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Transformational Trends in Higher Education Scholarship and Curriculum



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Alternation

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Transformational Trends in Higher Education Scholarship and Curriculum

Guest Editors
Rubby Dhunpath,
Mary Goretti Nakabugo &
Nyna Amin

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Editorial: Transformational Trends in Higher Education Scholarship and Curriculum

Rubby Dhunpath

Mary Goretti Nakabugo

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The fifth Annual Teaching and learning Conference (2011), called for presentations and papers on postgraduate teaching and learning, African scholarship and curriculum innovation in higher education. The theme invited critical scholarship to theorise shortages of human capital and skills within an increasingly competitive global economy. The desire to increase human capital has elevated the importance of postgraduate education and it is therefore not surprising that national and international agendas have sharply focused on postgraduate education and training. No more can institutions of higher education claim a right to extravagant and self-indulgent ruminations that are purely theoretical or philosophical in nature; the present crises of growing population numbers and urgency to meet the demands of development and a better life for all means that philosophy and theory have to serve a broader agenda that includes reflexivity and curriculum innovation. Additionally, situated as we are in Africa, there is urgency for African scholars to shape and influence postgraduate teaching and learning so that the needs of the continent are not marginalised or dictated to by powerful, wealthier contexts with narrow self-interests. Translating the abovementioned imperatives into reality requires critical transformation in higher education.

Consequently, the transformation of higher education is being reshaped by new developmental imperatives and more complex relationships between universities, the state and business. Universities are not only expected to contribute to innovation and technology transfer, they also have to become active partners in promoting economic growth. To that end the papers that make up this compilation are instructive. The categorisation of the papers has been channelled into three broad streams, namely postgraduate

teaching and learning, African scholarship, and higher education curriculum and curriculum innovation. These demarcations are neither water-tight nor arbitrary, especially as some papers straddle two or three of these categories. The separation is purposive; to enable a deeper discussion of the contribution made by each writer.

Postgraduate Teaching and Learning

Is transformation a buzzword in the post-apartheid era or does it offer opportunities to generate alternative futures by challenging traditional ways of teaching and learning? The generation of alternatives requires a deep understanding of our current pedagogies and teaching and learning practices, by making explicit their theoretical orientation and making them available for critical scrutiny. Liz Harrison *et al.* provide an intimate glimpse into the Transformative Education/al Studies project led by researchers from three universities engaged in self-study of their practice in higher education, from an inter-institutional, trans-disciplinary learning community. The analysis of the project which aimed to enhance and study the development of self-reflexive, pedagogic research and supervision capacity among these participants, contributes to a body of academic work that explores how collaborative and social approaches to scholarship are engaged. Collaborative and social approaches, they argue, can enhance research capacity, productivity and quality in higher education. This article is underpinned by the notion of an African reflexivity, *ubuntu*, which demands a consciousness of developing ‘selves’ and as supervisors.

This theme of reflexive praxis finds resonance in Ronicka Mudaly’s ‘Gazing Inward’ as she reflects on what it means to teach in the postgraduate milieu. Critically reflecting on her practice of supervising the research work of postgraduate students, and teaching collaboratively in a Masters level module in the higher education context, she draws on theoretical frames from feminism and cultural production theory to explore her experience as a woman academic navigating the postgraduate landscape. She considers the intersecting influences of age, gender, experience in teaching and research, and the hierarchy of different types of work, on her academic development. She describes how the formation of partnerships can be achieved by working with a cadre of fellow academics who share the same values and practices about teaching en route to becoming organic intellectuals.

Changing academic and professional identities and roles within a massified, diversified and globalised higher education sector has propelled institutions to explore innovations in postgraduate teaching and learning as traditional apprenticeship and allied models are no longer the most efficient in the context of unsatisfactory postgraduate productivity. There is now consensus that the key to sustaining a thriving and productive higher education academy are intellectuals with PhDs. A study of PhD education in East Asia, Southern Africa and Latin America reveals that universities across the world are looking to build research capacity and are increasing the number of doctoral graduates they produce (University World News, 7:10:2012). This finding resonates with Maresi Nerad's argument that a paradigm shift has silently evolved in doctoral education. Preparing the next generation of PhDs to function successfully and contribute to the present and future global world requires going beyond the conceptualization of an apprenticeship model to that of communities of practice and which recognises peers as learning partners. It also requires coordinated efforts of many levels inside and outside a university. More is asked from the next generation of researchers: traditional academic research competencies, professional skills, and intercultural competencies. Learning at the doctoral level needs to be purposefully structured so that it allows for transformative doctoral education.

In a bid to compete favourably in the global knowledge economy, South Africa has, like many other countries all over the world, set out to increase the number of postgraduate students particularly at doctoral level (Nerad 2011). Indeed the recent report of the Academy of Science of South Africa locates South Africa's future development in its capacity to produce more high quality PhDs (ASSAF 2010). Due to the incapacity to attract sufficient numbers of local students to meet the increased demand for PhD graduates, South Africa has been, and will continue, drawing from international students to close the gap. Schoole (2011: 59) notes that of the total number of students enrolled on PhD programmes in South African universities in 2005, 27% were international students, increasing to 29% in 2009. A proportion of this increase was of students from other African countries whose percentage increased from 8% to 10%. With the recent South African Government decision to waive tuition fees on all doctoral programmes for all students from all over the world, the number of international doctoral students in South African universities is going to

increase. Therefore, the debate now ought to shift from the ‘statistics’ of international graduate students to the quality of their experiences in South African universities and how their presence can be maximised as an educational opportunity for the host institutions and nation at large.

In a narrative inquiry into the experience of an African international postgraduate student at one South African university, Pithouse-Morgan, Morojele, Pillay, Naicker, Chikoko, Ramkelawan and Rajpal tackle this issue head-on. Their article, “‘The air is hostile ... ’. Learning from an African International Postgraduate Student’s Stories of Fear and Isolation within a South African University Campus’, documents accounts from a postgraduate student whose experiences are characterised by fear and isolation due to the xenophobic instances he has encountered in the various social spaces. Although the student under study is able to find solace in his ‘study room’, when he is with his ‘supervisor in his office’ and ‘in the library’ it should be recognised that learning takes place beyond the confines of designated academic spaces such as classrooms, offices, study rooms and libraries. Thus, Pithouse-Morgan *et al.* recommend that [South African] universities foster ‘pedagogic settings that are nourishing and secure for all those who learn, teach and live within them’ and these settings should include the various social spaces in which students and staff interact. It is through maximising the cultural and intellectual capital that international students bring into South African universities, through a reciprocal provision of non-discriminatory experiences, services and spaces, that the widening of access for international postgraduate students would be said to truly contribute to the country’s and global knowledge economy.

Delia North, Temesgen Zewotir and Michael Murray’s Modelling Research Productivity using a generalization of the ordered logistic regression model draws our attention to the South African Department of Education’s funding formula that focuses primarily on student throughput and academic staff-based research productivity. Accordingly, South African universities have developed their own strategies to help improve staff publication rates. In this paper they are concerned with identifying potential factors that affect the publication rates of academic staff at the University of KwaZulu-Natal. They consider some extensions of the ordered logistic regression model with the final objective being to produce a model that can assign a particular academic (with a given set of demographic variables) to one of four possible publication-based productivity classes.

African Scholarship

The issue of African scholarship and Indigenous Knowledge Systems (IKS) is taking centre stage in curriculum discourses on the African continent today. After many years of absorbing western-modelled education and knowledge systems, it has become paramount for Africa to reposition herself as an active player in the global knowledge economy, and also to develop African knowledge frameworks. This requires rethinking university curricula and pedagogy such as finding ‘meaningful ways in which to translate new and emerging knowledge from research, especially IKS into curricula’ and invoking African perspectives in the study of the continent’s fauna and flora (Vithal 2011) or social, economic and political issues such as human rights promotion, environmental sustainability and eradication of poverty and disease and for research that provides possibilities on how knowledge emerging from IKS ‘could systematically and in a coordinated fashion, feed into the educational system’ (Smit & Masoga 2012:6).

In order to find its space as a relatively new knowledge model on the global scene, African scholarship and IKS ought to not only challenge but also draw from already tested theoretical and epistemological frameworks. It is this cautious approach to embracing and repositioning African scholarship that Govender also takes in his article ‘Educational Implications of Applying the Complexity Approach to Indigenous Knowledge Systems’. Defining IKS as ‘a body of valuable knowledge produced and owned by local people in their specific communities and found worldwide’ Govender notes how it is neglected in Africa’s formal education despite the existence of supporting national policies such as South Africa’s IKS policy. While strongly arguing for the integration of IKS in South Africa’s science and education, he cautions that ‘since globalisation influences and affects knowledge systems, it is necessary to critically challenge and cooperate with mainstream ways to create a platform to integrate IKS with other knowledge systems especially Western science’. Due to a multiplicity and diversity of African IKS, Govender considers it to be a complex knowledge system which, if it is to be meaningfully integrated into or added to the formal education curricula, would benefit from ‘seeking platforms for interdisciplinary connections, integration of science and IKS, and exploring culturally appropriate research methodological trends.’ He therefore considers complexity systems and complexity theories as suitable frameworks that can be used to interrogate

how university curricula can be refocused and restructured for cross-disciplinary teaching and learning in the light of IKS. He specifically argues for the use of Capra's notion of meaning, Luhmann's concept of communication in social systems and metaphors such as *autopoiesis* (self-organisation) from complexity as tools for providing explicit educational value and a critical pedagogical stance to begin exploring network structures in achieving a holistic and organic perception of IKS.

Thus, African scholarship should also mean empowering higher education staff and students to contribute to finding African solutions to challenges such as poverty, poor quality education, HIV/AIDS, hunger, environmental degradation, human rights abuse, bad governance, and corruption affecting contemporary African society. It is within this understanding and context that Van Laren, Mitchell, Mudaly, Pithouse-Morgan and Singh underscore the role that African higher education, particularly teacher education can play, in mitigating HIV/AIDS and preparing graduates to face the multiple challenges associated with living and working in the context of the HIV & AIDS pandemic. Their article 'Exploring University Educators' Lived Experiences of Curriculum Innovating through Integrating HIV & AIDS' contributes to the view that preventive education can only effectively make meaning when it speaks in the lived experiences of the community for which it is meant. In exploring the lived experiences—personal and professional—of curriculum innovators who integrate HIV & AIDS into their teaching in an African university, the authors highlight the commitment of these curriculum innovators to making a difference as well as drawing attention to the emotional and professional challenges they encounter. The article offers encouragement and further possibilities for integrating HIV & AIDS in Higher Education teaching as an innovative strategy that can contribute to lessening or maintaining the low HIV prevalence rate among higher education students in South Africa.

Higher Education Curriculum and Curriculum Innovation

Conventional notions of the domestic student attending a local university are being eroded as global mobility influences policy developments and assumptions regarding employment, skills, economic development and social engagement. This has profound implications for higher education curriculum transformation particularly in the context of theorising the acquisition of

literacies in disciplinary discourses and generic skills. This requires us to critically appraise the structure of degree programmes and explore innovative teaching strategies in the context of technology rich learning environments in which E-Learning and Web 2.0 Applications make possible flexible and distance learning, while virtual learning and social networking platforms enable collaborative learning blended learning and mobile learning.

Noel Gough, in 'Generating Curriculum Visions for Global Citizenship: Collective Stories and Creative Imagination' argues that defensible curriculum decision-making requires the availability of the greatest possible number and diversity of alternative solutions to problems for practical deliberation. He contends that contrary to prosaic notions of a knowable, fixed reality, visions of alternative futures arise from many sources. He focuses on two such sources that tend to be under-represented in both school and higher education curricula, namely, the collective stories that reflect some degree of cultural (or sub-cultural) consensus about desirable futures and the speculative futures imagined by creative artists in various media. The paper describes selected examples of approaches to generating alternative futures with particular reference to the implications of a global knowledge economy for contemporary understandings of notions such as citizenship. But we also have to cast our gaze beyond contemporary moments to rescue the future.

Curriculum transformation in higher education will remain trapped in rhetoric unless we address the crucial role of language and literacies which act as enablers barriers to academic performance. Despite South Africa's multilingual language policy which confers the choice of languages to universities, the majority have adopted English as their medium of instruction, contrary to undisputed evidence that home language instruction promotes cognitive development and enhances learning outcomes. In the *Return to Reading: Acquisition, Reading, Research on Narrative and the Implications for a Multilingual Pedagogy for Higher Education in South Africa*, Robert John Balfour presents five arguments in defence of a changing language pedagogy that should be informed by cognitive linguistics and psycholinguistics for the development and use of indigenous languages development in South Africa. First, he argues that grammatical competence develops earlier in bilinguals because the use of two languages encourages an awareness of language systems (syntax and semiotics) such that the grammaticality of language is drawn to the attention of bilingual learners

when differences between two language systems become evident in the way these language are used and even learnt. Second, he notes that the role of vocabulary development is crucial for the successful learning of a target language and such learning becomes more profound when phonology is developed and awareness of pronunciation is reinforced through reading. His third contention is that bilinguals develop an awareness of syntactic differences within languages at an earlier age than do monolingual speakers owing also to language exposure and use. Fourth, that phonological awareness of language use can be developed earlier when two languages are used and further that phonological awareness development is closely correlated to the development of reading skills as sight and sound work together to develop and enhance language awareness in bilingual speakers.

While language literacies continue to demand robust policy intervention and scrupulous monitoring to develop indigenous languages as a moral imperative, the pervasive infiltration of technology in every facet of our lives demands that technological literacy be accorded attention in our quest to enhance equity of access as well as equity of outcomes. Conventional notions of the domestic student attending a local university are being eroded as global mobility influences policy developments and assumptions regarding employment, skills, economic development and social engagement. Theorising the acquisition of literacies in disciplinary discourses and generic skills for epistemological access impel us to explore innovative teaching strategies in the context of technology rich learning environments in which e-Learning and Web 2.0 Applications make possible flexible and distance learning, while virtual learning and social networking platforms enable collaborative learning. Blended learning and mobile learning smart-board teaching technologies and content management systems provide opportunities for e-learning architectures, systems and solutions in face-to-face environments while the shift to open access materials and instructional design for digital libraries for E-learning enable asynchronous learning; active learning; problem based learning all of which have implications for curriculum, assessments and evaluations

Craig Blewett's 'Exploration of e-Learning Terminology Trends' which could serve as a lens to scrutinise institutional paradigms reveals a disturbing dichotomy which he contends is becoming apparent within e-learning. On the one hand are reports of increasing use of e-learning environments by higher education institutions, however on the other hand are

indications that the use is limited and pedagogically rigid. By exploring the changes in e-learning terminology and research foci over the past ten years it is possible to trace underlying pedagogical currents in higher education.

His paper presents a framework that classifies e-learning into Type 1 environments, typified by Learning Management Systems which continue to dominate, while Type 2 environments such as Virtual Learning Environments are becoming increasingly popular. However, despite technological innovations in Web 2.0 platforms, Type 3 Personal Learning Environments appear to already be floundering. The results indicate that out-dated approaches to learning, supported by ‘industrial-age’ models may be hampering the adoption of alternative learning paradigms which are more readily supported by Type 3 environments. Future research may need to focus on exploring new informal learning environments, such as social networks, that are more authentic to the student learning and communication experience.

A citizenry that is skilled in high stakes subjects like mathematics and science are better positioned to contribute to personal and national development. The dismal record of South African performances in two Trends in Mathematics and Science Studies (Howie 1999; 2001) are testimony to the huge deficits that need to be overcome in teaching and learning. The problems in basic education, which are connected to higher education in and through students, are complex. The iniquitous distribution of resources, variations of school contexts and teacher qualifications, complex curriculum changes and prolific policy generation, amongst a range of factors besetting education (see e.g. Bloch 2009), attest to the need for higher education intervention. The introduction of the Advanced Certificate in Education (ACE) programmes in a range of subjects, attempts to address some of the deficits in basic education. Two papers on ACE programmes, the first by Bansilal, ‘Exploring Success Rates in a Professional Development Programme ...’, describes and analyses the success rates of the ACE in mathematics for in-service teachers. Bansilal takes the unconventional position of arguing that a success rate of fifty percent is laudable. Her generous take was made possible by stretching the notion of success beyond that dictated to by throughput rates of completion in minimum time. Productive change Bansilal suggests, demands patience and adjustment of criteria suited to the kinds of students who register in higher education institutions to reclaim personal and national development goals. It means too,

that higher education may need to reconsider its obsessions with time-based throughput for a greater good. The second paper on the mathematics, science technology ACE module for in-service teachers by Sibanda and Jawahar, ‘The Impact of Mentoring ...’ forms the basis of an intervention that tweaks the practice component in an innovative way. Instead of using teacher educators to supervise teaching practice, the study explores how experienced school-based teachers mentor their peers who enrolled for the mathematics, science and technology ACE. Their findings suggest that content knowledge of in-service teachers was improved through peer mentoring. Considering the needs of the nation to produce large numbers of highly competent teachers, the Sibanda and Jawahar study makes visible how partnerships with schools will enable higher education with limited human resources, to do so.

Raniga’s paper, takes us back to an undergraduate curriculum. The undergraduate space is the hub of the production of professionals, particularly of those in the social sciences. In, ‘Community Work through Reflective Practice ...’ she challenges us to consider the makings of a social worker in higher education. Offering a curriculum that includes placement in authentic settings and deploying a sustainable livelihoods model for community engagement she suggests, is one way to create a social worker with a consciousness and conscience. Aware of the deep social and economic hardships of communities on the margin, she invites her students to serve their practicum in a low income community. In her paper, she draws on French and feminist philosophical traditions of reflexivity as an interventionist tool for professional growth and development. Her analysis distils three themes: reflections on self, reflections on team meetings and reflections on working with community members. Reflections, the paper implies, is a self-surveillance mechanism, serving a wider mandate that bridges the worlds of higher education and society.

Finally, the position paper by Akoojee and Nkomo, ‘Access for Labour Market Equity ...’, like Gough’s paper, takes us back into the terrain of the imagined. Their focus is narrowed to the issues that are at the heart of transformation – not just making higher education accessible, but making it responsible for the employment of its graduates. National development, they argue will be accelerated if those who have acquired skills in higher education are given the opportunity to serve. The data shows that employability is still race-based, with whiteness continuing to be a passport to better work prospects. Eighteen years into the post-apartheid period, has so

little has changed race-wise? Their arguments leave no doubt that transformation has been slow, insufficient and inconsiderate. Clearly, the mandate for higher education is a deliberate, transformative imagination that benefits society.

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Learning from the First Year of the Transformative Education/al Studies (TES) Project

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Abstract

The Transformative Education/al Studies project (TES) is a three-year, funded project led by researchers from three universities: a University of Technology, a Research-Intensive university, and a rural Comprehensive University. The project participants are academic staff members who are pursuing Masters and Doctoral studies and their supervisors. These participants, all engaged in self-study of their practice in Higher Education, form an inter-institutional, trans-disciplinary learning community.

TES aims to enhance and study the development of self-reflexive pedagogic, research and supervision capacity among these participants. In this article, we make public our learning thus far about supporting an emerging postgraduate research learning community involving academic staff working and studying in three very different university contexts. The data sources comprise digital logbooks kept by participants, workshop evaluations, and the researchers' personal reflections and communications. Our analysis contributes to a body of academic work that explores how collaborative and social approaches to scholarship can enhance research capacity, productivity and quality in Higher Education. The conceptual underpinning of the article is that of reflexive *ubuntu*, which demands a consciousness of our developing 'selves' as researchers and supervisors and of our interrelationships with other people.

Keywords: postgraduate research, self-study of educational practice, collaborative scholarship, learning communities, postgraduate teaching and learning, reflexive *ubuntu*, trust, care

Introduction

The work discussed here is of a project that, perhaps idealistically, set out to enhance and study the development of self-reflexive pedagogic, research and supervision capacity among academic staff at three very different South African universities. Drawing from Badley (2009:107), who explains academic writing ‘as a process of reflecting upon our experience and on the experience of others in an attempt to make useful suggestions for change and growth as part of a conversation in progress’, this article examines our lived experience as project-leaders, researchers and supervisors. We offer some ‘lessons’ that will guide our future work on the project and that might also assist others who are interested in supporting postgraduate research using novel and contextually-appropriate methodologies.

To begin, we give a brief overview of the project. We then lay a conceptual and thematic foundation for reflecting on our own experience of the project by ‘explicitly [acknowledging] the contributions of others to [our] thinking’ (Nash 2004:66), and identifying two key ‘scholarly conversations’ we wish to contribute to (Clandinin & Connelly 2000:136). Next, we explain how we have studied the project so far. This leads us to two important lessons learned and our concluding thoughts on how the project will continue to grow and on broader implications for postgraduate research education.

An Overview of the Transformative Education/al Studies (TES) Project

The Project Contexts and Participants

The Transformative Education/al Studies project (TES) is a three-year (2011-2013), South African National Research Foundation (SA-NRF)-funded project led by researchers from three diverse university contexts: a University of Technology, a Research-Intensive University, and a rural Comprehensive university. Between 2002 and 2005, the South African

Higher Education sector underwent processes of extensive integration, which were referred to as ‘the merger’. These processes were meant to bring about a more equitable post-apartheid education dispensation to contribute towards meeting the requirements of a fast-developing new democratic nation. Over a period of four years, 46 universities and former technikons were merged in various ways to produce 23 universities in three categories: research-intensive universities, universities of technology and comprehensive universities (which offer both academic and technological qualifications). One of the consequences of ‘the merger’ is that the University of Technology and Research-Intensive University each have a number of campuses spread across two cities that are about 45 minutes’ drive apart, while the Comprehensive University (which is situated in a more rural area about a day’s drive from the other two universities) has four campuses that are between two-three hours’ drive apart.

In 2011, the first year of the TES project, the participants were 22 staff-students (university educators who are pursuing Masters and Doctoral studies) – ranging in age from mid-20s to late 40s – and their 12 supervisors – ranging in age from early 30s to late 50s. Thus far, the participants (including staff-students and supervisors) have comprised approximately 80% women and 20% men. More staff-students and supervisors have asked to join TES in 2012, which demonstrates growing interest in this kind of scholarly collaboration and also perhaps reflects our institutions’ focus on increasing the numbers of academic staff qualified with doctorates and master’s degrees. The Academy of Science of South Africa’s (ASSAf) PhD study (2010) indicates that only about a third of all permanent academic staff members at South African universities holds a doctoral qualification. This is disaggregated into 40% of academic staff at research-intensive universities, 27% at comprehensive universities and 12% at universities of technology. It is therefore a national imperative to increase the numbers of academic staff holding advanced degrees (and to reduce the age of the professoriate) that drives much research activity in our three institutions – all seeking to establish a particular identity. The University of Technology, for example, is trying to establish itself in terms of high-level vocational skills, yet with a research agenda that critically engages with epistemologies of technology (Winberg 2005). The Comprehensive University seeks to strengthen its position with a renewed focus on research, whereas the

Research-Intensive University is seeking to improve its world rankings for research.

Purpose of the Project

The staff-student and supervisor participants in TES, all engaged in self-study of their practice in Higher Education, form an inter-institutional, trans-disciplinary learning community. A wide range of academic and professional disciplines is represented, for example, Communication, Drama, Jewellery Design, Journalism, Photography, Academic Development, Accounting Education and Maths Education. TES aims to enhance and study the development of self-reflexive pedagogic, research and supervision capacity among participants. To that end, we are working to develop a community of collaborative scholarship, which is underpinned by the methodology of self-study of our practice in Higher Education (as discussed later on in this article). Within that community, we, Liz, Kathleen, Joan and Thenjiwe, play multiple roles as project-leaders, researchers and supervisors. We are an inter-institutional, trans-disciplinary project team, with diverse academic backgrounds inclusive of Academic Development, Teacher Development, Orality-Literacy Studies, Indigenous Knowledge Systems, and Gender Studies.

Project Activities to Date

In 2011, the TES staff-students and supervisors came together for two inter-institutional workshops (three - five days each) led by international experts in self-study of educational practice, Professor Claudia Mitchell (see Mitchell *et al.* 2005) and Professor Jack Whitehead (see Whitehead & McNiff 2006). These workshops were also attended by academic staff and students who are not 'official' TES project participants, but who are interested in learning more about self-study of practice in Higher Education. We also had a dedicated 'supervisors' day' at each of these workshops. We are facilitating on-going research support meetings at our individual institutions and we have two online TES classrooms, a dedicated TES list serve and are participating in related international list serves. Over the next two years,

there are plans for further workshops as well as a public conference, public website and edited book.

Reflexive Ubuntu as a Conceptual Stance for the TES Project

Our diverse understandings of and aspirations for the TES project come together in a shared conceptual stance that we refer to as reflexive *ubuntu*. Reflexivity, first posited by Gouldner (1971), entails analytic attention to the researcher's role, and the inclusion of the researcher as a researchable topic. In taking a reflexive approach, we are making a theoretical and, we would argue, ethical commitment to 'thinking about [our] own thought' (Grumet 1989:15) and '[recognising] and [taking] responsibility for [our] positions within [our] research' (Pensoneau-Conway & Toyosaki 2011:389), which is akin to what Alasuutari *et al.* (2008) and Litosseli (2008) maintain is a form of consciously exploring the way people talk about their lives. Reay (1996:59-60) describes reflexivity as a continual consideration of the ways in which the researcher's social identity and values affect the data gathered and the picture of the social world produced. Concurring with Reay, Mauthner and Doucet (1998:121) note that reflexivity entails

reflecting upon and understanding our own personal, political and intellectual autobiographies as researchers and making explicit where we are located in relation to our research respondents.

Thus, taking a reflexive stance demands that we pay close and mindful attention not only to our 'selves' as researchers and supervisors, but also to our interrelationships with the other people who participate in any way in our research and education endeavours (Pensoneau-Conway & Toyosaki 2011).

We make theoretical links between reflexivity and anti-colonial, feminist, and critical pedagogy perspectives (see, for example, Freire 1970; Lather 1991; Smith 1999) that call into question the silencing and 'othering' of research subjects or learners in research and educational processes and aim to elide power/status differentials in valuing the experience and knowledge of the participants/learners and researchers/teachers. Significantly, in TES the research projects are about self-learning and this requires what Feldman *et al.* (2004: 974) identify as one of the most

important methodological features of self-study approaches to educational research, which is ‘to be self-critical of one’s role as both practitioner and researcher’. Moreover, given that the idea of the practitioner-researcher as research subject is often not readily accepted in institutional structures, TES has served as a forum through which staff-students can challenge any possible silencing of themselves as ‘research subjects’. This is evidenced in a statement made by one of the inter-institutional workshop participants, Nalini Chitanand, when she says that the project ‘has been invaluable in framing my own ideas in terms of transformative education practices and my own practice as an Academic Development Practitioner’. Thus, we would support the view advanced by Prell (1989:248) that reflexivity is an essential precipitator and outcome of emancipatory research and education.

