodied or Enacted? Transtechnology Research Reader*. Plymouth: Transtechnology Research.

Rojo, J. 2000. *An Acting Method Using the Psychophysical Experience of Workshop Games-Exercises.* Ceredigeon: Edwin Mellen Press.

Rowlands, M. 2010. *The New Science of the Mind: From Extended Mind to Embodied Phenomenology.* Massachusetts: MIT Press. https://doi.org/10.7551/mitpress/9780262014557.001.0001

Sánchez-Colberg, A. 2007. Altered States and Subliminal Spaces Charting the Road towards Physical Theatre. In Murray, S. & J. Keef (eds.): *Physical Theatres: A Critical Reader*. New York and London: Routledge Publishers.

Schechner, R. 2013. *Performance Studies: An Introduction.* 3rd Edition. London and New York: Routledge.

Schenck, L. 2013. *Embodied Learning: Research and Thoughts.* Available at: http://notlaura.com/embodied-learning/ (Accessed on 02 July 2016.)

Takaya, K. 2013. *Jerome Bruner: Developing a Sense of the Possible*. New York: Springer. https://doi.org/10.1007/978-94-007-6781-2

Thompson, E. 2007. *Mind in Life: Biology, Phenomenology, and the Sciences of the Mind.* Cambridge: Harvard University Press.

Varela, F.J., E. Rosch & E. Thompson 2016. *The Embodied Mind: Cognitive Science and Human Experience*. 2nd Edition. Cambridge: MIT Press.

Wilson, R. & L. Foglia 2016. *Embodied Cognition.* Available at: https://plato.stanford.edu/archives/spr2017/entries/embodied-cognition/. (Accessed on 29 May 2017.)

Zarrilli, P. 2009. *Psychophysical Acting: A Multimodal Approach after Stansilavski.* London: Routledge.

Janine Lewis
Department of Entertainment Technology
(Previously: Department of Drama and Film)
Tshwane University of Technology
lewisj@tut.ac.za

Karina Lemmer
Department of Entertainment Technology
(Previously: Department of Drama and Film)
Tshwane University of Technology
lemmerk@tut.ac.za

#FEESMUSTFALL: Science Teaching during Student Unrest

Rethabile Tekane
Ina Louw
Marietjie Potgieter

Abstract

Student protests are a regular feature of the tertiary landscape. However, there are claims that disruptions and potential threats to the academic project at traditional universities can be partially mitigated by online teaching and learning. This paper reports on insights gained when the mode of instruction was changed at short notice from contact to online teaching during student unrests at a South African university in 2016. A phenomenographic approach was used to generate a meta-reflection on experiences as reported by lecturers from 13 science departments during a *pecha kucha*[1] event (very short PowerPoint presentations) at the beginning of 2017. Video data was analysed inductively to generate six themes/categories, encapsulating aspects of the challenges experienced by the participants, the insights they had and the actions they took to address these challenges. This paper attempts to demonstrate the approaches taken by lecturers and how they incorporated the blended learning environment to support their students to complete the academic year, despite difficult circumstances. It offers useful pointers to affordances and weaknesses of the virtual learning environment when implemented at short notice to replace contact teaching.

Keywords: phenomenography, student unrest, blended learning, tertiary science education, meta-reflection, #FEESMUSTFALL

[1] **Pecha Kucha** (Japanese) is a presentation style in which 20 slides are shown for 20 seconds each which keeps presentations concise and fast-paced.

Print ISSN 1023-1757; Electronic ISSN: 2519-5476; DOI https://doi.org/10.29086/2519-5476/2018/v25n2a7

Introduction

Historically, universities around the world have had to cope with disturbances, disruptions and distractions caused by student protest movements (Ibrahim 2010). Most student protest movements were either revolutionary, such as 'those against the British colonial rule in the United States in the 1760s' (Ibrahim 2010:495), or they initiated significant social justice campaigns such as those in the United Kingdom in the 1970s that were aimed against the South African apartheid system (Pullan & Abendstern 2004). Although the number of student protests have in the past decade increased significantly across the globe (Brooks 2016), literature suggests student protest movements peaked in the 1960s and 1970s (Ibrahim 2010).

Student protests experienced in the past decade have either been a result of internal factors such as an increase in tuition fees or external factors that were mainly related to politics. In most cases, these protests led to the closure of the universities, destruction of university property, student arrests and deaths (Langa 2017; Taylor 2016; Waruru 2013). Interestingly, most student protests in recent years were facilitated by technology (Brooks 2016; Langa 2017). For instance, in 2016 students in South Africa used Twitter with the #FeesMustFall slogan (Brooks 2016; Langa 2017) to instigate protests within and beyond South Africa, and in 2010 students in London used Facebook and Twitter to communicate with their counterparts at other London universities (Cammaerts 2013).

Recently, several universities globally experienced severe disruptions as a result of student protests. In 2013 the University of Nairobi and Egerton University in Kenya were shut down because of riots related to examinations. These unrests left two students dead and caused end-of-semester examinations [final exams] ahead of the Christmas break to be cancelled (Waruru 2013). Furthermore, in 2012, Quebec students protested against an increase in tuition fees for more than 100 days on end (Marin 2012). Moreover, in 2016, students at the University of Papua New Guinea took to the streets to demand the prime minister's resignation since he was alleged to be involved in corruption and economic mismanagement. The students stayed away from classes for several weeks and burnt a building and a truck (Lewis 2016). Similarly, in Mexico in 2016, protests were started by prospective students who failed their admission tests. These students occupied 20 of the 24 buildings at the University of San Nicolas de Hidalgo and disrupted normal classes for

more than 50 days. The students demanded to be admitted into the university's faculty of education (Mexico Daily 2016). In London, more than 1000 students from the University College London, Goldsmiths, Roehampton and Courtauld Institute protested against the poor quality of accommodation and high accommodation fees. The students claimed that rent was a form of 'social cleansing in the capital that excludes poorer students' (Taylor 2016). Other recent student protests include those that happened in Budapest in 2012, Stanford in 2016, Republic of Ireland in 2016, Puerto Rico in 2010, Chile in 2012 and Hong Kong in 2014.

To date, most literature reports related to student protests concentrated primarily on the reasons behind student protests (Pullan & Abendstern 2004; Rodriguez-Amat & Jeffery 2017) and the impact that protests have had on the university, the country, or the world (Ibrahim 2010; Pullan & Abendstern 2004). There is, however, an urgent need to also report on the impact of the protests on student knowledge acquisition, students' experiences of learning during the disruptions, and lecturers' experiences of teaching during student disruptions. Therefore, the aim of this study was to report on insights gained when the mode of instruction was changed at short notice from contact to mostly online during student unrest at a South African university in 2016. To achieve this aim, the research question addressed was: 'What are the lecturers' experiences of teaching during the 2016 student unrest?'

Background and Context

Early in 2015, student protests in South Africa began because of rising fees that placed tertiary education beyond the reach of poor and middle-class students. This situation was exacerbated by the inability of the National Student Financial Aid Scheme (NSFAS) – the state loan and bursary agency – to meet its commitments. The dissent grew to a national movement in October 2015 when universities started to announce their fee increases for 2016. In response to the protests, the president (Mr Jacob Zuma) announced that there would be no fee increases for 2016, which calmed the situation temporarily. However, protests erupted again in September 2016 when the Minister of Higher Education, Dr Blade Nzimande, announced that fee increases would be allowed for 2017 (BBC News 2016). The protests were associated with widespread violence and damage to property, which caused many institutions to close their campuses for extended periods of time (Isilow 2016).

Although the University where the study was conducted escaped the destruction of property, the disruption of classes and tests in the week of 19 September forced the University to close three of its six campuses. The two largest campuses were not reopened to students for the remainder of 2016, and on all campuses strict access control was implemented. The decision was taken to conduct instruction and assessment mostly online to complete the academic year by the end of 2016. Limited access to the main campus was granted for students in two faculties, engineering and science, to accommodate the demands and special needs of the disciplines in those faculties. However, the amount of contact time was reduced significantly which meant that lecturers had to change their planned instruction on very short notice. Furthermore, the fact that students had limited access to campus gave them limited access to the university library and the university internet. All mid-term assessments were cancelled, and final examinations were restricted to two hours rather than the standard three-hour duration. Lecturers responded to the challenge by implementing a variety of alternative teaching technologies, modes of communication and assessment strategies they had never used before. Prior to the student unrest, the university had invested in capacity building among lecturers to meet the demands of hybrid teaching and thus developed the necessary infrastructure and support mechanisms. The university addressed students' need for internet access by negotiating with cellular/mobile network providers for free access to specific domains and by providing access to computer labs in secure locations.

The paper presents a meta-reflection on what the lecturers shared at a public forum about their teaching experiences during student unrest. It is important to mention that in our study the term 'student unrest' refers to a period of three months during which normal teaching activities were severely curtailed and access to campus was restricted due to student protests.

Theoretical Framework

The theoretical orientation is informed by phenomenography, a framework that seeks to describe the perceptions, ideas, or experiences that people have in respect of a given phenomenon (Bodner & Orgill 2007; Marton 1981; Case & Light 2011). Phenomenography does not concentrate on the phenomenon studied; instead, it focuses on how people experience, understand or perceive a given phenomenon (Bhattacharyya & Bodner 2005; Orgill 2007), thus taking

a second-order perspective (Marton 1981; Orgill 2007). In the same way, our focus was not on the phenomenon under study, but rather on the lecturers' experiences of the phenomenon, which in this case was teaching during student unrests. Phenomenography was identified as an appropriate framework for our study because it allowed us to qualitatively identify variations in the lecturers' experiences of teaching during student unrests. According to phenomenography, individuals experience a given phenomenon in various ways based on their interaction with the world (Orgill 2007; Marton 1981). It is therefore the collective sum of the participants' different perceptions and experiences that defines a phenomenon. In our study, lecturers' various experiences gave us insights into how teaching had been done during student unrests.

Methodology

Participants, Sampling Technique and Data Collection

The faculty where the study was conducted consists of 16 departments. The Deputy Dean for teaching and learning requested the heads of these departments to identify staff members who had implemented innovative teaching practices during student disruptions. On 10 February 2017 an opportunity was created for these insights to be shared in the form of *pecha kucha*[2] (Beyer 2011) presentations. Of the 16 departments, only 13 participated in the session, as is shown in Table 1 below. Since the goal of phenomenography is to qualitatively identify variations in experiences, participant lecturers from all 16 departments in the faculty were recruited because we wanted to capture a wide range of lecturers' experiences of teaching during the period of student unrest.

Table 1: Departments that participated in the study

Departments within the faculty	**Departments that participated in the study**		**Number of presenters from each department**
	Yes	**No**	
Actuarial Science	x		1

[2] **Pecha Kucha** (Japanese) is a presentation style in which 20 slides are shown for 20 seconds each which keeps presentations concise and fast-paced.

Agricultural Economics, Extension and Rural Development	x		1
Animal and Wildlife Sciences	x		1
Biochemistry		x	
Chemistry	x		1
Consumer Science	x		1
Food Science		x	
Genetics	x		1
Geography, Geoinformatics and Meteorology	x		1
Geology	x		2
Mathematics and Applied Mathematics	x		1
Microbiology	x		1
Physics		x	
Plant and Soil Sciences	x		2
Statistics	x		1
Zoology and Entomology	x		1

In total, 15 faculty members participated in the presentations. Participants were briefed and supplied with a template for the *pecha kucha* in an electronic format. The template informed participants about the rules pertaining to the *pecha kucha* style of presentation. They were asked to prepare a five-minute PowerPoint presentation on their teaching practices during student unrest. All presentations were video recorded, transcribed and analysed as will be described in subsequent sections. Pseudonyms (P1-P15) were used to protect the anonymity of the participants and their departments.

Convenience sampling (Etikan, Abubakar & Alkassim 2016) rather than random sampling was used in this study. Convenience sampling targets

participants who are easily accessible and willing to participate in the study. The *pecha kucha* presenters were approached and gave consent for their contributions to be used in this study. The study also obtained ethical clearance from the university where the study was conducted.

Data Analysis

Phenomenographic data analysis aims to qualitatively identify categories that describe various ways in which participants experience a phenomenon (Orgill 2007; Rands & Gansemer-Topf 2016). Similarly, when analysing data, our aim was to qualitatively identify distinct categories that describe the range of the lecturers' experiences of teaching during student unrests. Two of the three authors (researchers) inductively analysed (Thomas 2006) the transcribed presentations.

Prior to analysing the data, the researchers individually read through the transcriptions a number of times in order to familiarise themselves with and understand the data. They then slowly started generating themes or categories that addressed the proposed research question. Once the researchers were satisfied that they were adequately familiar with the data, they individually began generating initial codes. That is, the researchers read through the transcripts line by line, underlining and coding each line that informed them of the participants' teaching experiences during student disruptions (Strauss & Corbin 1998). Labels used for the generated codes emerged either directly from the data or from the researchers' minds (Strauss & Corbin 1998). Once the initial coding was done, the researchers merged the generated codes and analysed them. They compared the codes with one another and with their supporting data in order to combine similar codes to form overarching themes/categories that portray the participants' experiences of teaching during student unrests (Braun & Clarke 2006; Glaser 1992; Strauss & Corbin 1998).

During the process of refining the themes/categories, the researchers read through the excerpts of each theme/category to check if they formed a 'coherent pattern' (Braun & Clarke 2006). In cases where data excerpts did not form a coherent pattern with the rest of the data excerpts, the researchers either moved such excerpts to other themes/categories or renamed the theme/category. Once the two researchers were satisfied with the generated

themes/categories, they each read through the data excerpts under each theme/category. This was done to provide a detailed description about what each theme/category revealed regarding the participants' reported teaching experiences during student disruptions. The developed categories of description are also referred to as an 'outcome space'. An outcome space is defined as the qualitatively different ways in which a phenomenon is experienced (Orgill 2007; Marton 1981).

Trustworthiness

Since the study employed qualitative methods, it became important to implement procedures that would establish the trustworthiness of the findings (Creswell & Miller 2000; Golafshani 2003; Hoepfl 1997). To increase the trustworthiness of the findings and the credibility of the study, the researchers provided rich, detailed descriptions of the settings or context and the themes of the findings (Creswell & Miller 2000). Credibility of the findings was further established via peer debriefing (Creswell 2009; Lincoln & Guba 1989). The two researchers asked the third researcher during data analysis to read through the codes, and themes/categories they had developed as well as the supporting data, to check if the developed codes, and themes/categories were a good description of the supporting data. These discussions led to the refinement of some codes, and themes/ categories.

Results

As discussed below, the lecturers' reported experiences of teaching during student unrests were categorised into six themes that encapsulated the challenges they experienced, the insights they had and the actions they took. The six themes were communication; limited access to campus; use of technology; academic immaturity of students; assessment; and the lecturer as a reflective practitioner.

Communication

One of the major challenges that lecturers faced was inadequate communication between them and their students, and between the university

management and the staff. Several lecturers indicated that the lack of communication with students made it difficult for them to give feedback relating to their assignments or dissertations. For example, P8 indicated:

> For the postgrads it was a bit more difficult, we sent comments on dissertations via email, whereas P2 stated, one of the greatest things we saw, however, was that communication remained a problem. Communication, both to effectively and efficiently communicate with our students about changing arrangements.

With regard to the university management, some faculty stated that they felt left out because the university was not transparent regarding the decisions made about student access to campus. In support of the latter, P11 stated:

> We felt uninformed. Everything was a secret and we didn't know why the campus was closed and it was very very frustrating. We expected, you keep expecting ok campus will open maybe we will see our students more. One day it is yes you can next day it is no you can't. I think that really frustrated our staff members a lot.

In order to overcome the challenge of communication, lecturers decided to maintain contact with students by using either WhatsApp, email messages, short messaging service (SMS) or by involving class representatives. For instance, P2 discovered that 'communication that worked very well is that all of us had class representatives and all of the classes had WhatsApp groups, so we communicated with the class reps through WhatsApp groups'. P14, on the other hand, realised that:

> to keep communication with the students was a challenge due to the lack of internet access and so we used logic SMS which is a bulk SMS service that would allow us to avoid the internal UP system delays. Communication was interactive and immediate.

Lecturers realised that social media was an excellent platform for communication; thus, in hindsight, P11 proposed to 'give them [social media] the gold medal'.

Limited Access to Campus

Besides communication, limited contact with the students was another major challenge that lecturers faced. Only a limited number of students were granted access every day to reduce the risk of further disruption of activities. This meant that laboratory sessions were either cancelled or replaced with assignments; the library was closed as a safety measure, which reduced access to learning space and textbooks. The consensus among all presenters was that the drastic reduction in contact with students was a threat to the teaching and learning of science disciplines. Therefore, to overcome this challenge and ensure that teaching and learning continued, lecturers proceeded with instruction by means of having ad hoc meetings on campus, by arranging off-campus sessions, and by using teaching technologies such as Blackboard-collaborate, YouTube, Qualtrics, narrated PowerPoint and clickUP (the institutional learning management system hosted by Blackboard) for virtual lectures and tutorials. On-campus and off-campus meetings were used either for lecture sessions, discussion sessions or tutorial sessions; whereas technology was used to ensure that students had access to lecture material and assignments. Although off-campus meetings were beneficial for students, lecturers realised that they were costly, as indicated by P11: 'Also renting lecture venues outside cost money. So that was not really great'. Moreover, as indicated by P8, teaching off-campus was a risk: 'Our biggest lesson, don't teach off-campus, don't hire a venue and teach off-campus, social media has immense power and we [were] stuck with a group of protesters at one of these venues, we put everyone's safety in danger'.

Use of Technology

Although the use of technology allowed teaching and learning to continue during student disruptions, it also posed technical challenges. For instance, P9 stated:

> We had a few technical issues with the narrated PowerPoint that there was in terms of sound problems that it's very soft at the beginning and then would come back. P14 pointed out: Learning to use Office Mix through PowerPoint, uhhmm, through YouTube, we prepared 5 - 8 slides, presentations which were uploaded to clickUP. Uploading to YouTube was however a bit problematic, therefore, it was abandoned.

Although problematic, lecturers experimented with various modes of web-based resources to find an appropriate resource to use. The latter is indicated by the following statements made by P10 and P3:

> Some of the alternative teaching methods that we used was to create YouTube videos. We would make videos of between 5 and 10 minutes and then we would upload this onto YouTube and embed that into clickUP (P10);

> What we realised from that was that the clickUP system and YouTube narrated PPT lectures actually worked very very well. Much better than we expected (P3).

Academic Immaturity of Students

Lecturers expected students, especially senior students, to be self-disciplined enough to continue with their studies off-campus, but that seemed to have been an unrealistic expectation as admitted by P8: '…students tend to procrastinate and they tend to not do things that we expect of them if we don't have contact sessions with them'. The need for effective learning support, in the absence of contact sessions, in terms of clear communication of expectations, as well as pacing and guiding soon became clear as indicated by P14: '…so we guided them through the process by, with a detailed study plan, as well as biweekly emails explaining what the focus of the day is …'. The initial reaction by most lecturers was to send as many messages as possible, but they soon gathered that they were flooding students with information, as mentioned by P5: 'The problem with clickUP and other media is the confusion: there was so many different types of messages and they didn't always know what to look at'. To reduce this confusion, some lecturers realised they should encourage email contact with students, and as stated by P6, students embraced it: 'Students interact with us, they could write emails and we responded, sometimes we had hundreds of the same question and you would then upload the answer onto clickUP for them'. Another participant, P15, expected questions from students about demarcated work, but he soon discovered that the students had fallen behind: 'We were already [busy] with Chapter 7, but they keep on only asking about Chapters 1, 2, 3'. Lecturers also realised that detailed instructions are

important, and P1 mentioned that they had to 'add instructions to every single file that you upload so that students know exactly what you want them to do'.

One lecturer, P4, explained that lecturers had to take on the role of metronome, that is, 'setting the pace explicitly'. A particularly useful function for this purpose in the LMS was the adaptive release function. This function allows the lecturer to upload many documents and set a date and time for each document to be released to students. As stated by P13, the adaptive release function is '[u]ser friendly and make[s] sure that the students do the work when it is required of them'.

Assessment

Acknowledging the importance of assessment for quality assurance, lecturers searched for alternative ways to assess students. Assignments were used by many to replace class tests, practical assessments and semester tests [mid-term exams], as indicated by P13:

> Assignments were compulsory, [there] is a multitude of questions and questions/options that can be used in clickUP and we played around with that and we had lots of fun with different types of questions, also making it challenging to the students.

In a numerical subject, students were given the 'test in the form of an assignment. And we said that they could just take photos of their answers and upload that onto clickUP' (P10), thereby overcoming the problem of using mathematical symbols in some online environments. Lecturers did however experience frustration due to limited opportunities for proper feedback to students, as indicated by P10, *'...*and you want to say to the students what are they doing wrong but you know they are not going to get their paper back'. Moreover, some modules offered students exemption from board examinations and this necessitated an opportunity for students to receive formative feedback on similar assessments, as explained by P10, an actuarial scientist: 'Some of our exams allow students to get exemption to our professional [board] exams, the semester tests [mid-term exams] are important to give them an indication of the standard, which the assignment couldn't do'.

Issues about the reliability and validity of assessment had to be interrogated rigorously as it was perceived as a potential risk. The university

encouraged lecturers to minimise the security risk associated with students on campus during the final examinations and, where possible, to conduct online rather than sit-down examinations. However, this option was rarely used because of the difficulty to detect plagiarism in a solved problem in the sciences. Lecturers deliberately implemented strategies to enhance the reliability of the assessment, as mentioned by P5: 'We had online assessment via clickUP and Qualtrics that offered options: we can build a big test base or a big pool and then … to get a different question, we must build in a randomiser'.

Lecturer as Reflective Practitioner

The lecturers in our sample shared their reflections on their teaching experiences during a challenging time and presented their insights into what they had learnt about their practice and their students. Several also shared aspects of their personal journey as they tried to serve their students and do justice to their disciplines. According to P8, they (the instructor and colleagues in the department) were naïve initially, since they assumed they would 'just keep swimming and we will basically just upload all our lectures on clickUP because the students do go on clickUP regularly and they do read what we put on .... So we thought we were ok'. However, it soon became clear that online teaching placed additional demands on their time and creativity. P8 stated that they were overwhelmed by 'all the additional admin that was on our desks. Their response to the challenge was to step up our game, we had to be a bit more innovative and creative in how we upload teachings and materials on clickUP' (P8). P11 described the emotional consequences of the disruptions: 'We found it a very tough time, but I think there is also a potential to learn a lot of new skills that will move us away from traditional lecture strategies and (to) something new and dynamic'. The comment by P4 sums up the general feeling: 'The lecturer as a surfer riding the waves of change, adapting continuously and trying your best to stay steady in all of this. And I think it was a good exercise for all of us'. Lecturers had to learn new skills and were forced out of their comfort zones, but the experience opened up new possibilities and many were proud of what was achieved.

Discussion

The paper has captured insights gained when the mode of instruction was

changed at short notice from contact to online during student unrest at a South African university in 2016. During this time, the university management and the lecturers had to deal with a situation that was fluid and unpredictable, one for which they were not prepared and had no previous experience from which to draw. Effective communication at all levels was essential, but also exceedingly difficult. There was consensus among our sample of lecturers that university management did not perform well in this regard and this fuelled uncertainty and frustration among staff. However, our findings also indicate that lecturers realised the need for effective communication and experimented with different media to achieve this goal. It is well documented that social media provided a powerful platform for mobilisation of support and organisation of mass action during recent protests (Brooks 2016; Langa 2017). Our study revealed that social media can also be a powerful tool for effective communication to facilitate teaching and learning during such turbulent times.

Arguably, the university involved was better prepared than most other South African universities to respond to the threat posed by student unrest, because of its strategic decision to endorse the hybrid model for teaching and learning and to invest in building capacity for its implementation prior to the event. Therefore, when the decision was taken to cease or drastically reduce normal contact instruction in October 2016, teaching and learning continued online by means of web-based technologies for the rest of the academic year. The almost-overnight implementation of alternative teaching modalities initially posed technical challenges. These measures pointed to the fact that virtual teaching and learning should be an integral component of the instructional model if staff and students are to be well versed in its use, especially in the case of future emergencies. Assessment posed additional challenges in terms of the difficulty to provide formative feedback and the challenge of reliability and validity for summative assessments. A surprising finding was the fact that even senior undergraduate students were largely unprepared to take full responsibility for their own learning once the pattern of regular class attendance was disrupted. Students did not apply themselves appropriately to the task and lecturers had to take on the responsibility for pace setting as well for ensuring that learning goals are reached. This was not really surprising, as it is well known that students lack persistence in online learning environments (Hart 2012; Kranzow 2013; Rutter 2016; Van Rooij & Zirkle 2016). Furthermore, the fact that lecturers realised they had to set the pace is consistent with the habit in online course design

where incentives such as digital badges are used to motivate students' participation and persistence when they are not supported by regular contact with lecturers (Abramovich, Schunn & Higashi 2013; Hurst 2015).

Our findings suggest that lecturers were determined to continue facilitating learning, regardless of the circumstances, thereby demonstrating their commitment and resilience. Although they did not have adequate preparation time, they still managed to employ teaching strategies that enabled students to achieve most of the learning outcomes for the courses that were taught. According to Perry (2002:33), resilience is the ability to manage 'stressors without significant negative disruption in functioning'. Besides being resilient, lecturers also displayed agency; that is, their response to student unrest showed that they had the capacity to respond appropriately to the situation. According to Bandura (1982), people constantly judge their self-efficacy to decide if they have the ability to execute an action effectively and to avoid taking on tasks that are outside of their ability. During the disruptions, lecturers did not have the luxury of risk avoidance; instead they ventured into the task of virtual teaching and in doing so, discovered where they required additional skills to use technology more efficiently.

The faculty where the study was conducted is a large and very diverse faculty. The *pecha kucha* presentations by lecturers from such a wide range of disciplines provided the researchers with a unique opportunity to gauge subtle differences in the impact of the student disruptions across the spectrum of science disciplines. Lecturers from all departments agreed that contact teaching was the preferred modality and that loss of contact time was detrimental to teaching and learning. However, the potential threat to the academic project was experienced most severely in mathematics-based disciplines. Courses that were more descriptive in nature, for example Geography and Agriculture, were more amenable to fully online presentation than numerical courses such as Mathematics, Statistics, Physics and Chemistry.

Conclusions

Technological advances have opened up a wide range of possibilities for higher education that have prompted widespread adoption of hybrid or blended learning (Graham, Woodfield & Harrison 2013; Moskal, Dziuban & Hartman 2013). The fact that the university has endorsed the hybrid model for achieving excellence in teaching and learning has set the scene for an appropriate

response to the student unrest of 2016. More importantly, this vision was supported by a strategic investment in infrastructure and human capacity development to equip lecturers with the resources and skills required for the implementation of hybrid teaching. Our findings suggest that institutions that embrace these international developments in alternative modalities for teaching and learning will be less vulnerable during student protests than others that rely mainly on contact instruction. However, for the switch to fully online teaching to occur smoothly during turbulent times, virtual learning should be a regular feature of the instructional model rather than merely an emergency measure.