Because we understand reflexivity as demanding a consciousness of our developing ‘selves’ as researchers and supervisors, and of our interrelationships with other people, we see significant interconnections between the concept of reflexivity and the southern African concepts of *ubuntu* (in the Nguni languages) and *botho* (in the Sotho and Tswana languages) that recognise ‘self’ as ongoing, and relational processes of becoming (Mkhize 2004). Sithole’s (2010) outlook on *ubuntu* and social cohesion best explain this interconnection. She states that the practice of human rights and human responsibility is necessary in learning contexts that may have elements or people that have been damaged by social ills (Sithole 2010). Some stories of the staff-students and supervisors that participate in the TES project bear/bare wounds – their own or their students’ – that are indicative of pervasive social ills in South Africa, such as HIV & AIDS, poverty and violence. Reflecting on the value of participating in the project, Bwalya Lungu, a staff-student, reveals that she has been ‘made to understand how valuable it is to share our stories about our lives and practices; they shape the type of teachers and learners we are’. This statement highlights one of the significant elements of reflexive *ubuntu*, which is awareness and acknowledgement of other people’s life courses. Hence, we also find Eden Charles’s (2007) work on *ubuntu* and transformation useful in understanding the value of locating oneself in the experiences of others as a form of demonstrating an ethics of care and trust. Covey (2006:33) identifies five levels or waves of trust: ‘self trust, relationship trust, organizational trust, market trust, societal trust’. We believe that the two lessons from our

practice distilled in this article indicate all five levels: Lesson One promotes relationship, organisational and ‘market’ (in the sense of academia) trust. Lesson Two speaks to learning self-trust and relationship trust.

Rossmann and Rallis (1998:248) would define the reflexive *ubuntu* conceptual stance we have outlined above as a demonstration of ‘interplay of sensitivity and a simultaneous awareness of “self” and “others”’, which are central tenets in auto-ethnographic approaches to self-study research (Ellis 2004). For us, taking this kind of theoretical stance has contributed to an awareness of having to recognise shared human attributes of the supervisors and staff-students who participate in the TES project.

Scholarly Conversations that Situate the TES Project

Self-study of Educational Practice

Self-study of educational practice has its roots in teacher educators and teachers seeking to enhance their self-understanding and their pedagogy, as well as to contribute to public scholarly and professional conversations (see, among others, Mitchell *et al.* 2005; Samaras 2010). More and more, self-study of practice is taking place within a trans-disciplinary community of scholar-practitioners across the human and social sciences (see Pithouse *et al.* 2009b). Through studying their own selves and practice, these scholar-practitioners seek to ‘illuminate significant social questions and make a qualitative difference to shared human experience’ (Pithouse *et al.* 2009a:2). Thus, the overarching self-study research question for TES participants, which, when applied idiosyncratically, yields a broad spectrum of insights and outcomes, is: ‘How do I transform my educational practice as?’ (also see Whitehead 2000). This research question can be applied to the individual participant’s direct educational context, with a range of responses and insights and also across the TES learning community’s diverse educational contexts, thus becoming ‘How do we transform our educational and research practice as a learning community?’

The TES project aims to build on and expand the body of self-study research to date. It also draws on work done in other key areas of research that focus on the transformative potential of educators’ scholarly inquiry into their own pedagogic practices, identities, and contexts. These include teacher research (see Loughran *et al.* 2002), practitioner inquiry (see Cochran-Smith

& Lytle 2004), action research (see Whitehead & McNiff 2006), critical pedagogy (see Giroux 1988), reflective practice (see Schön 1983) and reflective nostalgia (see Moletsane 2011). These approaches are consistent with recommendations made by the Higher Education Quality Committee of South Africa (HEQC) for enhancing the quality of teaching and learning in Higher Education institutions by promoting and supporting educators' reflective self-evaluation (HEQC 2004) and by recognising and valuing the scholarship of teaching and learning (Boyer 1990; Scott *et al.* 2007). These approaches are also congruent with what Backhouse (2011) has identified as an emerging approach to doctoral education in South Africa, which she terms 'on-going personal development discourse' (33-35) and describes as 'an engagement with knowledge generation in the interests of on-going professional and personal development' (37). Backhouse argues that this approach, which 'acknowledges that people begin doctoral studies with different knowledge and abilities and emphasises that they will become scholars through the process' (36) is particularly appropriate in the South African context where students often begin their postgraduate studies 'at varying ages and career stages' (36). This is certainly the case with our TES staff-students.

Postgraduate Research Learning Communities

We share a belief that, to be effective supervisors of postgraduate research, we need to be lifelong learners – as such, modelling the behaviour we expect of our learner researchers. This is particularly significant when working within the relatively new methodological genre of self-study, as we comprise very experienced supervisors, particularly in the areas of the oral tradition of indigenous knowledge and feminist research (Conolly and Meyiwa), who are relatively new to self-study research, and also those who have recently completed PhDs using self-study methodologies (Pithouse-Morgan and Harrison), but are fairly new to supervising. Thus, we are all both novice and expert in some sense and the TES learning community has brought us together to learn from and with each other and our staff-students.

Higher Education literature reveals that postgraduate research and postgraduate research support are indeed important areas for educational research and development in South Africa and beyond. For example, the

ASSAf (2010) report on doctoral education in South African Higher Education institutions highlights the twin challenges of insufficient numbers of qualified and experienced supervisors and of novice supervisors not receiving sufficient or effective assistance to develop their supervisory capacity. The report also emphasises a growing awareness that the ‘traditional apprenticeship model’ of one-to-one supervision might not be the most effective way in which to support postgraduate research (64). This echoes a range of international literature that shows how collaborative and social approaches to postgraduate research supervision and research support can enhance research capacity, productivity and quality in Higher Education institutions (see, among others, Grevholm *et al.* 2005; Parker 2009; Wisker *et al.* 2003).

Interestingly, recent South African research (ASSAf 2010; Herman 2011) also suggests that part-time doctoral students who work full-time are more likely to succeed academically when their research is related directly to their own lives and work, as is the case with our staff-students who are undertaking self-study research. Indeed, Backhouse’s work uncovered the differing expectations of doctoral students depending on field and culture and argued that success was related to ensuring that the doctoral study was supported by more ‘intersecting contexts’ than purely those provided by the university and the department (Backhouse 2009). Such a consideration of intersecting contexts is a large part of the TES research agenda, as is the development of an African researcher identity out of the process of postgraduate study (Harrison 2010).

As Grant puts it, part of the work of supervision pedagogy is the ‘transformation of the student into an independent researcher ... a relationship that engages student and supervisor/s in productive power relations’ (Grant 2003:175). One of the significant implications of our work in TES, therefore, is that the supervisor has to engage and validate the staff-student’s experience and authority rather than the other way around. We have found that when this dynamic is engaged in group settings, staff-students learn to challenge and validate colleagues’ thinking, avoiding the kinds of tensions that arise where the supervisor is positioned as the sole authority (Sork & Chapman 1999; Chapman & Sork 2001, Bartlett & Mercer 2001; Grant 2005). The second lesson identified later in this article shows how we, as project-leaders, are learning to make spaces for this non-

hierarchical, democratic learning relationship (Boud & Lee 2005; Johnson *et al.* 2000).

Studying the TES Project

Methodological Approach

In keeping with our aim of developing a community of collaborative scholarship, our methodological approach to studying the TES project is collaborative inquiry. We understand collaborative inquiry as a scholarly process in which co-inquirers work together to explore a research focus or question that is of common interest to them (see, for example, the work of Blair *et al.* 2011; Lapadat *et al.* 2010). Our collaborative inquiry approach is grounded in our reflexive *ubuntu* conceptual stance. For this article, our common focus of inquiry is our learning from the first year of the TES project.

Data Generation and Interpretation

As can be seen in the work of Blair *et al.* (2011) and others, collaborative inquirers work together, making use of a variety of usually qualitative methods, to generate and interpret research data. The methods that are used serve to elicit and bring into dialogue the co-scholars' varied voices, experiences and perspectives to facilitate 'polyvocality' (Blair *et al.* 2011:149).

The data sources for this article comprise 'digital log books' (Lunenberg *et al.* 2010:1282 - 1283) kept by TES participants, TES workshop evaluations, and our own personal reflections and communications. These different sources of research data have allowed us to gain diverse perspectives on the educational processes under investigation, and moreover, enhance the trustworthiness of our conclusion/s.

We drew the idea for the digital log books from Lunenberg *et al.* (2010). Our initial intention was to email TES participants, both supervisors and staff-students, six times per year, asking them to respond to a set of questions on their experience of the TES project activities. However, the slow response to our first call for digital logbook entries lead us to rethink

our strategy and we decided to only ask participants to complete one entry per year of the three year project. In the end, we received logbook entries from 10 out of 12 supervisors (including ourselves) and 14 out of 22 staff-students. We sent out the log book entry request after our first inter-institutional workshop in March 2011 and the responses we received were very helpful when planning our second workshop in July 2011.

We asked participants to complete an anonymous evaluation form at the end of each day of the inter-institutional workshops and we were more successful in collecting these responses from workshop participants than we had been with the digital logbooks. This was probably because we made time at the end of each day for participants to complete and return their evaluation forms, whereas the digital logbook entries required busy supervisors and staff-students to take time in their working days to complete them.

For this article, we are also drawing on our own personal reflections and communications as project-leaders, researchers and supervisors. These include our emails, notes from meetings and reflections we wrote and emailed to each other in preparation for conference and seminar presentations we have given on the TES project. We have been reviewing and discussing the log book entries and workshop evaluations as the project has progressed. Our analysis of the data has thus been an ongoing, collaborative and inductive process.

Ethics

In preparation for the TES project, we obtained ethical clearance from each of the three universities involved. Additionally all staff-students registered for self-study research applied for individual ethical clearance as per the regulations of the university in question. In line with the undertakings that we have made at each institution in order to obtain ethical clearance, the data represented in this article are used with the explicit consent of all involved. Indeed, the TES participants named in this article asked to be named, claimed to be honoured by our requests to quote them, took the opportunity to edit their responses and offered to write in more detail about their experiences. Importantly to us, the ethics of care and trust within friendships and community (Noddings 1995; Tillman-Healey 2003) demanded honouring the choice of each member of the TES group and the group as a whole with

regard to what is represented in this text with regard to their learnings, confidentiality and their identity.

Our reflexive *ubuntu* conceptual stance requires us to consider how we are (or are not) demonstrating an ethics of care and trust (Charles 2007, Covey 2006) in our roles as project-leaders, researchers and supervisors. We are aware that self-study research tends to be emotionally as well as intellectually challenging because, as Khau and Pithouse (2008:47) explain, it involves ‘making one’s self visible and thus vulnerable’. Hence, when one is undertaking this mode of research, and particularly when one is supervising students engaged in self-study research, there is a need to be prepared to deal with its emotional complexity in ways that are supportive and empathetic. However, ‘space and time for paying attention to the emotionality of research’ (Pithouse-Morgan *et al.* 2012:51) is often lacking. With this in mind, each of us created spaces in our universities to develop social and self-trust (Covey 2006). For example, TES participants at the University of Technology address this challenge through a voluntary, non-formal group called ‘Mentoring Practitioner Researchers’ (MPR) where, over a light lunch, participants discuss their latest challenges. Thus, we see making time and space for the emotional complexity of self-reflexive research as a key ethical requirement for our project.

Lessons Learned from the First Year of the TES Project

In this section, we draw on data generated from the first year of the TES project to identify and explain two ‘lessons’ that will guide us in going forward and that might be illuminating for others who are interested in supporting postgraduate research learning communities. We understand these lessons as a contingent and provisional set of ideas that will evolve with the project.

Lesson One: Take a Reflexive Ubuntu Approach to Funding

We have found that the development of an inter-institutional research learning community is greatly enhanced by face-to-face interaction among participants, particularly when some participants are situated in remote areas

and have difficulty in accessing technology for electronic communication. Face-to-face interaction, however, costs money. Hence, without funding, the TES project in its current form would not have been possible.

As is often the case, in our experience, the funds provided for the TES project were almost 75% less than we requested in the project proposal. However, we did not want to scale down our vision for the project and therefore, we looked for innovative ways to make our funding ‘stretch’ as far as possible. In this lesson, then, we demonstrate how our reflexive *ubuntu* stance made us open to reallocation of resources, learning from each other and enabling us to share resources easily.

Sharing Resources

The South African National Research Foundation (SA-NRF) provided the TES project with funding in two categories: Operations and Staff Development. We used the Operations budget to fund two three-day workshops for TES participants (and other interested academic staff and students). To make the workshops as inclusive as possible, we did not charge a registration fee and, therefore, we had to rely on the Operations budget. The Operations budget did not cover the cost of workshop venues at the current rates charged by the lead university as a source of third-stream income; therefore, we found a venue at a partnering institution that was free. Unpredictable events highlighted the ‘untrustworthiness’ of our current higher education institutional landscape, and emphasised the importance of the trust relationships within the TES community, when a convenient venue became inaccessible because of student unrest at this institution.

When the second workshop was moved, the catering contract was cancelled. At such short notice, self-catering was imperative. We found platters of sandwiches and snacks at a local supermarket at a fraction of the original cost. This will be the preferred catering mode in future, not only because of the reduced cost, but also because this arrangement accommodates the unpredictability of student unrest.

In summary, by sharing resources, we were able to afford two workshops for the TES participants and other interested colleagues, as well as an important project management team meeting at the end of 2011 to plan the way forward in 2012, all within a very limited Operations budget.

Self- and Social-Trust

In our original proposal, we requested funds for staff development support for a large number of staff-students employed at the partnering universities looking to improve their practice and qualifications. However, because the preferred funding practice of the SA-NRF is to provide large amounts to few students, we were allocated Staff Development grants for only three staff-students. After correspondence with the SA-NRF, we were granted a relaxation of the funding formulas, so that instead of larger amounts being paid directly by the SA-NRF to three nominated staff-students, the 2011 TES project was authorised to disburse smaller amounts to fund eight staff-students. This decision indicated that the NRF trusted the managers of the TES project to use and manage these public monies with due discrimination and discernment, and in keeping with the fiscal management requirements of the lead institution. These areas of responsibility relate directly to four core elements identified by Covey (2006:54-55) which we can use to measure trustworthiness: ‘the first two cores deal with character; the second two with competence’. In respect of fiscal management, we quickly realised that we needed, as a team, to have a common understanding of our ‘integrity, intent, capabilities and results’ (Covey 2006:54-55) in respect of the public monies allocated to us. For our integrity to be regarded as trustworthy we had to ensure that these public monies were used as proposed and agreed - that we were ‘walking our talk’. For our intent to be trustworthy, we had to ensure that our ‘our agendas, and resulting behaviour’ were ‘straightforward and based on mutual benefit’ (Covey 2006:54-55). For our capabilities to be trustworthy, we had to demonstrate that our performance inspired confidence and produced results, *viz.* ‘our getting the right things done’ (Covey 2006:54-55).

We used the TES funding to address some identifiable inequities. TES staff-students from less-well-resourced universities were able to use their funding to purchase specialist books and equipment not available at their institutions. Staff-students have also used the funding to pay for ‘teaching relief’ so that they have time to concentrate on their studies. Herman (2011) draws attention to how the demands of teaching can impede the progress of full-time academic staff who are engaged in postgraduate studies, particularly where teaching timetables are demanding. In the case of

self-study for improved professional practice, where the research is focused on the researcher's own teaching, this challenge is ameliorated, but time to focus on writing is still urgently needed.

To the credit of the TES team, TES 2011 spent 98% of the funds allocated for 2011, with all procedures in place. This success can be attributed to the trustworthiness, in Covey's (2006) terms, of dedicated, well-informed, disciplined and efficient personnel, which the TES project was, and is, fortunate to have. TES is also fortunate that the fiscal procedures of the lead institution have a track record of public trustworthiness, so that TES can be reasonably sure that auditing procedures will show that the fiscal affairs of the TES project are in order. We anticipate that TES's disciplined trustworthy fiscal behaviour will encourage the funders to extend and /or award further funding in the future.

Lesson 2: Create an Enabling, Reflexive Ubuntu Space

The financial flexibility granted us by the SA-NRF contributed to the creation of an enabling environment for us and, by extension, our supervisor and staff-student participants. We have learned that projects such as TES are enabled by a positive attitude from all, including, significantly, those who provide the administrative, bureaucratic, public relations and fiscal services.

Our aim through TES activities was to provide a welcoming learning space that allows and appreciates everyone, especially newcomers and those who have little knowledge about self-study of practice, without the often constraining disciplinary limits. Our reflexive *ubuntu* stance demands that individuals be recognised, acknowledged and allowed to be themselves in totality. At TES we are about 'seeing' and hearing the participant in terms of her/his values, identities and environment. This position appears to have borne fruit.

Ongoing Personal Development

Through regular meetings of peer researchers curiously asking questions about how one knows the things one knows and why it matters, ontological shifts occur as both supervisors and students reposition themselves (Bartlett

& Mercer 2001; Harrison 2007) in order to address their questions about their practice. This locates our projects under the TES umbrella in the ‘ongoing personal development’ discourse, which as Backhouse (2011) points out, is most likely to be aligned with the South African post-graduate student’s self-positioning as generally more mature than postgraduate students in say, the United Kingdom, Australia and the United States of America. As illustrated in the following reflection by Liz, participants find their voices and start to believe that they can be researchers:

I have observed the transforming effect of people working in a ‘safe space’ populated with a circle of trusted critical friends. I have watched confidence grow and impact not only on professional practice but also on personal and domestic lives, and even the lives of colleagues and families.

Thus, coming to be a researcher means taking on a new identity (Bartlett & Mercer 2000; Fataar 2005; Harrison 2010). Learning to think rigorously and to challenge one’s own beliefs and prejudices in a supportive group enables new researchers to reposition themselves (Harré & Van Langehove 1999) comfortably in their field, their research and their lifeworld (their contexts as described by McAlpine & Norton 2006 and Backhouse 2009 respectively). This insider-outsider perspective demonstrates the aliveness of the *ubuntu* ideal that ‘I am because we are’.

Inclusivity

TES employs multidisciplinary and innovative approaches to research and presenting research products. In this way, it is inclusive of methodologies. Within the self-study frame, multiple methods, for example, oral history, photo-voice, autoethnography, biography, are possible to answer the questions that arise as the research unfolds. Multiple methods and fields of expertise offer multiple perspectives and ways of conceptualising and undertaking research. TES participants highlight the value of being exposed to a range of innovative and creative methods and of dialoguing with people from diverse fields and specialisations:

I have found great value in meeting other people from diverse research fields at the ... meetings (and ... workshops), where personal and professional experiences, thoughts and practices are shared ... Being part of MPR facilitates me in seeing the benefits of coming together as a group. I take many of the experiences of this group into my classroom (Liza du Plessis, TES staff-student).

As a potential researcher, Self-Study has made research accessible; one does not always have to use big words to have a valuable study (Sibongile Madi, TES staff-student).

The appreciation expressed by staff-students is echoed by two supervisors – one a novice in self-study methodologies and the other a novice in supervision. Theresa's words speak to the safety of the spaces created to accommodate a diversity of students /staff:

As a potential supervisor using self-study, I see it (TES) as extremely valuable. [I'm] still learning the ropes and hoping to be able to put it to good use, soon. It seems many of our postgraduate student-staff would make faster progress with this approach than is the case at present (Theresa Chisanga, TES supervisor).

Chris finds a similar thread relating to discipline and field diversity, saying:

... I am trying to identify the aspects of self that are influencing/directing my creative practice of making jewellery and related 'art'-efacts, so that I can engage more fruitfully with my students and their creative practices (Chris de Beer, TES supervisor).

And, as project-leaders we have found that we consider the space for individuation and self-expression a necessary part of our reflexive *ubuntu* stance, and it has had powerful effects in validating non-mainstream ways of knowing:

I have learned that self-study provides spaces for people to grow in

unexpected and unanticipated ways. They surprise themselves, quite apart from anyone else (Joan Conolly).

[A challenge is] helping students to gain confidence that they know something about their life worlds and to articulate it...and to make the connection between their own knowing and what already exists in the community of scholars (Liz Harrison).

Knowing that there is a community that holds similar values and does what I do has been encouraging....Also participating in the list-serve networks as well as receiving from time-to time supporting and encouraging news and literature – has served as both a support mechanism and is of great value to me (Thenjiwe Meyiwe).

For me, the TES project is about the intrinsic joy of learning together – something which often seems to get lost in our day-to-day struggles to meet externally imposed ‘performance criteria’ and yet is fundamental to what we do as educators and researchers (Kathleen Pithouse-Morgan).

We are delighted that in working together in the TES community, staff-students are able to express their creativity and concerns whilst resisting the institutional pressures which arguably ‘norm’ research.

Joy, Excitement and Passion

As highlighted by Kathleen’s comment above, TES staff-students and supervisors report feeling stimulated by and enjoying the interaction with colleagues from their own and other institutions. The interaction brings about a sense of belonging, a longing not to disappoint and in turn an ethos of passion. Appreciating the support, a staff-student captures the ethos when she acknowledges:

It has been of such phenomenal value that without this support I do not think I will manage to complete my study (Anita Hiralaal).

There is a palpable excitement and passion among the participants. At seminars and workshops, there is always hunger to share each other's stories and recent classroom experiences, which leads to these sessions taking far longer than scheduled and expected. It becomes very hard to contain the excitement, which in turn expresses itself in the rich data found in the students' writing. It becomes necessary to point this out as, in relation to other students that are under our supervision – that is those that are not enrolled for self-study projects – getting them to adhere to regular submission schedules can be a battle. Thus, supervisors draw attention to increased self-motivation of students:

Students' excitement and passion about their work astounds me. In my 17 years of supervising students, I do not recall – not once, having such students, who are genuinely interested and eager about their studies (Thenjiwe Meyiwa).

We attribute the motivation to the fact that the staff-students themselves are a key component of their own studies. As their studies are about their work – in particular, about bringing a positive change in what they do – interest levels are high and so is the urge to succeed. Reflecting on his work responsibility and the use of the pronouns 'I' and 'my' in his writing, Nkosinathi Sotshangane, a TES staff-student, explains that it:

... shifts the focus of my research from observer to active participant but more importantly, it places the responsibility on myself to conduct research on educational practice to derive understanding and meaning of my own practice and to add new knowledge.

Going Public and Moving Forward with the TES Project

At the conference presentation that foreshadowed this article, members of the audience asked:

- What have been the interpersonal challenges experienced so far, e.g., power relations, hierarchies, inclusion/exclusion and so on?

- Did the supervisors all know each other beforehand? How did they trust each other enough to share experiences?
- What have been the unintended consequences of the project?

Our response to these questions, as with the two lessons we have identified through the process of the first year of TES, can be summarised in a particular way of being that we have endeavoured to establish within the project, in keeping with our reflexive *ubuntu* stance. We have found the TES project more than we could have hoped for in a research project. Being able to work hard at what we truly believe in has been a great joy. Observing the growing interest in the project and what it implies for professional development in Higher Education has been most encouraging. TES is contributing to the generation of critical research methodology knowledge, advancing/demonstrating new scholarship and production of postgraduate students – per the urgent demand of the Department of Higher Education and Training. In turn, staff-students are actively researching, producing publications and will consequently increase the number of supervisors of Higher Degrees – collaboratively. A delightful unintended consequence has been our collective joy and curiosity, which positions our work in stark contrast to the dispassionate, scientific activity associated with the stereotype of research.

Interestingly, sharing the TES project at internal institutional fora, such as faculty boards and departmental meetings, has been more challenging than at external fora, such as national and international conferences and seminars, where the notion has, more often than not, been enthusiastically welcomed. Meeting other self-study researchers at conferences and seminars has been encouraging and enriching. Finally, observing the growth and development in us all has been simultaneously empowering and humbling. We are aware of the dangers of over-confidence and other complexities. Whether the trust relationships described can be translated into formal post-graduate cohort support systems (a reflexive *ubuntu* academe?) remains open and is something that the project hopes to explore in the coming two years.

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Gazing Inward: Teaching in the Postgraduate Milieu

Ronicka Mudaly

Abstract

This paper focuses on a critical reflection of my practice as a woman academic who supervises the research work of postgraduate students, and who teaches collaboratively in a Masters level module in the higher education context. This epistemological vigilance is facilitated by my temporary withdrawal from teaching in order to analyse my modes of academic pedagogy and practice. Drawing on theoretical frames from feminism and cultural production theory, I use journal entries to reflexively explore my experience as a woman academic navigating the postgraduate landscape.

The findings include a description of my learning in the workplace through three primary activities, namely, individual supervision, team supervision and collaborative teaching on a postgraduate module. I consider the intersecting influences of my age, gender, experience in teaching and research, and the hierarchy of different types of work, on my academic development by charting my individual journey from the undergraduate to the postgraduate terrain. The concluding remarks describe how the formation of partnerships can be achieved by working with a cadre of fellow academics. This team of academics shared the same values and practices about teaching and resulted in creation of a more authentic gestalt, and enabled postgraduate students to develop skills related to expression and critical thinking en route to becoming organic intellectuals.

Keywords: teaching, postgraduate, gender, supervision, academic development, reflection

Introduction

Wayne Hugo (2009), Aslam Fataar (2005) and Yusuf Waghid (2005) are among the few academics who have contributed to scholarship about the lived experiences of supervisors in the South African postgraduate landscape. There is a paucity of literature about teaching in the postgraduate programmes and the supervisory experiences of South African women academics in general - and of those who are black and younger in particular. Given this limitation, I address the need for beginning and sustaining conversations about experiences of women academics. In this paper I offer a personal, reflective account of how I negotiate my identity as a novice woman academic who teaches postgraduate students in a Masters in Education module, and who supervises student research projects. I do this by examining the influences of gender on my academic development (which underpin social relations in general and those in higher education institutions in particular), and of globalisation. The 'complexity of women's academic positions' (Husu 2001: 178) compels me to explore the intersectionality of a plurality of influences which shape women's development in higher education.

Shaping the Identities of South African Women Academics: A Historical and Political View

Although more than 18 years have passed since the inception of the democratic order in South Africa, gender and racial disparities continue to plague the society. Higher education institutions have acknowledged the race-based history of the country, and have transformed by adopting admission and employment strategies to redress disadvantage. Black women academics, within the South African context, are inclusive of three racial categories, namely, women of African descent, women of coloured or mixed race descent and women of Indian descent. It is important to contextualise black women's entry into the academic workforce during the past one and a half decades. Within the South African political landscape, the transformed political dispensation resulted in the affirmative action policy, among others. This has resulted in many South African higher education institutions favouring the employment of black women academics (Soudien 2010), who

are lured by scholarships and promises of structural support (Rabe & Rugunanan 2012). The outcome of these strategies is a transformation in racial demographics of staff, but this has yet to be translated into academic development of black women which is perceived to be substantial and worthy of consideration for promotion. A study conducted by Rabe *et al.* (2012: 9-10) revealed that racism at higher education institutions was viewed as the reason for why many ‘newly arrived black academics leave historically white universities in South Africa’. Black women academics cited racism as the main reason for them being disregarded for permanent or promotion positions in academic institutions.

In South Africa, as well as globally, gender distribution of academic staff is skewed, because women are concentrated in junior echelons of academic departments. In Africa in general, and in South Africa in particular, higher education institutions are not suitable for the advancement of the careers of women academics (Rabe *et al.* 2012:5), and this resonates with Mama’s assertion that ‘Africa’s campuses remain difficult and challenging places for women at many levels ...’ (2005:100). In the study by Rabe *et al.* (2012), white women academics reported gender discrimination and their experiences can be linked to what Mama (2006:57) refers to as ‘gender-biases of malestream epistemologies, methodologies and disciplinary rubrics’. Despite efforts to modernise and liberate African universities, a marked feature of their profiles is sustained and persistent forms of inequality.

This article does not develop the story of black women’s struggle, to become truly interwoven into the fabric of the world of academia, around a discourse of victimhood. It does, however, shed light on how more favourable opportunities to participate in mainstream academic life have increased challenges associated with reconciling raced, gendered and classed identities. It draws on Du Bois conceptualisation of ‘double consciousness’ (Lyubansky & Eidelson 2005) because it forces a reflection, a gaze, on one’s professional reality through the one’s own eyes, as well as the eyes of the dominant academic group. The new academic terrain in post-apartheid South Africa has resulted in a hypervigilance of black women’s academic practices by themselves and by other groups. The Lacanian construct of the gaze ‘entails that the human being’s subjectivity is determined through a gaze which places the subject under observation, causing the subject to experience

themselves as an object which is seen' (Lee 2003:1). The formulation of the black women academic's professional identity is not simply a result of a bruised self conception; it is shaped by, among other influences, other groups' perceptions of who she is. The black women academic's concern about her subaltern status which is borne, firstly, of a socio-political history of legitimated oppression, and secondly, and paradoxically, of the implementation of affirmative action policies which are embedded with notions of 'lowering standards for black people', increases her feeling of vulnerability (Eidelson & Eidelson 2003). This results in an ever-prevalent pressure to prove her epistemic credibility.

Given this background, I begin this article with scholars' views about supervision and the potential for the process of supervision to lead to emancipatory goals. Using theories from feminism, critical education and cultural production I look at the potential for novice academics like myself to exercise agency in academic development through postgraduate teaching. Simultaneously I interrogate my own practice as I create spaces which enable transformation of my students into organic intellectuals. I offer an inside view of my academic development by drawing on my journal entries, which I compiled after each lecture in a Masters in Education module, and after each individual and joint supervision meeting. I chronicled my personal experiences, feelings and views, and reflect on these to explore my induction into postgraduate teaching. These journal entries were used to 'support reflexivity' (Pinnegar & Hamilton 2009:123).

Supervision as an Avenue of Possibilities

A supervisor of postgraduate students facilitates a student's journey from becoming a student to being a scholar. Hugo (2009:704) underscores the importance of exploring the 'affective dimensions of supervision ... and subtle energies flowing through what is a very human endeavour'. For Hugo, the supervisor engages the student in processes of consciousness raising, breaking through silences and barriers and entering a new world of possibilities in which they can extend existing or establish new research discourses. In order to achieve this, the supervisor is required, among other things, to direct the research, motivate students and serve as a sounding board and mentor (Gatfield 2005).

Theoretical Insights

My reflection takes into account these views of the role of supervisors, and draws on theoretical frames from Kathleen Weiler's critical educational theory, Chrisler's identity construction of women academics, which is embedded in feminist theory, and theories of cultural production as expounded by Antonio Gramsci and Paulo Freire.

In their introduction to Weiler's work entitled *Women Teaching for Change* (Weiler 1988: ix-xiv), Henry Giroux and Paulo Freire add that practices embedded in hegemonic ideals on the one hand, and resistance to these on the other, mutually inform each other, and that these contradictory relations can create a space for an emancipatory pedagogy. Freire stressed the link between the process of education and 'the process of becoming fully human' by asserting that 'education is humanizing when it is critical, dialogical and praxical' (Roberts 2000:1). Freire conceived of a pedagogy of hope and optimism as opposed to fatalism, where education can be used as a vehicle of struggle against discrimination such as racism and sexism. He appealed to teachers and students to become agents of their own history, through co-constructing meaning (Weiler 1988:17). Within the higher education context, a reflection on how academics as teachers create spaces for transformation of their own identities and those of their students is useful.

On academic identity, Hugo (2009:712) alludes to 'ways in which intellectual power are constituted, located and reproduced'. Although academics are historically constituted within higher education environments, this does not negate their potential for creativity. Antonio Gramsci's discourse reflects this, by moving away from theoretical approaches of reproduction of class, social and gender interactions towards the potential for 'agency and the production of meaning and class and gender identities through resistance to imposed knowledge and practices' (Weiler 1988:3). Gramsci argues that our consciousness not only comprises hegemonic ideas but also contains the capacity for self-critique and transformation, referred to as 'critical elaboration', and this is vital in the development of the 'organic intellectual' (Weiler 1988:3).

Borg, Buttigieg and Mayo (2002) give further insight into Gramsci's view of an intellectual as one who cannot truly claim to know, without the sense of understanding and feeling for people being educated within a particular socio-cultural-historical context. Gramsci argued that for abstract

and philosophical knowledge to become alive, it must be linked to lived experiences and passions of people for whom that knowledge is intended. The intellectual who mediates knowledge in this way creates the space for people to think coherently and to become 'organic intellectuals' (Borg *et al.* 2002:27). Stromquist (2005) underscores the need for academics to take the initiative and become progressive, in order to develop their students as organic intellectuals who can reverse trends which ignore the redressing of inequalities. While Gramsci and Freire focus on the potential of education to address asymmetrical relations of power, especially as this relates to class discrimination, Weiler (1988) and Chrisler (1998) seek ways of re-organising education in order to resist gender oppression as it unfolds in higher education institutions.

Men of Knowledge versus Women Scholars Teachers

Chrisler (1998:107) asks whether the woman academic identifies herself as a teacher or as a 'man of knowledge'. She draws on numerous studies which suggest that at higher education institutions women are generally the teachers while men are the scholars. Her review of women's and men's work at colleges and universities reveals that as teachers, women academics communicate existing knowledge in undergraduate modules, while mostly men academics, who serve as scholars, engage in innovating, developing new knowledge and teaching in advanced modules or postgraduate programmes. Women academics measure the success of their teaching in terms of their ability to sustain students' interest to remain in the programme; men academics measure their success in terms of research productivity and conference presentations. Men academics are perceived to possess the innate ability to skilfully present their findings and engage in academic arguments and debates. Consequently, women academics are more likely to name teaching in undergraduate modules as their primary work activity while men consider research as their principle activity; this leads to what Husu (2001:174) frames as 'women's systemic under-representation' in higher education institutions. Men are therefore more likely to be engaged in research with postgraduate students (Chrisler 1998:108-116), while women serve as what Stolte-Heiskanen (1991) calls 'handmaidens of the knowledge class'.

Chrisler's (1998:108-116) synopsis of studies about careers in higher education reveals that higher education institutions consider the work of teaching (especially of undergraduate modules) as unchallenging and not contingent upon specific skills. Research and scholarly writing, on the other hand, are perceived as work which involves the mastering of rigorous skills which are not intuitive and need to be learned. Men, as scholars, spend more time on reviewing and publishing - on doing that which promotion committees value. Women, as teachers, spend more time on counselling students, and design teaching in a way which promotes the development of students as responsible citizens. Women academics reveal a passion for teaching which enables transformation of students from passive to active personae constantly moving towards positions of empowerment.

African intellectuals, such as Dzodzi Tsikata (2007:36), reported on a study at a Ghanaian university, which found that the institutional culture was underpinned by the

perception that real academics were male, the practice of giving more challenging and higher profile jobs to men, the continuing expectation that women would play domestic, ceremonial roles at work and the subjection of those who did not conform to these norms to ridicule and disapproval.

The discourse of men of knowledge versus women teachers, is extended by Teresa Barnes (2007:8), who argues the struggle of African women in intellectual life is rooted in the association of 'men and masculinity' with 'labour of the mind', and 'women and femininity' with labour of the body.

Women academics who engage in research and publication tend to focus on interdisciplinary research areas. Gatekeepers such as editors and reviewers doubt women's scholarly credibility, because they do not focus on primary aspects of traditional disciplines (Burgess 1997; Gregory 1995). They view women as unskilled scholars who do not theorise and analyse adequately, who do not present rational arguments due to their innate emotional nature, and who locate their work in (inferior) qualitative methodological paradigms (Burgess 1997; Gregory 1995). This type of less visible discrimination sustains gender inequalities in knowledge production. This position and view of women academics is particularly significant in

South African universities, which are dominated by the global market discourse. Rowland (2002), Subotsky (2003) and Stromquist (2005) remind us of the tension between the global market discourse and the transformative distributive discourse, which are rooted in opposing ideologies: how higher education institutions are expected to support wealth generation and simultaneously engage in transformation and wealth re-distribution to meet the political goals of the democratic order.

From Secondary School Teacher to Academic

I had worked as a senior science educator in a secondary school for more than two decades and had qualified with a PhD in Education before I joined a university as an academic. During the first two years at the university my workload comprised teaching undergraduate students only, although the job description clearly indicated multiple roles which were embedded in three broad areas: teaching, research and community engagement. Several requests to teach in postgraduate programmes in my school were unsuccessful because those posts were filled by more senior and experienced colleagues. Nevertheless I was not insulated from constant pressure to publish, because publications are a significant source of income at the university. I quickly learned that gender matters, age matters, experience matters and that the type of work an academic does, matters. My lack of engagement in research work, which is generally located in the postgraduate terrain, created a barrier to my ability to publish. In South African universities the funding system favours research and the publications which arise from this over teaching. It was not long before I understood that the source of academic power and status was research, and that in this system teaching was undervalued.

Despite this knowledge of what the higher education institution values, I chose to teach a postgraduate module and to supervise students engaged in postgraduate research. This formed a part of my teaching workload, and created the opportunity for me to engage students in a transformative discourse as a way towards developing organic intellectuals.

Developing Epistemic Credibility

A review of the literature suggests that the expertise of a supervisor generally

resides in the number of publications they have achieved in a research area, the type of journals which publish these works, and knowledge of relevant literature in the field and of methodological and philosophical research paradigms. I did not have the benefit of what Fataar (2005:41) refers to as the 'aura of experience to mediate my authority relations' with staff and students, in the same way that those who fit more appropriately into that academic triad of age, gender and experience might have had. As a novice academic I was given the opportunity to engage only with teaching undergraduate modules; I had a limited number of research publications and no experience in postgraduate teaching. Given this professional reality, I worked tirelessly to develop my epistemic credibility through collaborative teaching and independent learning. This 'self-investment' was possible by my conscious decision to pay less attention to the lonely, sometimes chilly nature of academic climates (Vacarro 2007:104) and to actively seek or generate academic spaces which were supportive and inclusive.

Learning in the Workplace

Numerous workshops, research schools, conferences, colloquiums, seminars and other activities, which were intended to build the capacity of academic staff to engage in research and teaching, were organised by the institution at which I worked. Many of these activities were scheduled during the times which were allocated for teaching, and those academics with high teaching loads could not attend these programmes and benefit from these opportunities for professional development- in this way, lines of exclusion were constructed. Many meetings of committees and various boards also occurred while teaching was expected to take place, and once again, academics with high teaching loads were unable to participate in decision-making processes and contribute to the life of the institution. Although activities were organised for training and mentoring staff to serve as supervisors, they were not easily accessible by those who had teaching commitments. There was an increase in the postgraduate enrolment, and supervisors were expected to work in diverse research fields. This was probably based on what Gatfield (2005) alluded to as the assumption by higher education institutions that supervisors have an innate knowledge of supervision processes and styles in multiple research fields. I developed my

capacity as a supervisor by engaging in three activities, namely individual supervision, working as a team with more experienced supervisors, and teaching on a Masters in Education module which enabled students to develop research proposals. I read widely about conducting educational research and scholarly writing. I also read in the field in which my students' work was located. In addition, I attended workshops and research schools, when these were scheduled outside of teaching time. Initially, I paid to attend some of these activities from my salary, because I had not generated research funds from publications.

Working with Students and Academics

Collaborative Teaching on a Masters in Education Module

I accepted an invitation to lecture jointly with three other more experienced, more senior academics on a Masters in Education module which facilitated the process of development of a comprehensive research proposal. We worked collectively to assist students in developing the skills related to formulation of a research topic, developing a rationale for the study, conducting a literature review, selecting a suitable methodological approach which articulated with the philosophical paradigm and research questions, developing a realistic time frame and considering ethical issues. Several assessment tasks were designed, related to each part of the proposal development. I developed rubrics for assessment which I shared with my fellow academics. The rubrics served two purposes: firstly, they enabled me to focus on aspects which were tested for, and secondly, they facilitated some degree of standardisation among the assessors.

I benefited from this collegial arrangement, which was underpinned by reciprocal peer learning. A collaborative teaching approach was adopted; this blurred the roles of experienced and inexperienced academics. I was praised by my senior colleagues for well-planned and successfully presented topics. My sustained participation in teaching this module was due in no small part to the professional ethics exercised by each academic who taught this module, which included the academic values of autonomy, integrity and personal responsibility. I taught the module for a period of three years, and during the third year was given the opportunity to work with part of the

group of students independently of my colleagues. This signaled my peers' confidence in my ability and marked a fundamental moment in my development as a teacher in the postgraduate arena.

Commitment by experienced personnel to the development of novice academics like myself and their celebration of the small successes of novice academics, contributed to my academic development. The experienced academics served as role models of how to teach students and interact with them in and out of lectures; they exuded confidence and their preparation to teach at postgraduate level was impeccable. I used journal entries to reflect on my practice at the end of each lecture, and improved my time management and level of confidence by adopting different strategies, for example, issuing printed notes to students and referring them to relevant readings which could not be engaged with in class due to time constraints.

The students who studied this module were diverse in terms of their educational experiences, age, language proficiency, cognitive ability, motivation to complete the degree, work (from mature professionals to young M.Ed. students with little/ no teaching experience), and personal life challenges. I was careful about the effects of qualitative remarks on the emotional well-being of students. I affirmed students' ability and offered specific guidance on how they could contribute to discourse in their field of study. I was cognisant of Hyatt's (2005) insight into the negative impact of ill-conceived and insensitive remarks made by academics. For many of our students, English was not their first language. I used many conventional terms which constitute academic discourse, for example 'methodological and analytical rigour', 'plagiarism', 'critically evaluate' and 'coherent narrative', and on reflection I realise that these terms should be simplified and explained further.

Joint Supervision

I approached more experienced supervisors and requested that we supervise our students as a group on Saturday mornings. Each of us developed teaching materials which related to specific aspects of thesis development, for example, literature review, conceptual frameworks, research methodology and data analysis. After each presentation students were invited to discuss their difficulties and successes. This provided a platform for students and

academics to co-construct understanding. Seven students, each at different stages of progress towards their Masters in Education degree, formed this group. They developed the ability to offer constructive critique in a sensitive manner. They formed a resource network and sent relevant readings to individual members. These students informed one another about debates and television documentaries which were relevant to individual student's projects. They spoke about their difficulties in developing their theses and shared coping strategies related to their domestic and work lives. The students perceived this environment as a safe space where they could disclose their difficulties and seek resolutions. At the time of writing this article, three of the students in this group were awarded their degree a year after they had participated in the joint supervision programme. One of the student's thesis is currently being examined. My view is that the collaborative forms of supervision and teaching had a positive influence on the favourable pedagogical outcomes for the students.

Individual Supervision

The supervisory process, according to Fataar (2005:38), is 'framed by the interaction between the scholarly identity of the supervisor, on the one hand, and the identity of the student, on the other hand'. I reflect on my supervision of women students who completed their dissertations towards the Masters in Education degree.

One of the students had worked with another supervisor and had begun with her study several years before I was requested to work with her. I was not briefed about why the previous supervisor did not continue to work with this student. She had read literature and identified an area of paucity in the research field. Her research questions did not articulate with the philosophical and methodological paradigms. Her approach was located in the positivist mode of thought, and she had planned to solicit mainly statistical data. She sought to evaluate the implementation of an intervention programme on science students' academic scores, using quantitative research methodology. She wanted what Fataar (2005) refers to as an 'activist-driven, pragmatic intervention'. During the initial meetings I sensed her passion for teaching sciences and her search for strategies which would improve students' academic achievement. I wanted to extend the boundaries beyond

descriptive statistical data and encouraged her to explore the social, economic and political dimensions as a way towards developing ‘conceptual and explanatory depth’ (Fataar 2005:53), and in doing this I provided fertile terrain for her development towards an organic intellectual. My intellectual contribution allowed her to re-shape her study from a statistically descriptive into an explorative one which used a qualitative approach and was located in an interpretive paradigm.

Another student planned to study the effects of providing material resources on the teaching of science. Her intention was to look towards immediate, visible, tangible improvement in the teaching of science through the provision of science kits. Although I did not articulate this, I thought that if the science kits were provided to these schools, then the student would have no research project to speak of. I encouraged her to locate the teaching of school science in the fragmented apartheid landscape and to examine the effect of historically unequal provision of human and material resources on the teaching and learning of school science. She was guided to track the transforming educational policies in post-apartheid South Africa, and to analyse national and international studies on the state of science education in this country. She was encouraged to broaden her analytical lens and examine the complex challenges experienced by students and teachers which affect science education. In this way I enabled her to interact with teachers to obtain a greater depth of understanding of their teaching experiences. Her consciousness about the perception of a scientist (a white man in a lab coat who does important work in a value neutral space), and how this related to black science teachers who were subjected to multiple forms of subordination and oppression, was raised. Connecting herself with the lived experiences of these teachers enabled the student to develop towards the identity of an organic intellectual. She revised the goal of her project to include strategies to empower teachers to teach more effectively.

Gazing Inward: Supporting Postgraduate Students

I place my account of my development as a supervisor and teacher of a postgraduate module under the analytical spotlight by drawing on Gatfield’s (2005: 315-316) model of supervisory management with its three elements of structural, support and exogenous factors. Structural factors comprise

organisational, accountability and skills provision elements. Organisational processes which direct the supervisory process include elements such as roles and expectations of students and supervisors, formulating a researchable topic, scheduling meetings and setting goals. Accountability elements include contractual agreements between the student and supervisor, evaluation of chapters, time taken for feedback to students, and progress reports. Skills related to oral presentation and scholarly writing are among those which comprise the third element of the structural component, namely skills provision.

Support factors include pastoral care, which incorporates elements such as boosting students' morale, encouraging and praising students' efforts, being sensitive to their needs, building confidence and providing feedback in a way which is sensitive to students. Support factors also include material support such as provision of a working space, computers, email facilities and policy handbooks by the supervisor.

Exogenous elements are related to how the supervisor deals with the psychological needs of the student, which may relate to students' motivation, personality and maturity. This element considers variation in students' abilities as they relate to their organisational and research skills, their ability to work independently and the extent to which they are goal-driven.

Structural factors which pertained to the roles and expectations of the student and supervisor were enshrined in a contractual agreement which the university formulated. This was signed by the students and me. The processes of enabling students to formulate a researchable topic and develop a coherent proposal were shaped by my own research interests, located in youth activism and socially just science education. This influenced my students to explore the emancipatory potential of education; they did this by examining 'the intersubjective world of ordinary people' (Fataar 2005:41) in order to understand the people they were teaching and researching, and then to create spaces for making participants their own agents of transformation.

I was acutely aware of my relative inexperience as a teacher in the postgraduate module, and as a supervisor, and invested large amounts of time in reading students' work, meeting with students and providing intensive, rapid feedback. I also read widely in the field and shared readings with students to enable them to progress more effectively. For me this process was simultaneously time-intensive, exhilarating and exhausting.

My provision of what Gatfield (2005) refers to as support factors impacted positively on all our students. For several students, women in particular, our meetings served as an opportunity for them to speak about constraints they experienced at work and in their homes. Although I did not overtly encourage these discussions, students from the three groups (those with whom I engaged in the Masters module, joint supervision and individual supervision) seemed to need someone with whom they could share what they considered to be barriers to their progress. I listened to their challenges, which were related to time constraints due to their domestic and professional responsibilities, childcare duties, high workloads in their homes, at their places of worship and in their schools, being coerced into teaching new subjects and having to train in these fields, and their health and that of their families. Some women brought their children to our individual supervision meetings because they did not have the privilege of being able to engage the services of child minders.

My response to some of these challenges was to find a way to get students to work on the campus during weekends. I booked venues for them to work in at the university without interruption and arranged with the library staff to assist them in their search for resources. I was pleasantly surprised by the large number of students who used these opportunities to advance the writing of their theses.

Students varied in terms of their personalities and the ability to work independently (exogenous factors). I perceived most students as being over-reliant on academics. This was probably due to my own experience as a postgraduate student, who did not enjoy the benefit of studying modules about writing a proposal or thesis. In order to enable these students I enlisted the support of the librarians to assist them in locating specific literature which I viewed as useful in the development of their research discourse. I sought to enable students to increase their independence as researchers by inviting them to numerous research workshops, which were held by national and international experts and were funded by the university. Some students did not submit their work timeously, and others arrived late for lectures, workshops or meetings. Initially, I viewed this as tardiness on their part, but through sustained interaction, I reflected on their multiple commitments outside of their work towards their qualification and I responded more sympathetically.

I regret that I cannot claim to have stood on the shoulders of specific academic foremothers in order to work in the postgraduate field. This is not because women have constructed themselves as victims of a gendered division of labour or fallen into the metaphorical black hole of academic hierarchies; it is more likely because few women academics located in the southern global context have shared conversations about their learning journeys. My workplace learning was not formally structured; it was non-sequential and non-linear. It occurred because I refused to accept my novice status as an academic, the colour of my skin, my relatively younger age and my gender, as a liability. Through reflexive explorations of my practice, I was able to take control of my professional development and that of my students, by investing in my learning.

Conclusion

There is an absence of formalised barriers which are embedded in overtly discriminatory laws in South African higher education institutions. However, less visible forms of discrimination related to age, experience and gender persist and render women subaltern academics. Mentoring and professional development programmes are planned and implemented, but often, these coincide with teaching activities and as a result, are inaccessible to those academics who are mainly women and who have high teaching loads. Universities can create opportunities for real transformation by examining the micropolitics of institutional culture which enable and disable particular groups. I have sought to give an account of my own construction of my work as a woman supervisor and teacher of postgraduate students in the South African context. My view is that central to the discourse of enabling academic development are the vowels which represent the following elements embedded in interaction: A for autonomy, E for encouragement, I for induction, O for opportunity, and U for understanding. The novice woman academic should be granted or should generate the opportunity to work in the postgraduate field as an autonomous agent who has strengths and can benefit postgraduate students, instead of applying institutional constraints to limit her work to teaching in undergraduate modules. An understanding of the novice woman academic by experienced peers can facilitate her induction and sustained participation in postgraduate teaching. Mutual respect and encouragement of the novice woman academic are vital

in enabling her to re-invent a positive professional identity. Women academics who move beyond the depressing discourse of oppression, which emphasises their isolation, exclusion, and positioning as outsiders, towards one of agency, which provides insight into their resistance and transformation, can enable them to empower their students.

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Conceptual Approaches to Doctoral Education: A Community of Practice¹

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Abstract

A paradigm shift has silently evolved in doctoral education. Preparing the next generation of PhDs to function successfully and contribute to today and tomorrow's global world requires to go beyond the conceptualization of an apprenticeship model to that of a communities of practice including the recognition of peers as learning partners. It also requires coordinated efforts of many levels inside and outside a university. More is asked from the next generation of researchers: traditional academic research competencies, professional skills, and intercultural competencies. Learning at the doctoral level needs to be purposefully structured to allow for transformative doctoral education.

Keywords: Globalization, knowledge economy, doctoral education, PhD research pedagogy, learning communities, peer learning partners

1. Introduction

Traditional concepts of doctoral education view the learning process of becoming a researcher as that of an apprenticeship, where doctoral students learn from one master, their supervisor (Shulman 2004; Kwiram 2006). A closer look at current practices at doctoral education (Nerad & Heggelund 2007) and new empirical research (Flores 2011; and Flores & Nerad 2012) indicates that a sole apprenticeship learning concept is too narrow to acquire the competencies needed for becoming an independent researcher in the 21

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century. A paradigm shift has occurred and is happening at a number of doctoral programs around the world; a shift away from a sole one-to-one top-down master to apprentice learning approach to a structured doctoral learning process within series of learning communities that operate at multiple levels inside and outside a university. Fellow doctoral students -- the peers -- play particular important roles in this process which is often referred to research pedagogy (Boud & Lee 2005; Flores & Nerad 2012). Future researchers need to conduct research in an ethical, responsible way that crosses disciplinary, national, and cultural boundaries as they strive to solve societal problems or undertake basic research with yet unknown applications.

Why do we need to expand our conceptual thinking of how we prepare our doctoral students?

In our times of globalization and intensive national foci on innovation, governments, research funding agencies, and science councils expect that the next generation of doctorates become innovators and intellectual risk takers. Researchers for the 21century are expected to acquire:

- not only the traditional academic research competencies of successfully undertaking research and publishing it,
- but in addition, acquire professional competencies that assure effective dissemination and appropriate application of their research findings in various settings inside and outside the universities; and
- acquire cultural competencies that allow them to work with, and function in, multi-national teams and settings.

Accepting the economic and societal changes in the labor market of highly trained professionals, I argue it takes a global village – to paraphrase the Nigerian proverb, ‘it takes a village to educate a child’ – to develop tomorrow’s doctorates. It takes the coordinated efforts of many levels of a university, and the international professional learning communities to effectively prepare the next generation of researchers. In this expanded approach of research learning we have come to understand that effective research pedagogies are those that *purposefully structure* with maximum flexibility the learning of true discovery.

What have globalization and national innovation policies to do with doctoral education? How does such research learning look like?

2. Globalization Context

In our efforts to prepare the next generation of doctorates we need to accept that we live in the context of globalization and globalization effects universities and the preparation of researchers (Altbach 2009).