Several limitations could have an impact on the generalisability of the findings, namely the limited size of the sample, the time limit imposed by the *pecha kucha* format for presentations, and the unique context within which the study was conducted. However, despite these limitations, our study provided powerful insights to inform the design of emergency teaching strategies for implementation when students are prevented from attending face-to-face classes. The university where the study was conducted and several other tertiary institutions in South Africa are currently conducting an in-depth study of student experiences during the disruptions of 2016, which is expected to complement the findings of this report.

Acknowledgements

We thank Dr Lynne Pilcher for providing valuable feedback on earlier drafts to improve the article. This research did not receive any specific grant from funding agencies in the public, commercial or not-for-profit sectors. We thank the language editor for a professional service.

References

Abramovich, S., C. Schunn & R.M. Higashi 2013. Are Badges Useful in Education? It Depends upon the Type of Badge and Expertise of the Learner. *Educational Technology Research and Development* 61,2:217 - 232. https://doi.org/10.1007/s11423-013-9289-2

Bandura, A. 1982. Self-efficacy Mechanism in Human Agency. *American Psychologist* 37,2:122 - 147.

https://doi.org/10.1037/0003-066X.37.2.122

BBC News: Africa. 2016. Why are South African Students Protesting? 4 October. Available at: http://www.bbc.com/news/world-africa-34615004 (Accessed on 14 June 2017.)

Beyer, A.M. 2011. Improving Student Presentations: Pecha Kucha and Just Plain PowerPoint. *Teaching of Psychology* 38,2:122 - 126. https://doi.org/10.1177/0098628311401588

Bodner, G. & M. Orgill 2007. *Theoretical Frameworks for Research in Chemistry/Science Education*. Upper Saddle River: Pearson Prentice Hall.

Braun, V. & V. Clarke 2006. Using Thematic Analysis in Psychology. *Qualitative Research in Psychology* 3,2:77 - 101. https://doi.org/10.1191/1478088706qp063oa

Brooks, R. 2016. Politics and Protest – Students Rise up Worldwide, *University World News* 13,413. Available at: http://www.universityworldnews.com/article.php?story=20160510173152311. (Accessed on 25 September 2017.)

Cammaerts, B. 2013. The Meditation of Insurrectionary Symbolic Damage: The 2010 U.K. Student Protests. *The International Journal of Press/Politics* 18,2:525 - 548. https://doi.org/10.1177/1940161213496283

Case, J. & G. Light. 2011. Emerging Research Methodologies in Engineering Education. *Journal of Engineering Education* 100,1:186 - 210. https://doi.org/10.1002/j.2168-9830.2011.tb00008.x

Creswell, J.W. 2009. *Research Design: Qualitative, Quantitative and Mixed Methods Approaches*. Thousand Oaks: Sage Publications.

Creswell, J.W. & D.L. Miller 2000. Determining Validity in Qualitative Inquiry. *Theory into Practice* 39,3:124 - 130. https://doi.org/10.1207/s15430421tip3903_2

Etikan, I., S. Abubakar & R.S. Alkassim 2016. Comparison of Convenience Sampling and Purposive Sampling. *American Journal of Theoretical and Applied Statistics* 5,1:1 - 4. https://doi.org/10.11648/j.ajtas.20160501.11

Glaser, B.G. 1992. *Basics of Grounded Theory Analysis: Emergences vs. Forcing*. Mill Valley: Sociology Press.

Golafshani, N. 2003. Understanding Reliability and Validity in Qualitative Research. *The Qualitative Report* 8,4:597 - 606.

Graham, C.R., W. Woodfield & B.J. Harrison 2013. A Framework for Institutional Adoption and Implementation of Blended Learning in Higher Education. *Internet and Higher Education* 18:4 - 14. https://doi.org/10.1016/j.iheduc.2012.09.003

Hart, C. 2012. Factors Associated with Student Persistence in an Online Program of Study: A Review of Literature. *Journal of Interactive Online Learning* 11,1:19 - 42.

Hoepfl, M.C. 1997. Choosing Qualitative Research: A Primer for Technology Education Researchers. *Journal of Technology Education* 9,1:47 - 63. https://doi.org/10.21061/jte.v9i1.a.4

Hurst, E.J. 2015. Digital Badges: Beyond Learning Incentives. *Journal of Resources in Medical Libraries* 12,3:182 - 189. https://doi.org/10.1080/15424065.2015.1065661

Ibrahim, Y. 2010. Between Revolution and Defeat: Student Protest Cycles and Networks. *Sociology Compass* 4,7:495 - 504. https://doi.org/10.1111/j.1751-9020.2010.00289.x

Isilow, H. 2016. *South Africa University Shuts for Week after Protests*. Available at: http://aa.com.tr/en/africa/south-africa-university-shuts-for-week-after-protests/658825 (Accessed on 14 June 2017.)

Kranzow, J. 2013. Faculty Leadership in Online Education: Structuring Courses to Impact Student Satisfaction and Persistence. *MERLOT Journal of Online Learning and Teaching* 9,1:131 - 139.

Langa, M. 2017. *#Hashtag: An Analysis of the #Feesmustfall Movement at South African Universities.* Johannesburg: Centre for the Study of Violence and Reconciliation. Available at: https://www.csvr.org.za/pdf/An-analysis-of-the-FeesMustFall-Movement-at-South-African-universities.pdf (Accessed on 20 September 2017.)

Lewis, S. 2016. Papua New Guinea Moves to End Student Protests after Violence. *Time* 8 June 2016. Available at: www.time.com (Accessed on 25 September 2017.)

Lincoln, Y.S. & E.G. Guba 1989. *Fourth Generation Evaluation.* Newbury Park: Sage.

Marin, M. 2012. Student Protestors in Quebec are Safeguarding the Future. *University World News* 22 April 2012. Available at: www.universityworldnews.com (Accessed on 25 September 2017.)

Marton, F. 1981. Phenomenography – Describing Conceptions of the World around Us. *Instructional Science* 10:177 - 200. https://doi.org/10.1007/BF00132516

Mexico News Daily 2016. University Occupation by Failed Students Passes 50 Days. *University World News* 22 October 2016. Available at: www.universityworldnews.com (Accessed on 25 September 2017.)

Moskal, P., C. Dziuban & J. Hartman 2013. Blended Learning: A Dangerous Idea? *Internet and Higher Education* 18:15 - 23. https://doi.org/10.1016/j.iheduc.2012.12.001

Orgill, M. 2007. Phenomenography. In Bodner, G. & M. Orgill (eds.): *Theoretical Frameworks for Research in Chemistry/ Science Education*. Upper Saddle River: Pearson Prentice Hall.

Pullan, B. & M. Abendstern 2004. *A History of the University of Manchester 1973-1990*. Manchester: Manchester University Press. https://doi.org/10.7228/manchester/9780719062421.001.0001

Rands, M. & M. Gansemer-Topf 2016. Phenomenography: A Methodological Approach for Assessment in Student Affairs. *Education Publications* 45:1 - 22.

Rodriguez-Amat, J.R. & B. Jeffery 2017. Student Protests. Three Periods of University Governance. *TripleC: Journal for a Global Sustainable Information Society* 15,2:524 - 539.

Rutter, K. 2016. Student Satisfaction and Persistence in Online Courses: Implications for Instructional Design. Available at: https://www.researchgate.net. (Accessed on 15 November, 2017.)

Strauss, A.L. & J.M. Corbin 1998. *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*. Thousand Oaks: Sage Publications Inc.

Taylor, D. 2016, University Students Across London Take Part in Rent Strike. *The Guardian* 6 May 2016. Available at: www.theguardian.com (Accessed on 25 September 2017.)

Thomas, D. 2006. A General Inductive Approach for Analyzing Qualitative Evaluation Data. *American Journal of Evaluation* 27,2:237 - 246. https://doi.org/10.1177/1098214005283748

Van Rooij, S.W. & K. Zirkle 2016. Balancing Pedagogy, Student Readiness and Accessibility: A Case Study in Collaborative Online Course Development. *Internet and Higher Education* 28:1 - 7. https://doi.org/10.1016/j.iheduc.2015.08.001

Waruru, M. 2013. Two Students Killed in Protests, Universities Close. *University World News* 19 December 2013. Available at: www.universityworldnews.com (Accessed on 25 September 2017.)

Rethabile Tekane
Department of Chemistry
University of Pretoria
Reeh.Tekane@up.ac.za

Ina Louw
Department for Education Innovation
University of Pretoria
Ina.louw@up.ac.za

Marietjie Potgieter
Department of Chemistry
University of Pretoria
Marietjie.potgieter@up.ac.za

Attitudes toward Plagiarism: The Case of Undergraduate Health Sciences Students at the University of Pretoria

Emmanuel Matsebatlela
Anesu Gelfand Kuhudzai

Abstract

The primary aim of the study on which this article is based was to investigate undergraduate health sciences students' perceptions, attitudes to and awareness of plagiarism at the University of Pretoria in South Africa. The sample comprised 696 students from the School of Medicine and School of Healthcare Sciences in the Faculty of Health Sciences. Data were analysed using the Statistical Package for Social Sciences (SPSS) version 25. Analytical tools included frequencies, custom tables, independent t-tests and one-way analysis of variance. Exploratory factor analysis and reliability analysis were used to assess construct validity and internal consistency of the instrument tool respectively. Findings revealed that overall, the sample group of students seem to be generally aware of the University's plagiarism policy and what it entails. However, it became evident that there is still a fairly significant percentage of students whose responses suggest a lack of understanding and awareness of plagiarism. Findings further revealed statistically significant differences in attitudes to plagiarism and awareness of it among the six programmes and across the levels of study. The paper advocates that plagiarism policies should be clearly written and communicated to ensure that students have consistent understandings of how plagiarism is defined, its purpose, due process and specific consequences.

Keywords: health sciences, perceptions, plagiarism policy, Turnitin, undergraduate students

Print ISSN 1023-1757; Electronic ISSN: 2519-5476; DOI https://doi.org/10.29086/2519-5476/2018/v25n2a8

Introduction

Plagiarism is a problem that plagues higher education institutions worldwide. The problem has been exacerbated by easily accessible online information on a variety of electronic platforms. Students are deemed to have poor understandings of plagiarism and the various ways in which plagiarism finds expression (Marshall & Garry 2005). Plagiarism is also prevalent in South African higher education and occurs at all qualification levels in various academic undertakings by students such as assignments, dissertations and other projects (Mammen & Meyiwa 2013).

In an article that appeared in *TimesLive*, Govender (2014) reported that over 1,400 students at major higher education institutions in South Africa were found guilty of academic dishonesty in 2014. The University of South Africa penalised 519 students by barring them from studying at that institution for three years as a consequence of cheating during exams or plagiarising (Govender 2014). The article further reported that figures provided by other universities indicate that 535 students were found guilty of cheating or plagiarising at North-West University, 153 at the University of Johannesburg, 66 at the Nelson Mandela Metropolitan University, 35 at Stellenbosch University, 31 at the University of the Witwatersrand, 27 at the University of the Western Cape, and 24 at the University of Cape Town (Govender 2014). These figures suggest that academic dishonesty is widespread within the South African higher education sector. In fact, Govender (2014) reported that some of the universities approached seemed to have been afraid of tainting their image by releasing these figures.

Plagiarism is considered so serious that an academic at the University of Johannesburg describes it as a 'cancer' that is proliferating in our higher education institutions (Friedman 2015). According to a student judicial officer at the University of Pretoria, one of the justifications given by students found guilty of academic dishonesty was that they did not have time to properly engage with the material as they had enrolled for too many modules (Friedman 2015). In a study of graduation reports by undergraduate students at two universities in Vietnam, Tran, Huynh and Ngunyen (2018) found that plagiarism was detected in 91.7% of the graduation reports at one university which does not use Turnitin and in 61.7% of the reports at another university that also does not use the software. These findings reveal that plagiarism is also a serious problem among undergraduate students beyond the borders of South Africa.

It has become increasingly simple to plagiarise others' work due to the availability of information that is freely accessible on various electronic platforms. Plagiarism is a form of intellectual dishonesty that includes copying someone's work without citation, failure to use quotation marks where required, omissions and carelessness in compiling the reference list and using others' figures, tables or illustrations without securing permission to do so (Gibelman, Gelman & Fast 1999).

According to the University of Pretoria's (2010: 3) Plagiarism Prevention Policy, plagiarism is:

> ... the presentation of someone else's work, words, images, ideas, opinions, discoveries, artwork, music, recordings or computer-generated work (including circuitry, computer programs or software, websites, the Internet or other electronic resources) whether published or not, as one's own work, without properly acknowledging the source, with or without the source's permission.

The policy further states that it is not a requirement that a person must have intended to deceive or to plagiarise for plagiarism to occur. At the University, it is simply assumed that where certain plagiarised elements are found in a text, the author intended them to be there, and that where paraphrasing is the issue, the author intended this as a disguise for more obvious plagiarism, such as unattributed verbatim copying.

In view of the aforementioned prevalence of plagiarism in higher education institutions, this study investigated undergraduate health sciences students' perceptions, attitudes to and awareness of plagiarism at the University of Pretoria. The research objectives were:

> (i) to establish the undergraduate health sciences students' perceptions, attitudes and awareness towards plagiarism;
>
> (ii) to investigate whether statistically significant differences exist between males and females regarding undergraduate health students' perceptions, attitudes to and awareness of plagiarism;
>
> (iii) to determine whether a statistically significant difference exists across programmes regarding undergraduate health students' perceptions, attitudes to and awareness of plagiarism; and

(iv) to explore whether undergraduate health sciences students' perceptions, attitudes to and awareness of plagiarism differs across levels of study.

Literature Review

Formal recognition of plagiarism dates back to the mid-18th century (Goldgar 2001) and is a complex issue that is central to academic and literary culture (Green 2002). The issue has become one of the central academic problems in higher education, globally. According to Etter, Cramer and Finn (2006), there has been a sharp increase in the number of students in higher education institutions who use online material without citing the source. A study by Jones, Reid and Bartlett (2005: 8) revealed that just over 36% of 171 students surveyed indicated that they failed to cite references used. In the same study it also emerged that approximately 20% of students confessed to cutting and pasting information from the internet without citing the source. This is corroborated in the study by Scanlon and Neumann (2002) in which 24% of 698 students self-reported cutting and pasting without acknowledging the source. In a different study by Selwyn (2008), 59% of 1,222 students admitted to copying a few sentences from the internet into their assignments, 30% self-reported copying a few paragraphs and 4% copied entire assignments from an online source.

Causes of Plagiarism

Research on plagiarism has not only investigated the prevalence of plagiarism among university students, but has also explored the reasons for its occurrence (Mwamwenda 2006; Park 2003; Teferra 2001; Millerville University 2005; Cummings *et al.* 2002). Some of the reasons for the increasing prevalence of plagiarism are students' lack of familiarity with rules governing quoting; paraphrasing; citing and referencing; too much work and a lack of time to properly engage with academic material; easier access to information through the internet; and students thought that lecturers might not detect that plagiarism has occurred (Mwamwenda 2006).

Many instances of plagiarism by undergraduate students seem to be unintentional; they result from students' failure to conform to proper protocols

for academic referencing and lack of acknowledgement of their sources' ideas largely because students are unaware of what constitutes plagiarism (Elander, Pittam, Lusher, Fox & Payne 2009). Unintentional plagiarism could occur due to students' failure to see themselves as authors who should make an important contribution as well as a lack of critical engagement with the sources (Abari, Akbari & Graves 2006).

To expand on the above, unintentional plagiarism is partly predated by lack of awareness and knowledge of plagiarism. Indeed, some studies pointed out that students' lack of awareness of and uncertainties regarding what constitutes plagiarism could itself be a precursor to plagiarism (Eret & Gokmenoglu 2010; Murtaza, Zafar, Bashir & Hussain 2013; Pupovac Bilic-Zulle, Mavrinac & Petrovecki 2010; Marshall & Garry 2005; Sentleng & King 2012). Conversely, intentional plagiarism occurs when a student knowingly uses another person's ideas as his or her own. This also includes cutting and pasting an essay or article from the internet, or, part of an essay or article, using online sources without acknowledging the author or fabricating a quotation or a source (Sentleng & King 2012).

Plagiarism in South African Higher Education

In 2005 it was reported in the media that several students at the University of Cape Town, the University of Pretoria and Stellenbosch University had failed their courses, been suspended or even been expelled for failing to acknowledge original sources in their work (Russouw 2005). At the University of Pretoria, 80% of 150 undergraduate students interviewed for a study on plagiarism admitted that they regularly copied their assignments straight from the Internet. Most of these students attributed their plagiarism tendencies to academic laziness, poor time management and a lack of research skills (Russouw 2005).

In another study which investigated plagiarism among students at the former University of Transkei (now called Walter Sisulu University) plagiarism was found to be clearly common among students (Mwamwenda & Monyooe 2000). This was corroborated by Ellery's (2008) study which investigated plagiarism amongst first-year students at the University of KwaZulu-Natal and found that although students had plagiarised in an essay assignment, there was little deliberate intention to deceive. Instead students appeared to have poor understanding of correct referencing techniques and the

establishment of authorial voice. These shortcomings seemed to emanate from students' lack of proper engagement with plagiarism and referencing. Ellery (2008) advises that universities should view the acquisition of norms, values, attitudes, beliefs and practices that help curb plagiarism as an important and iterative process, particularly in a multilingual and multicultural society such as South Africa.

Research by Sentleng and King (2012) which investigated the awareness and causes of plagiarism among undergraduate first, second and third year students of the departments of Chemistry and Mathematical Technology within the Faculty of Applied Science at a South African university of technology found evidence of both intentional and unintentional plagiarism. Some of the reasons for intentional plagiarism were that students wanted to obtain better marks, make up for poor time management and because they thought everybody else was doing it. Unintentional plagiarism occurred due to students' poor writing skills, inadequate understanding of referencing skills, poor understanding of assignments and lack of awareness and understanding of the concept of plagiarism (Sentleng & King 2012).

Plagiarism Awareness and Perceptions

An evaluation of students' perceptions and behaviour towards plagiarism in 35 Pakistani universities revealed that most of the students were not aware of policies on plagiarism at their universities, while only a few students were aware of these policies and the penalties for plagiarism (Murtaza *et al.* 2013). Students in the Pakistani universities did not view plagiarism as a serious enough offence to warrant any penalties. In concurrence, one third of students surveyed in Pupovac *et al*.'s (2010) study felt that they were entitled to plagiarise to a certain extent as they were still in the early stages of the academic writing process. Furthermore, half of the students in the latter study (Pupovac *et al*. 2010) did not consider self-plagiarism to be harmful nor to warrant any punishment. Although students in a study by Marshall and Garry (2005) understood the more obvious forms of plagiarism, such as copying others' work without acknowledgment, they were uncertain about how they should reference correctly. Despite lack of awareness and understanding of plagiarism, Cilliers (2017) found that very few universities had included information ethics in their curriculum.

Theories Pertaining to Plagiarism

Research on plagiarism and other forms of academic dishonesty seems to be largely atheoretical (Finchilescu & Cooper 2018). However, some of the factors central to this study such as attitudes and perceptions resonate with the elements of relevant theories. A theory of planned behaviour (TPB) postulates that an individual's intention to engage in a particular behaviour is contingent on their attitude to that behaviour, their perception of the social norms pertaining to the behaviour and how they perceive their capacity to perform the behaviour. It is this intention that may eventually drive the individual to perform the behaviour (Fishbein & Ajzen 2010). The extent to which intentions predict behaviour is partly dependent on factors outside the individual's control, i.e. the strength of the relationship between intention and behaviour is moderated by actual control over the behaviour (Ajzen 2011). Therefore, a lack of actual control over one's behaviour will likely reduce the predictive validity of one's intentions.

Various researchers have successfully applied TPB to plagiarism with considerable success (Pulker 2012; Stone, Jawahar & Kisamore 2010; Beck & Ajzen 1991). Overall, the main components of TPB (i.e. attitudes, subjective norms and perceived behavioural control) were helpful in predicting intention to plagiarise, although the relative importance of the individual components differed from one study to another (Finchilescu & Cooper 2018).

Plagiarism at the University of Pretoria

Various researchers have investigated the prevalence and perceptions of plagiarism in the South African higher education sector in various disciplines (Finchilescu & Cooper 2018; Mwamwenda & Monyooe 2000; Mwamwenda 2006; Sentleng & King 2012; Cilliers 2017). However, there is a paucity of research that has been undertaken on plagiarism among health sciences students in South African universities, particularly in the following programmes: Medicine, Radiography, Physiotherapy, Occupational Therapy, Human Nutrition and Nursing.

This study therefore aimed to bridge this gap by investigating students' perceptions, attitudes to and awareness of plagiarism at the University of Pretoria in South Africa. This should serve as baseline research that sets the stage for further research on the actual prevalence of plagiarism among health

sciences students in the aforementioned programmes at various South African universities.

The aim of the study from which this article derives, was to investigate undergraduate health sciences students' perceptions of, attitudes to and awareness of plagiarism at the University of Pretoria.

Research Methodology

A descriptive design and a causal comparative quantitative research design were both used for the research method. Descriptive research attempts to provide answers to what is happening rather than why is it happening (Greenfield 2002). A causal comparative research design aims to compare two or more groups with the intent to understand differences which may exist between the groups (Pallant 2010).

The population consisted of students in the School of Medicine and School of Healthcare Sciences in the Faculty of Health Sciences at the University of Pretoria. A stratified sampling method was used to select groups of students as the study was aimed at focusing on mainly first, second and third year students in Medicine and Health Care Sciences. The School of Healthcare Sciences comprises the following departments: Radiography, Human Nutrition, Occupational Therapy, Nursing and Physiotherapy. The study included students from the School of Medicine and all the departments in the School of Healthcare Sciences; the total population at the time of study was 1561. According to Israel's (1992) sample size table, for a population size of just over 1 500, the sample size should be based on a confidence level of 95%. In this study, a sample size of 696 students was obtained.

The researcher distributed a structured questionnaire to students in the Schools of Medicine and Healthcare Sciences. Arrangements were made with each of the departments to allow the researcher a few minutes to distribute questionnaires manually in a lecture room, either at the beginning of a lecture or just after the lecture. Students were allocated a few minutes to complete the questionnaires, after which completed questionnaires were collected. After collecting completed questionnaires from the participants, data were analysed using the Statistical Package for Social Sciences (SPSS). This software (SPSS), which has been in existence since the 1960s, appears to be the most widely used quantitative data analysis software for social sciences (Bryman 2001).

Statistical techniques used to analyse the data were frequencies, custom tables, independent t-tests and one-way ANOVA. In order to measure the validity and reliability of the instrument tool, exploratory factor analysis and reliability analysis were respectively used.

Validity and Reliability

Table 1 below presents the results of Kaiser-Meyer Olkin's measure of sampling adequacy and Bartlett`s Test of Sphericity.

Table 1: KMO and Bartlett`s Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.830
Bartlett's Test of Sphericity	Approx. Chi-Square	2132.763
	df	91
	Sig.	.000

It is evident from Table 1, that the Kaiser-Meyer Olkin measure of sampling adequacy is 0.830, indicating that the data set was appropriate for factor analysis (Tabachnick & Fidell 2013). The Bartlett's Test of Sphericity was also significant, thus, p-value = 0.000 < 0.05 level of significance (Bartlett 1954) thereby confirming the Kaiser-Meyer Olkin measure of sampling adequacy`s results.

Table 2 provides an exploratory factor analysis and reliability analysis results.

Table 2: Exploratory factor analysis and reliability analysis

Factor (s)	**Factor Loadings**	**Eigenvalues**	**Variance Explained (%)**	**Cronbach`s Alpha Coefficient**
Factor 1: Plagiarism Awareness (PA)				
PA3-I am aware of the University's policy regarding plagiarism.	0.796			

PA5-I am aware of the penalties which may be incurred if I plagiarise.	0.730	3.778	26.988	0.752
PA4-I have seen the University's policy document on plagiarism.	0.706			
PA1-I understand what plagiarism entails.	0.650			
PA2-My lecturers have explained what plagiarism entails.	0.632			
Factor 2: Plagiarism Attitudes (PAT)		1.949	13.921	0.713
PAT2-We should only cite published work. It is not necessary to cite unpublished work.	0.722			
PAT1-Plagiarism should only be checked in theses and dissertations and not assignments.	0.722			
PAT5-One should not be penalised using other people's e-mail and cell phone text messages.	0.641			
PAT6-It is not necessary for each assignment to be accompanied by a Declaration of Originality.	0.617			
PAT4-First-year students should not be penalised for committing plagiarism.	0.615			
Factor 3: Plagiarism Perceptions (PP)		1.335	9.533	0.686
PP9-I am guilty of plagiarism if I copy something from another author's work (e.g. a book, an article or a website) without acknowledging the source and pass it off as my own.	0.806			
PP4-If I paraphrase someone else's work, I still need to credit the source.	0.672			
PP10-If it is unclear whether an idea in your paper really came from you, or whether you got it from somewhere else and just changed it a little, you should always cite your source.	0.613			
PP11-Images and websites are not serious enough to be cited.	0.546			
Total variance explained			**50.442**	

Exploratory factor analysis by principal components analysis was performed in order to establish construct validity. Table 2 reveals that 3 factors were extracted in the analysis using Kaiser's eigenvalue of greater than 1 criterion (Kaiser 1970). The three factors were called plagiarism awareness, plagiarism attitudes and plagiarism perceptions. These three factors contributed a total variance of 50.442%, less than the 60% threshold value commonly used in the field of social sciences (Hair, Anderson, Tatham & Black 1998). Plagiarism awareness accounted for 26.988%, while plagiarism attitudes contributed 13.921% and plagiarism perceptions explained 9.533%. It is also shown in Table 2 that all factor loadings are above the threshold value of 0.5, indicating that they are of utmost significance to the factors to which they are loading (Hair *et al.* 1998). Twelve items were deleted due to the fact that some did not measure what they were intended to measure and some had factor loadings below 0.5.

An internal consistency analysis was performed in order to assess the reliability aspect of the plagiarism instrument. The ability of the instrument to provide consistent results in repeated uses is referred to as reliability (Gatewood & Field 1990). Reliability analysis carried out on all extracted three factors demonstrated that the Cronbach's alpha coefficient for plagiarism awareness is 0.752, 0.713 for plagiarism attitudes and 0.686 for plagiarism perception.

Two Cronbach's alpha coefficient values are above the recommended minimum acceptable value of 0.7 (Nunnally 1978) while the other one is very close to 0.7, indicating that the scales are reliable.

Results

Figure 1 provides a graphic representation of the distribution of respondents by gender. The statistics indicate that the percentage of female respondents was higher than that of their male counterparts: females (79.6%) and males (20.4%).

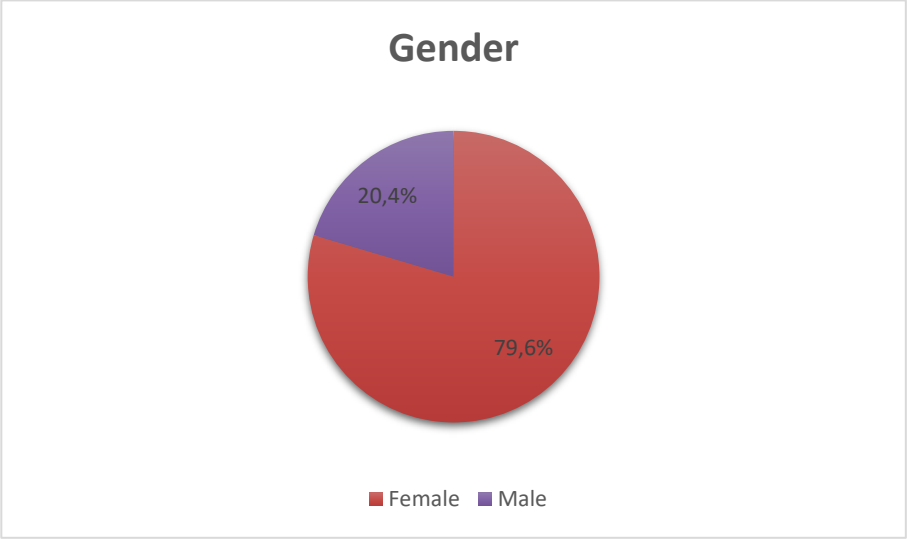

Figure 1: Distribution of Respondents by Gender

Figure 2 presents programmes in the Faculty of Health Sciences. Almost half of the respondents (49.1%) were studying Medicine.

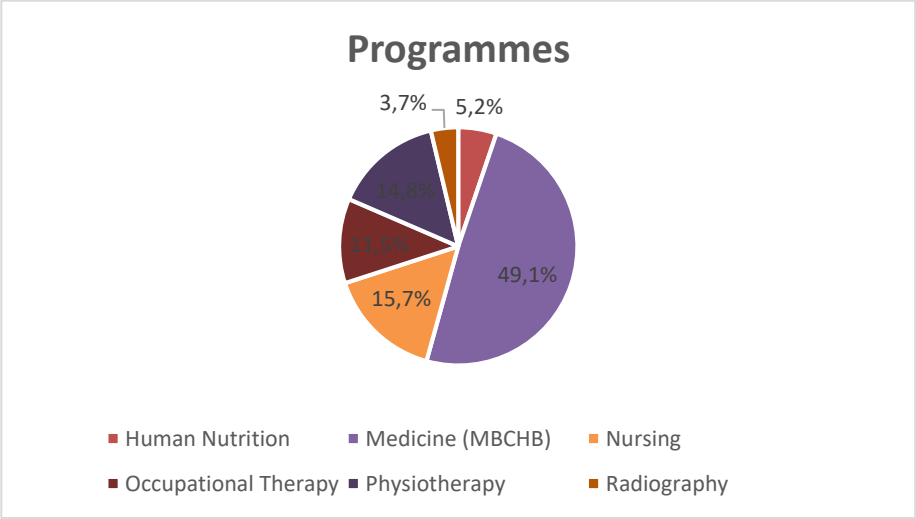

Figure 2: Distribution of Respondents by Programmes

Figure 3 shows a number of students and years of study. Results indicate that (48.7%) of the students were in third year, (44.1%) in second year and (7.2%) in first year.

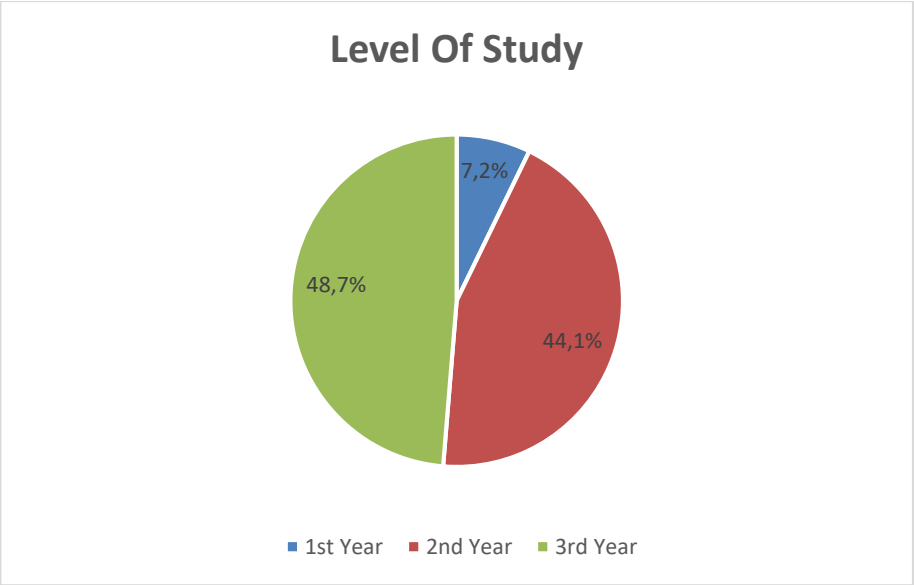

Figure 3: Distribution of Respondents by Level of Study

Data in Table 3 indicate that a majority of the students were aware of plagiarism and the University of Pretoria`s plagiarism policy; 82.6% of the participants indicated that lecturers had explained to them what plagiarism entails and 88.5% were aware of the University's policy on plagiarism.

Table 3: Plagiarism Awareness

		Strongly Disagree	Disagree	Agree	Strongly Agree
PA1. I understand what plagiarism entails.	Count	5	10	331	350
	Row N %	0.7%	1.4%	47.6%	50.3%

PA2. My lecturers have explained what plagiarism entails.	Count	23	98	334	241
	Row N %	3.3%	14.1%	48.0%	34.6%
PA3.I am aware of the University's policy regarding plagiarism.	Count	9	71	291	325
	Row N %	1.3%	10.2%	41.8%	46.7%
PA4.I have seen the University's policy document on plagiarism	Count	67	201	205	223
	Row N %	9.6%	28.9%	29.5%	32.0%
PA5.I am aware of the penalties which may be incurred if I plagiarise.	Count	25	110	290	271
	Row N %	3.6%	15.8%	41.7%	38.9%

However, it is a matter of concern that 38.5% of respondents had not seen the University's policy on plagiarism and 19.4% were not aware of the penalties which might be incurred if they plagiarise.

Table 4: Plagiarism Perceptions

		Strongly Disagree	Disagree	Agree	Strongly Agree
PP1Plagiarism occurs when one intentionally avoids acknowledging sources used. If failure to cite sources was unintentional, it is not plagiarism.	Count	228	288	111	69
	Row N %	32.8%	41.4%	15.9%	9.9%
PP2Using only another person's idea and not the actual words can constitute plagiarism.	Count	60	159	326	151
	Row N %	8.6%	22.8%	46.8%	21.7%
PP3Students who commit plagiarism will only be given credit for the plagiarised work if they prove that they plagiarised unintentionally.	Count	246	310	116	24
	Row N %	35.3%	44.5%	16.7%	3.4%
PP4.If I paraphrase someone else's work, I still need to credit the source.	Count	10	24	225	437
	Row N %	1.4%	3.4%	32.3%	62.8%
PP5To avoid plagiarism, I need to hand in my own and original work.	Count	15	58	184	439
	Row N %	2.2%	8.3%	26.4%	63.1%
PP6In extreme cases plagiarism penalties could result in expulsion or failure to graduate at all.	Count	10	18	204	464
	Row N %	1.4%	2.6%	29.3%	66.7%
PP7Changing a few words of the original sentences does not make your writing a legitimate paraphrase. You must change both the words and the sentence structure of the original, without changing the content.	Count	26	63	374	233
	Row N %	3.7%	9.1%	53.7%	33.5%
PP8Only undergraduate students are exempt from plagiarism penalties as they are still in the process of learning referencing techniques.	Count	313	269	88	26
	Row N %	45.0%	38.6%	12.6%	3.7%

PP9.I am guilty of plagiarism if I copy something from another author's work (e.g. a book, an article or a website) without acknowledging the source and pass it off as my own.	Count	15	13	134	534
	Row N %	2.2%	1.9%	19.3%	76.7%
PP10.If it is unclear whether an idea in your paper really came from you, or whether you got it from somewhere else and just changed it a little, you should always cite your source.	Count	7	33	326	330
	Row N %	1.0%	4.7%	46.8%	47.4%
PP11. Images and websites are not serious enough to be cited.	Count	402	241	36	17
	Row N %	57.8%	34.6%	5.2%	2.4%
PP12Changing the words of an original source substantially is sufficient to prevent plagiarism.	Count	149	275	221	51
	Row N %	21.4%	39.5%	31.8%	7.3%
PP13If I use my own previous work I don't need to acknowledge the source.	Count	153	247	192	104
	Row N %	22.0%	35.5%	27.6%	14.9%
PP14If I use my own words when writing about information I found in a book, I do not have to cite the source.	Count	282	286	87	41
	Row N %	40.5%	41.1%	12.5%	5.9%

With regard to plagiarism perceptions, Table 4 reveals that 668 (96%) of the study participants agreed that they would be guilty of plagiarism if they copied from another author's work without acknowledging the source and passed it off as their own. The results in the table further indicate that 95.1% of participants agreed that one still needs to credit the source when paraphrasing someone's work. There were 656 (94.2%) participants who indicated that even if it is unclear whether an idea in one's work really came from them, or whether they obtained it from somewhere else and just changed it a little, one should always cite their source. Ninety-two point four percent (92.4%) of participants regarded images and websites as serious enough to be cited.

The table also reveals that 39.1% of the students believed that substantially changing the words of an original source is sufficient to prevent plagiarism. Approximately one third (31.4%) of the students indicated that merely using another person's idea and not the actual words, does not constitute plagiarism. Furthermore, over a quarter (25.8%) of the students felt that plagiarism occurs when there is an intention on the part of the offender and that if failure to cite sources was unintentional, it is not plagiarism. Concomitantly, 20.1% of the participants indicated that students who commit plagiarism will be given credit for the plagiarised work only if they prove that they plagiarised unintentionally.

Table 5 provides statistical results on plagiarism attitudes.

Table 5: Plagiarism Attitudes

		Strongly Disagree	Disagree	Agree	Strongly Agree
PAT1Plagiarism should only be checked in theses and dissertations and not assignments.	Count	346	291	45	14
	Row N %	49.7%	41.8%	6.5%	2.0%
PAT2We should only cite published work. It is not necessary to cite unpublished work.	Count	229	322	112	33
	Row N %	32.9%	46.3%	16.1%	4.7%
PAT3Each student should indicate precisely and accurately when they have used information provided by someone else, i.e. referencing must be done in accordance with a recognised system.	Count	7	18	262	409
	Row N %	1.0%	2.6%	37.6%	58.8%
PAT4First-year students should not be penalised for committing plagiarism.	Count	233	306	124	33
	Row N %	33.5%	44.0%	17.8%	4.7%
PAT5One should not be penalised using other people's e-mail and cell phone text messages.	Count	156	332	177	31
	Row N %	22.4%	47.7%	25.4%	4.5%
PAT6It is not necessary for each assignment to be accompanied by a Declaration of Originality	Count	218	293	151	34
	Row N %	31.3%	42.1%	21.7%	4.9%
PAT7It is unfair to single out a few students for plagiarising because many students plagiarise.	Count	159	225	205	107
	Row N %	22.8%	32.3%	29.5%	15.4%

Table 5 shows that 91.5% of the respondents indicated that plagiarism should be checked not just in theses and dissertations, but in assignments too. Although the majority of the participants stated that both published and unpublished works should be cited, 145 (20.8%) participants indicated that it was not necessary to cite unpublished work. The table further records that 157 (22.5%) students did not think that first year students should be penalised for committing plagiarism. Furthermore, 29.9% of the students felt that one should not be penalised for using others' e-mail and mobile phone text messages. Moreover, 26.6% of the respondents indicated that it was not necessary for each assignment to be accompanied by a declaration of originality. It was interesting to find that almost half of the students (44.9%) were of the opinion that, since many students engaged in plagiarising, it was unfair to punish a few students for the offence.

Table 6 displays the independent t-test results on plagiarism awareness, attitudes and perceptions by gender.

Table 6: Independent t-test Results on Plagiarism Awareness, Attitudes and Perceptions by Gender

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Plagiarism Awareness	Equal variances assumed	1.040	.308	-.235	694	.814	-.01227	.05221	-.11479	.09024
	Equal variances not assumed			-.225	207.185	.823	-.01227	.05466	-.12003	.09548
Plagiarism Attitudes	Equal variances assumed	1.394	.238	-1.950	694	.052	-.10040	.05149	-.20149	.00070
	Equal variances not assumed			-1.785	197.833	.076	-.10040	.05625	-.21132	.01053
Plagiarism Perceptions	Equal variances assumed	2.917	.088	-.759	694	.448	-.02354	.03100	-.08440	.03733
	Equal variances not assumed			-.682	194.014	.496	-.02354	.03453	-.09163	.04456

An independent samples t-test was conducted to investigate if statistically significant differences exist regarding undergraduate health students' perceptions, attitudes to and awareness of plagiarism between males and females. Results in Table 6 indicate no statistically significant difference between males (M = 3.20, SD = 0.59) and females (M = 3.19, SD = 0.55); t

(694) = -0.235, p = 0.814 on plagiarism awareness. In addition, there was no statistically significant difference between males (M = 2.00, SD = 0.61) and females (M = 1.90, SD = 0.53); t (694) = -1.950, p = 0.052 on plagiarism attitudes. Finally, there was no statistically significant difference between males (M = 3.07, SD = 0.38) and females (M = 3.05, SD = 0.32); t (694) = -0.759, p = 0.448 on plagiarism perceptions.

Table 7: One-way ANOVA Results on Plagiarism Awareness, Attitudes and Perceptions according to Programmes

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Plagiarism_ Awareness	Between groups	8.696	5	1.739	5.850	.000
	Within groups	205.157	690	.297		
	Total	213.854	695			
Plagiarism_ Attitudes	Between groups	6.376	5	1.275	4.340	.001
	Within groups	202.741	690	.294		
	Total	209.117	695			
Plagiarism_ Perceptions	Between groups	.819	5	.164	1.514	.183
	Within groups	74.634	690	.108		
	Total	75.452	695			

A one-way analysis of variance was performed to determine if a statistically significant difference exists across programmes on undergraduate health students' perceptions, attitudes to and awareness of plagiarism. It is evident from Table 7 that there was a statistically significant difference at the $p < 0.05$ level of significance on plagiarism awareness among the six programmes: F (5, 690) = 5.850, p = 0.000. Post hoc tests using Tukey's HSD indicate that statistically significant differences in plagiarism awareness exist between the following programmes, as may be seen in Table 8, below:

Table 8: Post hoc Tests on Plagiarism Awareness by Programmes

Programmes	p-value
Human Nutrition (M = 3.36, SD = 0.50) & Occupational Therapy (M = 3.00, SD = 0.53)	0.011
Human Nutrition (M = 3.36, SD = 0.50) & Physiotherapy (M = 3.02, SD = 0.55)	0.016
Medicine (M = 3.25, SD = 0.56) & Occupational Therapy (M = 3.00, SD = 0.53)	0.002
Medicine (M = 3.25, SD = 0.56) & Physiotherapy (M = 3.02, SD = 0.55)	0.002
Nursing (M = 3.23, SD = 0.52) & Occupational Therapy (M = 3.00, SD = 0.53)	0.045

Table 7 also indicates that there was a statistically significant difference at the $p < 0.05$ level of significance on plagiarism attitudes among the six programmes: F (5, 690) = 4.340, $p = 0.001$. Post hoc tests using Tukey's HSD indicate that statistically significant differences in plagiarism attitudes exist between the following programmes, as recorded in Table 9, below:

Table 9: Post hoc Tests on Plagiarism Attitudes by Programmes

Programmes	p-value
Human Nutrition (M = 1.73, SD = 0.44) & Physiotherapy (M = 2.09, SD = 0.47)	0.009
Medicine (M = 1.90, SD = 0.59) & Physiotherapy (M = 2.09, SD = 0.47)	0.024
Nursing (M = 1.83, SD = 0.53) & Physiotherapy (M = 2.09, SD = 0.47)	0.008

It is apparent from Table 7 that there was no statistically significant difference at the $p < 0.05$ level of significance on plagiarism perceptions among the six programmes: F (5, 690) = 1.514, $p = 0.183$.

Table 10, below, presents the results of one –way ANOVA on plagiarism awareness, attitudes and perceptions by level of study.

Table 10: One-way ANOVA Results on Plagiarism Awareness, Attitudes and Perceptions by Level of Study

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Plagiarism_ Awareness	Between Groups	1.940	2	.970	3.172	.043
	Within Groups	211.914	693	.306		
	Total	213.854	695			
Plagiarism_ Attitudes	Between Groups	2.858	2	1.429	4.802	.008
	Within Groups	206.259	693	.298		
	Total	209.117	695			
Plagiarism_ Perceptions	Between Groups	.064	2	.032	.293	.746
	Within Groups	75.389	693	.109		
	Total	75.452	695			

An ANOVA was also conducted to explore whether the said perceptions, attitudes and awareness of undergraduate health sciences students differ across levels of study. As may been seen from Table 10, there was a statistically significant difference at the $p < 0.05$ significance level on plagiarism awareness among the three levels of study: F (2, 693) = 3.172, $p = 0.043$. Post hoc tests using Tukey HSD indicate that statistically significant differences in plagiarism awareness exist between first year students (M = 3.03, SD = 0.50) and third year students (M = 3.23, SD = 0.58); $p = 0.046$. Table 10 also presents statistically significant differences at the $p < 0.05$ level of significance on plagiarism attitudes among the three levels of study: F (2, 693) = 4.802, $p = 0.008$. Post hoc tests using Tukey HSD indicate that statistically significant differences in plagiarism attitudes exist between first year students (M = 2.06, SD = 0.57) and third year students (M = 1.86, SD = 0.58); $p = 0.043$ as well. However, there was no statistically significant difference at the

$p < 0.05$ level of significance on plagiarism perceptions among the three levels of study: F (2, 693) = 0.293, $p = 0.746$.

Discussion of Data

The findings of this study supported previous studies (Ryan, Bonanno, Krass, Scouller & Smith 2009; Sentleng & King 2012) which found that the majority of undergraduate students were aware of plagiarism and their university's plagiarism policy. Ryan *et al.* (2009) also found that a significantly lower proportion of students had actually seen what was covered in the policy. This is further corroborated by Gullifer and Tyson's (2014) study which revealed that only half (50%) of students at Charles Sturt University (CSU) in Australia had read the CSU Academic misconduct policy. There was therefore no association between being aware of the existence of the plagiarism policy and actually reading it.

There were no notable differences between males and females about their awareness, perceptions and attitudes of plagiarism. This finding is corroborated by Yardley, Rodriguez, Bates and Nelson (2009) who found no statistically significant difference between undergraduate males and female students in terms of academic cheating. There were, however, significant differences across the six qualification groups. For example there were significant differences in plagiarism awareness between students studying Human Nutrition and Occupational Therapy, Medicine and Physiotherapy as well as Nursing and Occupational Therapy. Data also showed significant differences in plagiarism attitudes between students enrolled for Human Nutrition and Physiotherapy, Medicine and Physiotherapy, as well as Nursing and Physiotherapy.

Findings further revealed statistical differences in awareness and attitude across levels of study. For example, statistically significant differences in plagiarism awareness were found between first year students and third year students. There were also statistically significant differences in plagiarism attitudes observed between first year and third year students. These findings are supported by Ford and Hughes (2012) who also found statistical differences amongst students across different levels of study and study programmes in a school of dentistry. As mentioned earlier, TPB posits that one's intention to engage in a particular behaviour depends on one's attitude to that behaviour

(Finchilescu & Cooper 2018). Accordingly, the differences in attitudes concerning plagiarism amongst students in different study programmes and levels of study in the Faculty of Health Sciences at the University of Pretoria could be a warning sign indicating intentions among some students to plagiarise. As Fishbein and Ajzen (2010) caution, this intention may eventually lead to the actual execution of plagiarism behaviour by students.

These differences could be indicative of a potentially serious issue regarding academic integrity among health sciences students. The University may need to review and improve its mechanisms for creating awareness about plagiarism by providing clear guidelines and training to address the awareness and attitude differential across the different qualification groups in the faculty. This would ensure that students acquire enough research skill to avoid the need to plagiarise while pursuing their studies.

Conclusions and Recommendations

As discussed, overall, the students seem to be generally aware of the University's plagiarism policy and what it entails. It is, however, evident that there is still a fairly significant percentage of students whose responses suggest a lack of understanding and awareness of plagiarism. Notwithstanding that the students' perceptions of plagiarism were generally correct, there were a few misperceptions that are cause for concern. For example, more than a third of the students (39.1%) believed that substantially changing the words of an original source is sufficient to prevent plagiarism and just less than a third (31.4%) felt that merely using another person's ideas rather than their actual words cannot constitute plagiarism. The attitudes of the students towards plagiarism were mostly positive, although it was somewhat worrisome to note that almost half of the respondents (44.9%) indicated that it was unfair to punish students who commit plagiarism as many students do get away with plagiarism.

The results of plagiarism awareness, attitudes and perceptions by gender indicated that there is no statistically significant difference between males and females. Although there was no statistically significant difference regarding plagiarism perceptions among the six programmes, there were statistically significant differences found concerning plagiarism attitudes and awareness among the six programmes.

A one-way analysis of variance revealed a statistically significant difference on plagiarism awareness and attitudes amongst the three levels of study. There was, however, no statistically significant difference on plagiarism perceptions among the three levels of study.

While the students in the main showed awareness, had correct perceptions and positive attitudes regarding plagiarism, the statistically significant differences across the six groups and the three levels of study regarding plagiarism attitudes and awareness indicate possible discrepancies in the manner in which the University apprises its students of plagiarism.

The University therefore needs to bring about immediate improvements in plagiarism awareness so as to limit plagiarism and improve effectiveness in plagiarism policies and procedures developed and implemented. The current plagiarism awareness efforts at the University need to be enhanced to provide more clarity to the students from the time they begin their academic studies. As Gullifer and Tyson (2010) observe, students who did not plagiarise reported greater understanding of university policy than those who cheated. Specific recommendations that arise from the above conclusions to the benefit of the University and students, include the following:

- Plagiarism policies should be clearly written to ensure that students clearly understand how plagiarism is defined, its purpose, due process and specific consequences. For example, the definition of plagiarism may include statements which specify that paraphrasing without acknowledging the source or citing correctly without changing the wording and sentence structure of the original source may also be considered as plagiarism.

- The faculty should ensure that there is no discrepancy in the understanding and awareness of plagiarism among students in different qualification groups and levels of study by communicating clear and consistent messages on plagiarism across the entire faculty.

- Students should be encouraged to always attach a Turnitin report whenever they submit their assignments or research work. Training and access to Turnitin would be provided by the University's library services. As students become aware of how Turnitin works, the

knowledge that their assignments will always be reviewed by the software may make them less inclined to plagiarise.

- Students should be taught and given opportunities to practise academic writing and paraphrasing. For example, assignments designed to allow students to practice paraphrasing could be used by lecturers and tutors to teach students correct techniques of paraphrasing and academic writing, thereby improving students' understanding and knowledge of plagiarism. Further research on plagiarism should be conducted at health sciences faculties in other South African Universities. The research should even be expanded to include not only undergraduate but postgraduate students as well.

Although Turnitin can play a vital role in curbing the occurrence of plagiarism by detecting possible plagiarism or discouraging potential transgressions, it should not be the focal point in a campaign against plagiarism. Instead, higher education institutions should focus their efforts on educating students about what plagiarism entails and how it can be avoided (Ocholla & Ocholla 2016). Wiebe (2006) supports this view by adding that it is the role of librarians to be advocates of plagiarism awareness and educate students on why plagiarism is wrong and how it can be avoided. Ignorance and lack of education are antithetical to academic integrity and librarians, lecturers and other members of the university community, including those in marketing and communications, are able to play a pivotal role in educating students about information literacy. Plagiarism should be discussed more openly and regularly within higher education institutions (Singh & Remenyi 2016).

References

Abasi, A.R., N. Akbari. & B. Graves 2006. Discourse Appropriation, Construction of Identities and the Complex Issue of Plagiarism: ESL Students Writing in Graduate School. *Journal of Second Language Writing* 15,2:102 - 117. https://doi.org/10.1016/j.jslw.2006.05.001

Ajzen, I. 2011. The Theory of Planned Behaviour: Reactions and Reflections. *Psychology & Health* 26,9:1113 - 1127. https://doi.org/10.1080/08870446.2011.613995

Bartlett, M.S. 1954. A Note on the Multiplying Factors for Various Chi Square Approximations. *Journal of the Royal Statistical Society* 16,2:296 - 298.

Beck, L. & I. Ajzen 1991. Predicting Dishonest Actions Using the Theory of Planned Behavior. *Journal of Research in Personality* 25,1:285 - 301. https://doi.org/10.1016/0092-6566(91)90021-H

Bryman, A. 2001. *Social Research Methods*. Oxford: Oxford University Press.

Cilliers, L. 2017. Evaluation of Information Ethical Issues among Undergraduate Students: An Exploratory Study. *South African Journal of Information Management* 19,1:1 - 6. https://doi.org/10.4102/sajim.v19i1.767

Cummings, R., C. Maddux, S. Harlow & L. Dyas 2002. Academic Misconduct in Undergraduate Teacher Education Students and its Relationship to their Principled Moral Reasoning. *Journal of Instructional Psychology* 29,4:286 - 296.

Elander, J., G. Pittam, J. Lusher, P. Fox & N. Payne 2009. Evaluation of an Intervention to Help Students Avoid Unintentional Plagiarism by Improving their Authorial Identity. *Assessment and Evaluation in Higher Education* 35,2:157 - 171. https://doi.org/10.1080/02602930802687745

Eret, E. & T. Gokmenoglu 2010. Plagiarism in Higher Education. *Procedia Social and Behavioral Sciences* 2,3:3303 - 3307. https://doi.org/10.1016/j.sbspro.2010.03.505

Ellery, K. 2008. An Investigation into Electronic-source Plagiarism in a First-year Essay Assignment. *Assessment and Evaluation in Higher Education* 33,6:607 - 617. https://doi.org/10.1080/02602930701772788

Etter, S., J. Cramer & S. Finn 2006. Origins of Academic Dishonesty: Ethical Orientations and Personality Factors Associated with Attitudes about Cheating with Information Technology. *Journal of Research on Technology in Education* 39,2:133 - 155. https://doi.org/10.1080/15391523.2006.10782477

Ford, P.J. & C. Hughes 2012. Academic Integrity and Plagiarism: Perceptions and Experience of Staff and Students in a School of Dentistry: A Situational Analysis of Staff and Student Perspectives. *European Journal of Dental Education* 16,3:180 - 186. https://doi.org/10.1111/j.1600-0579.2011.00695.x

Finchilescu, G. & A. Cooper 2018. Perceptions of Academic Dishonesty in a

South African University: A Q-Methodology Approach. *Ethics & Behavior* 28,4:284 - 301. https://doi.org/10.1080/10508422.2017.1279972

Fishbein, M. & I. Ajzen 2010. *Predicting and Changing Behavior*. New York: Psychology Press.