In the global economy today, knowledge is viewed as a critical resource for nations. Economic theories of the knowledge economy are embraced by governments worldwide. These theories argue that knowledge is crucial to national economic growth and increased prosperity. Theories of the ‘knowledge economy’ locate the cause of economic growth as novel ideas leading to scientific, technical, organizational, environmental or health innovations (Slaughter & Rhoades 2004). Innovations and technical changes are seen as the principal means of economic growth and sustaining international competitiveness. As the knowledge economy theory has spread around the world, national governments in many places have turned to master’s programs, doctoral education, and postdoctoral preparation as a way of educating scientific and technical innovators. Postgraduate education and academic research are now global endeavours and not only nations, but also supranational organizations such as the United Nations (UNESCO) (Meek, Teichler, Kearney 2009), the European Union (EU) (Kehm, Huisman, Stensaker 2009), or World Bank (Bourguignon, Elkanan, Pleskovic 2007) are developing policies to enhance the contribution of doctoral education to national and regional economic growth.

Within the context of hope for economic growth and national capacity building, governments are allocating substantial funds to increase the research and development capacities of their countries. The education of high quality researchers who are able to bring innovative changes to their workplaces, be these in business, government, academe or non-profit sectors, is increasingly considered part of research and development activities and included in national innovation policies. It is believed, and empirical evidence now suggests, that not only the supply of highly skilled people, but also how widely academic knowledge is disseminated has an influence on the economic and social development of a nation (Dill & van Vught 2010). Or, put differently, new knowledge must be effectively disseminated and absorbed if innovations and economic growth are to proceed from it.

With regard to this approach, the number of researchers has to increase and the type of education they receive has to be rethought.

2.1 Effects of Globalization on Doctoral Education and Postdoctoral Training

Globalization has an effect on doctoral education worldwide. We can observe worldwide:

- 1) An increase in PhD production. More women, more international doctoral students, more part-time, more older doctoral candidates are pursuing doctoral degree. The effects on doctoral education are that universities have to educate a more diverse group of researchers.
- 2) Given the new innovation policies, increasingly education and research training is organized with a problem solving approach, using multi-disciplinary teams, and including participants from various sectors of society. This brings into doctoral education a form of knowledge production that has become known as ‘Mode 2’ in contrast to ‘Mode 1’, the traditional way of learning from one master scholar within one discipline (Gibbons *et al.* 1994). In Mode 2, research not only operates around application in a trans-disciplinary mode, but the process also involves multiple actors: universities, industry, business, and governments (think of the many research triangles – Silicon Valley and Stanford University, and the Food Valley around the University of Wageningen in the Netherlands which focuses on food and health living). Knowledge production is becoming more socially accountable and, as a consequence, an emphasis on translational research has emerged (Feldman 2008; Woolf 2008). This means that the research process does not stop at basic research findings but translates the basic findings into applications that respond to societal or business needs.
- 3) Consequently, new research doctorates are expected to not only know how to do the research, but be competent writers, speakers, managers, and team members who can communicate research goals and results effectively inside and outside the university. These competences are called professional or transferable skills in North America, and generic skills in the United Kingdom and Australia. I

call them ‘translational skills’, as these skills are not only transferable from academic to non-academic settings, but are also necessary to translate research findings into societal applications. The effects on research education are that the preparation of doctorate candidates and postdocs (Early Career Researchers-ECR) need to include many more competencies beyond the traditional academic ones (Harman 2008; Manathunga 2009; Nerad 2004).

- 4) We see worldwide an increase in standardization of doctoral education. Many universities offer more structured programs, with clear, selective admission criteria, transparent benchmarks of exams, a panel of advisors to name a few (Nerad & Heggelund 2008). The standardization of these trends allow a greater mobility during and after education of researchers.
- 5) Another effect of more investment into higher education by governments and private funders is a greater accountability. This means the new researchers need to have good project management skills including managing people and budgets to be able to demonstrate effective use of funds.
- 6) Spurred by technological innovation, communication across vast spaces is easier, faster, and more widespread. As a result, scholarly networks are flourishing and are actively supported by governmental agencies (Research Councils), and international agencies such as UNESCO, World Bank, EU. Researchers need to learn to collaborate in international teams.
- 7) Higher education is responding to market forces faster than before. This creates more competitive pressure on the research enterprise (Nerad 2010).
- 8) Higher education has become commercial and generates revenue. The degree has become a commodity that has value beyond pure knowledge production. This means there is a worldwide competition for doctoral students as a source of revenue (for those states that allow collection of fees).

National governments have responded to globalization. They established research training schemes, invited industrial representation on national PhD evaluations efforts, established doctoral sandwich programs that exchange both doctoral candidates and professors, and established major national grants that foster innovation, interdisciplinarity, and theme-orientation in doctoral programs.

Governments also cite the number of their national universities that are among the top 100 or 200 world class universities of the Shanghai Jiang Tong University ranking, or of the London Times, Educational supplement ranking (Salmi 2009), as they hope to attract investment into new industries developed from research findings. Hopes of new Silicon Valleys that benefit from the connection to major research universities are envisioned. This means governments speculate that a world-class research university will transfer knowledge to local organizations and particularly to industries.

2.2 Particular Challenges for Doctoral Education

Do these developments cause challenges for doctoral education? Of course. The fact that English has become the current lingua franca of scholarship, and many scholarly journals are in English, brings challenges. Because universities want and need to prepare their domestic students for participation in the international scholarly community and they want to attract international students, they offer doctoral education in English. This, on the other hand, further distances science and research from the local populations.

Attracting international students means brain drain for some countries, for others it is brain gain. Viewed in a longer term perspective this phenomenon is talked about as brain circulation, as former international students return to their home countries perhaps a decade later, and invest in their and, particularly when the economic situations of their countries improved, or their can build valuable scientific collaborations.

3. More is Asked from the Next Generation

We have seen that more competencies are asked from the next generation of researchers.

Can we find agreement on what these competencies are?

3.1 Common Definition

A group of experts from the network of the *Forces and Forms of Change in Doctoral Education Worldwide* organized and coordinated by CIRGE, the Center of Innovation and Research in Graduate Education I founded and direct ([www. Cirge.washington.edu](http://www.Cirge.washington.edu)), investigated this and found agreement on three points (Bernstein *et al.* n.d.):

- a research doctorate must contribute to knowledge through original research;
- a research doctorate must have a substantial knowledge in their area of study;
- and research doctorate training should include the development of transferable and translational competencies.

Or said differently, a PhD must have:

1) *Traditional research skills.* These skills include in-depth knowledge of one field, knowing how to develop conceptual frameworks and research design, knowing of and applying appropriate research methods, and writing and publishing one's findings. They also include of course critical thinking, analyzing, and synthesizing skills.

This also includes learning to conduct research with integrity in an ethical manner.

2) *Professional competencies.* As explained, the new generation of researchers need professional competencies. They need to be able to communicate complex research findings to diverse audiences, work in multi-, trans- or interdisciplinary teams, write grants, apply knowledge in commercially viable, socially responsible ways, manage people and budgets and take on leadership roles in complex organizations (Bartelse & Huisman 2008; Nerad 2008a; Bernstein *et al.* n.d.).

3) *Cultural competencies working in multi-national settings.* And the preparation of the next generation of PhDs needs to include multi-cultural competencies in order to be able to work collaboratively in international teams on solving societal problems in multi-national settings.

4. Conceptual Approaches to the Development of Doctoral Students

How do we turn doctoral candidates into independent researchers who possess these three sets of competencies? This means we need to link the research competencies with the learning approaches in doctoral education.

a) Apprenticeship Model – A One-to-one Approach

The oldest and most widely accepted approach is the apprenticeship model, called the ‘signature pedagogy’ of doctoral education, in a recent Carnegie study. (Walker *et al.* 2008). Under the apprenticeship model, teaching and learning takes place in a one-to-one apprenticeship between doctoral candidate and professor. The master passes on this knowledge to the apprentice. But is the master always around and the best person who knows how to pass on all the additional competencies?

b) Professional Socialization

Another conceptual learning model is a developmental model of professional socialization. The PhD candidate moves in stages from a knowledge consumer to a knowledge producer, from novice to junior colleague (Bieber & Worley 2006). Professional socialization is the process through which one learns and adopts the values, skills, attitudes, norms, culture and knowledge of one’s disciplines (Merton 1957; Van Maanen 1976; Tierney 1996; Tinto 1997; Weidman & Stein 2003). The professional socialization concept is criticized as being a top down, rigid approach where the doctoral candidate is seen as an open vessel where information is poured in, regardless who the candidates are and regardless of what she or he brings to the process (see also Flores 2011). This model also ignores the larger environmental context in which doctoral education takes place.

c) Community of Practice – Widens the Perspective

In the late 1980’s scholars like Resnick (1987) and Lave and Wenger(1988) challenged the assumption that learning is an individualized process, independent of context. They proposed a theory of situated learning which viewed learning as a function of the

activity, context, and culture in which it is situated (Lave 1988). They found that newcomers became part of a ‘community of practice’ by gradually acquiring knowledge and skills from experts by participating in everyday activities. The new participants would move from the periphery to the center of the community as evidenced by them taking on more complex tasks and assuming greater responsibility for outcomes.

d) **Mentoring - the panacea for everything?**

At least in the US, UK, and Australia mentoring by professors of their doctoral candidates seems to have become the panacea/remedy for all ills in doctoral education. If professors would just better mentor, all problems would be gone. This is an individualistic approach and puts the entire burden of the education and preparation on the shoulders of one person.

It is great when all professors become better mentors, but we cannot afford to rely solely on this approach in today’s world with multiple demands on professors.

Therefore the doctoral education needs to broaden its approach.

e) **‘It takes a global village’ to develop the next generation of researchers in our universities, using the Nigerian proverb – ‘it takes a village to educate a child’.** It takes the coordinated efforts of many levels of a university, national and international funding agency within several leaning communities to effectively prepare the next generation of researchers.

Global Village Approach

Combining the three sets of skills described above that are needed by tomorrow’s researchers with conceptual learning models that include the entire learning context and the various learning communities at play, will assure that the new doctorate researchers are effectively trained for tomorrow’s tasks. The ‘Global Village Approach’, spans five levels of learning communities operating with different learning model and different learning environments:

- 1) At the grass-root level, the professor passes on to the PhD candidate via the *apprenticeship approach* the traditional academic research skills. This is done in seminars, or in weekly lab meeting, during advising hours.
- 2) At the department level, in an institute, and laboratory in a *community of practice approach* disciplinary professional competencies are taught through programs and professional development workshops, as well as social community building activities. In this way, the novice researcher can become a junior colleague.
- 3) In formal and informal activities fellow students come together and not only provide emotional support and pass on advice for each other's studies, but also provide specific content knowledge. Peers are learning partners in cohort-based models. This means institutions or academic programs are organized around a group of students who enter a program at the same time, get to know each other, and move together through a similar path. For example, students in a cohort learn from each other's different expertise, study new subjects, and form study groups outside of the official program (Flores & Nerad 2012). Sharing common workspace among doctoral students at the university allows for many forms of informal peer learning, where students exchange information about existing resources, prepare together for exams, and assist each other in the development and pursuit of their research. This peer-to-peer learning is distinct from faculty to student learning. It operates in a *horizontal learning approach* and is based on reciprocity. When interacting, students are like colleagues who learn from each other which Flores and Nerad conceptualizes as a *learning partnership approach* (2012).
- 4) At the fourth level, at the central graduate school (US model) professional competencies and multi-cultural awareness are passed on in several learning communities. Included are:
 - Career development (career center);
 - Learning of teaching;

- Professional skills workshops;
 - Intercultural awareness training before Early Career Researchers leave their home country and for international scholars when they arrive at their host country; and
 - Creating and fostering postdoctoral networks.
- 5) And lastly the global village approach requires a coordinated effort beyond the university. At national and international academic meetings, doctoral students receive professional socialization and acquire more disciplinary academic values and traditions. Participating at international conferences and interacting with researchers from other countries and cultures in international collaborations or joined degree programs, they acquire multi-cultural competencies.

Are there examples of doctoral education where it is purposefully organized in multiple learning communities applying a variety of learning approaches?

5. Examples of the ‘Global Village Approach’ in Action

Governments in the US, in Germany, in Australia, the Netherlands, and the European Union in the Madame Curie program, the ITN (Initial Training Network) have sponsored multi-year grant programs that ask for innovative, interdisciplinary, *theme-oriented doctoral programs* that have to purposefully structure the doctoral research learning process to take place within a multitude of learning communities applying a variety of learning approaches.

In the US these programs are called ‘Integrated Graduate Education Research Training’ (IGERT) program or with even more international emphasis, the PIRE program (Partnership for International Research and Education Program) and are funded by the National Science Foundation or equivalent programs of the National Institute of Health. In Germany such grant programs, are called *Graduiertenkollegs* and are funded by the German Research Council. Since 2005 within the German Excellence Initiative, the idea of an umbrella Graduate School are specially advanced and funded. In Australia, these governmental initiatives are called ‘Collaborative Research

Centers' (CRC) (Nerad 2010; Harman 2008; Manathunga & Pitt 2009; Kehm 2008). The programs must provide access for doctoral students to network with professionals in their field who work outside academia. Further, these programs must assure that doctoral candidates acquire the necessary professional skills such as working and communicating in interdisciplinary teams, learn team teaching, grant writing and grant management. Further in order to get funded, these programs must place an emphasis on the learning environment and on building a learning community. Increasingly these programs include international collaboration with peers from other countries who are working on the same topic.

6. Conclusion

Researchers today must cross disciplinary, national, institutional, and cultural boundaries. Doctoral education must take place in multiple environments within a number of learning communities. Such expanded doctoral education is structured so that doctoral students become a part of a community of practice that includes the traditional supervisor professor/student apprenticeship approach, departmental professional socialization activities, formal and informal peer learning partnerships, skills workshops in central (post)Graduate Schools, and learning in national and international conferences and multi-cultural international learning communities. In a community of practice approach, or 'global village approach', the next generation of doctorate students will more readily acquire academic, professional and multi-cultural competencies and succeed in taking on intellectual challenging research that may lead to societal transformation (Nerad & Rudd 2009). We need to accept that it takes more than the one professor or mentor, but a global village to develop the next generation of competent researchers.

PhD programs that prepare students only for research and writing as lonely scholars in purely disciplinary context are providing inadequate preparation for many research careers (Nerad *et al.* 2008).

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‘The air is hostile...’: Learning from an African International Postgraduate Student’s Stories of Fear and Isolation within a South African University Campus

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Abstract

In this article, we – a research team of academic staff and postgraduate students – take a narrative inquiry stance to explore what we can learn from one African international postgraduate student’s stories of experience on a South African university campus. We use the medium of narrative vignettes – brief evocative scenes or accounts – to re-present data generated through unstructured interviews and collage-making.

Framed through a multiperspectival theoretical lens, the vignettes reveal how the student’s everyday life on campus is constrained by fear of xenophobic harassment and violence. We argue that the setting or backdrop for his learning can therefore be understood as pedagogically unsound, even when effective teaching and learning activities might be seen to be taking place in designated spaces. To conclude, we consider possibilities for cultivating pedagogic settings that are beneficial and safe for all those who learn, teach and live within them.

Keywords: narrative inquiry; vignettes; pedagogic settings; university campuses; African international students; xenophobia; multiperspectival theoretical lens

Preface: ‘You are going to a grave’

In this opening vignette, Jack – a postgraduate student from an African country outside of South Africa – recalls how his arrival at a South African university was preceded by the highly publicised attacks in May 2008 on people perceived as ‘foreigners’:

I knew what I was getting myself into when I opted to study in South Africa. Before I came here I had an idea of what I was going to see. A few months prior to my coming, xenophobia started and the news of xenophobia was everywhere, even in my country we knew about it also. We saw how people were killed and property was destroyed. So, when I decided to come here, people were asking, ‘Why are you going to a place where people are dying? You are going to a grave’. But I still decided to come. I had already prepared my mind. I knew what I was getting into. I prepared myself like a soldier going to a warfront that is conscious of the power of the enemy. I was coming to face the enemy that I already knew about. I knew that in South Africa I must be very careful with the people, and must talk to them in a nice way. I knew that they didn’t like me.

Introduction

Despite the South African Constitution’s (Act 108 of 1996) commitment to ‘heal the divisions of the past and establish a society based on democratic values, social justice and fundamental human rights’ (Republic of South Africa 1996:1), the internationally acclaimed reconciliation of the post-Apartheid era has been marred by discrimination and aggression against people seen as ‘foreigners’, predominantly black migrants from other parts of Africa (Hadland 2008; Landau *et al.* 2005; Neocosmas 2006). This became particularly evident in May 2008, when violence against ‘foreigners’ – mainly black African migrants – broke out across the country, resulting in more than 60 people being killed and tens of thousands being chased away from their homes and losing their livelihoods (Hadland 2008). The human suffering brought by this widespread violence and intimidation was personified by Ernesto Alfabeto Nhamuave, a 35-year-old Mozambican

migrant worker who was burned alive by a crowd of people in Ramaphosa township on the East Rand. ‘The horrifying photographs of “the burning man” as he became known, were splashed across newspapers around the world, bringing home the barbaric nature of the violence against foreigners’ (Underhill & Khumalo July 2010 online). These are the shocking images that Jack and his friends and family are likely to have seen prior to his arrival in South Africa. And these images would almost certainly have been in his mind as he set about negotiating his way in a new university environment.

These recent events portray South Africa as a hostile and hazardous place for African migrant workers. But, what of African international students? In the wake of the May 2008 violence, one might expect the universities that recruit such students to be highly aware of the fear and anxiety that is likely to accompany them on their journey to South Africa and to be making every effort to ensure that they will experience university campuses as ‘safe havens’ within which to live and study.

According to student enrolment records, our university boasts a strong representation of African international students, registered for a range of postgraduate programmes across different faculties and campuses. While these figures reflect to some extent institutional strategic goals and our status as both an international university and a university that espouses African scholarship, we – a research team of academic staff and postgraduate students – are asking questions as to what lies beyond the statistics to better understand the phenomenon of internationalisation as it is lived and experienced by African international postgraduate students currently in South Africa. The discussion in this article emerges from one of our guiding research questions: ‘What can we learn from African international students’ experiences at our university?’ In the article, we take a narrative inquiry stance to explore what we can learn from the ‘stories of experience’ (Connelly & Clandinin 1990:2) of one student, Jack¹, as related to us through a process of unstructured interviews and collage-making.

In what follows, we begin by highlighting some significant features of the narrative inquiry methodological approach that informs this article. We then give details of our research process. Next, we turn to our data, using

¹ As Jack asked that his nationality not be revealed, we have deliberately given him a pseudonym that is not a common name in his country.

the medium of narrative vignettes – brief, evocative scenes or accounts (Caulley 2008; Humphreys 2005; Kirk 2005) – to ‘[recast the] data into a storied form’ (Coulter & Smith 2009:577). We intersperse these vignettes – which invite the readers to ‘see and hear through the sensibilities and emotions of a focalised character’ (Coulter & Smith 2009:579) – with interpretive discussion, in which we explain how we have drawn on relevant literature to enhance our understanding of Jack’s stories. Next, we consider what we can learn from the vignettes about a university campus as a pedagogic setting. To end, we consider possibilities for fostering a pedagogic setting where stories such as Jack’s will be hard to find.

Although, as a research team, we are located within the broad field of Education, we teach and research within the diverse disciplinary specialisations of Teacher Development Studies, Social Justice Education and Education Leadership, Management and Policy Studies. Consequently, we come from different theoretical locations and, in this article, we are drawing together a variety of ways of thinking to ‘gain the unique insight of multiple perspectives’ (Kincheloe 2001:687) in our endeavour to learn from Jack’s stories of experience.

The Significance of Characters, Storylines and Settings in this Narrative Research Text

To explore Jack’s stories of experience, we have drawn on narrative approaches to researching human experience (see, among others, Barone 2008, 2009; Clandinin 2006; Clandinin & Connelly 1994, 2000; Coulter & Smith 2009). We understand that considering these stories through a narrative inquiry lens requires us to pay close attention to their narrative features or literary elements, such as *characters*, *storylines* and *settings* (Barone 2008, 2009; Clandinin & Connelly 2000; Coulter & Smith 2009). Thus, we position Jack as the *central character* or *protagonist* in this article or ‘narrative research text’ (Clandinin & Connelly 1994:1318). We have deliberately chosen to include only one ‘focalised character’ (Coulter & Smith 2009:579) in this research text in order to take a close-up look at ‘the subjective experience of [this central character] as [he interprets] the events and conditions of [his] everyday [life]’ within a university campus (Coulter

& Smith 2009:578, citing Miller). Our decision follows a precedent set by a number of studies within the narrative inquiry research genre that focus on only one central character or research participant (see, for instance, Beattie 1995; Ciuffetelli Parker 2006; Phillion 2002). In these studies, the aim is not to ascertain the *number* of participants that have had similar or different experiences, but rather to re-present and make meaning from the texture, depth, and complexity of one participant's stories of lived experience.

The *storylines* that are re-presented in this research text are based on Jack's own words, but are re-constructed into narrative vignettes that portray Jack's stories of experience through brief, evocative scenes and accounts (Caulley 2008; Humphreys 2005; Kirk 2005). We have chosen to use the first person voice for the vignettes because, as Coulter and Smith explain, 'in general, a first-person construction lends closeness to the telling: The reader sees the story through the perspective of the character as narrator' (2009:580). We are aware that the form in which we have chosen to re-present Jack's stories both facilitates and influences the meanings that might be made from these stories (Eisner 1997). We are also conscious that because re-presenting data involves making decisions about what to leave out and what to include, the re-presentation that we offer through the vignettes is partial and could have been constructed in other ways (Caulley 2008; Eisner 1997). The use of a narrative device such as vignette to represent data falls within in the genre of 'alternative forms' of data re-presentation 'whose limits differ from those imposed by propositional discourse and number' (Eisner, 1997:5). This work is 'alternative' in contrast to more 'traditional qualitative research reports, [in which] facts are piled on facts, interview quotes are stacked on interview quotes' (Caulley 2008:429). Researchers who use alternative methods of data re-presentation acknowledge the value of facts and interview quotes, but see these as raw material for constructing evocative re-presentations that 'deploy literary devices to recreate lived experience and evoke emotional responses' (Richardson 2000:11).

It is important for us to stress that, while the storylines presented in this article are based on Jack's individual perspectives on and interpretations of aspects of his lived experience on a university campus, this research text is '*not primarily*' about Jack or even about our university (Barone 2009:594). We are interested in exploring how the evocative medium of vignettes might move us and our readers to seek new perspectives on and insights into a

disturbing issue that we might perhaps otherwise rather avoid thinking about (Barone 2008; van Manen 1990). However, Barone (2009:596) cautions that we might find that ‘the best [we] can do is to lure *some* readers on *some* occasions into vicariously witnessing’ Jack’s stories of experience. Nevertheless, he maintains that ‘if the reading experience is sufficiently powerful, it may at least raise “embarrassing questions” (Said 1994) ... , or promote ponderings on what causes the suffering and conversations about how best to alleviate it’ (2009:596). And it is such ponderings and conversations that we seek to evoke through this article.

For the purposes of this narrative research text, our understanding of *setting* is drawn from conceptions of setting as a literary or narrative element (Coulter & Smith 2009). From this perspective, a setting forms the backdrop or surrounding conditions for stories of experience, but it also has considerable bearing on those stories (Clandinin 2006). Thus, in this research, we conceptualise a university campus as the backdrop against or environment within which Jack’s stories of experiences occur. Significantly, viewed through a narrative inquiry lens, a university campus as a setting is not merely a backdrop for a student’s lived experience – it is an intrinsic and influential part of that experience. The vignettes that follow in this article are located outside of designated classrooms or study areas. Nevertheless, in our discussion of what we can learn from these vignettes, we consider their pedagogic significance. This is because, in this article, we view pedagogy not as ‘the science of teaching’ or as a particular approach to teaching and learning, but rather as experiential, formative, and relational learning and teaching processes that can be both formal and informal and that can take place within or outside of official teaching times and teaching venues. We make theoretical connections to humanist and phenomenological perspectives that place the focus of pedagogy directly on people (or characters) and on lived experience (or storylines), emphasising the fundamental significance of human lives, interaction, and relationships in learning and teaching (Allender 2004; van Manen 1990). This ‘multiperspectival’ (Kincheloe 2001:682) view of pedagogy allows us to see a university campus as a setting or backdrop that situates, influences and is influenced by the characters and storylines involved in learning and teaching processes. Hence, we see a university campus as a *pedagogic setting* and we consider what we can learn about such a pedagogic setting from Jack’s stories of experience.

Our Research Process

Jack is one of four postgraduate African international students who have contributed thus far to our research project through participating in a process of unstructured interviews and collage-making. Through this process, we aimed to draw forth the student participants' 'lived stories as data sources' (Connelly & Clandinin 1990:6). Three interviews were conducted with each participant. The first two interviews were of about an hour's duration and the third interview lasted longer because during this interview a collage was compiled. All interviews were conducted on the university campus. The interviews took over a month to complete, because the student participants, who were also working and studying on the campus, had to fit them into their busy schedules.

The unstructured interviews allowed for the generation of rich and vivid data (Gilham 2010). The interviews granted us the space to get 'into the heads' of our student participants to draw out their interpretations of their lived experiences (Cohen *et al.* 2011). Furthermore, unstructured interviews allowed for probing (Brenner 2006; Marshall & Rossman 2006). Probing affords a researcher the opportunity to acquire information that the participants might not have been consciously aware of, and allows deeply concealed beliefs and ideas to emerge (Marshall & Rossman 2006). The following kinds of probes were used in the interviews: *Can you please elaborate. How did this happen? How do you feel about...? Why do you think...? Can you tell me more?* The probing generated supplementary data on the personal experiences and histories of the participants and significant encounters in their lives.

The interviews were accompanied by the use of collage-making (see Butler-Kisber 2008), which was a more participatory approach to eliciting the lived stories of the students. The student participants created collages consisting of pictures and words that connected people and events that they identified as significant to their experiences as international postgraduate students at our university.

Importantly, to enhance the trustworthiness and ethical responsibility of the research process, the participants were asked to verify the accuracy of data that had been generated. In addition, as is common practice in narrative inquiry, they were also involved in the analysis of the data, as significant narrative tensions and patterns emerging from the data were identified and

discussed with each participant (Clandinin & Connelly 2000). Thus, the data analysis was a participatory and inductive process of '[searching] for emerging patterns, associations, concepts and explanations in [the] data' (Nieuwenhuis 2010:107).