Friedman, C. 2015. Blank Page vs a Bad Record: Academic Dishonesty in SA Universities. *Perdeby* 2 March 2015.

Gatewood, R. & H. Field 1990. *Human Resource Selection*. 2nd Edition. Cleveland: The Dryden Press.

Gibelman, M., S.R. Gelman & J. Fast 1999. The Downside of Cyberspace: Cheating Made Easy. *Journal of Social Work Education* 35,3:367.

Goldgar, B.A. 2001. Imitation and Plagiarism: The Lauder Affair and its Critical Aftermath. *Studies in Literary Imagination* 34,1:1 - 17.

Govender, P. 2014. *Universities Battle a Rising Tide of Cheating*. http://www.timeslive.co.za/local (Accessed on 10 January 2018.)

Green, S.P. 2002. Plagiarism, Norms, and the Limits of Theft Laws: Some Observations on the Use of Criminal Sanctions in Enforcing Intellectual Property Rights. *Hastings Law Journals* 54,1:167 - 242. https://doi.org/10.2139/ssrn.315562

Greenfield, T. (ed.). 2002. *Research Methods for Postgraduates.* 2nd Edition. London: Arnold.

Gullifer, J. & G.A. Tyson 2010. Exploring University Students' Perceptions of Plagiarism: A Focus Group Study. *Studies in Higher Education* 35,4:463 - 481. https://doi.org/10.1080/03075070903096508

Gullifer, J. & G.A. Tyson 2014. Who has Read the Policy on Plagiarism? Unpacking Students' Understanding of Plagiarism. *Studies in Higher Education* 39,7:1202 - 1218. https://doi.org/10.1080/03075079.2013.777412

Hair, J.E. Jr., R.E. Anderson, R.L. Tatham. & W.C. Black 1998. *Multivariate Data Analysis.* Englewood Cliffs, NJ: Prentice Hall.

Israel, G.D. 1992. Sampling: The Evidence of Extension Program Impact. Program Evaluation and Organizational Development, IFAS, University of Florida; PEOD-5. Available at: http://edis.ifas.ufl.edu/pdffiles/PD/PD00500.pdf3/6/2011. (Accessed on 18 February 2018.)

Jones, K.O., M.V. Reid & R. Bartlett 2005. Student Plagiarism and Cheating

in an IT Age. Paper Presented at International Conference on Computer Systems and Technology, iv8.1-iv8.6. Available at: http://ecet.ecs.uni-ruse.bg/cst05/Docs/cp/sIV/IV.8.pdf. (Accessed on 11 April 2018.)

Kaiser, H.F. 1970. A Second Generation Little Jiffy. *Psychometrika* 35,4:401 - 415. https://doi.org/10.1007/BF02291817

Mammen, K.J. & T. Meyiwa 2013. Tackling Plagiarism at University Level. *HSRC Review* 11,3:26 - 28.

Marshall, S. & M. Garry 2005. *How Well do Students Really Understand Plagiarism*? Available at: www.ascilite.org.au/conferences/brisbane. (Accessed on 20 December 2017.)

Millerville University. 2005. Are College Cheaters on the Rise? Available at: http://muweb.millersville.edu/wjecomp/acadintegrity/jcheating.htm. (Accessed on 10 January 2018.)

Mwamwenda, T.S. 2006. Academic Integrity: South African and American University Students. *Journal of Independent Teaching and Learning* 1,1:34 - 44.

Mwamwenda, T.S. & L.A. Monyooe 2000. Cheating among University of Transkei Students. *Psychological Reports* 87,1:148 - 150. https://doi.org/10.2466/pr0.2000.87.1.148

Murtaza, G., S. Zafar, I. Bashir & I. Hussain 2013. Evaluation of Students' Perception and Behaviour towards Plagiarism in Pakistani Universities. *ActaBioethic* 19,1:125 - 130.

Nunnally, J. 1978. *Psychometric Theory.* New York: McGraw-Hill Book Co.

Ocholla, D. N. & L. Ocholla 2016. Does Open Access Prevent Plagiarism in Higher Education? *African Journal of Library, Archives and Information Science* 26,2:189 - 202.

Pallant, J. 2010. *SPSS Survival Manual: A Step by Step Guide to Data Analysis Using SPSS*. 4th Edition. Berkshire, England: McGraw-Hill Book Co.

Park, C. 2003. In Other (People's) Words: Plagiarism by University Students – Literature and Lessons. *Assessment and Evaluation in Higher Education* 28,1:471 - 487. https://doi.org/10.1080/02602930301677

Pulker, S. 2012. Predicting Academic Dishonesty Using the Theory of Planned Behaviour. Unpublished Master's Thesis. University of Cape Town, Cape Town, South Africa.

Pupovac, V., L. Bilic-Zulle, M. Mavrinac & M. Petrovecki 2010. Attitudes Toward Plagiarism among Pharmacy and Medical Biochemistry Students: Cross-sectional Survey Study. *BiochemiaMedica* 20,3:307 - 313. https://doi.org/10.11613/BM.2010.039

Russouw, R. 2005. Net Closes on University Cheats. *The Star* 26 February. (Accessed on 10 July 2018.)

Ryan, G., H. Bonanno, I. Krass, K. Scouller & L. Smith 2009. Undergraduate and Postgraduate Pharmacy Students' Perceptions of Plagiarism and Academic Honesty. *American Journal of Pharmaceutical Education* 73,6:1 - 8. https://doi.org/10.5688/aj7306105

Scanlon, P.M. & D.R. Neumann 2002. Internet Plagiarism among College Students. *Journal of College Student Development* 43,3:374 - 385.

Selwyn, N. 2008. Not Necessarily a Bad Thing: A Study of Online Plagiarism Amongst Undergraduate Students. *Assessment & Evaluation in Higher Education* 33,5:465 - 479. https://doi.org/10.1080/02602930701563104

Sentleng, M.P. & L. King 2012. Plagiarism among Undergraduate Students in the Faculty of Applied Science at a South African Higher Education Institution. *South African Journal of Library and Information Science* 78,1:57 - 67. https://doi.org/10.7553/78-1-47

Singh, S. & D. Remenyi 2016. Plagiarism and Ghost Writing: The Rise in Academic Misconduct. *South African Journal of Science* 112,5-6:1 - 7. Available at: https://dx.doi.org/10.17159/sajs.2016/20150300. (Accessed on 10 July 2018.)

Stone, T.H., I.M. Jawahar & J.L. Kisamore 2010. Predicting Academic Misconduct Intentions and Behavior Using the Theory of Planned Behavior and Personality. *Basic and Applied Social Psychology* 32,1:35 - 45. https://doi.org/10.1080/01973530903539895

Tabachnick, B.G. & L.S. Fidell 2013. *Using Multivariate Statistics.* 6th Edition. Boston: Pearson Education.

Teferra, D. 2001. Academic Dishonesty in African Universities – Trends, Challenges and Repercussions: An Ethiopian Case Study. *International Journal* of *Education Development* 21,1:163 - 178. https://doi.org/10.1016/S0738-0593(00)00037-7

Tran, T., T. Huynh & H.T.T. Ngunyen 2018. Academic Integrity in Higher Education: The Case of Plagiarism of Graduation Reports by Undergraduate Seniors in Vietnam. *Journal of Academic Ethics* 16,1:61 - 69. https://doi.org/10.1007/s10805-017-9279-9

University of Pretoria. 2010. *Plagiarism Prevention Policy*. Available at: http://www.up.ac.za/media/shared/409/ZP_Files/s4726_09-plagiarism-prevention_policy.zp62477.pdf. (Accessed on 2 December 2017.)

Wiebe, J. 2006. College Students, Plagiarism, and the Internet: The Role of Academic Librarians in Delivering Education and Awareness. MLA Forum 5,2. Available at: http://www.mlaforum.org/volumeV/issue2/article1.html (Accessed on 29 May 2013.)

Yardley, J., M.D. Rodriguez, S.C. Bates & J. Nelson 2009. True Confessions? Alumni's Retrospective Reports on Undergraduate Cheating Behaviors. *Ethics and Behavior* 19,1:1 - 14. https://doi.org/10.1080/10508420802487096

Emmanuel Matsebatlela
Faculty of Health Sciences
University of Pretoria
Emmanuel.matsebatlela@up.ac.za
mogoboyaem@gmail.com

Anesu Gelfand Kuhudzai
Statistical Consultation Services
University of Johannesburg
akuhudzai@uj.ac.za
gelfand9@yahoo.com

Locating the Experiences of Rural Science Students in Higher Education

Nkosinathi Emmanuel Madondo

Abstract

In higher education in South Africa, the home practices with scientific underpinnings students from rural areas bring with them to their learning are not clearly understood and, therefore, are often marginalized in university teaching and learning. In a context where issues of equity of access to higher education and success are highly politicized, the experiences of these students cannot be ignored. This paper argues against absenting the experiences of these students in higher education with a view to harnessing the resulting knowledge to facilitate access to formal, disciplinary science knowledge. The paper posits that the way in which science curriculum (and/or teaching and learning) is structured tends to favor certain world views and not others, as a consequence, students from rural areas are often alienated because how they have learned to see the world is often not used as a starting point or seen as relevant when teaching the science curriculum. In order to contextualize learning and teaching, the paper argues for Archer's social realism as a theoretical framework to access students' prior experiences to enrich the curriculum and the student experience more broadly

Keywords: home-based practices, decontextualized learner, cognitive injustice, social realism, critical realism

Introduction

Students from universities across South Africa have expressed concerns that curricula in the disciplines are not connected to their lived experiences and the

Print ISSN 1023-1757; Electronic ISSN: 2519-5476; DOI https://doi.org/10.29086/2519-5476/2018/v25n2a9

ways of being of their home communities (Mbembe 2016; 2015; Ndlovu-Gatsheni 2013). Such concerns were particularly apparent in the #FeesMustFall protests of 2015 and 2016, events which saw students citing their marginalization and their perceptions of the concomitant continuing elitist and exclusive nature of the institutions in which they were enrolled to study.

In this article, I argue that higher education institutions do not adequately cater for prior learning or cultural capital (Bourdieu 1973) of students from marginalized communities with the result that the curriculum, which is understood as a structure that regulates access to knowing and knowledge, tends to favour certain world views and ways of being and, as a result, does not treat all fairly (Boughey & McKenna in press; Luckett & Luckett 2009). Students from marginalized groups thus come to feel ignored by the curriculum and the teaching and learning processes that it encompasses (Ellery 2016).

While there is a general concern from the marginalized sector of students about the 'obsolete' curriculum (Mbembe 2015), this article argues for the potential integration of the local knowledge of students who come from rural areas into institutionally powerful knowledge in the field of science. In particular, the article focuses on how students gain epistemological access (Morrow 2007) to the field of science, given their particular lived home learning experiences.

Focusing on students' being and local ways of knowing with scientific underpinnings could be used to gain genuine understandings of what it means to enable epistemological access to higher education in the field of science. My assumption is that the learning of scientific concepts and ways of knowing in science could be contextualized so that it encompasses students' prior learning or home environments, provided we come to understand how to use those experiences to provide them with access to the ways of knowing and being in science. This focus could help re-think teaching and learning in the sciences so that attention is not just on accessing the powerful knowledge of the disciplines (Maton 2014; Wheelahan 2010) in decontextualized ways but also on how students have learned to see the world (Heath 1983) and, then, on the ways in which these understandings could then be used to access powerful knowledge. A key point here is that there are ways of being and ways of knowing in rural areas which are valid, but are simply not recognized. Local knowledge is subjective and is produced by local people on the basis of their beliefs and reasons for doing what they do (Zinyeka 2013). In some degree, this is similar

to formal scientific knowledge which itself does not start from neutral observations in order to arrive at explanations about the natural world but rather from the subjective experiences of scientists (Chalmers in Lederman, Lederman & Altink 2013).

In order to identify ways in which academic teachers can assist students to access scientific knowledge and scientific ways of knowing by drawing on their home-based practices, the first part of this article engages with connections between scientific ways of thinking and knowing and students' prior knowledge or practices. The article then moves to providing a brief survey of the effects of education policy in South Africa on the chances of black working-class students, and particularly those from rural areas, accessing higher education. The third and the last part of this article deals with Archer's (1995; 1996; 2000) social realist framework to understand the learning of students who come from rural areas. However, Archer's social realist framework is based on Bhaskar's (1978; 1979) critical realist ontology. Bhaskar's stratified ontology is believed to be relevant in providing the tools to explore a level of reality beyond students' immediate experiences and lecturers' observation of such experiences. Drawing on Bhaskar's critical realist framework, I argue, will provide us with insights into which could be used to improve the situation.

The paper therefore aims to do two things. Firstly, it aims to present an argument for the need to use students prior learning in our universities, and particularly in science. Secondly, it argues for the use of a specific theoretical framework combining Bhaskar's (*ibid*) critical realism and Archer's (*ibid*) social realism to explore this.

Scientific Ways of Thinking and Students' Prior Knowledge

In order to account for differences in knowledge and in ways of being and knowing in formal science and local knowledge, it is pertinent to consider the extent to which the distinctive features underpinning scientific way of thinking and thus knowing manifest themselves in students' prior knowledge, experiences and/or practices. Clearly, differences in the epistemologies and ontologies of scientific and local knowledge present major challenges for attempts to integrate the two in formal science teaching. For example, one difference is that formal science is concerned only with phenomena that are

testable empirically. On the basis of this testing, theory and principles are logically deduced. Local knowledge, on the other hand, embraces both testable and non-testable metaphysical phenomena (Zinyeka 2013). This means that mainstream science validates only which can be observed empirically whereas in local ways of knowing even that which cannot be empirically observed, including superstitions, is validated. The fact that phenomena such as superstitions are not empirically observable does not mean that they are irrelevant. However, in order to overcome this challenge, it is necessary to have a clear understanding of the characteristic features underpinning scientific ways of thinking and knowing. It is then necessary to understand features of other world views in order to see how these might be integrated.

Based on an understanding of the epistemology of science 'as a way of knowing, or values and beliefs inherent to the development of scientific knowledge', Lederman, *et al*. (2013: 140), argue that philosophers of science, historians of science, scientists, and science educators do not generally define the nature of science (that is its ontology) or epistemology of science in similar terms (Lederman *et al*. 2013). Such dissonances should not be viewed as irrelevant, as Lederman *et al.* (2013) maintain. Rather such dissonances could be resolved by accepting that scientific knowledge is never absolute.

Understood in this way, critical questions could be asked about scientific canons. These would include questions about what constitutes legitimate knowledge in the field of science and who can claim to produce and/or have legitimate knowledge (Leibowitz 2017b). This question is relevant given that certain ways of reading the world are hegemonic as they are assumed to be universal (Gramsci 1971). The hegemony of certain kinds of knowledge leads to a situation where other knowledge systems and values are ignored and suppressed as scientific knowledge is generated (Leibowitz 2017b; Santos 2014). This situation leads to what is termed cognitive injustice involving the unequal treatment of all forms of knowledge (van der Wall 2012). Writing about cognitive justice, the opposite of cognitive injustice, Leibowitz (2017a) points out that this does not mean that all forms of knowledge are equal. Rather, it is the equality of knowers that should form the basis of dialogue amongst knowers and their knowledges. In the context of this article, students as knowers, whether they come from rural areas or urban areas, should feel that they are part of the curriculum with which they are engaged as valid knowers.

Questions noted above have implications for the curriculum more broadly and not simply the selection of knowledge. Such considerations are

crucial as academics need to consider the kinds of student curricula will shape. As a result, students' local ways of being and knowing are crucial in the development of scientific knowledge, something which is not usually the case in science disciplines which normally focus on the knowledge that is to be transmitted as opposed to students themselves as knowers (Ellery 2016; Maton 2014).

There is also a general agreement among scholars that 'scientific knowledge is tentative (subject to change), empirical (based on and/or derived from observations of the actual world), subjective (theory laden), that it necessarily involves human inference, imagination, and creativity (including the invention of explanations), and is socially and culturally embedded' (Lederman *et al.* 2013: 140). These qualities underpin formal science as a way of knowing. In the rural areas, practices such as observation of the natural world stemming from curiosity also lead to the use of inferences to draw conclusions (Zinyeka 2013). In some areas, for example, cow dung is used as a fertilizer. The development of this practice resulted from observing the impact of the dung on the growth of grass and other plants. According to McDonald (2013) the process of knowledge production involved in this practice resembles scientific procedures as it draws on the skill of observation to observe the environment and the making of inferences, including inferences about what causes the grass around the cattle kraals to grow healthily (Zinyeka 2013). When it comes to formal disciplinary science, students could engage in experiments to investigate the substances that the cow dung possesses to enable grass to grow healthily around cattle kraals. The fact that what they already know is valued in the classroom is likely to enable participation in knowledge construction. Even more importantly, this would allow them to see that what they can already do, in the sense of coming to conclusions based on observations they make of the world around them, is valued in formal science.

Another local practice in rural areas involves the use of primitive technology in roof thatching. Zinyeka (2013) is of the view that there are several concepts regarding this practice which are amenable to scientific principles, facts and experiments. Such concepts relate to shapes, force, materials and angles in terms of support and balancing.

The potential integration of ways of knowing involved in the development of indigenous practices does not suggest that local knowledges should be included under the banner of science (Hodson 2009). Rather, it is the case that an analysis of how knowing came to be, could assist students in

understanding the development of scientific knowledge and, thus, knowing. A failure to consider the knowledge resources that students bring with them into our universities might be the reason why the statistics indicate that black students in higher education bear the brunt of failure rates (Chereni, Leibowitz, & de Wet 2017; Boughey & Mckenna 2015; Boughey 2010), an observation which has resulted in the use of policy, such as the Foundation Programme Grant Policy (DET 2004) to improve access and success.

South African Policy

Chereni *et al.* (2017) have investigated the ways in which educational policy, or the curriculum strategies and practices that result from it, has responded to the perceived interplay between 'rurality' and education. In doing so, they have identified a close relationship between the place of residence, for example, rural versus urban, and access and success. Others (Mahlomaholo 2012; Masinire 2015; Moletsane 2012) point out that the place of residence influences post-secondary educational trajectories and career choices and has a significant impact on educational outcomes. Educational policies shaped by the segregation policies of apartheid resulted in white supremacy and the monopoly of resources in education (Statistics South Africa 2011). Such policies ensured that blacks received inferior education (Hart & Padayachee 2013). According to Roscigno and Crowley (2009), educational outcomes between racial groups in South Africa varied significantly because of such policies.

A further outcome of these policies was the disruption of 'the ontological security among blacks' (Chereni *et al.* 2017: 6). There was thus a disjuncture between students' home literacies (I use the term 'literacies' in the sense of Street's (1984) ideological model explained later in this article) and school-based literacies (Department of Basic Education 2005; Human Sciences Research Council 2015; Statistics South Africa 2011). This observation was also made by students in the protests of 2015 and 2016.

Although recent research shows that racial and gender barriers involved in accessing higher education have been reduced over the past seven or so years (Chereni *et al.* 2017), equity of outcomes, defined as success, are still split along racial lines. In a similar vein, Chereni *et al.* (2017) note that students who come from low-income families, including rural communities,

bear the brunt of underachievement at Grade 12 level. Chereni *et al.* (2017: 16) go on to argue that 'conditions of inequality screen out learners from disadvantaged backgrounds prior to post-secondary education'. The implication of this observation is that, at university, equity of outcomes for these students is negatively affected.

Accounting for Failure

Numerous researchers (Badat 2011; Case 2013; Chereni *et al.* 2017; Boughey & McKenna 2015) argue that equity of outcomes or academic achievement cannot simply be related to factors such as intelligence, motivation or skills and that the clash between broader institutional contexts and those of the families and communities in which students were raised also have to be taken into account. It is thus the 'social' aspect of teaching and learning that this paper argues could play a significant role in positively affecting equity of outcomes or academic achievement of students, and most especially those who come from disadvantaged backgrounds including the rural areas, particularly in the field of science. The argument is therefore that the informal acquisition of scientific practices in home contexts have the potential of being harnessed to facilitate access to formal, disciplinary science knowledge and ways of knowing.

This is especially the case given that immersion in the academic context of a university can undermine a student's way of being and of understanding the world in profound ways, a process that then impacts affectively, psychologically and emotionally on the learner and, thus, on learning itself. When students are presented with knowledge that seems completely separate from them, their identities, their heritage, their backgrounds and value systems, accessing that knowledge can seem inordinately difficult. There is therefore a clear need to bring something 'from home' into our teaching as a means of reassuring students that all is not foreign and that what they already know is valuable.

Boughey and McKenna (2015) identify two models, existing at either end of a continuum, in understanding success and failure in higher education. The first model, 'the model of the student as a decontextualized learner' constructs the ability to succeed in factors inherent to the individual such as intelligence, motivation and aptitude. At institutional levels, this means that

blame for failure is allocated to the student and the university, and its staff, are absolved of all responsibility for it. The 'model of the student as a decontextualized learner' is contrasted with a second model at the opposite end of a conceptual continuum, 'the model of the student as a social being' (Boughey & McKenna 2015). This model acknowledges the university as an inherently social, political, historical and cultural space to which some students have privileged access by virtue of their previous experiences. A key step in exploring what academic teachers could do to allow students to feel that they belong in the new learning space they have accessed would thus be to accept that universities, the knowledge and the learning that sustains them are not neutral.

Related to the understanding of sites of learning as social, cultural and political spaces, is Street's (1984) identification of two models of literacy, the 'autonomous model' and the 'ideological model'. The 'autonomous model' understands literacy as a set of neutral, apolitical, acultural, asocial 'skills' involving the encoding and decoding of printed text. In contrast, the 'ideological model' sees literacy as a set of practices, developed from birth thanks to the contexts into which individuals are born and are raised. Literacy practices not only involve ways of interacting with text but also influence the texts with which a reader or writer is prepared to engage. Following this understanding of literacy as socially embedded, academic literacy (i.e. ways of engaging with certain kinds of texts privileged by the university) is understood as but one literacy in a multiple field. Significant in the context of this article is that literacy practices in the academy are underpinned by values and attitudes regarding what can count as knowledge and how that knowledge can be known (Boughey 2013). In the field of science, for example, knowledge is understood to exist independently of human thought and action with the result that objectivity is valued in the process of 'coming to know'. In language use, this then results in practices involving the passive which effectively elide the agency of the researcher.

Gee (2008) expands the notion of practice to involve all learning practices which are understood to be socially embedded. This would mean, for example, that the willingness of a student to ask and answer questions in class would be seen as a practice stemming from previous experiences, from values related to what can count as knowledge, whether knowledge is 'fixed' or constructed through interaction and how that knowledge can be generated, i.e. through interaction with another person.

Boughey and McKenna's (2015) work on the 'model of the student as a social being' and the 'model of the student as a decontextualized learner' along with the work of theorists such as Street (1984) and Gee (2008) acknowledge learning and the practices associated with it as profoundly social. From this perspective, there are no 'correct' ways of learning *per se*. Rather there are multiple ways of learning with some privileged in some contexts as they are understood to be more productive. Drawing on understandings which acknowledge learning as social is essential if we are to understand the differences in our universities and the differences in success and failure. The alternative, involving the attribution of success to factors inherent to the individual, is too horrendous to contemplate given that cohort studies (see for example CHE 2016) unfailingly show that black students experience more failure than their white peers.

An Alternative Lens for Exploring Difference

In the section above, I have argued for social understandings in order to explore the experiences of students in South African universities. In order to begin to understand why students from backgrounds that are 'other' to the middle class educated families that gain most access to higher education, an ontological framework is also needed. For this, Archer's (1995; 1996; 2000) social realism is proposed. However, as already indicated, Bhaskar's (1978; 1979) critical realism is the basis of Archer's theoretical work.

Bhaskar's Critical Realism

Bhaskar (1978; 1979) argues for a stratified or 'layered' understanding of the reality we want to explore and understand. The first of these layers is the 'Empirical', which involves the world of experience and observation, and it is at this level that exploration of the social world must begin. This layer in Bhaskar's critical realist ontology is understood to be relative, constructed, ever changing and transitive. In the context of this article, this might mean that a lecturer teaching students from working class rural backgrounds might observe that the students do not obtain the desired marks to enable them to pass a test in, for example, physics or chemistry. The lecturer, as a result of her/his social and cultural conditioning involving structures such as social class,

language as well as the impact of dominant discourses which construct failure as a result of a lack of inherent ability in students (Boughey & McKenna 2015) might fail to understand why students do what they do in order to study and complete assignments and therefore attribute failure to a lack of ability or motivation. Students, on the other hand, might understand their failure very differently. They know they have worked hard and therefore see the results of the assessment as unfair.

The second layer of Bhaskar's ontology is the 'Actual', or the layer of events. Events can be conceptualized as actions, things people do, and are observable and able to be experienced at the layer of the 'Empirical'. In the context of higher education, events can be conceptualized as the 'literacy practices' identified in Street's (1984) 'ideological model of literacy and Gee's (2008) broader model.

The final layer of Bhaskar's ontology is the 'Real'. This layer consists of enduring mechanisms which are understood to exist independently of human action and thought. The level of the 'Real' is therefore understood to be intransitive and impervious to human action and thought. The interplay of these mechanisms leads to the emergence of events at the level of the 'Actual' and experiences and observations of these events at the level of the 'Empirical'. Critically, the emergence of events, observations and experiences is understood to be tendential and not as strict cause-effect. Mechanisms can consist of structures such as social class, gender, race and geography as well as discourses, conceptualized as sets of ideas that hold together in language and other sign systems and which constrain and enable what can be done, thought, valued and so on (Kress 1988).

Archer's Social Realism

Archer's social realism (1995; 1996; 2000) draws on Bhaskar's critical realism in order to allow us to explore the working of these layers of reality over time. Drawing on a concept she terms 'analytical dualism', Archer (*ibid*) insists that the 'domains' of structure, culture and agency should be analyzed separately by arguing against what she terms the 'fallacy of conflation' (Archer 1996: xv).

Archer (1996) identifies three types of conflation, upwards, downwards and central conflation. Downwards conflation, or what Archer

terms 'Society's Being', involves the belief that everything is socially constructed and that human beings have no choice or free will. Upwards conflation, or 'Modernity's Man' privileges human agency and sees society as created by human action. The final view, central conflation, draws on Giddens (1984) 'structuration theory' is critiqued by Archer because agency and structure are 'clamped together in a conceptual vice' (Archer 2004: 4).

For Archer, culture is understood to be discursively constituted. This means that sets of ideas in language and other sign systems constrain and enable emergence of events at the level of the 'Actual' and experiences and observations of these events at the level of the 'Empirical'.

Mechanisms in the domain of structure would include social structures, the finance system, the education system and so on. Critically, mechanisms are dormant until agents exercise their own powers to draw on them in order to pursue a project which will allow for the attainment of goals. In the case of students in higher education, they would draw on discourses about what constitutes knowledge and appropriate ways of learning as well as structures such as the location of their home and the social class of their family, in order to generate events that would lead to the attainment of their goal, a qualification. Students from working class rural backgrounds could thus be expected to draw on very different mechanisms from those from middle class, educated, urban homes.

Since in this article the intention is to locate and understand the social world of students who come from rural areas and are now studying at university, Archer's (1995; 1996; 1998) theoretical framework is seen as relevant because of its emphasis on structure, relating to concepts such as social class, gender, race, marriage, education and so on), culture, which is understood to concern ideas, beliefs, values and ideologies, and agency, which refers to human thought and action.

In order to have a 'broader critical understanding of the context in which teaching and learning takes place' (Case 2013: 5), a social realist lens is useful in order to tease out the way structure condition their agency in contrast to the way the agency of their academic teachers, who may come from very different backgrounds, plays itself out.

A final aspect of Archer's work that is of use in understanding the impact of the broader social context on learning is her 'morphogenetic cycle'. Archer sees change, or non-change, as occurring in 'morphogenetic cycles'. Agency is conditioned in the first part of the cycle, termed 'T_1'. It is then

possible to look at the way students use their agency, either individually or as groups, over a specific time period termed 'T_2' to 'T_3'. It is then possible to explore whether change or non-change has occurred in the final part of the cycle, 'T_4'. According to Archer, this framework allows us to arrive at an 'explanation of how … the properties and powers of the "people" causally intertwine with those of the "parts"' (Archer 1995: 15).

In the context of higher education, it would thus allow us to understand how working-class students from rural areas enrolling at a university interact with the learning required of them given their previous conditioning as well as allowing us to see how efforts to enhance teaching and learning, such as drawing on students' home-based knowledge practices, can result in change or non-change**.** The theoretical lens of critical realism and social realism thus have the potential to allow for more sophisticated understandings of the need for prior experience to be welcomed in the university classroom.

Conclusion

This paper has argued for the need to locate students' home-based practices with scientific underpinnings in the teaching and construction of knowledge in the field of science. The paper has argued that structures such as the curriculum are sometimes left without critique while the causes of student failure is perceived as located in factors inherent to individuals. Because equity of outcomes is still skewed on racial lines, black students who come from working-class, and particularly rural, backgrounds still find it difficult to succeed in higher education, and more so in the field of science. In order to critically engage with these issues, the paper proposes firstly the need to draw on explanatory theory that will allow us to understand learning in our universities as profoundly social, cultural and political. Examples of such theory have been given in the work of Street (1984) and Gee (2008).

It is not enough simply to have explanatory theory however, particularly in the context of science where the social is usually ignored in favour of understandings of a reality that is objective and independent of human thought and action. Archer's social realist framework, which is based on Bhaskar's stratified ontology, are therefore proposed as ways to account for the relativism of human experience and the realism of an absolute world. Scientists are usually skeptical of relativism. The ability to acknowledge an

absolute world while, at the same time, also recognizing the relativity of human experiences and observation can therefore be appealing, particularly in contexts where scientists are increasingly being called upon to work in teams with social scientists in order to solve complex problems.

More importantly, however, in the context of the rigorous theoretical framing such work offers, the paper argues for the need to draw on the ways of knowing and the knowledge that students bring with them into our universities in order to validate them as individuals as well as to contribute to their success.

References

Archer, M. 1995. *Realist Social Theory: The Morphogenetic Approach.* Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511557675

Archer, M. 1996. *Culture and Agency: The Place of Culture in Social Theory.* Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511557668

Archer, M. 1998. Social Theory and the Analysis of Society. In Williams, T.M. (ed.): *Knowing the Social World.* Buckingham: Open University Press.

Archer, M. 2000. *Being Human: The Problem of Agency.* Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511488733

Archer, M. 2004. Constraints on the Internal Conversation: Margaret Archer and the Structural Shaping of Thought. *Journal for the Theory of Social Behaviour* 34,4:0028 - 8308.

Badat, S. 2011. Higher Education South Africa. *Insight Higher Education South Africa* 3:1 - 28. Available at: http://www.hesa.org.za/sa-universities/all-campusses (Accessed on 20 November 2017.)

Bhaskar, R. 1978. *A Realist Theory of Science.* 2nd Edition. Sussex: The Harvester Press.

Bhaskar, R. 1979. *The Possibility of Naturalism: A Philosophical Critique of the Contemporary Human Sciences.* New York: Routledge.

Boughey, C. 2010. *A Meta-Analysis of Teaching and Learning at Four South African Universities of Technology.* Pretoria: Council on Higher Education.

Boughey, C. 2013. 'What are we thinking of'? A Critical Overview of Approaches to Developing Academic Literacy in South African Higher Education. *Journal for Language Teaching* 47,2:25 - 42. Available at: http://dx.doi.org/10.4314/jlt.v47i2.2 (Accessed on 20 November 2017.)

Boughey, C. & S. McKenna 2015. Analysing an Audit Cycle: A Critical Realist Account. *Studies in Higher Education* 1 - 13. Available at: http://dx.doi.org/10.1080/03075079.2015.1072148 (Accessed on 23 November 2015.)

Boughey, C. & S. McKenna In press. *Calling for Change*. Durban: UKZN Press.

Bourdieu, P. 1973. Cultural Reproduction and Social Reproduction. In Brown, R. (ed.): *Knowledge, Education and Social Change: Papers in the Sociology of Education.* London, UK: Tavistock Publications.

Case, J.M. 2013. *Researching Student Learning in Higher Education: A Social Realist Approach.* London: Routledge.

Chereni, A., B. Leibowitz, B. Akala & T. de Wet 2017. Rurality and Education in South Africa: A Country Paper. Unpublished Paper Prepared for SAULT Forum Research Project on Rurality.

Council on Higher Education 2016. *Vital Stats*. Pretoria: Council on Higher Education.

Department of Education and Training 2004. *Policy on Foundation Programme Grants*. Pretoria: DET.

Department of Basic Education 2005. *Report of the Ministerial Committee on Teacher Education: A National Framework for Teacher Education in South Africa.* Pretoria: Department of Basic Education.

Ellery, K. 2016. *Epistemological Access in a Science Foundation Course: A Social Realist Perspective.* Unpublished PhD Thesis. South Africa, Grahamstown: Rhodes University.

Gee, J.P. 2008. *Social Linguistics and Literacies: Ideology in Discourse.* London: Routledge.

Gramsci, A. 1971. *Selections from the Prison Notebooks of Antonio Gramsci* (Hoare, Q. & G.N. Smith, ed. & trans.). London: Lawrence & Wishart.

Giddens, A. 1984. *The Constitution of Society: Outline of the Theory of Structuration*. Cambridge: Polity Press.

Hart, K. & V. Padayachee 2013. A History of South African Capitalism in National and Global Perspective. *Transformation: Critical Perspectives on Southern Africa* 81,1:55 - 85. Available at:

http://doi.org/10.1353/trn.2013.0004
(Accessed on 13 August 2017.)

Heath, S.B. 1983. *Ways with Words: Language, Life and Work in Communities and Classrooms.* Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511841057

Hodson, D. 2009. *Teaching and Learning about Science: Language Theories, Methods, History, Traditions and Values*. Rotterdam, the Netherlands: Sense Publishers. https://www.sensepublishers.com/media/1013-teaching-and-learning-about-science.pdf

Kress, G. 1988. *Linguistic Processes in Sociocultural Practice.* Oxford: Oxford University Press.

Lederman, N.G., J.S. Lederman & A. Altink 2013. Nature of Science and Scientific Enquiry as Contexts for the Learning of Science and Achievement of Scientific Literacy. *International Journal of Education in Mathematics, Science and Technology* 1,3:138 - 147.

Leibowitz, B. 2017a. Cognitive Justice and the Higher Education Curriculum. *Journal of Education* 68:93 - 112.

Leibowitz, B. 2017b. Power, Knowledge and Learning: Dehegemonising Colonial Knowledge. *Alternation* 24,2:99 - 119.

Luckett, K. & T. Luckett 2009. The Development of Agency in First Generation Learners in Higher Education: A Social Realist Analysis. *Teaching in Higher Education* 14,5:469 - 481. https://doi.org/10.1080/13562510903186618

Mahlomoholo, S.M. 2012. Early School Leavers and Sustainable Learning Environments in Rural Contexts. *Perspectives in Education* 30,1:101 - 110.

Masinire, A. 2015. Recruiting and Retaining Teachers in Rural Schools in South Africa. *Insights from a Rural Teaching Experience Programme* 25,1:2 - 14.

Maton, K. 2014. *Knowledge and Knowers: Towards a Realist Sociology of Education.* New York: Routledge.

Mbembe, A. 2015 Decolonizing Knowledge and the Question of the Archive. Unpublished Paper. Available at: https://wiser.wits.ac.za/system/files/Achille%20Mbembe%20-%20Decolonizing%20Knowledge%20and%20the%20Question%20of%20the%20Archive.pdf

Mbembe, A. 2016. Decolonizing the University: New Directions. *Arts and Humanities in Higher Education* 15,1:29 - 45. Available at: http://www.historicalstudies.uct.ac.za/sites/default/files/image_tool/images/149/Decolonizing%20the%20university%20New%20Directions%20-%20Achille%20Joseph%20Mbembe.pdf (Accessed on 21 January 2017.) https://doi.org/10.1177/1474022215618513

McDonald, C.V. 2013. Nature of Science and Argumentation: A Review of Empirical Research. In Akpan, B. (ed.): *Science Education: A Global Perspective.* Abuja: Next Generation Education.

Moletsane, R. 2012. Repositioning Educational Research on Rurality and Rural Education in South Africa: Beyond Deficit Paradigms. *Perspectives in Education* 30:1 - 8.

Morrow, W. 2007. *Learning to Teach in South Africa.* Cape Town: HSRC Press.

Ndlovu-Gatsheni, S.J. 2013. *Empire, Global Coloniality and African Subjectivity.* New York: Berghahn Books.

Rosciguo, V.J. & M.L. Crowley 2009. Rurality, Institutional Disadvantage, and Achievement/Attainment. *Rural Sociology* 66,2:268 - 292. Available at: http://doi.org/10.1111/j.1549-0831.2001.tb00067.x (Accessed on 07 December 2016.)

Santos, B. 2014. *Epistemologies of the South: Justice against Epistemicide.* Boulder, Colorado: Paradigm Publishers.

Statistics South Africa 2011. *Census 2011 – A Profile of Education Enrolment, Attainment and Progression in South Africa Contents*. Pretoria: Government Printer. Pretoria. Available at: http://www.statssa.gov.za/publications/Report-03-01-81/Report-03-01-812011.pdf (Accessed on 8 December 2016.)

Street, B.V. 1984. *Literacy in Theory and Practice*. Cambridge: Cambridge University Press.

Van Der Wall, C.S. 2012. Creolisation and Purity: Afrikaans Language Politics in Post-Apartheid Times. *African Studies* 71:446 - 463. https://doi.org/10.1080/00020184.2012.740886

Wheelahan, L. 2010. *Why Knowledge Matters in Curriculum: A Social Realist Account.* London: Routledge.

Zinyeka, G. 2013. *The Epistemological Basis of Indigenous Knowledge Systems in Science Education.* Unpublished PhD Thesis. South Africa, Pretoria: University of Pretoria.

Nkosinathi Emmanuel Madondo
Centre for Higher Education Research
Teaching and Learning (Extended Studies Unit)
Rhodes University
n.madondo@ru.ac.za

The Shifting Sands of Music Leadership: Searching for Disciplinary Space in a Research-led University

Chatradari 'Chats' Devroop

Abstract

From the perspective of an arts-based discipline in need of curricular transformation, this paper examines certain fragilities within the university systems and calls for a transformational style of leadership. Recent events in higher education in South Africa have brought to light the crisis in leadership at its public universities, with critical focus on curriculum leadership. While universities may conceive of themselves as being under attack, with their legitimacy, traditions and values being called into question, current student opinion is that the issue of leadership in universities fails to be sufficiently transparent when compared to the public or private sectors. This research is located within an autoethnographic context and highlights the experience and challenges of an academic leader in the arts, and specifically, the music discipline. The experiential data affords insight into problems existing between leadership, management and more especially the academic leadership of the discipline. While arguing for a different role for curriculum leadership within the contemporary university, this paper goes further, contending that it is imperative for the music discipline to engage with its new media challenges in order to ensure its contemporary relevance.

Keywords: curriculum leadership, management, academic leadership, university music departments

Introduction

The notion of leadership in higher education carries many expectations today,

Print ISSN 1023-1757; Electronic ISSN: 2519-5476; DOI https://doi.org/10.29086/2519-5476/2018/v25n2a10

particularly when universities are facing challenges to their legitimacy, from students and the surrounding society (Jansen 2017; Brooks 2017; Habib 2016; Christopherson Gertler & Gray 2014; Brennan King & Lebeau 2004). At such times, which are often referred to as crises, dramatic changes of direction and unprecedented transformational measures would need to be addressed, placing new pressures upon university leadership. An expectation of the need for transformational processes and procedures is reinforced by highly publicised student demands, calling for state intervention, which have been directed to the university leadership. There is also a perception in media circles that there is a certain inertia within the university hierarchy generating an expectation on the part of the public, that the 'university problem' could be 'solved' through implementing changes in leadership or by adopting a new direction.

Despite exhaustive research into management and leadership generally, there is a dearth of literature on management and leadership in the arts. I argue here for a new and transformational role for leadership within the contemporary university and in so doing, address some of the current problems outside of a leadership framework, by using a managerial one. This requires optimising the roles for leadership as well as for management within the university and taking cognisance of the dynamics of the arts as a practice. I do this partly on the basis of my experiential learning, as I have been called upon to intervene in the rehabilitation of a university music department which had been placed under proxy administrative and leadership direction for approximately five years, at a time when transformation within university departments and the adaptation of curricula (or recurriculation) were a priority.

This particular music department is one of the pioneering departments in South Africa and has since 1971 been innovative in its diverse curricula (programme) offerings. It remains today one of the few institutions in the country offering a curriculum that encompasses Western Art Music, Jazz and Popular Music, Music Technology, African Music and Dance, as well as Opera and Choral Music. Such diversity in programme offering, at a time when niche focus areas and rationalisation are called for in a market of duplicity, has brought several challenges. One, according to Institutional Intelligence[1] data, is student migration from diploma to degree programmes where students opt

[1] Previously called the Division of Management Information (2013), now a unit within the Department of Information Communication Services at the University.

for the practical performance-based or music technology-based modules instead of the theoretical modules. Such migration has a cascading effect on budgetary allocations for more practical teaching and posits challenges in terms of post-graduate progress and ultimately research generation, the latter being a core university activity and key driver in bringing about social change.

Although the university maintained that it was on a trajectory to achieving its transformative goals and targets (*Mail & Guardian* 2015; Govinder, Zondo & Makgoba 2013), with regard to music, certain difficulties appeared in transformation, growth, leadership, staffing, succession planning, curriculum, research production, with an under-preparedness among prospective undergraduates (The Report 2014)[2]. The lack of leadership was identified through the university's audit mechanism as contributing to the challenges that beset the music discipline (The Report 2014: 4). In the context of this data it still remains unclear whether past leadership within the discipline could have contributed to these challenges. In partial response to the university's management and audit findings, the music staff maintained that 'they [management] do not understand us [discipline]'; 'they do not know how music works'; '[management] operates in its mode'; '[management] makes decisions in a way that is completely disconnected from the teaching staff. Management has unfortunately [taken the view] that academics are an impediment to the institution rather than key to it' (The Report 2014). Such claims went so far as to question the university management on the future of the discipline in the face of national resource cuts and new higher education requirements (e.g. staff requiring doctoral degrees, increased teaching workloads, focus on higher research productivity, etc.). This crisis in music is best seen against the context of that of the university and its leadership.

Leadership in the Contemporary South African University: Learning from Others and through Personal Experience

In the face of growing student dissatisfaction, increasing government scepticism concerning the administration of government subsidies, and a public questioning of the value of tertiary education and its ability to address the problem of youth unemployment, every hierarchical university would feel

[2] The source of this report has been deliberately omitted in order to protect the anonymity of the institution. It is here just referred to as 'The Report'.

that its core values, the fabric of its rule and the basis of its internal solidarity of purpose, were directly under attack. In the US, Arts graduates report that they acquired skills in creative thinking and problem solving (92%), research (75%), project management (68%), leadership (68%) and entrepreneurship (27%) at an Arts school. In addition, 96% considered the skills they acquired in Art-based programmes as also important to their subsequent work life, whether in or out of the arts (SNAAP 2014: 1). It came as a surprise when Harvard University, one of the leading music departments in the world, decided on a curriculum change citing it as 'an organic move for the times, from both where the field is going generally, but also where we are as faculty' (Suzannah Clark cited in Robin 2017: 1). What this change reveals is adaptability in the transforming nature of the discipline and recognition of the alteration of the demographic profile of its staff.

It could be argued that Harvard University is private and not a public institution, unlike our South African institutions, and thus could risk such a drastic change in discipline focus. It needs to be borne in mind that the stakes are that much higher for a private as opposed to a public institution with such drastic shifts in curriculum. When public universities are hit by a crisis, such as those described by Jansen (2017), they go 'cap in hand' to government for an intervention. In the music scholarship world, Harvard University has remained one of the foremost universities and impacts on research at other universities globally, especially those encountering indigeneity as in South Africa.

Prior to taking up the academic leadership position at the university (2016), I served in academic and administrative capacities (lecturer, academic leader and director) at five other national universities during a time that witnessed South Africa's transition to democracy. This period was also accompanied by the rise in student protests, which Jansen (2017) indicates predates the 2015 events at historically disadvantaged universities and universities of technology. Thus, the challenges facing higher education in the 'new' democracy (post-1994), in terms of its transformation imperatives, are familiar to me. In Badat's (2007: 5) words, they included the definition of the purposes and goals of higher education; extensive policy research; policy formulation, adoption, and implementation:

> in the areas of governance, funding, academic structure and programmes, and quality assurance; the enactment of new laws and

> regulations; and major restructuring and reconfiguration of the institutional landscape and of institutions.

The calls for transformation and curriculum reform were thus not unique to my university, but mirror similar challenges for all public universities in South Africa. Naturally, the responsibility and direction in meeting the State's calls became the responsibility of university leaders and managers. I contend that universities exist outside of a context in which the pressures of competition and the prevalence of risk determine the splitting of management and leadership into clearly defined functions, contexts in which the hierarchy of public administration private sector management develops strategies and manages risk. Thus, university authorities and systems are not organised to face pressures from their ecosystem, as are decision makers in politics, public administration, the military and the business world. In the university, a grey area persists in which the functions of management and leadership are seldom made explicit. Administrative responsibilities overlap with the assumption of academic roles, and it is not clear whether appointments are justifiable on the basis of scholarly status or past organisational competence. Given these ambiguities and the fact that criteria for selection are often based on precedent or tradition, there is de facto evidence that management and leadership are currently being severely tested. Discrepancies occur with a merger between a university and a non-university institution, with conflicts arising over often-veiled assumptions about what is a manageable process versus a leadership process requiring innovation. My premise is that pressures upon the university, whether general or within the organisation of a discipline, are occasions for outlining the role of management and leadership. An appropriate form of these evolving within the often highly specific problems of the university can emerge if we cultivate more of an historical case study, a comparative and an organisational sociological approach, instead of reaching out, during crises in the worlds of public governance or capitalist crisis management, for answers.

For a closer examination of sociological terminology, providing the language with which we may identify some of the hidden processes implicit in social interaction, reference to Margaret Archer's discussion of the interaction between structure and agency provides a useful tool. Archer sees structure as 'those inherited conditions which may be difficult for the individual or the group to alter' (McAnulla 2002: 286). Agency then refers to the individual or the group's desire to influence and mould circumstances providing for a better

and more harmonious contemporary interaction. The dialectic between these two is also affected by culture and this is pertinent for our example, for in the university context culture is actively studied and passed onto the younger generation. According to Archer, both structure and culture function via three processes: conditioning within an inherited social context, subsequent interaction between groups and individuals who may challenge the status quo, and lastly, 'structural' or 'cultural elaboration' or 'reproduction' (McAnulla 2002: 288). This process in which ideas are negotiated and either transformed or reinforced in the course of time, is defined by Archer as a being either a 'morphogenetic' interaction, when transformation takes place, or when the result is merely the reinforcing of existing norms and structures, 'morphostatic' (McAnulla 2002: 287). In any leadership context, agency is either enabled or constrained by the institutional structures in place. In the South African University, this dynamic is further complicated by the complexities which have emerged from a political legacy of inequality and exclusion. The assumption of the responsibilities associated with leadership should take cognizance of this implicit dialectic between structure and agency. Archer's process of morphogenesis, in the context of South Africa which has undergone massive programmes of social engineering, is an important tool in mapping possibilities for transformation within an institutional context.

The debates around leadership and management are not new, nor restricted to universities. Even in the early 1970s, Stogdill (1974: 259) was to claim that there are 'almost as many definitions of leadership as there are persons who have attempted to define the concept'. Using his claim as a departure, I accept that leadership is subjective and is about the ability of an individual(s) to lead in a manner which inspires others to follow (Northhouse 2004). This requires one (the leader) to facilitate decision making, inspire lateral thinking, positive motivation and a strong work ethic within a group, and to implement decisions made by the group. Kotter (2013: webpage) further adds that it is about 'taking an organization into the future, finding opportunities … and successfully exploiting those opportunities'.

Management, like leadership, is complex to define in that scholars differ with regard to this role based on the differing perspectives of their fields. Economists see it as a resource, some a system of authority (bureaucrats), while others see it as the élite in society (sociologists). There is, however, agreement that the role of a manager is for 'supervising the use of an organization's resources to meet its goals' and that such goals are achieved through 'planning,

organizing, leading and controlling' (Jones & George 2003: 30). Kotter (2013) asserts that management and leadership are distinct yet complementary systems. Given these standpoints, I subscribe to the view of Bennis and Nanus (2007: 12), that 'managers do things correctly, while leaders do the correct thing'.

Jansen's *As by Fire: The End of the South African University* (2017) details the pressure on vice-chancellors to meet student demands of greater accessibility to universities while at the same time facing a declining government subsidy, from 70% in 1994 to 35% in 2014 (2017: 28-34). It is evident that a complete reconceptualization of the role of the university in our society and in our cities, is essential if these centres of higher learning are going to be able to respond to the rapidly rising youth demographic and the demand for innovation in all sectors. While it is not that easy to manipulate the organisational structure of the university as a whole, Albert van Jaarsveld, Vice-Chancellor of the University of KwaZulu-Natal has said (2017) that the spatial and working relationship between a university and the city which hosts it, could affect positively its ability to offer real benefit to a city's youth and have real traction in growing the knowledge-base of that city. Van Jaarsveld (2017: 74) states:

> We need to open up the campuses to the city. I feel that people who believe that they can adopt the 'Fortress Approach', and still maintain their integrity in the long term, are lacking in foresight. Our university feels strongly that we need to develop the entire community and contribute to the upliftment of this institution, as a consequence of this initiative. Nothing can be achieved by isolating the university from the community as a whole.

It is only in partnership that the university can steer and guide the direction people are taking in a way that will simultaneously ensure that we become the kind of university we would like to be (Devroop & Theron 2017).

What is clear from both Jansen (2017) and van Jaarsveld (2017) and others, is that the higher education landscape in South Africa is being reshaped. Thus, a call for introspection will be required at all levels of the university and its role in society will require revisiting. Clearly, the student dissatisfaction is seen as an attack on the higher learning institution in its entirety, with its associated traditions and values. South African universities founded during a

colonial era bear a perceived stigma and are criticised as being irrelevant to contemporary society. An uneasy culture of criticism and complaint, directed at the élite strata of the university, has emerged. Interestingly, the challenges to South African universities are not unique: in the United States the *Black Lives Matter* movement in 2015 saw a call 'about dismantling white supremacy… about decolonisation' (Attiah 2015: webpage).

Given Musselin's (2006: 16) claim that universities are 'unique organizations by virtue of their research and teaching activities', it would be central to the discussion on leadership to examine this uniqueness with a view to establishing how the mobility within such an institution occurs, and gives rise to its leaders.

Academic departments at universities recruit leaders and managers from within their (disciplinary) ranks, most of whom have only experienced life in academia with little knowledge of how leadership functions outside of their sector (Jansen 2017). A similar argument can be made about academics who have little sector-based knowledge about their field. Beckman (2010) in his provocatively titled, *Disciplining the Arts: Teaching Entrepreneurship in Context*, adds that a challenge lies in the teaching of entrepreneurship to artists whilst simultaneously being flexible and creative. It therefore comes as little surprise that businessman and past trustee of the University of Massachusetts, Carlin (2003: 168), states that he has never 'observed anything as unfocussed or mismanaged as higher education'. Macfarlane (2011: 57), however, goes on to argue that 'new managerialism and performative expectations are reshaping the role of the professoriate, and that institutions need to do more to develop their leadership capacity'. Often these scholars' 'academic prowess, largely relating to research capability' (Yielder & Codling 2004: 315), or national standing (e.g. National Research Foundation [NRF] rating) is a key factor in 'qualifying' such individuals for favourable upward mobility – often towards the professoriate and even to managerial positions within the university. The standard criteria required for promotion generally revolves around three core areas: teaching and learning, research and community service (with the latter receiving the least weighting). Qualifications in management and leadership or requisite experience in sectors that place a premium on such abilities are seldom required. Experience, which is often listed as a requirement, becomes challenging, in that the system is a hierarchical one – implying that experience can often only be acquired at the expected level once one is promoted (or migrates between institutions). In the case of academic mobility, this is less

problematic: garnering managerial and leadership experience is only possible through a lateral movement in the other managerial or administrative positions.

Leadership in Music Departments

Music departments in South Africa have historically operated along the lines of a pseudo conservatory-university model and this posed challenges of its own within the overall structure of the university. These departments are not exclusively theoretical but make creative contributions (performances, compositions, arrangements, productions, and the like) to the sector, community and society. It is this creative role that presents a problem for the university and its management.

Based as it is on the normative curriculum and examination against its background of explicit norms, the university music department is forced to foreground those aspects of music in society that best fit exposition and assessment around norms. The division of labour in western music culture into performing and composing was adequately reproduced by mapping it into the two great divisions of teaching and learning in the conservatory. The relation between music's production by inscription (notation) and its reproduction by playing (performance), could not become a problem in a conservatory.