It is important to note that the process of the interviews and collage-making was facilitated by members of our research project team who are themselves postgraduate students. Our collective thinking was that the participants might feel more comfortable sharing their stories with fellow students rather than academic staff members. The student researchers did indeed seem to establish a good rapport with the student participants. Significantly, the student researchers' experiences of the interviews and collage-making brought to the fore the emotional dimensions of researching lived experience, as explained by one of our student researchers:

...compiling the collage was a moving exercise as there were times when...the participants became emotional as they compiled the collage with pictures and words that recalled their past and present experiences. As a researcher using collage as a tool for the first time, I realised that no amount of reading on this method can prepare you for reality. When confronted with the participant's emotional breakdown, I was lost for words. The best I could do was to be understanding and respectful to the participants. However, I also realised that the participants just needed an opportunity to release their pent up emotions, and needed a body that would listen to their stories.

Literature on the emotional aspects of researching lived experience (see, for example, Mitchell & Irvine 2008; Pithouse-Morgan *et al.* 2012; Rager 2005a, 2005b) reminds us that it is vital to pay close attention to the emotional impact of the research process, both on the participants and on the researchers. Pithouse-Morgan *et al.* especially 'advise novice researchers and their supervisors to make space and time for paying attention to the emotionality of research, particularly when studying emotionally laden topics' (2012:51). Thus, as this project continues, we plan to seek guidance from an experienced counsellor to ensure that, when working with participants, we will all feel equipped to respond supportively to emotional

issues that might arise, as well as to know when and how to recommend that participants access counselling and support services or to make use of such services ourselves.

Jack's Stories of Experience: 'You can feel the dislike The air ... is hostile'

As sociologist, C. Wright Mills (1959:226) reminds us, 'the human meaning of public issues must be revealed by relating them to personal troubles and to the problems of the individual life'. For us, the three vignettes that follow help us to make 'human meaning' of a university campus as a *pedagogic setting*. As explained earlier on in this article, we have chosen to portray Jack's stories of experience through vignettes told in the first person. Coulter and Smith (2009:580) point out that a limitation of using the first person voice to portray the subjective experience of a central character is that we 'cannot include information that the character would not be privy to'. We are not privy to and thus cannot re-present the subjective perspectives of the other characters who feature in these vignettes. What is re-presented in the vignettes is *Jack's* account and reading of the actions and viewpoints of these characters.

In this first vignette, Jack recounts how his 'home' on the university campus has become a place of fear and isolation for him:

When I arrived at [the university], I was assigned a flat reserved for international students and postgraduate students. This flat is attached to the undergraduate section. The students share a common lounge for watching TV. However, I do not enjoy the luxury of watching TV in that lounge because of an incident that occurred there. I therefore try to avoid that place now. Last year, I had a bad experience. I was here a short while and I was watching soccer in the lounge and a group of guys came in. They were drunk. They wanted to watch Generations [a popular local soap opera]. They questioned me on why I was watching soccer instead of Generations. So I offered them the TV and told them that they were welcome to watch Generations as I did not mind. I was just trying to be polite, knowing how they

felt towards foreigners and that they were hot tempered. But they still became offended. They were angry that I was not watching *Generations*, which was a South African programme. This one guy took his beer and poured his drink on me. He was a first year student and I was in Honours. So I just got up and walked away. From that time, I have not been down to the lounge to watch TV. I did not lodge a complaint. I am muscular and I can defend myself. But I also know if they gang up on me then they can stab or shoot me at any point.

To better understand this vignette, we draw on Soldatova's (2007) analysis of xenophobia as a psychological phenomenon. While xenophobia is commonly understood as a fear of *foreigners* – with 'foreigner' meaning people who come from another place or country – and this is the meaning that has largely been conveyed by the press and social commentators when labelling the violence against African migrants in May 2008 as 'xenophobic attacks', Soldatova describes xenophobia as 'the fear and dislike of certain groups of people' (113) that can be based on a variety of perceived differences, including racial, ethnic, religious, cultural or physical difference. Thus, according to this psychological perspective, the perceived 'foreignness' or 'othering' that is at the core of xenophobia is not limited to being from another place or country. Additionally, Soldatova (112) explains, 'the existence of negative stereotypes in regard to any single group considerably increases the likelihood that negative stereotypes will take shape in relation of other groups too'. Similarly, in the South African context, Neocosmas (2006:129) argues, 'Women, the poor, and ethnic minorities *inter alia* can be regularly subject to such xenophobia (they become the 'other' in the situation)'. Hence, this suggests that although the vignettes portray Jack's stories of experience as an African international student, it is important to bear in mind that similar stories of fear and anxiety might be heard from women students or indeed any students who become the 'other', an object of irrational fear and dislike, in certain situations.

According to Soldatova (2007:107), 'the human propensity to divide the world into *We* and *They* is one of the basic peculiarities of human nature and the central psychological mechanism of xenophobia'. Soldatova explains that this basic human tendency develops into the 'socially dangerous

phenomenon' (119) of xenophobia in situations of heightened social tensions when people feel anxious and unsafe and see others – foreigners of whatever kind – as the cause or embodiment of their anxiety and fear. From this psychological perspective, therefore, experiences of xenophobia would be characterised by 'discrimination, alienation, isolation, confrontation, violence and conflicts' (119) that are related to the perceived 'foreignness' or 'otherness' of certain groups of people.

In the next vignette, Jack goes on to give an account of his anxiety about going near the campus Student Representative Council (SRC) offices – the very place where one might assume students experiencing difficulties could go for advice and support:

I do not like the SRC area. It is a very powerful space. I am very sceptical when I go towards the SRC office. It's a place that instils fear. It's a place where the students identify the things they want and don't want. It's not an official policy that they don't like foreigners. But when you go there it is implied. You can feel the dislike. The air around the SRC building is hostile.

As Jack points out, the SRC offices are a place of power. Sociological research into xenophobia in South Africa (Landau *et al.* 2005; Neocosmas 2006) emphasises that although it is not '*official policy that they don't like foreigners*', places of power such as government offices and police stations are often places of discrimination, harassment and even violence for those seen as 'foreigners', especially black African migrants. From Jack's account, it appears that he has not actually experienced overt harassment or violence at the SRC offices and yet, it is a place that fills him with fear. It is certainly not a place where he has been made to feel welcome or where he might feel able to '*lodge a complaint*' about xenophobic harassment.

In the final vignette, Jack explains that, because of his constant anxiety and fear, his movements around and beyond the university campus are restricted. He reveals that it is only in certain designated learning and teaching spaces that he feels able to drop his guard:

I have adopted some mechanisms to survive at [this university]. There are many spaces within this campus that I am not at ease in. I

am always reminded that I am different. So I choose to just keep quiet. I also ensure that I have the right amount of money that I need when taking a taxi for fear of talking and being found out that I am a foreigner. The only places that I find solace in are my study room at the [university] campus; when I am with my supervisor in his office and when I am in the library.

Viewed from a humanist and phenomenological perspective, human interaction and relationships are fundamental to pedagogy. From this perspective then, a pedagogic setting in which *even one* student's everyday life is constrained by a persistent fear of xenophobic violence is a pedagogically unsound setting for all of us. Nevertheless, while these three vignettes portray only Jack's stories, it is significant that his accounts of living with a fear of xenophobic harassment and violence resonate with the accounts of the other three African international postgraduate students we interviewed. Jack's reading of his experiences also corresponds with accounts given by 10 other African international students studying on a different campus at our university who were interviewed for a recent Masters study (Shabangu 2011). Furthermore, Jack's stories are congruent with findings from research into doctoral education at a range of South African universities which found that international students identify xenophobia as a significant barrier to their academic success (Herman 2011).

What can we Learn about a University Campus as a Pedagogic Setting?

The three vignettes highlight how Jack's reading of aspects of his life on a university campus has resulted in an everyday fear and a feeling of confinement or loss of freedom. Despite his fear and anxiety, Jack has chosen to continue with his studies at our university. The reasons he gave for continuing included learner-centred approaches used in lectures, his positive relationship with his supervisor and access to technology. Accordingly, one might argue that, in pedagogic terms, Jack's experiences at our university are positive. However, if we consider the *pedagogic setting* – or conditions for learning on a broader scale – that is evoked in the vignettes, another picture emerges.

From Jack's stories, it does not appear that he has experienced what might be termed 'serious' physical xenophobic violence. However, the vignettes reveal that he is almost always afraid, anxious and on guard. Similarly, Shabangu's study (2011) 'demonstrates how the fear and threat of xenophobic harassment is a constant feature in the lives of foreign students, and this research highlights how the students do not have to be victims of a xenophobic attack to experience the trauma and anxiety associated with an actual attack' (iv). Feminist psychologist, Maria Root (1989, 1992), describes how an ever-present fear of violence can result in what she terms 'insidious trauma'. As Brown (1995:107) explains, this term 'refers to the traumatogenic effects of oppression that are not necessarily overly violent or threatening to bodily well-being at the given moment but that do violence to the soul and spirit'.

As well as living in fear, the vignettes demonstrate how Jack's movements around and beyond the university campus are constrained. As far as possible, he limits himself to moving to and from the few spaces where he feels more secure. In a sense, one could say that he is living in captivity. Psychiatrist, Judith Herman (2001), explains that prolonged confinement can result in 'insidious', 'chronic trauma' (86) and she emphasises the 'corrosive psychological effects' (81) of such trauma, chiefly, feelings of 'disempowerment and disconnection from others' (132). If we understand human interaction and relationships as central to pedagogy, then this is indeed cause for concern. Furthermore, from an adult learning perspective, Kerka (2002:para. 2) lists numerous ways in which experiences of trauma can impede learning, including 'difficulty beginning new tasks ... inability to trust (especially those in power), fear of risk taking ... eroded self-esteem/confidence, inability to concentrate'. Thus, what the vignettes bring home to us is that when a student's everyday life on a university campus is infused with fear and unease, the setting or conditions for her or his learning can be understood as pedagogically unsound, even when effective teaching and learning activities might be seen to be taking place in designated spaces.

One might argue that as Jack does not actually seem to have been physically hurt in a xenophobic attack, his subjective reading of events and spaces as xenophobic is an 'overreaction', perhaps fuelled by images such as those of 'the burning man.' In this regard, we find Jenny Horsman's (1997) concept of 'canaries in the mine' a helpful way of understanding possible

implications of Jack's seeming 'overreaction'. Horsman, a literacy educator who studies the impact of violence on learning, explains that the concept of 'canaries in the mine':

helps to shift the unproblematic sense of what is ordinary and healthy, and whose judgment of how serious the violence is should count. Miners carried canaries (or sometimes other birds) into a mine to provide an early warning system for lethal gas. The birds were more sensitive than humans to the gas – low levels were toxic to them. When the birds keeled over, they were not seen as overreacting. Their reaction to the gas was a valuable warning. Even though the miners could not sense the gas, it was present, and they knew they should leave the mine before the levels also became lethally toxic to them (9-10).

Hence, if we recognise Jack's responses as a 'useful warning' that there is something potentially 'lethally toxic' in our pedagogic setting, then rather than dismissing Jack's stories as overreactions, we could see them as an indication that some kind of change might be needed.

Possibilities for Fostering Change in a Pedagogic Setting

The aim of narrative inquiry is not just to generate, re-present and make sense of lived stories. It is incumbent on narrative inquirers to try to learn from these stories in order to envision possibilities for change (Barone 2009; Clandinin & Connelly 2000; Ritchie & Wilson 2000). Thus, here we consult an multidisciplinary range of 'scholarly conversations' (Clandinin & Connelly 2000:136) to consider what we can learn about cultivating a pedagogic setting where stories such as Jack's will be hard to find.

Sociological and psychological research draws attention to the powerful role that can be played by educational programmes in counteracting xenophobia (Hadland 2008; Soldatova 2007). Additionally, sociological and educational researchers such as Neocosmas (2006), Landau *et al.* (2005) and Pearce (1999 cited in Kerka 2002) argue that, while official policy might not be xenophobic or even might be explicitly anti-xenophobic, it is important to acknowledge that 'institutions make personal and structural violence possible

and legitimize it' (Pearce 1999 cited in Kerka 2002: para. 4). In this regard, a sociological understanding of social construction offers insights into the processes and institutions of social formation – in other words, the processes of 'othering', which might contribute to unsound pedagogic settings.

For instance, Harro (2000) has noted the cycle of socialisation in which stereotypical conceptions about different social groups are initiated across different levels of society. The dominant tendency is to set different social identities in oppositional terms by means of affirming one social identity at the expense of disparaging the other. The stereotypical conceptions that cast people who are perceived to be different (or 'foreign') in oppositional and inequitable relationships are normally reinforced at a personal level (through friends and close family members), an institutional level (school, university policies and practices) and a societal level (societal rituals, language use and so on) (Jackson & Hardiman 2000). Jack's lived stories suggest a conception of himself as belonging to a different, albeit denigrated, social group –foreign African students. It is this 'foreigner' social location, and its positionality within dominant discourses within South Africa that seem to generate anxiety, especially given the xenophobic attacks directed towards African migrants. So the challenge for us as a university community is, how can we re-imagine our pedagogic settings in ways that counteract negative and devaluing societal constructions in South Africa regarding 'others', such as 'foreign' African students?

One way would be to do everything possible to ensure that none of our students (or staff) experiences any form of what Young (2000:100) terms the 'five faces of oppression', which she identifies as 'marginalisation, exploitation, violence, cultural imperialism and powerlessness'. Young's argument is that these are the characteristic features of any forms of human injustice, such as racism, sexism, xenophobia, homophobia, and that one or more of these faces are present in any oppressive context. Jack's stories illustrate that, at the very least, he experienced one of these faces of oppression: a sense of powerlessness in respect of fearing university structures such as the Student Representative Council, which is meant to protect the interests of all students. This indicates a need to not only address these issues within the official teaching curriculum, but more importantly within the broader pedagogic settings of our institution. To do this would entail explicitly anti-xenophobic educational programmes, aimed at

challenging the ‘othering’ of any members of our university community and building what Young (2011:x) calls a ‘community of communities’, in which human beings can enjoy social differentiation without the need for violence, marginalisation and exclusion and in which individuals have not only the equal rights of liberalism but also an equal right to flourish as human beings.

From another perspective, discursive theorists (Foucault 1986; Burr 2000, Weeden 1999) argue for the need to focus on discourse as a critical variable in the processes of social identity formation. Because discourse is a means by which we organise our ways of behaving, interacting, valuing and thinking (Bharuthram 2006), this could play a vital role in supporting educational programmes for the creation of anti-xenophobic pedagogic settings. Unfortunately, most current dominant discourses are hegemonic (Connell 2000) and premised on unjust and inequitable social relations (Harro 2000). This means that doing nothing about the xenophobic experiences illustrated in this study would only serve to maintain the status quo. Hence, we maintain that educational programmes that attempt to foster alternative discourses regarding ‘foreign’ African students, and other forms of social difference could be used to support just pedagogical settings.

Nonetheless, we also take note of how critical sociologists (Renold 2005; Mohanty 1992; Alvesson & Skoldberg 2000; McNay 2000) dispute the taken-for-granted forms of power inequalities propagated by conceptions that regard individuals (for instance, ‘foreign’ African students) as victims of the structural social identity formations. These theorists uphold the notion that xenophobic experiences are re/produced by social relations, which constrain, but do not fix, individual action and identity. The idea of experience as having both ‘discursive’ and ‘embodied’ aspects (McNay 2000:25) means that individuals have the ability to interpret experience in fluid and diverse ways. This fluidity could be understood as a source of agency with the potential for those who are ‘othered’ to challenge and possibly change inequitable social relations in our institutions. However, within contexts where social inequalities take the form of life threatening violence, the possibilities for agency might be limited. Creating a conducive and fear-free environment for all students to have a decent quality of academic and social experience and to be equitably valued and affirmed regardless of their nationality and race would be an important goal in this regard.

Concluding Thoughts

In this article, we have taken a narrative inquiry approach to exploring what we can learn about a university campus as a pedagogic setting from one African international student's stories of aspects of his everyday life within the campus. As a multi-disciplinary research team, considering Jack's stories through a multiperspectival theoretical lens has allowed us to gain insight into the disturbing issue of student experiences of xenophobia on a university campus and to see that Jack's 'personal troubles cannot be solved merely as [his] troubles, but must be understood in terms of [the] public [issue]' (Mills: 1959:226) of fostering pedagogic settings that are nourishing and secure for all those who learn, teach and live within them.

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Modelling Research Productivity Using a Generalization of the Ordered Logistic Regression Model

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Abstract

In South Africa, the Department of Education allocates funds to universities by means of a funding formula that focuses primarily on student throughput and academic staff-based research productivity. Accordingly, South African universities have developed their own strategies to help improve their student throughput and staff publication rates. In this paper we are concerned with identifying potential factors that affect the publication rates of academic staff at the University of KwaZulu-Natal (UKZN). Some extensions of the ordered logistic regression model will be considered with the final objective being to produce a model that can assign a particular academic (with a given set of demographic variables) to one of four possible publication-based productivity classes.

Keywords: research productivity, logistic regression, generalised ordered logistic regression

Introduction

Because the research output generated by a publishing academic forms a very important component of any funding that a South African university receives from the Department of Education, the identification of specific factors that affect research output has become a very important point of focus at the

University of KwaZulu-Natal (UKZN). In an earlier paper, North, Zewotir, and Murray (2011) found that a person's type of qualification and the size of the school in which they reside both play a very important role in determining the level of research output that will be produced. Their model, however, relies heavily on the fitting of a logistic model to a publishing versus non-publishing response variable. In this paper we would like to relax this restriction by making it possible for each academic member of staff to be assigned to one of four possible publication-based productivity classes. In particular, an ordinal response variable Y will be assigned a value 0 if any member of staff has not been able to produce, through the medium of publication or post-graduate supervision, any productivity unit points during a given calendar year. This response variable Y will be given the value 1 if they have been able to generate up to 60 productivity units for the year. If they have been able to generate more than 60 but not more than 120 productivity units in a given year, this response variable will be given the value 2. If they have been able to generate more than 120 productivity units in a given year then this response variable will be given the value 3. When a single paper has multiple authors, the productivity unit count of 60 points associated with the paper is apportioned equally between the authors.

The above concept of a productivity unit count arises from a discussion amongst the various faculties at UKZN on how they should 'fairly' apportion the productivity units that can be associated with a published piece of work. As has been justifiably pointed out by a reviewer of this paper, it could be argued that such a rule may bias the point allocation process in favour of disciplines where a joint collaboration between researchers is less necessary. This effect may be mitigated by using the 'impact rating' associated with a particular journal to adjust the productivity unit count that has been allocated to a published piece of work.

| Research Activity | Productivity unit count |
|------------------------------|--------------------------------|
| Journal article(sole author) | 60 |
| Entire book | 100 |
| Chapter in book | 15 |
| Graduating MSc student | 16 |
| Graduating PhD student | 60 |
| Patent | 80 |

Because all members of staff at UKZN are expected to undertake some form of research, no distinction has been made between those members of staff (usually lecturers and senior lecturers) who in another university may be asked only to perform a teaching role, and professors who are also required to add a significant amount of research to their output metric. To include a teaching versus research publication scenario in our analysis, one could consider fitting a zero-inflation model to our data. Such an analysis has been done in another paper (in press) where we have fitted a zero-inflated negative-binomial and zero-inflated Poisson model to our data and then compared the obtained fit with that of a hurdle model.

By introducing an ordered response variable, one is now able to focus on comparing a publishing scenario ($Y > 0$) with a non-publishing ($Y = 0$) scenario as well as a prolific publishing scenario ($Y = 3$) with a non-prolific publishing ($Y < 3$) scenario. For example, one may find that some of the covariates (to be introduced in the next section) may exert a very different effect on a publishing versus non-publishing scenario when compared with a prolific versus non-prolific publishing scenario. It is this aspect of the data that we were not able to capture effectively in the paper published earlier (North, Zewotir & Murray 2011)

The Data

Our study was restricted to identifying the per annum based research output of staff who are permanently employed at UKZN and who occupy the positions of lecturer, senior lecturer, or professor (i.e. associate professor or professor) at UKZN. Each year, a per annum based productivity unit count was obtained by looking at the total number of books, chapters in books, articles in peer reviewed journals, and supervision of MSc and PhD theses that a given academic had produced. Based on this productivity unit count, the academic was then assigned a value for Y which was recorded (separately for each year) together with a set of academic and demographic covariates that we hope will help to further improve the prediction capabilities of the models that we will be developing. In particular, associated with each response variable Y there was an indicator variable denoting whether the academic was female or male; a set of indicator

variables denoting whether the academic was a lecturer, senior lecturer, or a professor; a set of indicator variables denoting the faculty in which the staff member was located (Education, Engineering, Health, Humanities, Law, Management, Medicine or Science); a set of indicator variables denoting the racial group to which the academic belongs (African, Coloured, Indian or White); an indicator variable denoting whether the academic has a PhD qualification or not; a variable denoting the number of academics in the school in which the academic resides (size); and an age category index determined by assigning a value 0 to this random variable if the academic (in that particular year) is in their twenties, a value 1 if they are in their thirties, and so on.

Focusing on the issue of gender, higher education institutions in South Africa have in the past been dominated by men (Teferra & Altbachl 2004). As a consequence, one might have expected to find that men had achieved a higher-level of research output than women in our study period. The following table contains a breakdown (according to gender) of the number of academics who were able to reach a particular productivity unit based category over a given year. A chi-square test for independence produced a value of 52.97 (with 3 degrees of freedom) which suggests that a strong relationship between gender and research productivity may exist in our dataset.

Table 1: A per annum based breakdown of research productivity versus gender over the period 2004 to 2008

| | Y=0 | Y=1 | Y=2 | Y=3 |
|--------|------|------|-----|-----|
| Male | 1916 | 905 | 324 | 359 |
| Female | 1410 | 615 | 190 | 122 |
| Total | 3326 | 1520 | 514 | 481 |

Focusing on the issue of race, the system of apartheid that existed in South Africa will almost certainly have contributed to a lower level of research output achieved by black academics in the earlier years of our study period (Strydom & Fourie 1999). Special funding initiatives for black researchers introduced in more recent times may however see an improvement in the level of research output generated by black academics at UKZN. The

following table contains a breakdown (according to race) of the number of academics who were able to reach a particular productivity unit based category. A chi-square test for independence produced a value of 127.4 (with 9 degrees of freedom) which suggests that a strong relationship between race and research productivity may exist in our dataset.

Table 2: A per annum based breakdown of research productivity versus race over the period 2004 to 2008

| | Y=0 | Y=1 | Y=2 | Y=3 |
|----------|------|------|-----|-----|
| African | 652 | 241 | 63 | 56 |
| Indian | 1134 | 431 | 120 | 112 |
| Coloured | 98 | 19 | 9 | 3 |
| White | 1442 | 829 | 322 | 310 |
| Total | 3326 | 1520 | 514 | 481 |

Focusing on the age of a particular academic, one may expect to find that younger members of staff are more research active because they are still trying to build up research profiles. On the other hand, older members of staff may have become increasingly more involved with performing administrative duties or they may have already attained the research status that they desire. As a consequence, one might expect to see their research output beginning to taper off as they approach retirement age.

Because the completion of a PhD degree indicates an ability to conduct publication- based research, one would expect this variable to play a key role in determining the level of research output that a given academic generates at a given university. It may however be argued that once an academic has obtained a PhD, they could then enter a comfort zone in which research output begins to drop off. This paper will be able to provide a method of assessing whether this is indeed the case and whether this effect is different for a publish versus non- publishing scenario as opposed to a prolific publishing versus non-prolific publishing scenario.

Faculties generally tend to identify key areas of strength in their make-up which are then generously funded through the granting of scholarships and post-doctoral fellowships. As a result one would expect faculty membership to become an important predictor of research output

(Bland & Schmitz 1986). The following table contains a breakdown of the per annum based research productivity record of staff according to the faculties in which they reside. For example , looking at each per annum based record of members of staff in the Faculty of Science over the period 2004 to 2008, 578 out of a total of 3326 per annum based records recorded no output ($Y=0$) over a given year, and 350 recorded up to 60 productivity units over a given year. A Chi-square test for statistical independence between the rows and columns of this table produced a value 302.41 (with 21 degrees of freedom) which indicates a strong relationship between faculty membership and publishing productivity. One of the objectives of this paper is to determine which faculties are underperforming. With this knowledge in hand, management can begin to introduce measures that will help to stimulate research in underperforming faculties.

Table 3: A per annum based breakdown of research productivity versus faculty membership over the period 2004 to 2008

| Faculty versus Research output | Y=0 | Y=1 | Y=2 | Y=3 |
|---------------------------------------|-------------|-------------|------------|------------|
| Science | 578 | 390 | 133 | 151 |
| Education | 350 | 136 | 53 | 25 |
| Engineering | 192 | 121 | 26 | 25 |
| Health | 244 | 107 | 20 | 16 |
| Humanities | 758 | 402 | 163 | 178 |
| Law | 154 | 68 | 29 | 42 |
| Management | 433 | 101 | 32 | 20 |
| Medicine | 617 | 195 | 58 | 24 |
| TOTAL | 3326 | 1520 | 514 | 481 |

The above table indicates that a large proportion of academics at UKZN have produced no per annum based publication units whatsoever. Whereas one of the main objectives of our earlier study (North, Zewotir & Murray 2011) was to try and determine which demographic variables affect a publish versus non-publishing scenario, in this paper we are more interested in seeing if these demographic variables affect a publish ($Y>0$) versus non-publishing scenario ($Y=0$) in a different way to a prolific ($Y=3$) versus non-prolific ($Y<3$) publishing scenario.

A Generalised Ordered Logistic Regression

Because of the ordinal nature of our observed response variable, an obvious starting point is to fit an ordered logistic regression model (Fu 1998; Gould 2000) to our response variable Y . Such a model assumes that there exists an unobserved (but continuous valued) random variable Y^* that is linked to a set of exogenous variables x via a linear equation of the form

$$Y^* = x\beta + u$$

where the vector x contains the demographic variables that we have introduced above and u denotes an error term with a particular distribution function based specification which we will denote by $F(u)$. This latent variable Y^* is then linked to a particular publication based productivity category in the following way:-

$$Y=j \text{ if and only if } c_j \leq Y^* < c_{j+1}$$

The points $\{c_0, c_1, c_2, c_3, c_4\}$ determine the so-called threshold (or cut-off) points for entry into a particular class with the model formulation then being completed by setting $c_0 = -\infty$ and $c_4 = +\infty$

Setting

$$F(u) = \frac{1}{1+e^{-u}} \quad -\infty < u < \infty$$

produces an ordered logistic model that has

$$\begin{aligned} P(Y > j) &= P(Y^* > c_{j+1}) \\ &= P(u > c_{j+1} - x\beta) = \frac{\exp(-c_{j+1} + x\beta)}{1 + \exp(-c_{j+1} + x\beta)} = g(x, \beta) \end{aligned}$$

Specifying a standard normal distribution for $F(u)$ will produce an ordered probit model for our response variable Y .

Because the fitting of an ordered logistic model produces an odds ratio that can only vary in a proportional manner across each category of our response variable, viz.

$$\frac{P(Y>j)}{P(Y\leq j)} = e^{-c_{j+1} + x\beta} \quad (1)$$

such a modelling approach will not be able to help us determine, for example, whether having a PhD in a publishing versus non-publishing scenario (which would involve looking at the ratio $P(Y > 0) / P(Y \leq 0)$) plays a very different role to having a PhD in a prolific versus non-prolific publishing scenario which would require that we look at the ratio $P(Y > 3) / P(Y \leq 3)$.

One way of overcoming this problem would be to allow the regression parameter vector β itself to change in value as we move from one publication group to another. Known as a generalised ordered logistic model, when applied to our publication group based problem, this modelling approach then assumes that we have (setting $\alpha_j = -c_{j+1}$ in (1))

$$P(Y>j) = \frac{\exp(\alpha_j + x\beta_j)}{1 + \exp(\alpha_j + x\beta_j)} = g(x, \beta_j)$$

with

$$= 1 - P(Y > 0) = \frac{1}{1 + \exp(\alpha_1 + x\beta_1)}$$

And

$$P(Y = 3) = P(Y > 2) = \frac{\exp(\alpha_3 + x\beta_3)}{1 + \exp(\alpha_3 + x\beta_3)}$$

respectively. From this model formulation we can then obtain the probabilities for entry into our other two publication classes

$$P(Y = j) = g(x, \beta_{j-1}) - g(x, \beta_j)$$

$j=1,2$

Results

As a starting point for our discussion, a logistic regression model was fitted to a binary response variable that was set equal to zero if the academic concerned had produced no research over a given year and was set equal to one otherwise. In terms of the response variable that we have introduced above, such a fitting procedure amounts to comparing an outcome from the group that we have labelled $Y=0$ with that from the combined group $Y>0$.

Table 4: Parameter estimates for the logistic model (Response variable: publish)

| Covariate | Estimate | 95% Confidence Interval | p-value |
|--------------|----------|-------------------------|---------|
| School size | 0.004 | [-0.00,0.01] | 0.085 |
| Male | -0.124 | [-0.26, 0.01] | 0.065 |
| Lecturer* | -0.773 | [-0.93,-0.62] | 0.000 |
| Professor* | 0.839 | [0.67,1.00] | 0.000 |
| Education* | 0.309 | [0.06,0.55] | 0.013 |
| Engineering | -0.503 | [-0.33,0.22] | 0.706 |
| Health | -0.016 | [-0.30,0.27] | 0.913 |
| Humanities * | 0.265 | [0.09,0.44] | 0.003 |
| Law | 0.158 | [-0.18,0.50] | 0.335 |
| Management* | -0.849 | [-1.09,-0.60] | 0.000 |
| Medicine* | -0.302 | [-0.53,-0.07] | 0.010 |
| African* | -0.288 | [-0.46,-0.12] | 0.001 |
| Coloured* | -0.555 | [-0.99,-0.12] | 0.013 |
| Indian* | -0.239 | [-0.38,-0.09] | 0.001 |
| Age Index* | -0.194 | [-0.27,-0.12] | 0.000 |
| PhD* | 1.023 | [0.88,1.17] | 0.000 |
| Constant | -0.206 | [-0.52,0.11] | 0.205 |

Using a 5% level of significance, the above results suggest that being a professor, having a PhD, or residing in the Faculty of Education or Humanities all help to increase the probability of being in a publishing group ($Y>0$) when compared with the probability of being in a non-publishing group ($Y=0$). In contrast, being a lecturer, residing in the Faculty of Management or Medicine, or being older all helps to decrease the probability of being in a publishing group when compared with a non-publishing group. Race also seems to play an important role with Africans, Indians and

Coloured being more likely to end up in the non-publishing group as compared with their white counterparts.

Because the purpose of this paper is to develop a method that can distinguish the effect, for researchers who publish prolifically, of each covariate in x from those who do not publish as prolifically or who do not publish at all, an ordered logistic model was fitted with the following results being obtained. In particular it should be noted that the estimates we have obtained for α_j relate to the threshold values that determine the entry of Y into a particular class, viz. we will have $Y=0$ if $Y^* < 0.2984$, $Y=1$ if $0.2984 \leq Y^* < 1.935$, etc.

Table 5: Parameter estimates for the ordered logistic model (Response variable: Y)

| Covariate | Estimate | 95% Confidence Interval | p-value |
|---------------------------|----------|-------------------------|---------|
| School size* | 0.007 | [0.00,0.01] | 0.004 |
| Male | -0.020 | [-0.14, 0.10] | 0.750 |
| Lecturer* | -0.773 | [-0.92,-0.62] | 0.000 |
| Professor* | 1.046 | [0.90,1.19] | 0.000 |
| Education* | 0.390 | [0.17,0.61] | 0.001 |
| Engineering | -0.189 | [-0.43,0.06] | 0.133 |
| Health | -0.036 | [-0.30,0.22] | 0.785 |
| Humanities* | 0.344 | [0.19,0.50] | 0.000 |
| Law | 0.277 | [-0.03,0.59] | 0.075 |
| Management* | -0.851 | [-1.09,-0.61] | 0.000 |
| Medicine* | -0.409 | [-0.62,-0.20] | 0.000 |
| African* | -0.300 | [-0.46,-0.14] | 0.000 |
| Coloured* | -0.544 | [-0.98,-0.11] | 0.014 |
| Indian* | -0.209 | [-0.34,-0.08] | 0.002 |
| Age Index* | -0.248 | [-0.32,-0.18] | 0.000 |
| PhD* | 1.054 | [0.92,1.19] | 0.000 |
| | | | |
| Cut-off values α_1 | 0.299 | [0.01,0.59] | |
| α_2 | 1.935 | [1.64,2.23] | |
| α_3 | 2.905 | [2.60, 3.21] | |

The model based chi-square value of 1642.17 (with 16 degrees of freedom) obtained for our data indicates that the covariates (marked with asterisks) all have significant effects on our response variable Y .

In order to help with the development of an appropriate interpretation for some of the results given in Table 2, note that if one considers taking a logarithm of the odds ratio that appears in (1), then one obtains the following result, viz.

$$\log\left(\frac{P(Y>j)}{P(Y\leq j)}\right) = \alpha_j + x\beta \quad \Rightarrow \quad P(Y > j) \\ = e^{\alpha_j + x\beta} P(Y \leq j)$$

Thus a single unit increase in the value of the k 'th component of x (keeping all the other components in x unchanged) will change the odds of observing $\{Y > j\}$ versus $\{Y \leq j\}$ by a multiplicative factor of $e^{\alpha_j + \beta_k}$ where β_k denotes the estimate that one has obtained for the k 'th component of β . Because the estimates obtained for $\{\alpha_j; j=1\dots3\}$ are all positive valued, the above formula suggests that for any positive valued estimate for β_k , a single unit increase in the explanatory variable associated with β_k will make it more likely for that respondent to be placed in a higher category of Y . Similarly, for any negative valued estimate that we obtain for β_k a single unit increase in the value associated with the explanatory variable associated with β_k will make it less likely for that respondent to be placed in a higher category of Y .

With this explanation in hand it follows that any increase in the size of the school will make it more likely for that respondent to be placed in a higher category of publication. Being a professor, having a PhD, or being in the Faculty of Education or Humanities will also help to increase the probability of ending up in a higher category of publication. Being a lecturer or residing in the Faculty of Management or Medicine will reduce one's chances of being in a higher category of publication. Similarly, being of an older age or being of African, Coloured, or Indian origin also seems to reduce one's chances of ending up in a higher category of publication.

Having fitted an ordered logistic model, a test procedure (Brant, 1990) was run to see whether the fitting of an ordered logistic model is appropriate for the data that we observed. Brant's (1990) test procedure produced a significant chi-square value of 128.37 indicating that a parallel lines assumption is no longer appropriate for the evidence that we see in our

data. As a consequence, a generalised ordered logistic model was fitted with the following results being obtained.

Table 6: Parameter estimates for the Generalised Ordered Logistic model

| Group (Y) | Covariate | Estimate | 95% Confidence Interval |
|-----------------------|--------------|---------------|-------------------------|
| Y>0 vs Y=0 | School size* | 0.005 | [0.00,0.01] |
| | Male | -0.121 | [-0.25, 0.01] |
| | Lecturer* | -0.758 | [-0.92, -0.60] |
| | Professor* | 0.852 | [0.69,1.01] |
| | Education* | 0.286 | [0.04,0.53] |
| | Engineering | -0.041 | [-0.31,0.23] |
| | Health | -0.010 | [-0.29,0.28] |
| | Humanities* | 0.227 | [0.05,0.40] |
| | Law | 0.138 | [-0.19,0.47] |
| | Management* | -0.857 | [-1.11,-0.61] |
| | Medicine* | -0.346 | [-0.58,-0.12] |
| | African* | -0.287 | [-0.46,-0.12] |
| | Coloured* | -0.564 | [-1.00,-0.13] |
| | Indian* | -0.220 | [-0.36,-0.08] |
| | Age Index* | -0.193 | [-0.27,-0.12] |
| | PhD* | 1.020 | [0.87,1.16] |
| | Constant | -0.222 | [-0.54,0.09] |
| Y>1 vs Y≤ 1 | School size* | 0.011 | [0.00,0.02] |
| | Male | 0.144 | [-0.02, 0.31] |
| | Lecturer* | -0.983 | [-1.23, -0.74] |
| | Professor* | 1.227 | [1.03,1.42] |
| | Education* | 0.684 | [0.37,1.00] |
| | Engineering* | -0.478 | [-0.84,-0.12] |
| | Health | -0.214 | [-0.63,0.20] |
| | Humanities* | 0.534 | [0.33,0.74] |
| | Law* | 0.465 | [0.07,0.86] |
| | Management* | -0.5766 | [-0.91,-0.24] |
| | Medicine* | -0.531 | [-0.85,-0.21] |
| | African* | -0.258 | [-0.49,-0.03] |
| | Coloured | -0.031 | [-0.65,0.59] |
| Indian | -0.185 | [-0.38,0.01] | |
| Age Index* | -0.328 | [-0.43,-0.23] | |

| | | | |
|---------------------|--------------|--------|----------------|
| | PhD* | 1.137 | [0.92,1.34] |
| | Constant* | -2.264 | [-2.69,-1.84] |
| | | | |
| Y=3 vs Y ≤ 2 | School size* | 0.011 | [0.00,0.02] |
| | Male* | 0.397 | [0.16, 0.63] |
| | Lecturer* | -1.163 | [-1.57, -0.76] |
| | Professor* | 1.510 | [1.22,1.79] |
| | Education | 0.349 | [-0.13,0.83] |
| | Engineering* | -0.553 | [-1.03,-0.07] |
| | Health | -0.263 | [-0.84,0.32] |
| | Humanities* | 0.604 | [0.35,0.86] |
| | Law* | 0.591 | [0.09,1.09] |
| | Management* | -0.767 | [-1.27,-0.26] |
| | Medicine* | -1.050 | [-1.54,-0.56] |
| | African | -0.097 | [-0.42,0.22] |
| | Coloured | -0.282 | [-1.46, 0.90] |
| | Indian | -0.050 | [-0.30,0.20] |
| | Age Index* | -0.430 | [-0.57,-0.21] |
| | PhD* | 1.111 | [0.78,1.44] |
| | Constant* | -3.371 | [-3.97,-2.78] |

The first section of the table represents results that one would obtain if one ran a binary type logistic regression where the dependent variable has been recoded so that it compares the outcomes from the non-publishing group 0 with those from the publishing groups 1+2+3. The second panel of estimates in the table would result from running a binary type logistic regression where the dependent variable has now been recoded for outcomes from group 0+1 versus those from group 2+ 3, and the third panel would result from running a binary type logistic regression where the dependent variable has been recoded for group 0+1+2 versus group 3.

Thus, when it comes to interpreting the results that we obtained for a given panel, one needs to keep in mind that each panel compares the outcome-based categories that are greater than some value with those that are less than this same value. For example, the negative valued estimate that we obtained for being a lecturer in the top panel indicates that being a lecturer reduces one's odds of being able to publish something (i.e. being in groups 1+2+3) as compared with someone who is not a lecturer. In contrast, being a professor increases one's odds of being able to publish something (i.e. being in groups 1+2+3) as compared with someone who is not a professor.

One important criticism with the use of this type model is that it can easily overfit the data. To overcome this problem one could consider performing a series of Wald type tests on each of the variables that appear in Table 6 to see whether their coefficients differ across the three panels that are given in the table. If they do not differ, the constraints can then be added (in a sequential manner) to the model until we eventually arrive at a final model to which no additional parallel line assumptions can be added. Known as a partial proportional odds model (Williams 2006), such a procedure produced the following results.

Table 7: Parameter estimates for the partial proportional odds model

| Group (Y) | Covariate | Estimate | 95% Confidence Interval | p-value |
|-----------------------|--------------|------------------|-------------------------|---------|
| Y>0 vs Y=0 | School size | 0.0040 | [-0.0008,0.00987] | 0.107 |
| | Male | -0.1184 | [-0.2479, 0.0112] | 0.073 |
| | Lecturer* | -0.7476 | [-0.9041, -0.5911] | 0.000 |
| | Professor* | 0.8386 | [0.6766,1.0005] | 0.000 |
| | Education* | 0.3018 | [0.0631,0.5404] | 0.013 |
| | Engineering | -0.0200 | [-0.2902,0.2502] | 0.885 |
| | Health | -0.0466 | [-0.3075,0.2143] | 0.726 |
| | Humanities* | 0.2591 | [0.0844,0.4297] | 0.003 |
| | Law | 0.2684 | [-0.0332,0.5701] | 0.081 |
| | Management* | -0.7906 | [-1.0263,-0.5549] | 0.000 |
| | Medicine* | -0.2989 | [-0.5221,-0.0578] | 0.009 |
| | African* | -0.2696 | [-0.4297,-0.1094] | 0.001 |
| | Coloured* | -0.4963 | [-0.9283,-0.0641] | 0.024 |
| | Indian* | -0.1951 | [-0.3286,-0.0617] | 0.004 |
| | Age Index* | -0.1862 | [-0.2589,-0.1134] | 0.000 |
| | PhD* | 1.0457 | [0.9092,1.1822] | 0.000 |
| Constant | -0.2575 | [-0.5648,0.0497] | 0.100 | |
| Y>1 vs Y≤ 2 | School size* | 0.0121 | [0.0063,0.0179] | 0.000 |
| | Male | 0.1391 | [-0.2829, 0.3065] | 0.103 |
| | Lecturer* | -1.0130 | [-1.2508, -0.7753] | 0.000 |
| | Professor* | 1.2373 | [1.0430,1.4315] | 0.000 |
| | Education* | 0.6595 | [0.3489,0.9700] | 0.000 |
| | Engineering | -0.4886 | [-0.8489,-0.1363] | 0.007 |
| | Health | -0.0466 | [-0.3075,0.2143] | 0.726 |
| | Humanities* | 0.4930 | [0.3007,0.6852] | 0.000 |
| | Law | 0.2684 | [-0.0332,0.5701] | 0.081 |
| | Management* | -0.7906 | [-1.0263,-0.5549] | 0.000 |

| | | | | |
|--------------------|--------------|---------|-------------------|-------|
| | Medicine* | -0.6096 | [-0.9065,-0.3132] | 0.000 |
| | African* | -0.2696 | [-0.4297,-0.1094] | 0.001 |
| | Coloured* | -0.4963 | [-0.9283,-0.0641] | 0.024 |
| | Indian* | -0.1951 | [-0.3286,-0.0617] | 0.004 |
| | Age Index* | -0.3363 | [-0.4353,-0.2376] | 0.000 |
| | PhD* | 1.0457 | [0.9092,1.1822] | 0.000 |
| | Constant | -2.1682 | [-2.5398,-1.7967] | 0.000 |
| Y=3 vs Y≤ 2 | School size* | 0.0139 | [0.0065,0.0213] | 0.000 |
| | Male* | 0.4029 | [0.1707, 0.6351] | 0.001 |
| | Lecturer* | -1.2086 | [-1.5988,-0.8184] | 0.000 |
| | Professor* | 1.4999 | [1.2279,1.7719] | 0.000 |
| | Education | 0.3598 | [-0.1104,0.8302] | 0.134 |
| | Engineering* | -0.5541 | [-1.0229,-0.0852] | 0.021 |
| | Health | -0.0466 | [-0.3075,0.2143] | 0.726 |
| | Humanities* | 0.57421 | [0.3351,0.8132] | 0.000 |
| | Law | 0.2684 | [-0.0332,0.5701] | 0.081 |
| | Management* | -0.7906 | [-1.0263,-0.5549] | 0.000 |
| | Medicine* | -1.0958 | [-1.5560,-0.6355] | 0.000 |
| | African* | -0.2696 | [-0.4297,-0.1094] | 0.001 |
| | Coloured* | -0.4963 | [-0.9283,-0.0641] | 0.024 |
| | Indian* | -0.1951 | [-0.3286,-0.0617] | 0.004 |
| | Age Index* | -0.4534 | [-0.5867,-0.3201] | 0.000 |
| | PhD* | 1.0457 | [0.9092,1.1822] | 0.000 |
| | Constant | -3.2706 | [-3.7544,-2.7868] | 0.000 |

Focusing on the two extremes of our publishing spectrum, namely those that do not publish at all (who have $Y=0$), and those that publish prolifically (who have $Y=3$), the following conclusions can be drawn from the estimates that appear in the above table. Because we are dealing with a non-randomised study, any conclusion relates to an association between the two variables rather than the conclusion that one variable is causing the other.

School Size: Because the estimate obtained for school size is statistically significant in the bottom panel (but not in the top panel), this result suggests that having a larger school size plays an important role in distinguishing a person who publishes prolifically ($Y=3$) from someone who does not publish prolifically ($Y<3$) but does not play a significant role in distinguishing a person who is able to publish ($Y>0$) from someone who is not able to publish at all ($Y=0$). Being positive valued, the result indicates that an increase in

school size does seem help to improve the publication capabilities of academics in a given school but only at the high level end of the publishing spectrum.

Gender: Gender also seems to play a significant role but only when it comes to comparing a person who publishes prolifically ($Y=3$) with someone who does not publish prolifically ($Y<3$). The positive value obtained for this estimate indicates that males seem to perform better than females when only those who publish prolifically are considered.

Academic status: As one would expect, being a professor helps to improve one's publication capabilities. It could be argued, however, that one becomes a professor because one has a good publication record whereas one remains a lecturer because one has a poor publication record. These covariates therefore reflect rather than influence (i.e. cause) one's publication record. However, because we are dealing with an observational study without proper randomisation, it is important to emphasise that what we are talking about is really an association between the above two factors and not necessarily a causative relationship from one variable to another. Thus all we can conclude from this study is that having a PhD is positively associated with an increase in one's research productivity.

Faculties: Academics who reside in the Faculties of Education or Humanities seem to be performing well whether one considers the publishing ($Y>0$) versus non-publishing ($Y=0$) scenario that is given in the top panel, or the prolific ($Y=3$) versus non-prolific publishing scenario that is given in bottom panel of the table. Academics in the Faculties of Management Sciences or Medicine however seem to be performing poorly from a publication point of view no matter which panel one looks at.

Race: The negative valued estimates obtained for the African, Indian, and Coloured racial groups seem to suggest that they do not, from an increased publication point of view, appear to perform as well as their white counterparts. The parallel lines constraint that we accepted for this model however indicates that these effects remain the same whether we compare someone who publishes with someone who does not (as in the top panel) or

someone who publishes prolifically with someone who does not publish prolifically (as in the bottom panel) of the table.

Age: An increase in age seems to have a detrimental effect on research productivity with this effect being greatest in the bottom panel where we compare someone who publishes prolifically with someone who does not publish prolifically.

Qualification: As one would expect, having a PhD helps to improve one's publication capabilities. The parallel line assumption that was accepted for this covariate, however, does seem to indicate that this effect remains the same whether we compare someone who publishes with someone who does not (as in the top panel), or someone who publishes prolifically with someone who does not publish prolifically (as in the bottom panel) of the table. Such a result should not be unexpected because the possession of a PhD indicates an aptitude for doing research which in turn leads to the production of more papers. Having obtained this qualification, however, an academic may be tempted to 'rest on their laurels' which in turn may lead to a reduction in research output. The acceptance of the parallel lines assumption, along with the positive value that we obtained for this estimate, however, seems to indicate that this is not the case.

Conclusions

We have been able to improve upon the publishing versus non-publishing scenario that we developed in an earlier paper (North, Zewotir & Murray 2011). By modelling the above publication process as a generalised ordinal logistic model, which we have done in this paper, one is able to separate out the effect of covariates based on whether one wants to consider a publishing versus non-publishing scenario or a prolific versus non-prolific publishing scenario.

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Educational Implications of Applying the Complexity Approach to Indigenous Knowledge Systems (IKS)

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Abstract

Indigenous Knowledge (IK) is a body of valuable knowledge produced and owned by local people in their specific communities and found worldwide. Indigenous Knowledge Systems (IKS) comprises a complex and an often implicit educational system that is not easily recognisable. The paper focuses on complexity thinking to unravel IKS and proposes that using Capra's notion of meaning, Luhmann's concept of communication in social systems and metaphors like *autopoiesis* (self-organisation), emergence and holism from complexity may provide explicit educational value in critically examining IKS and education. Applying these metaphors to IKS implies curricula at universities and schools need to be re-focused and disciplines re-structured for cross-disciplinary teaching and learning in order to solve current and pressing societal problems.

Keywords: IKS; education; complexity theories; *autopoiesis*, emergence, holism

Introduction

Research scholars have provided multiple interpretations of the term Indigenous Knowledge (IK). Often, it is referred to as a body of knowledge produced and owned by local people in their specific communities and passed on from generation to generation, through practice and mainly oral channels. While IK refers to the kind of knowledge, IKS also refer to how IK is preserved and transmitted in different cultures and in various forms, such

as traditions, customs, myths, etc. Kincheloe and Steinberg (2008:136) refer to IKS as a ‘multidimensional body of understandings’, ‘alternative ways of knowing’... and is often viewed by Euroculture as ‘inferior and primitive’. Indigenous Knowledge Systems (IKS) and its epistemology can be overwhelming and challenging when viewed from an educational perspective as IKS spans several complex concepts and cuts across several disciplines and cultures. While certain areas like agriculture and the relationship between IKS and Western knowledge have been explicitly focused on in the literature, there are still many embedded connections that need to be unravelled that may provide valuable insights to education. Complexity offers new ways of understanding and thinking about organisational systems that are capable of responding to and influencing complex nonlinear relationships. Complexity can be simply defined as a situation where an ‘increasing number of independent variables are interacting in interdependent and unpredictable ways’ (Ilachinski 2001:xxvii). Examples of complex systems are traffic, the weather, the stock market etc. Understanding the local dynamics in a complex system can provide great insight into the behaviour of the overall system and help identify key leverage points of change and transformation. To be effective in its context, the emerging macro characteristics of a system must be understood in terms of the micro constituents – ‘an organization must learn to think and act as one coherent yet flexible system with a high degree of communication, cooperation and collaboration among its networks’ (Sanders & McCabe 2003:10). Thus Complexity as an approach to thinking, can provide information about the underlying structure and patterns of interaction and its on-going evolution of a system over time. How then should we approach the understanding of a complex system of IKS in education?

This paper, seeks, through using metaphors of *autopoiesis*, emergence and holism from complexity theories to examine communication networks in IKS and the educational implications of applying complexity thinking to IKS. It uses Capra’s notion of meaning and Luhmann’s concept of communication in social systems to critically examine complexity in IKS and education.

While IKS are still practiced and valuable for many indigenous communities worldwide, they are still neglected in Africa’s formal education where Western education and its languages still dominate. IKS can be

perceived as the storehouse of human consciousness and experiences where knowledge acquired by the human-mind is inextricably linked to the environment, acquired through centuries of cultural practices, mediated by languages and established by customs. Claims of knowledge of indigenous practices in Africa ‘were not just ways of working; they were ways of knowing and thinking’ (Onwu & Mosimege 2004:1). Of significance are educational practices embedded in IKS that serve as a stimulus for promoting social interactions and dignity needed to create a cosmopolitan world of mutual engagement and sustenance.

IKS as ‘ways of knowing’ bring together multiple epistemologies that can be connected with science and technology in a creative, imaginative, and analytical way necessary for the current and future social and individual well-being. In the global knowledge arena, Africa’s contribution via IKS is generally unknown, unrecognised or often regarded as traditional and archaic (Maathai 2010; Zulu 2006). Yet, Africa, and in particular Southern Africa is rich with a variety of archaeological sites such as the Cradle of Humankind in Sterkfontein and new fossil finds, tracing the origins and culture of the earliest humans to 3.5 million-years back, through the 2 million-year history of the Stone Age and the Khoi-San people (Hilton-Barber & Berger 2002), to the greatest storehouse of high quality rock paintings and engravings in the world; through the 2000-year history of agriculture, mining and settlement by Iron Age descendants in Africa (Rodney 1973) and much more. However, the historical and contemporary African knowledge contributions to the global education spectrum is largely absent, even though research has documented indigenous technology, astronomy, cosmologies and social systems in Africa in many areas (Chirikure 2010; Snedegar 2007; Sunal, Jones & Okebukola 1998; Van Sertima 1999). UNESCO best practices report (de Guchteneire, Krukkert, & von Liebenstein 2003) confirms that

... indigenous knowledge systems are now being regarded as an invaluable national resource; and within the development community, where IK provides opportunities for designing development projects that emerge from priority problems identified within a community, and which build upon and strengthen community-level knowledge systems and organizations Recent research has given valuable insights into how people use their own

locally generated knowledge to change and to improve, for example, natural resource management. Greater efforts therefore should be undertaken to strengthen the capacity of local people to develop their own knowledge base and to develop methodologies to promote activities at the interface of scientific disciplines and indigenous knowledge.

South Africa's government has developed an Indigenous Knowledge Systems policy that can respond 'positively to a rapidly changing environment, and through which indigenous and local communities and individuals can share equitably in the social and economic opportunities' (Department of Science and Technology 2004:4). Proposing the integration of IKS into several disciplinary areas such as education, commerce, agriculture, sciences, etc., the document implies several challenges to the idea of knowledge at post-colonial universities in South Africa, and has significant implications for educational development. The policy explicitly highlights the affirmation of African cultural values. This implies, for example, the recognition of 'experience and wisdom' and the integration of services provided by indigenous knowledge practitioners into disciplinary areas. Indigenous knowledge scholarship seeks to not only promote a repository of heritage and history but to be also critical of education, its scholarship, its epistemology and methodologies etc., as evident in formal education. In doing so, one of the primary roles of IK education is to counter the insidious long-term effects of colonisation and for the re-establishment of indigenous identities cooperating on an equal footing in Western capitalistic societies. Kincheloe and Steinberg (2008:135) stress that IK scholarship does not involve 'saving' indigenous people but 'helping construct conditions that allow for indigenous self-sufficiency' while learning from the vast storehouse of IK that 'provide compelling insights into all domains of human endeavor'.