Once the university undertook to restate the conservatory model as a degree programme, the once combined aspects of composing split into normative accounts of harmony, counterpoint, notation and stylistics with each split into a historical and theoretical exposition. The relation of these normative paraphrases to composition often becomes opaque. Composition is the overwhelming norm of all western performance. It is therefore difficult for universities to insert relevant normative disciplines and sub-disciplines between performance and its dominant norms. Performance thus languishes in an eclectic realm of singularities, anecdotes, precedents and ad hoc explanations within the university. Its actual norm, i.e. what it is a performance of, is not explicable in the curriculated world of the university. Composition appears here only in the refracted form of harmony, theory, counterpoint and so on. The recent eclectic interest in historicist and formalist models borrowed from philosophy, historiography, anthropology, linguistics, cognitive science, hermeneutics, culturalist semiotics and critical social theories are so many attempts to restore the unity of composition and relate it once more to

performance but with the proviso that each element of this restoration of the conservatory status quo, remains normative and hence criticisable and examinable. Thus, the nature and ontology of the discipline itself presents a challenge within the broader university, raising the spectre once again of the tensions between the formal, canonical university curriculum and its practice, and the esoteric world of the arts, as well as the inadequacy of leadership to navigate these spaces.

Staff employed in South African music departments would have attained academic mobility largely through their teaching and published research, while their creative contributions up until 2016 (DHET 2017) would have remained officially 'unrecognized' by the higher education sector. Although certain universities (University of Cape Town, University of KwaZulu-Natal) did have internal recognition mechanisms for creative contributions, such contributions were seldom measured as being on par with their published research colleagues' outputs. This disparity between academic and creative outputs brought about a tension within music departments, and even today remains contentious (Akuno *et al*. 2017; Whitney 2016) when applied to promotion criteria to the professoriate. The attainment of the full professoriate in music via creative contribution was perceived by staff as being 'more challenging' than that of the path for music researchers. Thus, several of those who went on to become 'heads' of music departments would have attained a doctoral qualification that required a significant written (theoretical) component. Over and above this 'disparity', the challenge for both the academically and creatively driven staff, still centres around their expertise and ability in areas of leadership and management: few have acquired experience or qualifications which enable curriculum leadership in the present context.

Given their history, South African university music departments remain largely colonial in terms of their admission criteria (often with a 'graded' pre-requisite aligned to external music examination bodies such as UNISA, Trinity Guildhall, Associated Board of the Royal School of Music, Rock School); predominantly western (art) in their music curriculum or in recent times, Jazz focus; staffing which does not mirror the national demographic; projected career paths for graduates into sectors that are in decline (Orchestras, Opera, a western art-styled concerting) and catering for the cultural music interests of a minority. This system perpetuates an endless cycle of student-graduate-music teacher-university lecturer, with little impact on the music sector or engagement with the music industry at large. Even the

national Music competitions (SAMRO, UNISA, Hubert van der Spuy, Philip Moore, ATKV) which some institutions use as a barometer for their music performance 'standards', reinforce the western art and jazz music stereotypes. African music which is 'under-represented in university music curricula worldwide… even in Africa itself … remain unaddressed' (Ligeti 2017). With diminishing employment prospects for students who are being prepared in a Kittlerian (2004) media system (the university), and in a discipline rooted in yet another media system (the book culture), the music discipline, especially its curriculum has been perceived as slowly moving from survival mode towards a state of 'crisis'. In picking up the gauntlet to transform curriculum, I have questioned whether this is a function of leadership.

Music: Searching for Legitimacy in Contested Spaces

When universities are pressured to demonstrate their relevance to their stakeholders they usually do so by citing a Science, Technology, Engineering and Mathematics (STEM) justification on the assumption that contemporary societies have a constant need for reliable, applicable knowledge and the technology generating intellectual property that this transacts (Rothwell & Kulkarni 2015). Contributions of the human and social sciences (such as music) are seldom emphasized (Preston 2015; Grafton & Grossman 2013; Sinclair 2012). Scholars (Small 2016; Collini 2012; Nussbaum 2012) have argued much against the undervaluing of the humanities. Collini on British Higher Education (Times Higher Education 2013: webpage) goes as far as challenging economic arguments about the humanities, saying facetiously: '…if you make a quick killing in currency trading, then you obviously make more of a contribution than if you teach a child to read'. Thus, with the current STEM university focus, a larger contingent of these academics take up leadership roles and become the voice of the majority. With this emerges university metrics and curricula that favour STEM disciplines. Music and other arts-based disciplines are often at the mercy of decisions made by non-arts personnel, with little empathy for the dilemmas and challenges we face. University leadership has in fact failed to delve beneath the surface.

For music, the life force inherent within it cannot be reduced to a merely economic directive. It evades all academic restraints and is truly democratic, being accessible to all: Elvis Presley, Justin Bieber, Arnold

Schoenberg, Iannis Xenakis, Louis Armstrong, Whitney Houston, Rihanna, Nicky Minaj, are proof of its high degree of autonomy, and that music is a self-explicative medium. The idea of devising a curriculum or appropriate qualification for this list of musicians, would seem inconceivable. The existing formulaic approach to the university curriculum rooted in an elitist model designed around the orchestral and performance traditions of western Europe and in recent times Jazz of the United States has to be revisited in that the current university curriculum, particularly in South Africa renders itself out of touch with the broader community. In addition, those activities and resources a university does allocate to music in a formal curriculum and with a definite qualification, fall uneasily across the sciences, engineering, technology and the humanities, making the cohesion of a curriculum (and its reform) or the validity of a qualification (as proof of having assembled some type of specific competence in music), even more problematic.

To illustrate further the constraints of formulaic curriculum imposition on music, we need only look at the current eclectic spectrum. Who can dispute that vernacular music has thrived along with Pop in the form of Punk and Reggae, Glam rock and Rock Opera? The demand for complex film scores has burgeoned, the transition to digital media was profitably met by re-recording the standard repertory, the American Hip Hop challenge was buffered and deflected into House, Club and Dance genres, cheaper production software resulted in the new professions of Disc Jockey (DJ), Virtual Jockey (VJ) and the Mix. Even Jazz underwent a rationalisation where Jay Kay and Incognito could occupy different ends of an expanded spectrum and Robbie Williams successfully revived that ballad form of Frank Sinatra. Nobody can claim that the demand for, or the opportunities in music were under threat: it had found a way of diversifying across established media of radio, film and television and elegantly thrived in the second media revolution (Kittler 1999) from analogue to digital form.

Despite all this evidence of a golden age, British academic music departments kept up their consistent tone of complaint as if they were uniquely under threat from neo-liberal funding rationalisation (Dickinson 2013). Music departments complained despite the growing and diversified social and market demands for musical skills extending even to doubling the role of orchestral instrumentalists into orchestra workers plus 'historically informed performance' (HIP) specialists and the transformation of esoteric 'electronic composers' into godfathers of House and Dance-based electronica.

In the media world, where it has always thrived, music is alive and well yet somehow the university discipline appears to be 'sick' and kept on a 'life support system'. My perplexity grew in leaps and bounds.

Against the backdrop of these perspectives, I entered the fray and viewed my (Academic) leadership role as working around challenges that beset the discipline music in a public institutional setting. As I assessed the battle-field ahead of me, I asked how do other disciplines in arts and humanities cope?

Current Status: Survival Mode

In accepting the academic leadership role at the university, I was of the view that my task would be primarily one of leadership in the scholarship of teaching and learning and research coupled with chartering the university towards current and future trends that impact the discipline. This role, I envisaged, would also require taking cognizance of the employability of our graduates, its curricular implications and the future of the discipline as music unfolds in society today. Sharp (Jenvey 2012) warns that 'graduates with arts degrees, including music and social science, were 'far more likely to battle'. The 'battle' to which he refers relates to employability due to irrelevant qualifications, changing media contexts, inadequate sector engagement and lack of business acumen.

The challenges I encountered upon taking up the position forced me to question my role and the preconceptions I had about what would be demanded of me, and what the expectations of the university and my staff would be. I classify these challenges into three permeable categories: institutional, departmental and curricular, and expand on their nature below.

Institutional Challenges included:

- Uncertainty around the future of the discipline;
- Funding of the discipline which differs from other university disciplines;
- Lack of adequate technical support for the music studio, concert venues, basic equipment and facilities maintenance;
- Inadequate Staff Performance metrics, and
- Poor engagement with other related institutions for mutual benefit.

Departmental Challenges included:

- Disproportionate demographics in staffing given the diversity of specialisations offered as well as large contract staff dependency;
- Morphostasis due to established habits in thinking and approach to teaching of an existing staff component;
- Recalcitrance, resistance and lack of interest from staff in the larger university project;
- Facilities and fixtures in neglect/disrepair;
- Lack of support by designated university departments in assisting the discipline, and
- Interference and manipulation on the part of external forces (including past staff) in the operations of the department.

Curricular Challenges included:

- Unaccredited entrance qualification offering;
- Duplication of qualifications that yielded the same outcomes;
- A specialisation in a diploma programme in which a core component is absent;
- Honours and Masters theoretical modules that are not articulated by undergraduate practice;
- A high number of module offerings with low student enrolments;
- Anomalies in the module credits (disparate weighting between similar modules); and
- The absence of any entrepreneurship modules.

Applying myself to addressing these challenges included negotiating a legitimate identity and space for music in the university, which is a work in progress.

Swimming Upstream

In my vision of a way forward, I set a number of new initiatives in place, simultaneously. My aim was to effect what I referred to as a 'new managerialism' (Deem & Brehony 2005).

Like a true academic, I conducted research and read. I referred to existing research where a highly significant fusion between managerial perspective and advanced model building and conjecture in social science, as delineated when Pierre Bourdieu (2002) discussed the political economic notion of capital to include other managed capitals of social goods, including culture and learning, status and access to future opportunities.

With regard to the preparation of students for employment, I looked at Boltanski & Chiapello's (2007) shifts in organisational culture demanded by macro-economic changes, and the university response to recession. In *The New Spirit of Capitalism* (2007) the 1968-generation, with its radical conceptual innovations, is discussed in terms of its ready-to-adapt framework for reorganising capitalism into its new post-corporate phase based on project economies. These vehement critics of capitalism and its society produced an intellectual and aesthetic legacy with sets of critical and revolutionary attitudes that capitalism later literally transcribed with few modifications into its contemporary managerial theory and value extraction model (Boltanski & Chiapello 2007).

Based on the work of these pioneers, I then researched how certain university units react to their context particularly when changes in that context affect their understanding of their legitimacy, funding context, financial sustainability and curricular content in such a way as to require them to undertake an unscheduled process of planning.

I then traced the differing fates of two familiar yet key notions in managerial thought, namely, management and leadership, which I began this paper with, in order to develop the characterisation of university music departments in crisis. In critiquing this characterisation, I attempted to refine the types of interaction between the expectations of a music department in its teaching or research duty and participation in management and leadership in the South African university.

Naturally, all of the above entailed much debate, departmentally and university-wide, with resistance and negotiation around perceptions, expectations, goals and delivery. Some of the debates revolved around staff who merged from the 'old' Technikon to the university. They believed that they were employed as teachers and not researchers and resisted any university-wide directive calling on them to engage with research. Other staff felt that their practice needed to be integrated into the performance evaluation mechanism in that this contributed towards university branding. Those staff

who were schooled in a western art tradition felt their curriculum content ought to be privileged because it formed part of a 'global' curriculum norm. These are just a few of the issues that emerged, the results of these and the rest belong in another paper.

The Learning Curve

What lessons may be learnt from these investigations into the difficulties experienced in this transition in the status of the discipline?

In truth, the real distinctions today between leadership and management may have a limited future, perhaps in general and certainly within the context of music as a discipline. They both belong to an institutional understanding of practices, which applies and understands management or leadership to a stable field where experiences of members and enduring arrangements and decisions provide structure. Such different fields can be expressed as different institutions. The sum of pedagogies – practical, theoretical or reflective – undertaken by universities thus reduces to techniques for inducting 'outsiders' or novices into the many rules, etiquettes, styles, mannerisms, explicit and indirect norms of life within such an institution as a university. When examined from either a managerial or a leadership perspective, the field embodied in the institution is dissected, made explicit and reinstated with different emphases and small, reversible innovations. No amount of management intervention or visionary leadership can turn a university into a church, a courtroom or a stock market.

In the light of these inherent differences it is important to consider that structure and agency are quite distinct from one another and operate in different ways, their relationship can only be understood over time and is dialectical (McAnulla 2002). However, while structure predates agency both have emergent qualities provoked by interaction. While an institutional and departmental framework is inherited, agency still has the ability to affect change in terms of the overall dynamic. What I have found challenging in my role as Academic Leader is that many of the issues forming part of my core mandate have met with pre-existing dynamics of an inherited leadership policy. I did not come to a carte blanche situation but have had to write my thoughts and allow for the interweaving of the vision described in my mandate, with a reticence of attitude, conventions and administrative habits, which Archer terms a pre-existing structure. I have attempted to engage my staff in a

cooperative agency with the belief that the interaction of potentially conflictual ideas might produce a more synthetic and innovative direction in the transformation process.

But what if a fundamental shift in the understanding of and demand for knowledge and skill drastically changes the requirements of pedagogy? And what if that changed pedagogy exceeds the institutional limits and self-understanding of the university?

For music and all other performing arts, the university needs to recognize that there is much that is new, innovative and relevant. These disciplines are directly affected by the emergence of new media, the result of war or profit driven innovation. The problematic relation between film, literature and theatre in the 20th Century is one example but to this could be added the new relations between computation, mathematics, models and experiment, which press science pedagogics into a transdisciplinary form that disturbs the meaning of fact, expertise, evidence and theory as well as pure and applied science and technology into an ambiguous blur.

The relation of music to digital communication makes the medium of its conception, production, storage, distribution and consumption one of the first in history. Few musicians are expert at coding and fewer coders are professional musicians: this ensures that Information Communication Technologies and music in all its aspects are inextricable today and hold the key to one another's potentials, yet neither overlaps nor is reflected in the other. The pedagogy of music and music technology today unfold in universes with no common measure despite music and digital media appearing together inseparably to consumers and music producers alike.

A new management or reorientation of the ideals of leadership in an institution where so many occasions of pedagogy exceed the terms of that institution's field, is essential.

The relation between innovation, medium and skill is still evident today in the music project. This is a value chain built and rebuilt in networks which themselves are temporary, transactional and inaugurated by the unpredictable appearance of new intellectual property, in short, projects are almost the complete inversion of the kinds of knowledge, learning and process able to occur in institutions. Projects are mutations in the field and parameters that underpin learning institutions. They replace education with experiment in overt value chains that are open to redesign as a result of input or criticism from broad and unpredictable sources. These value chains are defined by the

project and are not a pre-existent field that can be used to analyse or critique their associated project. Boltanski and Chiapello (2007) have used this insight into what Bourdieu (2002) had analysed as the relations between field, habitus, various forms of capital and their institutional or disciplinary expression to suggest that at present, a new, projective form of this set of relationships is emerging.

Concluding Comments

I argue that a new pedagogy is emerging, again, that universities need to recognize, resource and enable, and departmental heads and staff need to enact. The disintegration of production and publishing empires, distribution systems and of traditional rituals favouring live music events along with other shifts in music intermediations has led to a permanent rethinking of the composer, producer, performer and technician roles. New genres of music have emerged through this new dispensation, as have lasting impacts upon old genres separation from media of production and distribution. The pedagogy of this fully overhauled music-world hardly exists: its inception in innovation and the lifelong learning essential to a skills market created by competing demands of projects and new, often hybrid roles within value chains means that a finite pedagogy and a definable competence no longer exists. It needs to be engendered, actively.

Understanding the projective city and sketching the rudiments of its management and possible forms of initiative must be the task of every institutional music pedagogy.

Managing the music department out of its institutional shell and towards the project economy without dissolving its usefulness as a site of learning, is thus today's challenge. It requires insight into risk and unprecedented innovation in a new managerialism which brings in leadership more effectively, or perhaps, the ability to successfully de-risk and to innovate in ways that meet the reforms of the times we now live in. In short, the academy has some catching up to do.

References

Akuno, E.A., D.O. Ondieki, P.L. Barasa, S.P. Otieno, C.M. Wamuyu & M.O.

Amateshe 2017. *Higher Education Leadership and Governance in the Development of the Creative and Cultural Industries in Kenya.* Dakar: Council for the Development of Social Sciences Research in Africa.

Attiah, K. 2015. Woodrow Wilson and Cecil Rhodes Must Fall. Available at: https://www.washingtonpost.com/blogs/post-partisan/wp/2015/11/25/woodrow-wilson-and-cecil-rhodes-must-fall/?utm_term=.636cd38176f9. (Accessed on 01 August 2017.)

Badat, S. 2007. *Higher Education Transformation in South African Post 1994. Towards a Critical Assessment.* Johannesburg: Centre for Education and Policy Development.

Beckman, G.D. 2010. *Disciplining the Arts: Teaching Entrepreneurship in Context.* Lanham, MD: Rownam and Littlefield.

Bennis, W.G. & B. Nanus 2007. *Leaders: Strategies for Taking Charge.* New York, NY: HarperCollins.

Boltanski, L. & E. Chiapello 2007. *The New Spirit of Capitalism*. London: Verso.

Bourdieu, P. 2002. The Forms of Capital. In Biggart, N.W. (ed.): *Readings in Economic Sociology*. Malden, MA: Blackwell Publishers. https://doi.org/10.1002/9780470755679.ch15

Brennan, J., R. King & Y. Lebeau 2004. *The Role of Universities in the Transformation of Societies*. London: Association of Commonwealth Universities.

Brooks, R. (ed.). 2017. *Student Politics and Protest: International Perspectives*. London: Routledge.

Carlin, J.F. 2003. Restoring Sanity to an Academic World Gone Mad. In DeCew, J.W (ed.): *Unionisation in the Academy*. Lanham, MD: Rowman & Littlefield Publishers.

Christopherson, S., M. Gertler & M. Gray 2014. Universities in Crisis. *Cambridge Journal of Regions, Economy and Society* 7,2: 209 - 215. https://doi.org/10.1093/cjres/rsu006

Collini, S. 2012. *What Are Universities For?* London: Penguin.

Deem, R. & K.J. Brehony 2005. Management as Ideology: The Case of 'New Managerialism' in Higher Education. *Oxford Review of Education* 31,2: 217 - 235. https://doi.org/10.1080/03054980500117827

Devroop, C. & P. Theron 2017. Durban. From Playing the Host to Projecting Ideas. In Zamboni, A. & J.P. de la Porte (eds.): *Domus.* Milan: Editoriale

Domus S.p.A. July-August, 1015: 67 - 76.
Dickinson, P. (ed.). 2013. *Music Education in Crisis: The Bernarr Rainbow Lectures and Other Assessments*. Suffolk: Boydell and Brewer.
DHET (Department of Higher Education and Training) 2017. *Policy on Evaluation of Creative Outputs and Innovations Produced by South African Public Higher Education Institutions 2017*. Pretoria: Department of Higher Education and Training, No. 40819: 4 - 27.
Govinder, K.S., N.P. Zondo & W.M. Makgoba 2013. A New Look at Demographic Transformation for Universities in South Africa. *South African Journal of Science*. Available at: http://www.scielo.org.za/scielo.php?script=sci_arttext&pid=S0038-23532013000600014. (Accessed on 12 February 2016.)
Grafton, A.T. & J. Grossman 2013. The Humanities in Dubious Battle. Available at: http://www.chronicle.com/article/The-Humanities-in-Dubious/140047/. (Accessed on 19 March 2017.)
Habib, A. 2016. Reimagining the South African University and Critically Analysing the Struggle for its Realisation. Available at: https://www.wits.ac.za/news/latest-news/in-their-own-words/2016/2016-01/reimagining-the-south-african-university-and-critically-analysing-the-struggle-for-its-realisation.html (Accessed on 17 July 2016.)
Jansen, J. 2017. *As By Fire. The End of the South African University.* Cape Town: Tafelberg.
Jenvey, N. 2012. Graduate Unemployment in a Skills-short Economy Bedevils Growth. Available at: http://www.universityworldnews.com/article.php?story=20121122140019904. (Accessed on 01 June 2017.)
Jones, G.R. & J.M. George 2003. *Contemporary Management.* New York, NY: McGraw-Hill.
Kittler, F.A. 2004. Universities: Wet, Hard, Soft and Harder. *Critical Inquiry* 31,1:244 - 255. https://doi.org/10.1086/427310
Kittler, F.A. 1999. *Gramophone, Film, Typewriter*. Winthrop-Young, G. & M. Wutz (trans.). Stanford, CA: Stanford University Press.
Kotter, J.P. 2013. Management is (Still) Not Leadership. Available at: https://hbr.org/2013/01/management-is-still-not-leadership. (Accessed on 01 June 2017.)

Ligeti, L. 2017. An African-Based Avant-Garde: Training for Art-Music Composers Based on Concepts from African Traditions. Paper presented at the 10th Pan African Society for Musical Arts Education (PASME) Conference, Mbabane, Swaziland. 29 June - 02 July 2017.

Macfarlane, B. 2011. Professors as Intellectual Leaders: Formation, Identity and Role. *Studies in Higher Education* 36,1:57 - 73. https://doi.org/10.1080/03075070903443734

Mail & Guardian 2015. Transformation: Part of Everyday Business at UKZN. Available at: https://mg.co.za/article/2015-09-04-00-transformation-part-of-everyday-business-at-ukzn. (Accessed on 14 February 2017.)

McAnulla, S. 2002. Structure and Agency. In Marsh D. & G. Stoker (eds.): *Theory and Methods in Political Science*. 2nd Edition. New York: Palgrave Macmillan. https://doi.org/10.1007/978-0-230-62889-2_14

Musselin, C. 2006. Are Universities Specific Organisations? In Krücken, G., A. Kosmützky & M. Torka (eds.). *Towards a Multiversity? Universities between Global Trends and National Traditions*. Bielefeld: Transcript Verlag. https://doi.org/10.14361/9783839404683-004

Northouse, P.G. 2004. *Leadership: Theory and Practice.* London: Sage Publications.

Nussbaum, M.C. 2012. *Not for Profit: Why Democracy Needs the Humanities.* Princeton, NJ: Princeton University Press.

Preston, A. 2015. The War against Humanities at Britain's Universities. Available at: https://www.theguardian.com/education/2015/mar/29/war-against-humanities-at-britains-universities. (Accessed on 16 March 2017.)

Robin, W. 2017. What Controversial Changes at Harvard Mean for Music in the University. Available at: http://thelogjournal.com/2017/04/25/what-controversial-changes-at-harvard-means-for-music-in-the-university/ (Accessed on 12 July 2017.)

Rothwell, J. & S. Kulkarni 2015. Beyond College Rankings. A Value-Added Approach to Assessing Two- and Four-Year School. Available at: https://www.brookings.edu/wp-content/uploads/2015/04/BMPP_CollegeValueAdded.pdf. (Accessed on 16 March 2017.)

Sinclair, S. 2012. Confronting the Criticisms: A Survey of Attacks on the

Humanities. Available at: http://4humanities.org/2012/10/confronting-the-criticisms/ (Accessed on 19 March 2017.)

Small, H.H. 2016. *The Value of the Humanities.* Oxford: Oxford University Press.

SNAAP (Strategic National Arts Alumni Project) 2014. Tracking the Lives and Careers of Arts Graduates in America. Available at: http://snaap.indiana.edu/snaapshot/#disciplines (Accessed on 08 June 2018.)

Stogdill, R.M. 1974. *Handbook of Leadership: A Survey of Theory and Research.* New York, NY: Free Press.

The Report 2014. University Report on External Review of the Music Discipline in the School of Arts. September 2014. (Unpublished Report.)

Times Higher Education. 2013. Collini Lambasts Oxford's Economic Defence of Humanities. Available at: https://www.timeshighereducation.com/news/collini-lambasts-oxfords-economic-defence-of-humanities/2008392.article. (Accessed on 30 July 2017.)

Whitney, K. 2016. Following Performance across the Research Frontier. In Doğantan-Dack, M. (ed.): *Artistic Practice as Research in Music: Theory, Criticism, Practice.* Oxford: Routledge.

Yielder, J. & A. Codling 2004. Management and Leadership in the Contemporary University. *Journal of Higher Education Policy and Management* 26,3:315 - 328. https://doi.org/10.1080/1360080042000290177

Chatradari 'Chats' Devroop
School of Arts
College of Humanities
University of KwaZulu-Natal
devroopc@ukzn.ac.za

Exploring Black Female Post-graduate Science Students' Experiences and Understandings of their Intersectional Identities

Zamambo Mkhize
Ansurie Pillay

Abstract

Black women face oppression in various fields but research indicates that black women in the science, technology, mathematics and engineering (STEM) fields face even more scrutiny. Black women belong to two oppressed groups – black and women – and therefore face discrimination on multiple levels. This article, underpinned by the theory of intersectionality, explores ten black female postgraduate science students' experiences and understandings of their intersectional identities, and interrogates the implications of their views in this era of women's rights and feminism. Interviews with the students focused on their experiences in their degree, knowledge of their intersectional identities, and understandings of their professional career trajectory and was analysed qualitatively. The study found that these students were a bi-product of their schooling socialization and the influence of their science discipline, prompting the authors to question whether transformation is occurring in higher education in South Africa or if classism is now the new 'racism'. Further, the implications of entering the workplace, whilst holding outdated patriarchal views, are interrogated.

Keywords: intersectionality, black women, science, transformation

Introduction

Black women face multiple oppressions, including those of race, gender, culture, and class, which make their identities intersectional. Literature has

Print ISSN 1023-1757; Electronic ISSN: 2519-5476; DOI https://doi.org/10.29086/2519-5476/2018/v25n2a11

shown that black women in traditionally white male-dominated fields are discriminated against based on their race or gender, or the combination of both, and their intersectional identities have a direct impact on their progression, or lack thereof, in their professions (Archie, Kogan & Laursen 2015; Ayre, Mills & Gill 2013; Carlone & Johnson 2007; Glass, Sassler, Levitte & Michelmore 2013; Hunt 2016). Despite a long history of obstacles facing black women in South Africa, together with instances of overcoming them, there is a phenomenon occurring at a university in South Africa, where black, female postgraduate science students appear unaware and dismissive of their intersectional identities and the impact those identities will have on their career trajectori~~i~~es.

Existing literature has focused on black men and their experiences in white male-dominated disciplines (Gasman, Nguyen, Conrad, Lundberg & Commodore 2016; McGowan, Palmer, Wood & Hibbler 2016; Roach 2001; Noguera 2003), and there is limited literature (Hirshfield & Joseph 2012; Liccardo 2015) which is dedicated to researching black women's experiences in high stakes disciplines, such as science. In addition, while much research has been conducted in America (Blickenstaff 2005; Carlone & Johnson 2007; De Welde & Laursen 2011; Ong 2005), there is a deficiency of studies in South Africa on black South African women scientists.