In this article, I propose that metaphors from complexity theories such as *autopoiesis*, emergence and holism can be pedagogically useful in understanding complex issues in social systems such as indigenous knowledge systems in education (cf. Davis & Sumara 2006). These are explored in this study side by side with the focus on the unravelling of the notion of complexity.

Complex Systems and Complexity Theories

The need for new ways of understanding is highlighted by Sanders and McCabe (2003:5) as follows:

The challenges of the 21st century will require new ways of thinking about and understanding the complex, interconnected and rapidly changing world in which we live and work. And the new field of complexity science is providing the insights we need to push our thinking in new directions. ...We now have the ability to move beyond the old reductionist paradigm; to look at whole systems; to study the interactions of many interdependent variables and to explore the underlying principles, structure and dynamics of complex physical, biological and social systems.

A very early paper published by Weaver (1948) suggests that the power of computers and cross-disciplinary collaboration through 'organized complexity' (539) might contribute to new learning and provide insights to problems of the day. In the past three decades, the Sante Fe Institute Consortium (SFIC) pioneered work in transdisciplinarity and regularly engages in complexity theories. Complexity theories, while originating from sciences, has grown rapidly in the last decade and has penetrated into educational (Davis & Sumara 2006; Morrison 2002) and social discourses (Byrne 1998) as well. There is no one theory of Complexity but a number have been put together as Complexity research or Complexity thinking (Manson 2001).

For a coherent understanding of Complexity thinking, common properties of complex systems include complex collective behaviour, signalling and information processing and adaptation (Mitchell 2009). Complexity thinking is a matter of 'perspective or framing' (which in our case relates to human intention, interests and action), 'level of detail' (fine or coarse graining), and the result of 'perceiving through observation' (Steward 2001:324). Weaver (2004:65) adds that Complexity theories are like 'pioneers in a new land, making new discoveries', are theories of change, evolution and adaptation, often in the interests of survival, and often through a combination of cooperation and competition (Battram 1999; Morrison 2002).

As scientists began looking for connections among different types of complex systems, the boundaries between disciplines began to open. Complexity steers away from the straightforward cause-and-effect models, and a reductionist approach to understanding phenomena, replacing them with organic, non-linear and holistic approaches. Complex systems consist of a large number of elements that in themselves can be simple. The elements interact dynamically by exchanging energy or information. These interactions form a rich network structure. Even if specific elements only interact with a few others, the effects of these interactions are propagated throughout the network system. The interactions are ‘nonlinear’ (Cilliers 2000:24) and focus on *relations* within interconnected networks as significant communication devices (Wheatley 1999). Complex systems are often described as open, recursive, organic, nonlinear, autopoietic and emergent.

The paper begins from a premise that IKS display characteristics of complex systems and that IKS and its embedded educational system can be better understood through the complexity system perspective. Cilliers (1998) lists ten characteristics that a complex system can be described by and IKS has yet to be explored from within this framework. Even within education, there are several approaches to complexity. Urry (2004:58) explores whether complexity theories can generate ‘productive metaphors’ that could illuminate globalised social and political events. He adds that the science of complex systems provides a way of thinking about social orders by utilising a set of concepts for describing the social world, rather than deploying a scientific understanding of complexity as an inherent quality of material reality. We are mindful that the ‘borrowing’ of metaphors and ideas from different approaches and borrowing piecemeal can bring about internal contradictions in claims, assumptions, etc. Noel Gough’s (2012) piece on methodological borrowing cautions us to the confusion that can arise when inappropriate ideas and metaphors are borrowed to analyse complex systems. Some of the key terms of reference and/or metaphors from Complexity applied to education and social systems can be equally valid for IKS such as: *self-organization, complex adaptive systems, non-linear change, emergence, diversity, differentiation and autopoiesis, networks, connectivity and relations, order without central control, feedback, open systems, collectivity, distributed knowledge, holism, and co-evolution* (Davis & Sumara 2006). In

considering the cautious borrowing of metaphors, I first address only three metaphors from the above list (due to space limitations and what I consider most appropriate), namely, *autopoiesis*, *emergence* and *holism* and elaborate on how these metaphors can generate understanding of IKS in education as a complex autopoietic system. I then examine the educational implications of using these metaphors in IKS. As an attempt towards a unified approach of Complexity, I draw on mainly the works of Capra and Luhmann and focus on *Complexity as communication - meanings arising through interactions of human consciousness and matter and embedded in non-linear network systems that have a history, a dynamic contextual structure with feedback loops that sustains and promotes autopoietic and emergent systems.*

Autopoiesis

Societies organise themselves structurally and often the interactions between levels of relationships are complex and not easily definable or traced. Complex systems can be understood in different approaches, for example, the Complexity theory proposed by scientists in trying to understand biological interactions in the field of neurobiology by Maturana and Varela. In their work together Maturana and Varela (1987) developed the idea of *autopoiesis* (self-production) as the primary feature that distinguishes living things from non-living things. *Autopoiesis* (from Greek *auto*, meaning ‘self’, and *poiesis*, meaning ‘creation, production’) literally means ‘self-creation’ and expresses a fundamental dialectic among structure, mechanism and function. An autopoietic system is autonomous and operationally closed, in the sense that there are sufficient processes within it to maintain the whole. Autopoietic systems are ‘structurally coupled’ with their medium, embedded in a dynamic of changes that can be recalled as sensory-motor coupling. From their theory of *autopoiesis* in biology, Maturana and Varela develop a naturalistic, non-transcendental and observer-dependent interpretation of cognition, language, and consciousness. They argue against any absolutely objective world; instead they claim that we bring forth a world with others through the process of our living in human created worlds that arise through language and the coordination of social interactions. Cognition is identified as the process of knowing, with the process of life, a mental activity including processes of perception, emotion and behavior. Cognition

according to Maturana and Varala (Capra 2004:34) is ‘the activity involved in the self-generation and self-perpetuation of living networks’. The interactions of living entities with its environment are cognitive interactions. Insights from complexity theories and cognition studies have been applied to other fields such as media, ecology, sociology, education etc. An application to sociology can be found in Niklas Luhmann's Systems Theory of social communication which is elaborated on later. The intention in this paper is not to elaborate on social theories developed historically but to identify ideas or metaphors of what makes a social system like IKS autopoietic. Philosopher Fritjof Capra (2004:82) is of the view that applying our knowledge of living networks to social phenomena and to validate the concept of *autopoiesis* in the social domain is still far from clear. Luhmann holds that the notion of *autopoiesis* can be extended to the social domain and he developed a theory of ‘social autopoiesis’. Luhmann (1990), however, takes the position that social systems while autopoietic are not living systems while Capra (2004:82-3) views social systems that involve human beings and cognitive systems such as language, consciousness and culture as alive to varying degrees. Luhmann’s (1990) central point is to identify communications as the key element of social networks: ‘Social systems are communication as their particular mode of autopoietic reproduction. Their elements are communications that are recursively produced and reproduced by a network of communications and that cannot exist outside of such a network; ...’ (3). These networks of communications are self-generating as each communication creates thoughts and meaning, which give rise to further communications, and thus the entire network generates itself - it is autopoietic. Capra (2004:83) emphasises that communication and feedback is the basis of autopoietic systems: ‘As communications recur in multiple feedback loops, they produce a shared system of beliefs, explanations, and values - a common text of meaning that is continually sustained by further communications. Through this shared context of meaning individuals acquire identities as members of social network, and in this way the network generates its own boundary’. The notion of *autopoiesis* has implications of viewing social systems such as IKS as networks of communications perceived as the dual nature of human communication, that is, ideas and contexts of meaning and the rules of behaviour embedded in social IKS structures.

To understand *autopoiesis* further within complexity, we need to explore key interrelated concepts that define the complex system of living entities. Manson (2001:409) elaborates that exploring the ‘relationship between entities, internal structure and surrounding environment, learning and emergent behavior; and how complex systems change and grow’ can give rise to understanding the complexity of life. Capra makes a similar assumption that there is a fundamental unity to life, that different living systems exhibit similar patterns of organisation like non-living systems. Cudworth and Hobden (2012) argue that if we can gain an understanding of these patterns then this can allow us insights into the workings of human societies. Complexity theories suggest that there are limits to what the social sciences are capable of, but we can use concepts from material non-living systems in a productive and cautious manner. It is possible to study the processes of *autopoiesis*, emergence and holism and to track the developments of social systems, and to increase our awareness of them as embedded within other social systems. However, Cilliers (2005:257) cautions us that it does ‘not provide us with exact tools to solve our complex problems, but shows us (in a rigorous way) exactly why those problems are so difficult’. In what follows, I examine IKS in education as an autopoietic system comprising of living and non-living entities in varying degrees of relationships to each other and highlight the inherent difficulties in education dominated by Western hegemony, power, research and curricula.

Metaphors of Complexity Applied to IKS

Autopoiesis in IKS

Indigenous knowledge is the historical, cultural and embodied knowledge of local communities acquired over centuries. While, customs, rituals, artifacts, paintings etc. of IK are explicit evidence of non-living components of IKS, IKS also contains *implicit* knowledge, links and connections that are often elusive to outsiders but accessible to the indigene consciousness. With growing cosmopolitanism, the recognition of one’s own cultural knowledge and its integration in formal educational structures become paramount towards the realisation of one’s own identity and community’s aspirations and survival. While Western knowledge has resulted in material benefits but

with irreparable damage to the environment, there are still millions living in poverty, unemployment and lack of formal education. On the other hand, IKS is eco-friendly, sustainable, based on respect and humanistic and can enhance the learning endeavor towards cultural relevant education. Concepts of respect, morality and ethics – ‘ubuntu’ in Africa and wise ecological use of the resources, display *autopoiesis* in that both material and living things are construed in harmonious relation and preservation with each other. Ubuntu creates thoughts and meanings practiced through indigenous social and cultural activities. For example, an inyanga (herbalist) uses only one-tenth of his/her stock of plants ensuring the survival of valuable plant species. Human consciousness as meaning, communication, and survival through conservation has led to the self-organisation and permeation of IKS cultural practices via network structures. Steinberg and Kincheloe (2008:138-9) summarise the view of indigenous scholars and philosophers as follows:

...we want to use indigenous knowledge to counter Western science's destruction of the earth. Indigenous knowledge can facilitate this ambitious twenty-first century project because of its tendency to focus on relationships of human beings to both one another and to their ecosystem. Such an emphasis on relationships has been notoriously absent in the knowledge produced in Western science over the last four centuries.

One way to explore IKS is to use the structure of scale-free networks (often used in science) as it can provide a framework of IKS links and then explore useful metaphors to extend the thinking in IKS epistemology. This approach allows for a deeper exploration of understanding phenomena, their links and dynamics at varying levels. Capra (2004) offers a similar model for understanding social systems. Capra's notion of social reality also stems from Maturana and Varela's postulations of biological life processes. Complexity theories explain how large-scale complex phenomena organise and adapt from interactions of a myriad of individuals parts in complex systems. In analysing social reality, Capra (2004) uses insights from theories of living systems including nonlinear dynamics or ‘complexity theory’ and uses the terms ‘ patterns of organization’ – the relationships among system ‘components’ and ‘structure’ – the material embodiment of its pattern of

organisation. This he equates to ‘form’ and ‘matter’ and adds a third perspective to living systems called ‘process’ (Capra 2004:71). These form a pattern of organisation that can only be recognised if it is embodied in matter, and in living systems. Thus life and matter interacts through non-material forms - organisation, complexity, processes etc. Capra adds a fourth perspective when applying complexity thinking to social systems - that of meaning. In social systems we come across multitude phenomena such as values, ethics, social rules of behaviour, power relations, and designs of organisations. While these are non-material (matter) phenomena, they are essential to human social life. IKS can be considered as a complex human-environment system (Figure 1) as elucidated by Capra and consists of centuries of trial and error experiences, practical wisdom of the earth, applied knowledge and historically acquired cultures. It is embedded and shared locally through collective network structures and diverse learning modes (Sefa Dei 2008).

Varela and Maturana’s, Capra’s and Luhmann’s ideas of complexity are also embodied in IKS –IKS are the basis of human consciousness, namely, *communications and meaning*. In IKS, these are mediated by communication links (nodes) at primary level of human-matter interactions that generate meanings (IK) that are localised and embedded in social and cultural practices. Numerous nodes are connected to form larger hierarchical decentralised structures (hubs) resulting in more complex associations to a network system. Thus IKS comprises of intricate networks of nodes and hubs, connected by links, with a wealth of meanings in context. IKS hubs that can be identified include the cosmology of IKS, agriculture, local to global connections, methods of practice, social justice such as morality and ethics as in ubuntu etc. The hub cosmology itself includes multiple links connected to nodes comprising of spirituality, morality, ethics, ubuntu, God, ancestral spirits, etc. The identification of decentralised networks of links, nodes and hubs in a phenomenon such as IKS (Figure 1) is often taken as a critical indication of complexity and *autopoiesis*.

A hub of social power in IKS consisting of law, politics and power which are embedded in traditional councils consisting of chiefs, elders, priesthood etc. operate with other intertwined hub structures. This decentralisation of power is often more robust, efficient and provide feedback loops than centralised networks and are not easily susceptible to

collapsing. For example, if one hub or node is broken then other links, nodes, and hubs ensure the survival of the network.

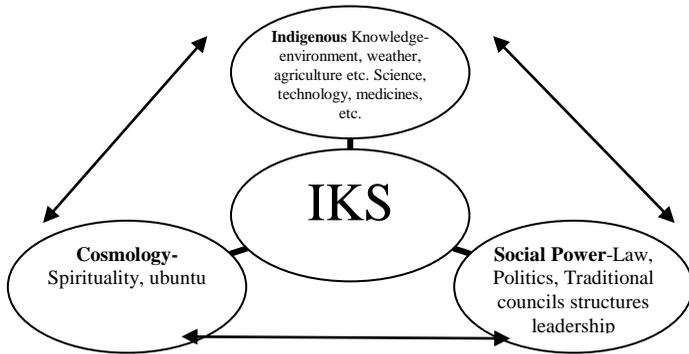


Figure 1: A simplified network for IKS

A network system is ‘a more viable structure for any system that relies on the efficient exchange of information - a category that includes all living and learning systems’ (Davis & Sumara 2006:88).

Autopoiesis as a model for self-creation/self-organisation of culture that includes IKS seeks through communication via the network structures (Figure 1) to produce, process, re-create through feedback loops that give shape to complex systems. Hubs also allow for external networks that allow for information to flow, in and out, re-creating IK in the process. Maintaining strong connections and linkages between hubs require processes of communications that link organisations of power to cognitive and social processes and to contexts linking systems of thought resulting in multiple ‘ways of experiencing’ the world. Thus, autopoiesis as imagery presents us with ‘history and culture as a map’ (Deleuze & Guattari 1980) that reveals

IKS arising from evolutionary processes involving dynamic, social and environmental interactions embedded in network structures.

Using Capra's idea of knowledge making-meaning and human consciousness, that is, the interaction of structure, form, process and meaning and Luhmann's social autopoiesis that embeds social networks, IKS can be viewed as encompassing individual cognition mediated and supported by sustained collective communication. Using Capra's framework for IKS, this comprises material structures and form (design or patterns of organisation) in the environment like homesteads, fields, villages, technologies conceived and built through generations by IKS communities and material goods generated and evolved from agricultural practice such as food including maize, yam, rice, fish, cattle etc. and artifacts such as curios, paintings, pottery, clothing, beadwork etc. These are exchanged between network nodes like villages and ports leading to networks of physical communication. Thus the structures in a social system are different from that of biological cellular structures and are created for a purpose, according to some design, and they embody, through processes, some meaning. For example, the colourful and 'grotesque' masks used in many African rituals display the status of the wearer as well. In African communities, the mask festival serves to empower creativity in art and sculpture as well as to display caricatures of power and status in society. These are now sold as curios to foreign visitors and museums. While extending the economic network of material goods (matter) to other parts of the world, these masks unless understood have little meaning on foreign walls except for the indigene community. Thus embedded in meaning-making are processes arising from the interaction of form and matter that embody human experiences and with the metaphysical leading to inseparable links to physical reality, emotions and spirituality. Capra (2004:84) elaborates on these multi-dimensional forms of communication as follows: 'The perspective of meaning includes a multitude of interrelated characteristics that are essential to understanding social reality'. As we have seen with the masks, meaning itself is embedded in the cultural context that gives a symbolic representation to rituals, customs, and power structures-revealing a systematic cultural phenomenon and where meaning is largely localised. When we interpret something we put it into a particular context of concepts, ideas, values and beliefs. We need to relate the phenomena to things in its environment, in its past or its future. Capra

(2004:84) stresses that ‘Nothing is meaningful in itself’. Integrating both Capra’s communication ideas and structural-network perspectives aid our understanding of social phenomena such as culture that are sustained by a network (form) of communications (process) embedded in material artifacts and written texts (matter) in which meaning is generated and passed on to the following generations. Our ability to hold mental images and project them into the future allows us to develop goals, purposes, design and strategies and also enables us to choose alternatives and hence formulate rules and social values of behaviour. All of these social phenomena are generated by networks of communications as a consequence of the dual role of human communication leading to an integrated system of values, beliefs, and rules of conduct producing culture.

Culture arises from a complex, highly nonlinear dynamic with multiple feedback loops and extends and limits actions of individuals through a re-enforced network of communications. IKS embodies culture. Viewed from Capra’s notion of meaning, IKS is therefore an organised social system of knowledge and since the organisation of social systems is self-generating networks - they are autopoietic systems. The network structures from complexity theories are the nodes, links and hubs. These communication devices in IKS become sufficiently complex such that a large number of hubs control multiple nodes of activity resulting in a complex and ‘self-organized’ behaviour (Mitchell, 2009:286). At local levels, self-organisation of indigenous community and their collective activities are evident in their daily social activities. When self-organisation operates effectively, the community or its IKS is characterised by *adaptability, open systems, learning, feedback, and communication* (Cohen & Stewart 1995; Prigogine & Stengers 1985). These self-organisation characteristics identified in complex systems are evident in indigenous communities as in other social systems; there are ongoing interactions with the self, others and the environment. Learning of one’s role within IKS through social practices and apprenticeship are informal educational structures. Engagements with other localised communities are part of open-systems, sometimes exchange of material goods, intermarriages, cultural exchanges and ideas occur, strengthening and adding value to the network of IKS. Mitchell (2009:12) adds that complex collective behaviour is the ‘collective actions of vast numbers of components that give rise to the complex, hard-to-predict, and changing patterns of

behaviour that fascinates us'. While some 'systems *need* disequilibrium in order to survive' (Stacey 1992), IKS generally deplore completely closed and individual systems as those in long-term stable equilibrium often become isolated and when challenged with new ideas, possibly face extinction. In the process of self-organisation, the organism (the local indigenous community), and the system of which it is a part of the larger regional community (IKS), demonstrate *autopoiesis*, that is, they have their own identity and nature and they self-create these. Hence, in the case of indigenous communities, they become diverse, adaptable in their cultures, environment and knowledge systems. The nature of adaptation depends on the stress and current influences on the system and solutions are immediately sought to address the problem. The creation of a unique and collective identity gives the local community knowledge and its constituent elements a capability for survival, through increasing differentiation - they become unlike other systems, and, thereby, their uniqueness provides their niche in the world, and that unique situation contributes to their survival. For example, in indigenous communities, the shortage of food and labour in one locality is supported by another local community until stability is reached whereas we have seen in Western communities access to food and labour is left to individual resources and wealth leading to poverty in poor communities.

Emergence in IKS

Another useful metaphor in complexity is *emergence*. Cilliers (2010:40) adds that complex systems have emergent properties, that is, 'properties that cannot be simply reduced to properties of components in the system'. Complexity offers us a way to think about relationships between inputs and outcomes that do not impel us to seek evidence of causal relationships between them. Complexity suggests that educational processes like IKS ought to be characterised by gaps between 'inputs' (policy, practices) and 'outputs' (learning). In Biesta's (2009) terms, these are not gaps to be 'filled' but sites of emergence. As Goldstein (1999:49) writes, emergence 'refers to the arising of novel and coherent structures, patterns, and properties during the process of self-organisation in complex systems'. In other words, what we have previously imagined to be 'outcomes' or 'products' - knowledge, understandings, individual subjectivities, etc. emerge in and through

indigenous educational processes in unique and unpredictable ways. As Biesta (2009:40) argues, education - and I add also indigenous education - contributes not only to 'qualification (the transmission of knowledge and skills) and socialization (the insertion of individuals into existing social, cultural and political orders)', but also to processes of subjectification - of becoming a subject. In IKS, the emergence of 'socialised' individuals occurs through the process of years of apprenticeship and experiences gained from a collective educational system.

Creative emergence in systems requires a process of change, determined in part by the need for survival, and is itself a 'process characterized by increasing connectivity, networking and feedback' (Stacey, Griffin & Shaw 2000:146). Most IKS worldwide through forceful colonisation and decimation of their own cultures (like the First Nations of America) have integrated their way of life in various degrees to accommodate Western culture, education and economies. However, their worldview, for most, is still rooted in their cultures and when cultural barriers are crossed, new challenges in education emerges. For example, theories of cultural crossing like collateral learning theory (Jegade & Aikenhead 1999) describes how people cope with disparate worldviews mediated by transcending cultural borders between their everyday culture and the culture of the scientific world. Emergence as a metaphor is thus useful in probing how changes and new links and hubs are formed when IKS are integrated with other knowledge systems. The implication of this holds pedagogic value when students from indigenous backgrounds enter foreign learning environments and requires greater research.

Holism in IKS

Complexity in the social world recognises that, and in much of reality including biological reality, 'causation is complex' (Byrne 1998:20). The outcomes are determined by multiple causes and the resulting effect is not usually the sum of separate effects. In IKS there exists a dynamic relationship between the 'being' and its environment; they change each other (Battram 1999). One is a member of a web of life, relations and networks (Capra 2004). Further, one cannot consider the 'being' without considering its environment; thus the emphasis is on collective, relational behaviour and

holism rather than on isolationism and individualism. The whole is greater than the sum of its parts, and these parts interact in dynamical, multifarious ways, thereby producing new realities, new collectivities and new relations. Educational activities of teaching and learning are deeply ingrained and embedded in IKS that it is often taken as 'normal daily activities of learning and interacting with the environment'. For example, story-telling in oral traditions has blended learning outcomes to develop significant educational and social outcomes such as historical and cultural information, listening skills, group participation, knowledge of and relationships in the environment, moral and social values. The characteristics of holism are often embedded at a collective level in IKS where sophisticated but unraveled thinking processes are deeply embedded in socio-cultural activities and philosophies. Another example is knowledge of the cosmos, sky and natural phenomena that are linked to spirituality, customs and traditions. Lightning as a natural phenomenon in indigenous communities is holistically connected to the cosmos, diviners (sangomas), ancestors, safety and the environment.

Educational Implications of Viewing IKS as Complexity Phenomenon

Complexity Affords a Perspective of Viewing the Impact of Global Knowledge Systems on IKS

The influence and effects of globalisation on knowledge systems mean that there is a greater need to critically challenge and cooperate with mainstream ways to create a platform to integrate IKS with other knowledge systems especially Western science (Wallner 2005). IKS is a culturally-rooted relevant point for the interface with other knowledge systems for the promotion of sustainable development. In addition, challenges faced by the global community provide an opportunity to explore IKS and other related knowledge systems as a central point of reference in pursuit of sustainable solutions with a potential to contribute to economic and social discourses. Emeagwali (2003) argues that IKS have implications for sustainable development, capacity building and intellectual development in Africa in the 21st century and hence has outcomes for education. The role of local ecological and cultural knowledge in resource management and sustainable

yield production is momentous now in seeking imperative solutions to climatic change, poverty alleviation, environmental sustainability and global warming (Maila 2007). Nobel peace laureate Maathai adds that the environment needs to be the centre of all challenges and decision making and that ‘Development practices must be conceived and implemented holistically’ (20). There is also a growing intellectual awareness of the environmental impacts on the Earth by (human) social interactions and if African countries are to achieve the desired level of economic and agricultural production, then metaphors of *autopoiesis*, *emergence* and *holism* in IKS have a greater role to play in understanding how natural resources are to be managed.

Complexity Provides Avenues to Integrate IKS with Science and Education

The metaphors in Complexity invite us to understand our physical and social worlds as open, recursive and organic and to be cautious of complying with models and trends in education that assume linear thinking, control and predictability. William Doll (1986) was one of the first education scholars to explore the theoretical and practical implications of reconceiving curriculum, teaching and learning by reference to concepts associated with chaos and complexity theorising in the natural sciences. Doll (1993:12), using the concepts of ‘self-organization, dissipative structures, ecological balance, punctuated evolution, and complexity theory’, suggests the major strength of post-modernism is the creation of new knowledge and the transformation of learning. Re-conceptualising the curriculum to incorporate metaphors of *autopoiesis*, *holism* and *emergence* in IKS teaching and learning in complexivist terms ‘foregrounds the unpredictable and generative qualities of educational processes’, and invites educators and students to value that which is unexpected and/or beyond their control (Gough 2012:41). Thus, IKS becomes both a catalyst for transformation and itself is transformed through feedback loops by interacting with other knowledge systems. Breidlid (2009) points to the significance and impact of classroom and community learning and teaching of IKS as pivotal for meaningful education and relevant community development. The mismatch between indigenous

learning patterns at home and formal Western education can be narrowed if IKS is integrated into the curricula. This step will affirm its values and traditional knowledge as integral to the academy. Education and training in IKS then implies several purposes such as promoting synergy, creating awareness, understanding and helping to reduce the gap between home and school, promoting cooperation between educational institutions and local communities and affirming cultural values. In addition, integrating IKS into the formal educational system requires knowledge of interfacing with other knowledge systems and how to enhance cross-cultural understanding. Kincheloe and Steinberg (2008:143) emphasise that ‘any study of indigenous knowledge in the academy must allow for its evolution and ever changing relationship to Eurocentric scientific and educational practice’. The metaphors of autopoiesis, emergence and holism can provide conceptual access to analyse and follow transformation pathways in IKS.