Women scientists have attracted attention from researchers in different fields such as psychology (Ayre *et al*. 2013; Legewie & DiPrete 2014; Archie *et al*. 2015), social culture (Archer, Dewitt & Osborne 2015; Charleston, George, Jackson, Berhanu & Amechui 2014), education (Brand, Glasson & Green 2006; Fordham 1993; Wilson & King 2016), and science (Figueroa & Hurtado 2013; Grossman & Porche 2013; Johnson 2007). Some studies have focused on: the reasons why women are not pursuing careers in science; girls' negative attitudes towards science; the absence of women scientist role models; the pedagogy of the science disciplines which privileges male students; the hostile climate for women in science classes; the cultural pressure on women to conform to traditional gender roles (Blickenstaff 2005).

This article explores why black female postgraduate science students in a South African university deny their intersectional identities, which could have an impact on their career trajectories in their science career. The article delves into ten students' understandings of their intersectional identities, and the implications of holding outdated patriarchal views in this era of women's rights and feminism. The authors question how transformation may be claimed

by the institution if only certain students from particular schooling backgrounds are permitted into science postgraduate programmes. The findings lead the authors to question if classism is the new 'racism' in South African higher education.

Theoretical Framework

Anti-racist theories largely focus on black men (Crenshaw 1991; Hill Collins 2000) whilst anti-sexist discourses generally focus on white women (Crenshaw 1991; Evans-Winter & Esposito 2010; Smith 2013), and both discourses often ignore black women and their unique identity of being members of more than one marginalized group. Feminism is only prefixed by 'white' when it is being problematized such that feminism pertains to white middle-class women and as such it is universalized (Young 2000). McCall (2005) states that it is impossible to understand a black women's experience from studies of gender combined with studies of race because the former focuses on white women and the latter on black men. Thus, there are theories that, while useful in parts, do not truly reflect African women's realities.

This paper uses intersectionality as a theoretical grounding, with a clear acknowledgement of its western origin and the complexities of intersectionality that often make it difficult to identify whether race, gender or class are being privileged (Young 2000). As a concept, intersectionality is ambiguous and open-ended, as new intersections, connections, and previously hidden exclusions become known. By 'asking another question', you may tease out linkages between additional categories, explore the consequences for relations of power, and decide whether you need to ask yet other questions (Davis 2008).

While the term intersectionality was coined by critical race theorist, Crenshaw in 1989, the concept has been around for some time (Jordon-Zachery 2007). Crenshaw (1994) used intersectionality to call attention to how the intersection of race, gender and class result in injustice for black women, through what Hill Collins (1990: 221) calls the 'matrix of domination'. Intersectional paradigms remind us that 'oppression cannot be reduced to one fundamental type, and that oppressions work together in producing injustice' (Hill Collins 2009: 21). For example, men and women can experience racism differently, just as women of different races can experience sexism differently

(Gillborn 2015). Cho *et al*. (2013: 799) argued that, 'What makes an analysis intersectional is the way of thinking about the problem of sameness and difference and its relation to power'. Evans-Winter and Esposito (2010) attest that the intersection of race, class and gender yield unique experiences for women of African descent, and Young (2000: 54) points out that black women's gender is constituted and 'represented differently according to [their] differential locations within the global relations of power'.

Feminist theorists have debated for years about the categories of intersectionality – should it focus on theorizing identity and uncovering vulnerabilities and exclusions, or should it be a source of empowerment (Davis 2008). Other theorists (Ludwig 2006; Knapp 1999; Skeggs 1997) have argued that the endless proliferation of differences makes intersectionality weak. However, Davis (2008) contends that the ambiguity and incompleteness of the theory allows it to thrive.

The authors of this article recognise the need to apply intersectionality historically and geographically to the South African context, by noting that in the African context, black women might have to battle their African[1] culture as a form of oppression. Culture forms our beliefs and we perceive the reality that it manifests (Anzaldúa 1987). Dominant paradigms, predefined concepts that exist as unquestionable and unchallengeable, are transmitted to us through culture. Culture is made by those in power, usually men (Anzaldúa 1987; Mkhize 2011). While men make the rules, the women transmit them (Anzaldúa, 1987). This is especially prevalent in African culture, where women are the main agents of cultural inculcation, and where it is mainly women who in the end, perpetuate culture – more so than men. The authors of this article recognise intersectionality as integrating culture as a level of oppression experienced by South African black women who are often passive reproducers of culture based on their position within their families (Young 2000). Ultimately, patriarchy is a global factor that affects girls, especially black girls (Makunga 2017). Thus the authors acknowledge the complexities when using an intersectional lens, and this study attempts to add to the literature by adding a different context, and expanding the theory by highlighting the experiences of black female postgraduate science students and their intersectional identities in a traditionally white male dominated field.

[1] African culture in this paper means Nguni culture which includes isiZulu, isiXhosa and Ndebele cultures and traditions.

Literature Review

This section considers how gender is constructed both generally and specifically in science. It then unpacks issues of transformation at South African universities.

Constructions of Gender, and Gender in Science

According to Gasant (2011), gender is the social and cultural differentiation of the sexes, which changes as the demands of society change. The construction of gender is dependent on intersectional social variables such as race, ethnicity, religion, class, and language (Gasant 2011). Forms of intersectionality create unique situations of disadvantage and marginalization, such as women continuing to be discriminated against in terms of earning power in professions, despite having the same level of education, skill and productivity as men (Shields 2008). Thus, gender constructs and maintains the subordination of women to men, across time and culture (Lorber 1994). Makunga (2017), who conducted research on gender and perceptions of science as a field of study in South Africa, found that children's ideas about gender and their intellectual capacities are formed by the age of six. This implies that being advantaged offers more than avoidance of disadvantage or oppression. It actually opens up access to rewards, status and opportunities unavailable to other intersections.

In South Africa, black women are oppressed as well as 'advantaged' in terms of affirmative action policies (Liccardo 2015). The history of Black women in South Africa as initiators in the transformation of South African society and culture recognises that they are not mere marginal, nameless bystanders. They have been in involved in the resistance and fight for democracy in South Africa on many fronts including, among others, their involvement in the Women's March of 1956 to protest the introduction of Apartheid Pass Laws for women and to advocate for women's basic human rights; the anti-pass Sharpeville protests of 1960; and the Soweto Uprising of 1976 against unequal, unjust educational policies. Black women in South Africa fought for community and human rights against an oppressive regime, alongside men, and continue to fight for these rights, including gender equality, today.

In terms of science and science-related fields, there have been a number of undergraduate and postgraduate programmes in recent years that encourage women to enrol for STEM (science, technology, engineering and

mathematics) subjects (Makunga 2017). While there are, more or less, equal numbers of males to females entering undergraduate science-based degrees, at the postgraduate level, men outnumber women in science-based degrees (Makunga 2017). Makunga (2017) suggests that role-models may be important to serve as mentors to young female STEM graduates and provide a supportive network to ward off women scientists' feelings of being isolated and underrepresented in their STEM fields. However, Makunga warns that mentorship should be a personal, not mandatory, choice, as there never should be a suggestion that women need more help than men need to succeed. In science, structural obstacles such as sexism and androcentrism are the real causes of the marginalisation of women (Harding 1991). Feminist critics note that the manner in which science is done needs to change, not only to promote more women in science, but also to question and challenge the logic and foundations of science as a discipline, a discipline that gives science a male image (Gasant 2011).

Makunga (2017) suggests possible solutions to the underrepresentation of women, especially black women, in science should include the media representing and highlighting black women scientists to counter the stereotypical image of a white man being a scientist. Society, too, could counter stereotypical images of women who want to pursue science as a discipline and/or career. Gasant (2011) notes, that education is a site where the reproduction and legitimisation of normative gender roles and power inequalities are reflected in society.

Women in science assume risks for crossing familiar, comfortable gender boundaries (Ong 2005). According to Ong (2005), appearance has an immediate and powerful effect on perceptions, and 'acting like a man' can carry high risks and does not always lead to greater acceptance, since women are subjected to, and judged by, both standards of femininity and standards of scientific competence. A woman who is very 'feminine' is viewed as less competent and a woman who is 'masculine' is seen as unnatural and deviant. The 'masculine' woman typifies the schema for the successful professional, but does not match the schema for women (Ong 2005: 594). A women's gendered appearance is used as a cue about her career in a way that a man's gendered appearance is not (Banchefsky, Westfall, Park & Judd 2016). Studies in engineering (Cadaret, Hartung, Subich & Weigold 2017; Hunt 2016; McGee, White, Jenkins & Smith 2016) also echo the same sentiments pertaining to appearance and femininity.

Yet, black women are sought-after in the STEM fields because they belong to two marginalized groups, race and gender. For transformation goals, they are paraded as symbols of transformation that are coveted, especially in traditionally white-male dominated fields (Liccardo 2015). However, according to BusinessTech (2016), white male professionals out-earn their female counterparts by 42% and black male professionals out earn their female counterparts by 17% (BusinessTech 2016: 1). Even though black women are actively recruited, they are still discriminated against as they continue to earn less than white women and black men (Liccardo 2015). If science continues to be dominated economically by white males, it sends a message to young aspiring black female scientists that the science field is not for them.

In terms of the transformation of the science field, Williams (2015) notes that there is a misconception that filling the science pipeline with people of colour will transform the system. On a practical level, the way science is taught, how it is taught, and by whom, all play a role. In the South African context, which is characterised by a history of gender and racial discrimination, the authors of this article reflect on why black female postgraduate science students at a South African university do not acknowledge such discrimination and deny their intersectional identities. Within this context, the authors consider the influences of intersectionality on science, which needs to be viewed against a history of racial segregation, social engineering, and power relations stemming from pre-democracy apartheid policies and socio-economic factors (Gasant 2011).

Transformation in South African Universities

In apartheid South Africa, the schooling system and higher education policy framework were shaped along racial lines. The Bantu Education Act (Act 47 of 1953) provided black students with an inferior education whilst privileging white students. The Extension of University Act (Act 45 of 1959) made it illegal for blacks to enrol at 'whites only' universities in South Africa. If black students wanted to attend a 'white' university, they applied for permission from the Minister of Education who decided on the granting of a permit. The Minister of Education during the apartheid era refused to grant permits to black students seeking to enrol in engineering, science, medicine, law and accounting, on the basis that there were no prospects of employment for them (Gordon 1981; Harrison 1981). The dawn of a democratic South Africa saw

the change from overt racism to covert racism in the higher education landscape in terms of who is able to access such education.

In the present study, the university, in which the study is located, has a transformation charter, the objectives of which are to promote African scholarship, free from discrimination based on race, gender, ethnicity, religion and class. However, the black female students were from a particular advantaged socio-economic class, which was evidenced from all of them having attended former 'Model C' (formerly white, better resourced, and more expensive schools) or Private (privately owned and run and expensive to attend) schools. It is highly probable that they have been socialized into a middle to upper-middle class schooling. These students come from an 'advantaged' socioeconomic background, highlighting a flaw in the university's goals of transformation. It begs questions such as: What kind of transformation is occurring? Is this real transformation or 'window-dressing'? Is this form of transformation a new type of discrimination based on class? These and other questions will be considered as the implications of the study are considered.

Class, a category of intersectionality, may be used as a form of oppression; individuals may be oppressed due to their race, gender, or ethnicity, but if they belong to the middle to upper classes, they have access to certain privileges they ordinarily would be denied if they did not belong to that class. In addition, Makgoba and Seepe (2004) argue that South African universities require institutional transformation that will provide for the production of knowledge that recognises and critically engages with the African condition as historical. Further, Odora Hoppers (2005: 8) highlights that '...indigenous knowledge is marginalised, denigrated....this systematic subjugation has given rise to cultural racism...while promoting a denial of identity, epistemological disenfranchisement and the strategic disempowerment of African people and communities'.

Research Methodology & Methods

This study, which emerged from a larger project, employs a qualitative research methodology within a critical framework. Qualitative research is characterised by an emphasis on rich description, understanding and explanation of complex phenomena (Creswell 2009). A critical framework is a communal process involving the presentation of the participants' realities

from their own viewpoints, the role of the researcher as a co-creator of meaning and the types of knowledge frameworks or discourses informing that particular society (Henning, Vans Rensburg & Smith 2004). This communal process is in line with the focus of this study, which is to gain a deeper understanding of the denial of intersectional identities of black female postgraduate science students. A critical framework was appropriate for this study because of the understanding that within a critical approach, there is more than one truth and this framework encourages people to be more critical of their reality and could empower them to change their environment.

Reflexivity of the Researcher

Reflexivity can make the researcher more aware of asymmetrical or exploitative relationships but it cannot remove them. As such, England (1994) stresses that as researchers we need to locate ourselves in our work and reflect on how our location influences the questions we ask, how we conduct our research, and how we write our research (England 1994). The primary researcher, as a young, educated, black, woman was aware of her positionality. The participants may have found many similarities with the primary author and therefore may have been willing and open to give truthful answers as opposed to if the researcher was of a different gender or race. Commonality may also have its limitations such as perhaps stating what the participants think the researcher wants to hear or by being more agreeable.

Sampling

The study began through access to one black female masters science student being interviewed, which then led to snowball sampling, because participants would recommend other potential participants, thus growing the sample (Creswell 2009). There were ten participants included two PhD students, six Masters Students and two Honours students. The researcher had access to one science laboratory at the university and used snowballing sampling by interviewing students who utilized that laboratory. Snowball sampling proved both convenient and time-saving. It was convenient because the researcher had access to that laboratory through a student who utilized it, and the students who used the laboratory were interested in participating in the study. Thus, the

researcher did not actively recruit the students; the students volunteered their participation. The students were all African students and their ages ranged from twenty-four to thirty-five. All the students went to former Model C or Private schools. Of the ten students, three came from lower socio-economic backgrounds, but had attained scholarships to attend private schools. The students signed an informed consent form, which guaranteed confidentiality, anonymity, and choice to participate, and full ethical clearance was obtained. Participant's names and identities were replaced with pseudonyms to enable anonymity.

Methods of Data Generation

The researcher employed in-depth interviews over a period of six months in order to elicit rich qualitative data. Open-ended interview questions enabled the participants to reflect on and give detailed accounts of their secondary schooling and university studies. The questions began by asking about their biographical information, how they became interested in science, what they understood about their intersectional identities, and if those identities would affect their career progressions or not. The interviews, which were recorded using a tape recorder, were transcribed manually[2] and responses were analysed thematically.

Analysis

Thematic analysis was used in this study. Thematic analysis incorporates methods that may be independent of theory and epistemology, and may be applied across a range of theoretical and epistemological approaches (Aronson 1995; Braun & Clarke 2006; Hammersley 2015). This form of analysis is able

[2] This process involves the researcher taking voluminous amounts of information, reducing it to certain patterns, categories or themes, and then interpreting this information by using some schema. Creswell calls this 'decontexualization' and 'recontextualization'. This process results in a 'higher level' analysis 'while much work in the analysis process consists of 'taking apart' (for instance, into smaller pieces) the final goal is the emergence of a larger, consolidated picture' (Creswell 2009: 154).

to provide rich, detailed and complex accounts of data (Braun & Clarke 2006; Aronson 1995). Thematic analysis was useful for the study because it helped to identify themes that would have been meaningless if read alone. Interrogating the data further presented new sub-themes that the researcher did not initially think would occur.

Limitations

As resourceful as in-depth interviews are however, they can also be limiting in the sense that the respondents' verbal answers to questions may actually be different from what they practice in reality. The researcher attempted to overcome this limitation by engaging with the participants and probing further into their answers to elicit hidden meanings and to gain clarity into their answers to ascertain it they were truly what they had meant or if they were implied.

Validity

The findings were verified by the participants and some participants, after further engagement, reassessed their initial answers and added other information, which they had initially considered irrelevant or insignificant. The participants were debriefed by prolonged engagement and discussions about the findings. The findings were potentially transferable because there is enough thick description of the findings to engage in further probing. The findings are considered dependable because the researcher kept a credible audit of the processes used and the techniques utilized.

Discussion of Findings

While many themes emerged from the data, this article focusses on four main themes.

Biological Identity vs. Professional Identity

> I went to a private all girls' school and we were taught that if you wanted to be anything from a theoretical physicist astronaut,

> professional tennis player or a housewife, you could do it regardless of your race and certainly not your gender. We were taught you could do anything a man can do, so do not let your race or gender hinder you in reaching for the moon because you could land on a star. (Honours Student 1)

The honours student raises a point that is salient in multicultural private schools. The student is 'born free' meaning, she was born after South Africa became a democracy and the whole country was embracing the so-called 'Rainbow Nation' of unity in diversity. The student also highlights that she was from an upper social class in that she attended a private school and had the very best resources at her disposal. The student remembers that they were socialized to not give credence to their race or (more especially) gender, and thus, in essence, ignore their intersectional identity. It appears as if the student understood that gender might be an easier hurdle to overcome, rather than race (*certainly not your gender*), somewhat of an understanding of the pervasiveness of racial barriers. Their class socialisation made them believe that they might accomplish anything to which they put their minds.

Class plays a pivotal role in an individual's access to opportunities. The fact that this student went to a private school implies that she is possibly wealthy, and consequently, she has access to much better resources (teachers, support systems and academic opportunities) than other students in rural and government schools do. While such empowerment is laudable, once these girls leave their protected, cushioned bubble of high school, the real world might look very different. Literature (Hirshfield & Joseph 2012; Liccardo 2015; McPherson 2017) shows that black female students face discrimination in higher education institutions especially so in disciplines that are traditionally white and male, such as science. Black students have to work twice as hard to be acknowledged and are often overlooked for promotion because of their race and gender. Black women have to fight invisible barriers constantly to progress in the science field.

The student above appears to believe that her hard work alone will advance her in their science career, which may be a result of her upbringing and contextual socialization. The student may also have other experiences, which may influence her beliefs in this individualized concept of self-belief and hardworking being the guaranteed way to a successful career whilst ignoring other structural and societal obstacles. Literature on the other hand

disagrees and states that regardless of their hard work and accomplishment, they cannot escape discrimination.

Science Identity Foregrounded and Backgrounded

A second Honours student had initially stated that categories of race and gender are insignificant in the science discipline but then noted that certain individuals seem more *'privileged'* than others. She explained:

> Race and gender might be seen as petty problems but there have been instances of 'privilege' in the lab. There is this white boy in our year (Honours) and he seems to come and go as he pleases and does whatever he wants. When I or another Indian woman are late or leave the lab early, we are reprimanded yet the white boy is not. I don't know if it is because he is white or because he is male or because he is a white male but we all know that he has 'privileges' (Honours Student 2).

In the above quote, the student seems aware that the white male student is 'privileged' but is unsure if it is because he is white or male, or both. As intersectional theory points out that race, gender, and their combination to have a compelling influence on behaviours, this example points out that certain people are privileged because of their race, gender, or combination of both. The literature cited highlighted that science is still a white male dominated field and black women are viewed as 'invaders' of traditionally white spaces by disrupting the status quo of science being white and male. Thus, the student's noticing of the white male's privileges not extended to her or her female colleagues, highlights an insidious unwelcoming message being sent by the science department to black (both African and Indian) female students.

It becomes clear that although the student may initially have thought that issues of race and gender are inconsequential in the science discipline, those issues seem to be prevalent. Therefore, the data reveals that although this student initially denied that her intersectional identity plays a role in her science field, she is aware that certain individual's identities seem to garner them more privileges. Although the student initially was unaware of her intersectional identity, by further probing, she became aware that it is because of her intersectional identity, that she is not extended certain privileges. She

also realises that the lack of privileges is similar to others like her (*another Indian woman*), and the enjoyment of privileges is accorded to others not like her (*white male*). However, the status quo, as represented in this example, is being perpetuated by a person of authority within the science field. The status quo appears not to be questioned overtly.

Normalizing the Abnormal

> There is a rule in the lab that you are not allowed to wear skirts and open-toe shoes. The reasons are that we work with dangerous chemicals and they might get on the females' legs or to exposed toes. I do not think the rules are discriminatory because it is about safety. Just because the females are the ones more likely to wear open-toed shoes and skirts does not mean the rules or scientific department are sexist (Honours Student 3).

The *rule*, Honours Student 3 highlights, on the surface, is benign and is emphasized for safety reasons. It is interesting to note that the clothing items banned from the laboratory are gender specific to females, and not necessarily to males, and this might be recognised as obvious sexism. The clothing rule might be a way of conditioning female scientists to adopt the masculine dress-code in order to fit into a field that was designed for and still dominated by men. In this field, the women are guided to adopt masculine dress, behaviour and attitudes in order to succeed. The females have to adapt to the environment, not the other way round. One needs to ask if there are other ways of achieving safety in the laboratory without denying the female scientists their individualistic dress styles. This research was solely focused on the experiences of female students and a possible limitation to this study could be that we did not enquire further about what the dress code was pertaining to male students. This might have added an interesting dimension to the complexity of the dress code in the laboratory.

The repeated use of the word *rules* underpins the student's understanding of the norm. Critical race theorists argue that racism (and the authors add, sexism) remains hidden under the veneer of normality (Delgado & Stefancic 2000). Literature (McGee 2016) argues that black students in

science have to change their clothing and their sense of style to integrate and be taken seriously in the field. According to McGee (2016), black science students have to act upon a type of social performance where they negotiate their racial stereotypes by changing their appearance and the way they speak English, and mimicking white behaviours in order to situate themselves as socially and academically acceptable.

The fact that the student does not recognise, and is not made aware of possible structural and institutional obstacles, is problematic and may prevent her, and others, from progressing in their science careers. At universities, students encounter diverse people also pursuing their particular field. When they graduate, however, especially in the sciences, they might be the only black person or black woman in their field. When they enter spaces where the 'norm' is a white male and they are not, how will they be able to cope with institutionalised forms of racism and sexism?

Rejection of Race and Experience of Race

> My race or my gender or the combination of both has nothing to do with my scientific career. I do not think in this day-and-age that such things matter. In science, you either know how to do the experiment or not. You're either a scientist or not. You cannot be promoted because of your race or your gender and are clueless about science. You get to where you are by sheer hard work and dedication, not your 'intersectional' identity (PhD Student).

> No, absolutely NOT! My intersectional identity has nothing to do with my science degree. Science is a complex field, it is constantly evolving, and you have to be on top of the changing concepts and ground-breaking discoveries. My being a black woman has no bearing on my career trajectory. I will succeed based on my hard work not because I am a black woman (Masters Student).

The masters and PhD students completely deny that their race or gender will have any impact in their science career. This contravenes the literature, which states that gender and especially race play a pivotal role in black

people's advancement in science fields. Black female students in the science fields may believe it is only their *hard work* and *dedication* to their science career that will determine their success. However, these students might have certain opportunities solely because they are black and women in STEM fields. Therefore, while they deny that their intersectional identities have no bearing on their advancement, they fail to recognise that their intersectional identities have a direct bearing on the opportunities to which they have access because of governmental transformation policies and programmes.

The students deny that their intersectional identity will hinder their progress in science but it is this denial, which highlights how intersectionality may not be complete. This denial could point to the need for an additional category in intersectionality theory, that of a 'professional identity'. The students above believe their identities are those of a professional; therefore, they cannot be prevented from advancing because of their race or gender because they dismiss their significance in the science field. These students refute their intersectional identities and do not believe they have a bearing in science. The students believe that their professional identity of doing *sheer hard work, having dedication* and being *on top of the changing concepts and ground-breaking discoveries* will prove most important in their career and other categories are obsolete. Thus, it might be time to recognise how intersectionality is constantly evolving (Davis 2008) and that an individual's identity may not completely fit the expected mould of the theory.

The above responses seem to suggest that the more advanced the individuals progress in academia, the more vehemently they deny their intersectional identities. One wonders what accounts for students buying into an ethos of science over an understanding of an identity. Why are students at a lower level slightly more aware of their intersectional identities? One may surmise that perhaps, as an individual graduates into the higher levels of the science degree, they focus solely on their work and have little contact with other scientists. Another possible explanation could be that these students are pushing back against the assumption that they have graduated to this level of science based on affirmative action or any 'special treatment'. That question is beyond the scope of this paper but the answer deserves further probing in future research.

Although the denial by the students of their intersectional identities could be viewed as an 'advantage' in that they believe their hard work and

dedication to their work will guarantee them successful careers, it is also a disadvantage because the literature states that when these women enter the workplace, they will face invisible barriers such as racism, sexism and even classism, so their professional identities alone will not be able to shield them from those obstacles.

Concluding Thoughts

South African universities have been progressive in trying to attain the goals set in their transformation charters. Despite the well-intended principles, goals and values embodied in their policy frameworks to bring about transformation and social cohesion, some universities, because of their institutional cultures, are not ready to accommodate issues of diversity and appear unprepared to promote equity outcomes (Badat 2010). While universities have been proactive in recruiting black students, especially black female students, into disciplines known as scarce skills, such the sciences, they need to reflect on their possible complicity in the structural practices that marginalize underrepresented black students in science. The authors contend that if the universities rely on the limited pipeline of private and former model C schools to supply them with black female science students, then they might be short-sighted.

Black female students in the STEM fields are taught white hegemonic knowledge, which ignores oppression. They therefore internalize this subliminal message so when oppression does occur, they cannot view it for what it is – racism or sexism or both. They instead view it as something inherently incompetent about them and not the oppressive structural systems hindering their progress. Being aware of how the interlocking systems operate and black women's roles in those systems would be a transformative learning experience (McIntosh 1995).

Pierce (1995) argues that racism has transformed from the overt, blatant forms of discrimination of the past to the covert, subliminal, racial macroaggression of today. The reality is that regardless of their hard work and accomplishments, these black women will need to negotiate their careers within the barbed world of racism and sexism in a white male-dominated field. Yet, many appear not to know the reality of the glass ceilings of white male-dominated fields, and are definitely not being prepared for it. The authors

believe it is important that these young women, and the generations that follow, are aware of the glass ceilings and institutional oppressions that they will face so that they will have the necessary tools to overcome such obstacles. Denying their intersectional identities could be disempowering, and perhaps the universities preparing them, should recognise such and actively engage in true transformation.

References

Anzaldúa, G. 1987. *Borderlands: La Frontera.* Volume 3. San Francisco: Aunt Lute.

Archer, L., J. Dewitt & J. Osborne 2015. Is Science for Us? Black Students' and Parents' Views of Science and Science Careers. *Science Education* 99,2:199 - 237. https://doi.org/10.1002/sce.21146

Archie, T., M. Kogan & S.L. Laursen 2015. Do Lab Mates Matter? The Relative Importance of Workplace Climate and Work-Life Satisfaction in Women Scientists' Job Satisfaction. *International Journal of Gender, Science and Technology 7*,3:343 - 368.

Aronson, J. 1995. A Pragmatic View of Thematic Analysis. *The Qualitative Report* 2,1:1 - 5.

Ayre, M., J. Mills & J. Gill 2013. 'Yes, I do Belong': The Women who Stay in Engineering. *Engineering Studies 5*,3:216 - 232.

Badat, S. 2010. The Challenges of Transformation in Higher Education and Training Institutions in South Africa. Available at: https://www.dbsa.org/EN/About-Us/Publications/Documents/The%20challenges%20of%20transformation%20in%20higher%20education%20and%20training%20institutions%20in%20South%20Africa%20by%20Saleem%20Badat.pdf. (Accessed on 25 July 2018.)

Banchefsky, S., J. Westfall, B. Park & C.M. Judd 2016. But You Don't Look like a Scientist! Women Scientists with Feminine Appearance are Deemed less Likely to be Scientists. *Sex Roles* 75,3-4:95 - 109.

Blickenstaff, J.C. 2005. Women and Science Careers: Leaky Pipeline or Gender Filter? *Gender and Education* 17,4:369 - 386. https://doi.org/10.1080/19378629.2013.855781

Brand, B.R., G.E. Glasson & A.M. Green 2006. Sociocultural Factors Influencing Students' Learning in Science and Mathematics: An Analysis of the Perspectives of African American Students. *School Science and Mathematics* 106,5:228 - 236. https://doi.org/10.1111/j.1949-8594.2006.tb18081.x

Braun, V. & V. Clarke 2006. Using Thematic Analysis in Psychology. *Qualitative Research in Psychology* 3,2:77 - 101. https://doi.org/10.1191/1478088706qp063oa

BusinessTech 2016. *Shocking Pay Difference between Black and White Professionals in South Africa*. 13 July:1 - 4. Available at: https://businesstech.co.za/news/business/129980/shocking-difference-in-pay-between-black-and-white-professionals-in-sa/. (Accessed on 25 July 2018.)

Cadaret, M.C., P.J. Hartung, L.M. Subich & I.K. Weigold 2017. Stereotype Threat as a Barrier to Women Entering Engineering Careers. *Journal of Vocational Behavior* 99:40 - 51. https://doi.org/10.1016/j.jvb.2016.12.002

Carlone, H.B. & A. Johnson 2007. Understanding the Science Experiences of Successful Women of Color: Science Identity as an Analytic Lens. *Journal of Research in Science Teaching* 44,8:1187 - 1218. https://doi.org/10.1002/tea.20237

Charleston, L.J., P.L. George, J.F. Jackson, J. Berhanu & M.H. Amechi 2014. Navigating Underrepresented STEM Spaces: Experiences of Black Women in US Computing Science Higher Education Programs who Actualize Success. *Journal of Diversity in Higher Education* 7,3:166.

Cho, S., K. Crenshaw & L. McCall 2013. Toward a Field of Intersectionality Studies: Theory, Applications and Praxis. *Signs* 38:785 - 810. https://doi.org/10.1086/669608

Crenshaw, K. 1994. Mapping the Margins: Intersectionality, Identity Politics and Violence against Women of Color. In Fineman, M.A. & R. Mykitiuk (eds.): *The Public Nature of Private Violence.* New York: Routledge.

Crenshaw, K.W. 1991. Mapping the Margins: Intersectionality, Identity Politics and Violence against Women of Color. *Stanford Law Review* 43,6:1241 - 1299. https://doi.org/10.2307/1229039

Creswell, J.W. 2009 *Research Design: Qualitative, Quantitative and Mixed Methods Approaches*. 3rd Edition. California: SAGE.

Davis, K. 2008. Intersectionality as Buzzword: A Sociology of Science Perspective on What Makes a Feminist Theory Successful. *Feminist Theory* 9:67 - 85. https://doi.org/10.1177/1464700108086364

Delgado, R. & J. Stefancic (eds.) 2000. *Critical Race Theory: The Cutting Edge*. Philadelphia: Temple University Press.

De Welde, K. & S. Laursen 2011. The Glass Obstacle Course: Informal and Formal Barriers for Women PhD Students in STEM Fields. *International Journal of Gender, Science and Technology* 3,3: 571 - 595.

England, K.V. 1994. Getting Personal: Reflexivity, Positionality, and Feminist Research. *The Professional Geographer* 46,1:80 - 89. https://doi.org/10.1111/j.0033-0124.1994.00080.x

Evans-Winter, V. & J. Esposito 2010. Other's People's Daughters: Critical Race Feminism and Black Girls' Education. *Educational Foundations* 24,1:11 - 14.

Figueroa, T. & S. Hurtado 2013. *Underrepresented Racial and/ or Ethnic Minority (URM) Graduate Students in STEM Disciplines: A Critical Approach to Understanding Graduate School Experiences and Obstacles to Degree Completion.* University of California, Los Angeles. Available at: https://heri.ucla.edu/nih/downloads/ASHE2013-URM-Grad-Students-in-STEM.pdf. (Accessed on 17 March 2017.)

Fordham, S. 1993. 'Those Loud Black Girls': (Black) Women, Silence, and Gender 'Passing' in the Academy. *Anthropology & Education Quarterly* 24,1:3 - 32. https://doi.org/10.1525/aeq.1993.24.1.05x1736t

Gasant, M.W. 2011. *Gender & Perceptions of Science & Science Education: A Case Study in Mitchells Plain*. Unpublished PhD Thesis, University of Western Cape.

Gasman, M., T.H. Nguyen, C.F. Conrad, T. Lundberg & F. Commodore 2016. Black Male Success in STEM: A Case Study of Morehouse College. *Journal of Diversity in Higher Education* 10,2:181 - 200. https://doi.org/10.1037/dhe0000013

Gillborn, D. 2015. Intersectionality, Critical Race Theory, and the Primacy of Racism: Race, Class, Gender and Disability in Education. *Qualitative Inquiry* 21,3:277 - 287. https://doi.org/10.1177/1077800414557827

Glass, J.L., S. Sassler, Y. Levitte & K.M. Michelmore 2013. What's So Special about STEM? A Comparison of Women's Retention in STEM and Professional Occupations. *Social Forces* 92,2:723 - 756. https://doi.org/10.1093/sf/sot092

Gordon, L. (ed.). 1981. *A Survey of Race Relations in South Africa*. Johannesburg: South Africa Institute of Race Relations.

Grossman, J.M. & M.V. Porche 2013. Perceived Gender & Racial/ Ethnic Barriers to STEM Success. *Urban Education* 49,6:698 - 727. https://doi.org/10.1177/0042085913481364

Hammersley, M. 2015. Sampling and Thematic Analysis: A Response to Fugard and Potts. *International Journal of Social Research Methodology* 18,6:1 - 2. https://doi.org/10.1080/13645579.2015.1005456

Harding, S. 1991. *Whose Science? Whose Knowledge? Thinking from Women's Lives*. New York: Cornell University Press.

Harrison, D. 1981. *The White Tribe of Africa*. Los Angeles: University California Press.

Henning, E., W. van Rensburg & B. Smith 2004. *Finding Your Way in Qualitative Research*. Pretoria: Van Schaik Publishers.

Hill Collins, P. 1990. *Black Feminist Thought: Knowledge, Consciousness and the Politics of Empowerment.* Boston, MA: Unwin Hyman.

Hill Collins, P. 2000. *Black Feminist Thought.* 2nd Edition. New York: Routledge.

Hill Collins, P. 2009. *Black Feminist Thought*. 2nd Edition. Reprint. New York: Routledge.

Hirshfield, L.E. & T.D. Joseph 2012. We Need a Woman, We Need a Black Woman: Gender, Race & Identity Taxation in the Academy. *Gender & Education* 24,2:213 - 227. https://doi.org/10.1080/09540253.2011.606208

Hunt, J. 2016. Why Do Women Leave Science and Engineering? *ILR Review* 69,1:199 - 226. https://doi.org/10.1177/0019793915594597

Johnson, A. 2007. Unintended Consequences: How Science Professors Discourage Women of Colour. *Science Education* 91: 805 - 821. https://doi.org/10.1002/sce.20208

Jordon-Zachery, J.S. 2007. Am I a Black Woman or a Woman Who is Black? A Few Thoughts on the Meaning of Intersectionality. *Politics & Gender*

3,2:245-263.
https://doi.org/10.1017/S1743923X07000074

Knapp, G.A. 1999. Fragile Foundations, Strong Traditions, Situated Questioning: Critical Theory in German-Speaking Feminism. In O'Neill, M. (ed.): *Adorno, Culture and Feminism*. London: SAGE.
https://doi.org/10.4135/9781446217122.n7

Legewie, J. & T.A. DiPrete 2014. Pathways to Science and Engineering Bachelor's Degrees for Men and Women. *Sociological Science* 18,1:41 - 48.
https://doi.org/10.15195/v1.a4

Liccardo, S. 2015. *Re-imagining Scientific Communities in Post-Apartheid South Africa: A Dialectical Narrative of Black Women's Relational Selves and Intersectional Bodies*. Unpublished PhD Thesis, University of the Witwatersrand.

Lorber, J. 1994. *Paradoxes of Gender*. New Haven, CT: Yale University Press.

Ludwig, A. 2006. Differences between Women? Intersecting Voices in a Female Narrative. *European Journal of Women's Studies* 13,3:245 - 258.
https://doi.org/10.1177/1350506806065755

Makgoba, M.W. & S. Seepe 2004. Knowledge and Identity: An African Vision of Higher Education Transformation. In Seepe, S. (ed.): *Towards an African Identity of Higher Education*. Pretoria: Vista University and Skotaville Media.

Makunga, N. 2017. Africa Must Bust the Myth that Girls Aren't Good at Maths and Science. *The Conversation* February 19. Available at: https://theconversation.com/africa-must-bust-the-myth-that-girls-arent-good-at-maths-and-science-72812. (Accessed on 20 February 2017.)

McCall, L. 2005. The Complexity of Intersectionality. *Signs* 30,3:1771 - 1800.
https://doi.org/10.1086/426800

McGee, E.O., D.T. White, A.T. Jenkins, S. Houston, L.C. Bentley, W.J. Smith & W.H. Robinson 2016. Black Engineering Students' Motivation for PhD Attainment: Passion Plus Purpose. *Journal for Multicultural Education* 10,2:167 - 193.
https://doi.org/10.1108/JME-01-2016-0007

McGee, E. 2016. Devalued Black and Latino Racial Identities: A By-product of STEM College Culture? *American Educational Research Journal* 53,6: 1626 - 1662.
https://doi.org/10.3102/0002831216676572

McGowan, B.L., R.T. Palmer, J.L. Wood & D.F. Hibbler Jr, (eds.) 2016. *Black Men in the Academy: Narratives of Resiliency, Achievement, and Success*. Dordrecht: Springer. https://doi.org/10.1057/9781137567284

McIntosh, P. 1995. White Privilege and Male Privilege: A Personal Accounting of Coming to See Correspondences through Work in Women's Studies. In Anderson, M.A. & P. Hill Collins (eds.): *Race Class and Gender: An Anthology*. Belmont, CA: Wadsworth.

McPherson, E. 2017. Oh You are Smart: Young, Gifted African-American Women in STEM Majors. *Journal of Women and Minorities in Science and Engineering* 23,1:1 - 14. https://doi.org/10.1615/JWomenMinorScienEng.2016013400

Mkhize, Z.V. 2011. *Polygyny and Gender: Narratives of Professional Zulu Women in Peri-urban Areas of Contemporary Kwa-Zulu Natal.* Unpublished Masters Dissertation, University of KwaZulu-Natal.

Noguera, P.A. 2003. The Trouble with Black Boys: The Role and Influence of Environmental and Cultural Factors on the Academic Performance of African American Males. *Urban Education* 38: 431 - 459. https://doi.org/10.1177/0042085903038004005

Odora Hoppers, C.A. 2005. *Culture, Indigenous Knowledge and Development: The Role of the University.* Johannesburg: Centre for Education Policy Development (CEPD), Occasional Paper 5:1 - 50.

Ong, M. 2005. Body Projects of Young Women of Colour in Physics: Intersections of Gender, Race and Science. *Social Problems* 53,4:593 - 617. https://doi.org/10.1525/sp.2005.52.4.593

Pierce, C. 1995. Stress Analogs of Racism and Sexism: Terrorism, Torture and Disaster. In Willie, C., P. Rieker, B. Kramer & B. Brown (eds.): *Mental Health, Racism, and Sexism*. Pittsburgh, PA: University of Pittsburgh Press.

Republic of South Africa. 1996. *Constitution Act 108 of 1996.* Government Printers.

Roach, R. 2001. Where are the Black Men on Campus? *Black Issues in Higher Education* 18,6:18 - 21

Shields, S. 2008. Gender: An Intersectionality Perspective. *Sex Roles* 59,5-6:301 - 311. https://doi.org/10.1007/s11199-008-9501-8

Skeggs, B. 1997. *Formations of Class and Gender: Becoming Respectable*. London: SAGE.
Smith, S. 2013. Black Feminism and Intersectionality. *International Socialist Review* 91:6 - 24.
Young, L. 2000. What is Black British Feminism? *Women: A Cultural Review* 11,1-2:45 - 60.
Williams, J. 2015. Why Just Filling the Pipeline Won't Diversify STEM Fields. *Chronicle of Higher Education* 61,24:1 - 4.
Wilson, J.A. & N.S. King 2016. Voices of Black Women as Directors of Informal STEM Programs. *Urban Education Research and Policy Annuals* 4,1:189 - 200.

Zamambo Mkhize
Faculty of Humanities
Centre for African Studies
University of Cape Town
Zamambo.Mkhize@uct.ac.za

Ansurie Pillay
School of Education
College of Humanities
University of KwaZulu-Natal
Pillaya3@ukzn.ac.za

Contributors

Nyna Amin, a former recipient of a Fulbright scholarship and university distinguished teacher, is an Associate Professor of curriculum studies in the School of Education at UKZN. She writes in the fields of curriculum, teacher education, higher education, medical education and gender. She is one of the co-editors (with Michael Samuel and Rubby Dhunpath) of the book, *Disrupting Higher Education Curriculum: Undoing Cognitive Damage,* (2017) from Sense Publishers. Contact details: amin@ukzn.ac.za

Chatradari 'Chats' Devroop is Academic Leader for the Cluster of Music at the University of Kwazulu-Natal. Apart from being a professional musician, Devroop is the author of several publications and a book entitled *Unsung: Jazz Musicians under Apartheid* (2007). His current research interest focuses on diaspora studies, the remapping of South Africa's music landscape and transformation of the academy. Contact details: devroopc@ukzn.ac.za

Rubby Dhunpath is the Director of Teaching and Learning at UKZN. His previous appointments include that of Teacher Educator at UKZN, Senior Research Specialist at the Human Sciences Research Council and Rockefeller research Fellow at the University of Illinois. A Fulbright and Spencer Alumni, he now provides leadership for the promotion of scholarship in teaching and learning and institutional research. He is currently an Advisor/ Mentor in the Teaching Advancement at Universities (TAU) Fellowship. Rubby has researched and published in education & language policy, organizational ethnographies and higher education curriculum. Contact details: dhunpath@ukzn.ac.za

Anesu Gelfand Kuhudzai is a Chartered Statistician registered with the Institute of Certificated and Chartered Statisticians of South Africa (14ChM002). He is currently working as a Statistical Consultant for both

University of Johannesburg on full time basis and University of Pretoria on part-time basis. He has extensive hands on experience on various quantitative research methods. Up to date he has assisted ± 500 postgraduate students from honours to post-doctoral level and staff researchers pursuing different various disciplines of research, with quantitative research designs, data analysis and interpretation of statistical results to enhance research output and publications. Contact details: akuhudzai@uj.ac.za

Karina Lemmer holds an MA and PhD, which examines multilingual embodied acting in the South African context. She is a lecturer at the TUT Department of Drama and Film where she specializes in voice and acting. Karina has adapted and directed several productions and has also created original multi-lingual South African Theatre within the academic context and for platforms such as the NAF and other festivals. Karina is a Lessac practitioner, and TEFL instructor has presented at National and International Conferences and conducted facilitation and voice coaching, broadly in South Africa, Botswana and Kenya. Contact details: lemmerk@tut.ac.za

Janine Lewis (TAU Fellow, HERSA graduate, and three-time Teaching Excellence award recipient at TUT) has experience in curricula transformation and programme design; and inter-disciplinary learning centred-teaching. As Head of Department of Entertainment Technology at the Tshwane University of Technology, South Africa; her direct fields of specialisation include theatre, acting and directing/devising. Lewis has taught internationally at the Ohio State University USA (2007), the Hunter Gates Physical Theatre Academy in Edmonton, Canada (2007) and the 6th Annual International Festival of Making Theatre in Athens, Greece (2010); and has presented papers at various conferences in countries across the world and South Africa. Contact details: lewisj@tut.ac.za

Ina Louw has a PhD in Math Education and is an Education Consultant (Academic Developer) for the Faculty of Natural and Agricultural Sciences. She has 26 years' experience of mathematics teaching and her research focuses on mathematics education and academic staff development in higher education. She is currently involved in a number of research projects where colleagues investigate their practice in 'scholarship of teaching and learning' projects. Contact details: Ina.louw@up.ac.za

Nkosinathi Emmanuel Madondo is a lecturer in the Science Extended Programme at Rhodes university. Mr. Madondo prepares students for mainstream courses in Science through the discipline of Science itself. Unlike the deficit model of the notion of the gaps in generic skills that students bring with them, which fails to provide genuine access to the practices of the field and leave the university and its structures outside of any critique, Mr. Madondo works hard to make the ways of 'doing and being' accessible to the students in his class so that the 'mysteries' of scientific language are dismantled. Contact details: n.madondo@ru.ac.za

Heidi Matisonn is a lecturer in Philosophy and the Academic Leader for Teaching and Learning in the School of Religion, Philosophy and Classics, UKZN. A UND, UCT, and LSE alumni, she is currently enrolled in the Teaching Advancement at Universities (TAU) Fellowship programme. In 2009 she was the recipient of a UKZN Distinguished Teacher's Award. . Contact details: matisonnh@ukzn.ac.za.

Emmanuel Matsebatlela is currently the Head of the Electives and Education Office in the Faculty of Health Sciences at the University of Pretoria. His research interests lie mainly in quality assurance and assessment in higher education. He was previously the Manager: Institutional Audits at the Council on Higher Education and Head of Quality and Academic Planning at Wits University. He recently completed a PhD in Education, focusing on assessment and quality assurance at the University of Pretoria. Contact details: Emmanuel.matsebatlela@up.ac.za

Zamambo Mkhize is a lecturer in the School of African and Gender Studies, Anthropology and Linguistics at the University Of Cape Town, South Africa. Her research focus has been on modern polygyny, law, family, Zulu culture and African Feminism. She also focuses on the experiences of black women in the STEM fields. Contact details: Zamambo.Mkhize@uct.ac.za

Raazia Moosa is the Head of the Academic Support Unit at the University of the Witwatersrand and is responsible for the central co-ordination of the Student Success Programme and the evaluation of grant funds to support teaching and learning. She has worked in academic planning and quality assurance, student recruitment and admissions, academic support, programme

evaluation and higher education policy. Her research interests are in higher education policy and management, student success and curriculum studies. Contact details: Raazia.moosa@wits.ac.za

Ansurie Pillay is a Senior Lecturer in the School of Education at the University of KwaZulu-Natal. Her research interests include participatory action research, critical pedagogy, social justice education and change agency, among others. Contact details: Pillaya3@ukzn.ac.za

Marietjie Potgieter is an Associate Professor in chemistry and Deputy Dean for the Faculty of Natural and Agricultural Sciences at the University of Pretoria, South Africa. Her research focusses on effective instruction and student success in tertiary science. Recent research projects include an investigation of student engagement patterns with face-to-face and virtual learning opportunities in blended learning environments and effective learning strategies for first-year biology. Contact details: Marietjie.potgieter@up.ac.za

C.K. Raju holds an M.Sc. in mathematics, from Mumbai, and a PhD from the Indian Statistical Institute. He taught and researched formal math (functional analysis) for several years before playing a key role in building India's first supercomputer. That experience and his book *Cultural Foundations of Mathematics* led him to abandon formal math and advocate its decolonisation. He has long been Professor of mathematics and computer science and is currently Honorary Professor with the Indian Institute of Education, etc. Contact details: ckr@ckraju.net

Sharon Rudman is a lecturer in the Department of Applied Languages at Nelson Mandela University in Port Elizabeth. She has recently completed her PhD (UFS), entitled 'Ideology, Discourse and Identity in Post-apartheid South Africa: A case study of first year NMU students'. Her research interests focus on the possibilities of transformation via discourse analysis, ideology intervention and novel approaches to interactive contexts. Contact details: Sharon.Rudman@mandela.ac.za

Michael Samuel (School of Education, University of KwaZulu-Natal) was involved in the Ministerial Committee on Teacher Education which assisted in

the development of national teacher education policy. His books, *Changing Patterns of Teacher Education in South Africa* (2003); and *Continuity, Complexity and Change: Teacher Education in Mauritius* (2016) explore the challenges of (inter)national reform initiatives in teacher education policy development. *Disrupting Higher Education Curriculum: Undoing Cognitive Damage* (2017) explores options for imaginative curriculum redirection. His current interests focus on designing and supporting postgraduate studies. Contact details: Samuelm@ukzn.ac.za

Rethabile Tekane holds a BSc in Biochemistry and Microbiology, BScHons in Biochemistry, and MSc in Biochemistry. She was awarded a PhD in Chemistry (Chemical Education) by Purdue University. She is currently a Postdoctoral Research Fellow at the University of Pretoria, working under the mentorship of Professor Marietjie Potgieter. Her current research includes the evaluation of blended learning in an organic chemistry class; and the exploration of the role of resilience in lecturers' behaviors during teaching. Contact details: Reeh.Tekane@up.ac.za

*Alter*nation
Guidelines for Contributors

Manuscripts must be submitted in English (UK). If quotations from other languages appear in the manuscript, place the original in a footnote and a dynamic-equivalent translation in the body of the text or both in the text.

Contributors must submit one computer-generated copy of the manuscript to the editor(s). The computer-generated copy must be in Word for Windows, and must have an Abstract and Keywords. It must also be submitted in the Alternation style.

Manuscripts should range between 5000-10000 and book reviews between 800-1200 words. However, longer articles may he considered for publication.

Attach a cover page containing the following information: The corresponding author's full name, address, e-mail address, position, department, university/ institution, and telephone/ fax numbers. A brief summary of the biodate of all authors must be attached too.

Maps, diagrams and posters must be presented in print-ready form. Clear black and white or colour digitised photos (postcard size) or diagrams in pdf or jpeg may also be submitted.

Use footnotes sparingly. In order to enhance the value of the interaction between notes and text, we use footnotes and not endnotes.

Authors may use their own numbering systems in the manuscript.

Except for bibliographical references, abbreviations must include full stops. The abbreviations (e.a.) = 'emphasis added'; (e.i.o.) = 'emphasis in original'; (i.a.) or [...] = 'insertion added' may be used.

The full bibliographical details of sources are provided only once at the end of the manuscript under **References**. References in the body of the manuscript should follow the following convention: Mkhize (2017:14) argues .... or, at the end of a reference/quotation: .... (Ngwenya 2017:20f).

The surname and initials of authors as these appears in the source must be used in the **References** section.

Review articles and book reviews must include a title as well as the following information concerning the book reviewed: title, author, place of publication, publisher, date of publication, number of pages and the ISBN number.

In the text as well as the **References**, all book, journal, newspaper and magazine titles must be in italics.

The format for the References section is as follows:

Journal article by one author

Fulela, B. 2008. Checking the Post: Derrida and the Apartheid Debate. *Alternation* 15,2: 11 – 37. Available at: http://alternation.ukzn.ac.za/Files/docs/15.2/02%20Fulela.pdf. (Accessed on 08 May 2017.)

Journal article by two authors

Mkhize, N. & N. Ndimande-Hlongwa 2014. African Languages, Indigenous Knowledge Systems (IKS), and the Transformation of the Humanities and Social Sciences in Higher Education. *Alternation* 21,2: 10 – 37. Available at: http://alternation.ukzn.ac.za/Files/docs/21.2/02%20Mkh.pdf. (Accessed on 08 May 2017.)

Book by one author

Moran, S. 2009. *Representing Bushmen: South Africa and the Origin of Language.* Rochester: University of Rochester Press. (Rochester Studies in African History and the Diaspora, Book 38.)

Book by one editor

Smit, J.A. (ed.) 1999. *Body, Identity, Sub-cultures and Repression in Texts from Africa.* Durban: CSSALL.

Book by two editors

Dhunpath, R. & R. Vithal (eds.) 2012. *Alternative Access to Higher Education: Underprepared Students or Underprepared Institutions?* Cape Town: Pearson Publishers.

Chapter in an edited book

Smit, J.A. & J. van Wyk 2001. Literary Studies in Post-apartheid South Africa. In Zegeye, A. & R. Kriger (eds.): *Culture in the New South Africa after Apartheid.* Volume 2. Cape Town: Kwela Books & History on Line.

Translated book

Foucault, M. 1977. *Discipline and Punish.* Sheridan, A. (trans.). New York: Pantheon.

Online resource

Jansen, J. & P. Vale (Co-chairs.) 2011. *Consensus Study on the State of the Humanities in South Africa: Status, Prospects and Strategies.* Pretoria: Academy of Science of South Africa (ASSAf). Available at: https://www.assaf.org.za/files/2011/09/2011-Humanity-final-proof-11-August-2011.pdf. (Accessed on 08 May 2017.)

***Alter*nation Volume 25 Number 2, 2018**
Print ISSN 1023-1757; Electronic ISSN: 2519-5476

Interdisciplinary Journal for the Study of the Arts and Humanities in Southern Africa

ARTICLES

Rubby Dhunpath, Nyna Amin, and *Chats Devroop* Crises, Contestations, Contemplations and Futures in Higher Education 1
C.K. Raju Decolonising Mathematics 12
Raazia Moosa A Policy Analysis of the Higher Education Qualifications Sub-Framework: Towards Achieving Decoloniality in the South African Higher Education System 44
Rubby Dhunpath, Heidi Matisonn, and *Michael Samuel* Towards a Model of Mentoring in South African Higher Education 78
Sharon Rudman The Conversation: Applying Gadamer's Theory on Seeking Understanding in a South African Context 106
Janine Lewis, and *Karina Lemmer* *Re atumela phetogo*: Africanisation in Embodied Actor-training Performance Platforms Incorporating Multimodal Learning 130
Rethabile Tekane, Ina Louw, and *Marietjie Potgieter* #FEESMUSTFALL: Science Teaching during Student Unrest 161
Emmanuel Matsebatlela, and *Anesu Gelfand Kuhudzai* Attitudes toward Plagiarism: The Case of Undergraduate Health Sciences Students at the University of Pretoria 181
Nkosinathi Emmanuel Madondo Locating the Experiences of Rural Science Students in Higher Education 210
Chatradari 'Chats' Devroop The Shifting Sands of Music Leadership: Searching for Disciplinary Space in a Research-led University 227
Zamambo Mkhize, and *Ansurie Pillay* Exploring Black Female Post-graduate Science Students' Experiences and Understandings of their Intersectional Identities 249
Contributors 273

PRINT CONNECTION Tel (031) 202-7766; 202-7766