Complexity Allows for Examining Power Relationships in IKS and Western Knowledge Systems in the Academy

Sefa Dei *et al.* (2008:xi-xii) recall their students asking them why ‘certain experiences and histories count more than others when ‘valid’ academic knowledge is being produced and validated’ and their lamentations of why educators do not recognise the linkages to their ‘identity, schooling and knowledge production’. While IKS and its philosophy have made inroads into critical pedagogy theory, IKS and its epistemology still need greater elucidation. In this regard, Kincheloe and Steinberg (2008:136) lament that ‘We find it pedagogically tragic that various indigenous knowledges of how action affects reality in particular locales have been dismissed from the academic curricula’. Thus, indigenous scholars see the ‘production and validation of indigenous knowledge and the centering of them in the academy, as an important task for educational and social change’ (Sefa Dei 2008:70). Van Wyk (2002:305) suggests that IKS, as a framework of thinking about our local context, ‘seeks to problematize the insufficient integration of the cultural-social and the canonical-academic dimensions of natural science and technology education’. In social systems and in IKS, the driving force of *autopoiesis* is power reflected in social hierarchical status,

material and military resources and spiritual beliefs. When different cultures come into contact, struggles of power ensue and IKS do not 'sit in pristine fashion' outside of the effects of other knowledges but transform as well. In particular, autopoiesis reveals that 'Indigenous' implies maintaining that different bodies of knowledge continually influence each other to show the dynamism of all knowledge systems (Dei 2000: 111). Thus the metaphor *autopoiesis* leads to a critical examination of sites of power in systems and to view IKS as equally contributing to understanding and contributing to a sustainable world. Academic programmes in tertiary institutions are now seeking to address this challenge through research, mainstreaming and integrating of courses to incorporate IKS (Makgoba 1999; Sefa Dei *et al.* 2008; Sillitoe, Dixon, & Barr 2005). Governments are becoming proactive and states have afforded funding to IKS research programs to address both decolonial and development programmes relevant to the renaissance of African societies (Makgoba 1999). To promote research and development within an African context implies including IKS that encompasses maritime studies, agriculture, food security, cultural astronomy (Govender 2009 2011; Selin 2000), education (Naidoo 2010) etc. At present the compartmentalisation of knowledge is entrenched as isolated disciplines at universities but cross-disciplinary studies are now being facilitated, albeit slowly.

I argue that IKS epistemology viewed through the lens of metaphors such as autopoiesis, emergence and holism in Complexity thinking makes it incumbent for university curricula to be re-structured. This can proceed through seeking platforms for interdisciplinary connections, integration of science and IKS, and exploring culturally appropriate research methodological trends. This approach can contribute to a deeper exploration and understanding of the 'autopoietic' nature of IKS. Thus an autopoiesis process can reveal the workings in IKS and this has implications for the promotion of multidisciplinary research at universities as well as to counter and challenge historical effects of colonial hegemony (Sefa Dei *et al.* 2008). Applying Complexity thinking to IKS implies integration with Western education in a holistic and critical manner (Van Schalkwyk 2007). Klos's (2006) study in tertiary education confirms that the inclusion of indigenous knowledge in a scientific academic language support programme proves to be helpful to students and provide a model for student access to scientific content and academic language knowledge, skills, and democratic attitudes

and values. The valuing of IKS in humanities also has an important role in affirming the identity of the colonised and subjugated societies (Department of Science and Technology 2004; Sefa Dei *et al.* 2008). Therefore, in this respect, Battiste (2000:183) indicates that ‘there is a shared body of understanding among many Indigenous people: these teachings are really about helping an individual find his or her face (identity)’. This implies finding out your cultural identity, your community link and your unique character and contribution to society. Elders hold a fount of traditional knowledge, moral values and ethics and these have led to a sustainable way of life over centuries. The lack of many of these ‘identity’ qualities in the lives and practices of the young today indicates a moving away from these treasured teachings. How we distil and blend these repositories of knowledges is now the serious task for educators. McDermott and Varenne (2005:x) add that with an increase in the cultural variation of students, ‘Non-Western, indigenous and traditional world views are brought into the schooling process, creating classrooms in which cultural brokering becomes even more essential part of the teaching job than it has always been’. Hence, the rationale behind the academic advancement of IKS and the inclusion of it in tertiary education is not only to fulfill a critical, cultural and sustainable need but also to counteract the negativities of hegemonic societies in attaining equality.

Conclusion

Indigenous knowledge and why IKS education are still relevant in seeking resolutions to current challenges are discussed in this article. It argues that IKS and its epistemology perceived through the metaphors of autopoiesis, emergence and holism from complexity theories hold relevance for the outcomes of education. The educational implications of applying the metaphors to IKS and education are also discussed. The paper suggests that these metaphors provide a critical pedagogical stance to begin exploring network structures in not only achieving a holistic but organic perception of IKS but to critically view the power relations of knowledge domains. These metaphors in complexity begin a way to redefine new and emergent boundaries of knowledge taking into account historical and current indigenous knowledge and culture. The study of IKS as complexity implies

that curricula at universities should be creatively re-written with disciplines re-structured and knowledge integrated with cross-disciplinary teaching and learning to solve current problems in society.

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Exploring University Educators’ Lived Experiences of Curriculum Innovating through Integrating HIV & AIDS

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Abstract

There is a growing realisation of the vital role that Higher Education institutions in South Africa can and should play in keeping students not only alive, well and productive but also prepared to face the multiple challenges associated with living and working in the context of the HIV & AIDS pandemic. This article reports on part of a larger research project that explores the experiences and work of university educators who are involved in curriculum innovating through integrating HIV & AIDS in their teaching at a South African university. The objectives of the larger study are to locate, document, highlight, encourage and explore further possibilities for curriculum innovating through integrating HIV & AIDS in Higher Education teaching. This article responds particularly to the following research question: What are the lived experiences – personal and professional – of curriculum innovators who integrate HIV & AIDS into their teaching? We point to three significant aspects of the lived experiences of curriculum innovating – selfing, distancing and valuing – and highlight the commitment of these curriculum innovators to making a difference as well as drawing attention to the emotional and professional challenges they encounter.

Keywords: Curriculum innovating, Higher Education, HIV & AIDS, Integration, South Africa

Introduction

In 2010, the United Nations Programme on HIV & AIDS reported that insufficient progress had been made thus far in disrupting the trajectory of the HIV & AIDS pandemic, particularly in Southern Africa. The projection of the Institute of Medicine of the National Academies Report (2010) of a sustained increase in the number of people living with HIV & AIDS globally over the next 40 years affirms the United Nations' findings which, in turn, reminds us that young people between the ages of 15 and 24 years of age accounted for 79% of new infections in sub-Saharan Africa in 2009. South Africa contributed significantly to this figure. Given these statistics, it is vital that policy makers, curriculum scholars and teachers, at all levels of education, address HIV & AIDS through educational efforts, especially in the Southern African region, which remains the epicentre of the disease.

Recent research (HEAIDS 2010a; 2010b; 2010c) highlights a growing recognition of the critical role that Higher Education Institutions (HEIs) in South Africa can and should play in helping students live and cope with the multiple challenges associated with living and working in an age of widespread HIV & AIDS. As indicated by the South African National HIV Prevalence survey (Shisana *et al.* 2009), the populations most at risk are made up of Black females between the ages of 20 and 34 years (with an HIV prevalence rate of 32,7%) and Black males between the ages of 25 and 49 years (with a prevalence rate of 23,7%). Significantly, however, an HIV prevalence survey conducted at approximately the same time in South African HEIs (HEAIDS 2010a) indicated that the mean prevalence rate for HEI students across South Africa was 3,4%. This implies that students, who tend to be in the same age category as the population that is most at risk, present with a lower prevalence rate. Hence, it is important for HEIs to seek innovative educational strategies that can contribute to at least maintaining this apparently lower student prevalence rate (Wood 2011).

According to HEAIDS (Higher Education HIV/AIDS Programme of South Africa), '... not only is there relatively little known about how various HEIs in South Africa are integrating HIV/AIDS into the curriculum, but these is also little known about the 'drivers' or the champions, the academic staff who are committed to addressing HIV/AIDS in their teaching' (2010c:27). Lesko (2007) identifies two distinctive approaches to addressing HIV & AIDS across disciplines and campuses at the University of KwaZulu-Natal.

She terms these the ‘technical-managerial’ and ‘interdisciplinary-activist’ approaches (2007:337-339). Lesko describes the technical-managerial approach as one that promotes ‘values of procedural justice and individual rights and dignity’ (2007:342). She goes on to note that this approach is ‘grounded in a discipline-based segmentation of knowledge and presumes that individual instructors are the primary curriculum decision-makers’ (342). In contrast to this, the interdisciplinary-activist approach promotes a social cohesion model ‘in explicating values such as equality and justice, in teaching an integrated form of knowledge, and in supporting close relationship among instructors’ (342).

More recent research conducted by Wood (2011) in three faculties at another South African university explores university educators’ views on integrating issues related to HIV & AIDS into tertiary education programmes. She concludes that although these educators overall are willing to integrate themes and issues related to HIV & AIDS into their teaching, there is still much to be done. Using the formulation of the American Association of Colleges for Teacher Education (AACTE 2006), she argues that it is necessary to shift the mindsets of many university educators in order to develop ‘a humanising pedagogy [that] aims to develop the whole person’ (832) as an approach to curriculum innovation in the age of HIV & AIDS. In support of her argument, Wood draws attention to the work of three university educators as examples of best practice of HIV & AIDS integration. Features of this best practice approach include a ‘willingness to experiment’ (830) and the use of participatory pedagogies. She highlights the ‘enthusiasm and excitement’ (830) with which these educators discuss their integration of HIV & AIDS, but goes on to note that they ‘appear to be working in isolation’ (831) and, typically, do not discuss this work with their colleagues.

The research discussed in this article complements the studies done by Lesko (2007), Wood (2011) and HEAIDS (2010c) in that the article takes a close look at the lived experiences, personal and professional, of ‘champions’ as they are termed by HEAIDS (2010c:27) or ‘innovators’ as we call them, of HIV & AIDS integration. According to HEAIDS (2010c:27), there is relatively little known about the ‘‘drivers’ or the champions, the academic staff who are committed to addressing HIV/AIDS in their teaching’. Following from this introductory section, the article offers a consideration of its theoretical focus—what we refer to as ‘curriculum innovating’. We then go on to describe the study, which involved in-depth

interviews with seven university educators working in a variety of disciplinary areas in a School of Education. In the next section, we consider the various approaches of the participants to HIV & AIDS integration and discuss their approaches to curriculum innovating in the light of three notions—selfing, distancing and valuing. In the final section, we draw conclusions and explore the implications of this work.

Curriculum *Innovating* as a Theoretical Focus

In thinking about inter-relationships between curriculum innovation and the integration of HIV & AIDS in Higher Education, we are drawing on theoretical perspectives from the field of curriculum studies, in particular, the domain of curriculum inquiry. In our study, we are exploring the ‘experiential level’ (Goodlad 1994:1263) of the curriculum field, where curriculum inquiry comes as close as possible to actual lived experiences and connects the theoretical with the practical by aiming not only to make sense of, but also to make a difference to, people’s lived experiences of education (Goodlad 1994; He 2010; Miller 2000). Our research into university educators’ lived experiences of integrating HIV & AIDS is theoretically informed by an approach to curriculum inquiry that has come to be known as *autobiographical curriculum theorising*. This approach initially emerged in the 1970s through the work of curriculum scholars William Pinar and Madeleine Grumet (1976), who brought together phenomenological perspectives that emphasise the fundamental significance of human lives, contexts and relationships in education with autobiographical perspectives that draw attention to the educational significance of human beings’ examination of their own personal or interior experiences—past, present and future (Grumet 1989; He 2010; Miller 2000, 2010a). Pinar and Grumet’s notion of autobiographical curriculum theorising was grounded in Pinar’s conceptual work (1975) on the term *currere*, which is the infinitive form of the Latin etymological root of the word *curriculum*. *Currere* means *to run* and thus, when re-rooted in *currere*, curriculum is re-conceptualised as a verb or an action (*to run* a course) rather than a noun or an object (a set course to be run, followed or developed) (Miller 2000, 2010a). As Pinar (2010:178) explains, from this viewpoint,

[c]urriculum ceases to be a thing, and it is more than a process: it becomes a verb, an action, a social practice, a private meaning, and a public hope. Curriculum as *currere* is not just the site of our labor, it becomes the product of our labor, changing as we are changed by it.

Hence, in our study, this experiential and fluid re-conceptualisation of curriculum as *currere* informs our theoretical focus on *curriculum innovating* (rather than *curriculum innovation*). Following Pinar's example, we go back to the Latin root of innovate, which is *innovare*, meaning *to renew* or *to make new*. As we demonstrate in this article, in using our *curriculum innovating* lens we come to understand the integration of HIV & AIDS in Higher Education as a deeply personal and inward, yet simultaneously social and interactive, practice that continually renews or makes new university educators' pedagogy and their personal and professional selves in ways that can give them a profound sense of achievement, of making a difference, but that can also be personally and professionally painful and daunting as well. Thus, the view of HIV & AIDS integration afforded through this theoretical lens is multifaceted and pushes us to consider the personal and professional complexities of university educators' lived experiences of curriculum innovating as they 'remake [themselves] and their work, again and again' (Miller 2000:265).

The Study

The research context for this study is a university located in the province of KwaZulu-Natal, where there is an estimated HIV prevalence rate of 39,5% (AVERT 2011). This article draws on preliminary data generated as part of a three-year research project¹ which explores the experiences of educators at this university who are involved in curriculum innovating through integrating HIV & AIDS. The article responds to the following research question: What are the personal and professional lived experiences of curriculum innovators who integrate HIV & AIDS into their teaching at a South African university?

¹ The title of the larger project is 'Exploring and showcasing the work of lecturers at higher education institutions in the Durban area who integrate HIV&AIDS education in disciplines'. This research project is supported and funded by a University of KwaZulu-Natal Teaching and Learning grant.

To enhance the trustworthiness of our study, we have used Mishler's (1990) concept of trustworthiness for inquiry-guided (as opposed to hypothesis-testing) research. Mishler advises that in order to establish trustworthiness researchers who are 'engaged in inquiry-guided and interpretive forms of research have the task of articulating and clarifying the features and methods of [their] studies, of showing how the work is done and what problems became accessible to study' (423). Accordingly, in this article, we endeavour to give a clear and detailed account of our research process.

The research team for this project consists of five university educators who have different professional and disciplinary backgrounds, but who have a mutual interest in the integration of HIV & AIDS into Higher Education teaching. We teach and research in various domains within the Teacher Education field: Gender Studies; Languages and Arts; Mathematics; Science; and Teacher Development Studies. We are thus well-placed to engage with a wide disciplinary spectrum of colleagues who address HIV & AIDS in their teaching. For this article, we used what Kirk refers to as a 'starting from the self' (2005:240) approach to explore the experiences of colleagues who integrate HIV & AIDS into various disciplines in our School of Education (see also Van Manen, 1990). We focus particularly on the experiences of seven participants who are located in the School of Education and who were interviewed in the first year of the study. (Educators from other Schools within the university will be interviewed as the project continues.)

The seven participants from the School of Education were selected to be interviewed because they are known to us or our colleagues as HIV & AIDS curriculum innovators (champions). We have been involved in collaborative teaching and research with many of these HIV & AIDS curriculum innovators and have also encountered them in HIV & AIDS-related workshops, colloquia and conferences that we have attended. In other words, the participants were selected for convenience and purposive reasons. Table 1 is a summary of the participants' broad areas of disciplinary specialisation and the variety of academic programmes in which their teaching modules are located.

The semi-structured interview schedule we used was designed to explore the work of university educators who integrate HIV & AIDS into their teaching. The schedule included questions linked to the modules and programmes in which the participants' curriculum innovation was located, as well as questions about the participants' selection of HIV & AIDS-related

Table 1: Participants' Areas of Disciplinary Specialization in Particular Academic Programmes

| University educator (pseudonym) | Disciplinary specialisation | Academic Programmes |
|---------------------------------|-----------------------------|---------------------|
| Leela | Languages and Arts | BEd |
| Sbu | Social Sciences | BEd |
| Pesh | Social Sciences | BEd, BEd Hons |
| Cammy | Social Sciences | BEd, PGCE, BEd Hons |
| Solo | Education Studies | BEd, BEd Hons, MEd |
| Mlu | Education Studies | BEd, BEd Hons |
| Desiree | Education Studies | MEd |

Key: Social Sciences (Commerce, Life Orientation, Travel & Tourism); Education Studies (Educational Psychology, Gender and Education, Curriculum Studies, Teacher Development Studies); Bachelor of Education (BEd); Post Graduate Certificate in Education (PGCE); Bachelor of Education Honours (BEd Hons); Masters in Education (MEd).

issues and their approaches to integrating HIV & AIDS. In this article, we focus on their lived experiences of curriculum innovating by analysing their responses to questions about their successes and challenges in relation to integrating HIV & AIDS.

The participants were asked to respond orally to questions during one-on-one interviews or to respond electronically in writing to the questions. Each one-on-one interview was conducted by a member of our research team who was available to meet with the particular participant². Two of the seven participants (Sbu & Leela) emailed their written responses because of difficulties experienced in finding mutually convenient times for one-on-one interviews.

² When we were analysing the interview transcripts, it became clear to us that richer, deeper data was obtained when the one-on-one interview method was used. Consequently, for further interviews for this project, we will use only one-on-one interviews.

During these interviews, we and our participants revealed our mutual concerns and interest in HIV&AIDS integration. Perhaps because of our previous collaborations or shared connections with the participants, we found that they divulged their lived experiences of curriculum integrating in a trusting and empathic manner. Tillmann-Healy (2003:738) draws attention to how an ‘empathic connection with the friend/researcher ... can help participants feel heard, known, and understood’ and, correspondingly, we observed that the interviews seemed to serve as a way of supporting and reassuring the participants in their integration endeavours.

In particular, our experience of conducting one-on-one interviews with five participants has highlighted for us the emotional aspects of conducting research on topics that can be especially sensitive and emotionally challenging, such as HIV & AIDS. In conducting the interviews, as well as in reading the transcripts of these interviews, we came into direct contact with the lived experiences of the educators. We found ourselves sharing in their enthusiasm and passion for integrating HIV & AIDS, but we also shared in their doubts and fears and became more aware of some of the emotionally painful ways in which HIV & AIDS affects the lives of students and university educators. Literature on the emotional dimensions of research (see, for example, Dickson-Swift *et al.* 2008; Hubbard, Backett-Milburn & Kemmer 2001; Mitchell & Irvine 2008; Pithouse-Morgan *et al.* 2012; Rager 2005a, 2005b) reminds us that it is vital to pay close attention to the emotional impact of the research process on us as the researchers and on our participants³.

In line with the university’s ethical clearance requirements, written consent was obtained from each participant. Additionally, we asked participants to provide their own pseudonyms and to verify that their

³ Hence, in going forward with our research project, we realise the importance of arranging a group session with a counsellor for our research team to ensure that when we are conducting interviews, we will feel able to respond in appropriately supportive ways to the emotional content of the interviews and to know when and how to put our participants in touch with counselling and support services or, indeed, to access such services ourselves. We also plan to invite our participants to a session on dealing with the emotional aspects of integrating HIV & AIDS into Higher Education. We see this as an important ethical responsibility in our research.

responses quoted in this article are accurate representations of their views and experiences. The interviews were transcribed and circulated to all members of the research team. We then met to discuss our reading of the transcripts and our experiences of conducting the interviews. Together, we worked through an inductive process to look for ‘emerging patterns, associations, concepts and explanations’ (Nieuwenhuis 2010:107) in response to our guiding research question for this article. We began by considering what the data told us about *how* these participants were actually integrating HIV & AIDS into their various modules (as discussed in the following section). Additionally, looking through our *curriculum innovating* theoretical lens, we identified three significant aspects of our participants’ *lived experiences* of curriculum innovating, which, as we have mentioned, and as we describe in more detail in a later section, we have termed *selfing*, *distancing* and *valuing*.

Approaches to Integrating HIV & AIDS

As explained above, this article focuses particularly on the lived experiences of university educators in our School of Education who are engaging in curriculum innovating through integrating HIV & AIDS into modules in Teacher Education. Schools of Education at HEIs have very specific responsibilities in relation to HIV & AIDS. These include ensuring that students who are preparing to become teachers, or who are already teachers, are HIV-aware, HIV-safe and HIV-knowledgeable. These students can, in turn, serve as leaders who can make a difference when they themselves are tasked with teaching about HIV & AIDS in their own classrooms. In seeking ways to find a space for HIV & AIDS in Teacher Education, one of the recommendations made by HEAIDS is that ‘curriculum design and its link to qualifications in relationship to outcomes for addressing HIV/AIDS in teaching is key’ (HEAIDS 2010c:59). It is precisely for this reason that curriculum innovations, such as the integration of HIV & AIDS across disciplines, need to be explored through the experiences of educators at HEIs who already address HIV & AIDS issues in their teaching. Furthermore, ways of supporting innovators need to be sought in order to sustain and extend HIV & AIDS integration in Higher Education.

There are several possible approaches to integrating HIV & AIDS into Higher Education teaching. No hard and fast rules exist as to how the

integration or infusion should or must occur in a discipline. Integration may, for example, involve incorporation of certain aspects of HIV & AIDS into particular sections of a discipline module, infusion of aspects of HIV & AIDS across a whole module, or the design of a stand-alone module as part of a larger programme of study (Clarke 2009).

In the interviews, our participants were asked to describe the approaches they used and to say why they used these in their Teacher Education modules. None of the approaches described by participants could be classified as a stand-alone module. Instead, the participants used incorporation or infusion approaches to addressing HIV & AIDS in modules. These ranged from being incidental to being planned as a way of emphasising an interdisciplinary approach to teaching and learning. To illustrate, Leela describes her approach as incidental inclusion *'across all modules as an example of addressing social issues'* whereas Pesh emphasises that an interdisciplinary approach to teaching Social Sciences requires the planned integration of HIV & AIDS.

Furthermore, Solo and Cammy explain that, because HIV & AIDS issues infiltrate every aspect of teachers' work, they believe that their students need to realise that *'at any given moment HIV & AIDS will pop up'* (Solo). Sbu, Mlu and Desiree point out that the integration of HIV & AIDS education is a continual process; they are *'trying to infuse it'* across modules using approaches that best suit their disciplines. We also asked the participants to identify which aspects of HIV & AIDS they address in their modules. Their responses indicate that they are deeply driven by an intention to make a difference to people's lived experiences of education (Goodlad 1994; He 2010; Miller 2000) and focus mainly on the social aspects of HIV & AIDS in their integrating rather than on sex, sexuality and the biomedical aspects of HIV & AIDS. For example:

Leela: ...to provide opportunities for these prospective teachers to examine how they will deal with this topic in a relevant and socially just way when they become teachers.

Solo: ...the impact of HIV & AIDS on studies of students is incorporated, that is how we train the teachers on how to deal with it when they have children in their classrooms.

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For many, addressing the stigma attached to HIV & AIDS is also seen to be an important aspect. To illustrate:

Leela: The topics we explored were very much of a social nature related to issues of stigma attached to those affected...

Mlu: ...largely stigma- no biomedical...

Overall, a concern about an apparent lack of adequate intervention in Higher Education in relation to caring about their own students is expressed as the main reason for the integration of HIV & AIDS. For instance:

Mlu: I have a deep felt passion for issues of social justice and I think HIV & AIDS is one of those things or one of those aspects where I feel people are not treated properly or in dignified ways and that will allow for them to be like everyone else and enjoy their life to the full.

Lived Experiences of Curriculum Innovating *Selfing*

From our curriculum innovating perspective, we see the integration of HIV & AIDS as both requiring and generating an ongoing process of personal and professional ‘selfing’ or self renewal that ‘takes place within and in response to evolving human relationships and experience, as well as contingent, changing social and individual conditions and situations’ (Pithouse 2007:15). Thus, by considering the responses of our participants from the perspective of a curriculum innovating approach, we can see how integrating HIV & AIDS into their teaching renews (or makes new) the professional and personal selves of university educators just as much as it renews the curriculum that is experienced in (and beyond) their classrooms (Miller 2000; Pinar 2010). As evidenced by the following, the participants’ responses reveal a consciousness of working and living in an era of pervasive HIV & AIDS:

Cammy: ...It is in there in the society, the community, the learner and you also.

Desiree: ...I don’t know how you can ignore it, it is something you confront daily...

For our participants, this consciousness that HIV & AIDS is ‘*in...you*’ as an educator rather than being something that affects only students or other groups of people, would appear to give rise to a sense of individual and collective responsibility for engaging with HIV & AIDS through education (see also Mitchell & Pithouse 2009; Pithouse, Mitchell & Weber 2009). Participants explain how this sense of responsibility has fundamentally changed their understandings of themselves and their roles as university educators and as discipline specialists. For example:

Desiree: *...would you ignore it and be the traditional teacher and just get on with your work?*

Cammy: *It changes you as a teacher, you become a practitioner of everything...*

Pesh: *...somebody was saying to me, ‘...would you say you are... [a specialised discipline] lecturer or a potpourri?’ So actually, potpourri...*

This reconsidering of what is it that one does or should do as a university educator is also evident in Lesko’s study (2007), which highlights how educators who took an ‘interdisciplinary-activist’ approach to integration of HIV & AIDS were engaged in ‘re-thinking assumptions and theoretical orientations of the disciplinary knowledge and programmes in light of HIV/AIDS’ (339). Wood’s research (2011) also suggests that when university educators do not re-think the scope or boundaries of their disciplines their potential willingness to integrate HIV & AIDS can be undermined by ‘a very narrow disciplinary focus’ (826).

Our participants’ responses suggest that selfing is enhanced by a feeling that their integration of HIV & AIDS is making a significant difference to their students. As Mlu explains:

...when the student...says, ‘Wow, this has been one of the most amazing modules I have ever done and it has opened my eyes to so many things ...!’ I think I feel fulfilled.

And Pesh reveals that she understands integrating HIV & AIDS as a form of caring:

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So it has been part of me, actually, I think because, caring, it's me, I really love to care.

In Wood's study (2011), the university educators whose work is described as examples of best practice of HIV & AIDS integration display similar feelings of accomplishment and making a difference.

At the same time, the selfing process can also involve pain and apprehension along with fulfilment. Solo calls attention to the emotional effects of making space for students to share their HIV & AIDS-related experiences:

Buckets and buckets of tears that you pour out some time because you don't know how not to cry....

And Desiree voices her fear of not being able to handle emotionally challenging situations that might arise:

...if we start talking about these issues and [students] break down because they have it, what do I do? So maybe I am scared as well....

Similarly, both Lesko's (2007:342) and Wood's research (2011) highlights the challenges of bringing the 'difficult knowledge' of HIV & AIDS into Higher Education teaching and learning spaces. University educators in Wood's study revealed that the fear of not being able to cope with students' emotional responses and possible disclosure of their HIV status was a significant barrier to integrating HIV & AIDS. Nonetheless, for our participants, awareness of the emotive content of teaching and learning about HIV & AIDS does not stop them from doing what they see to be a '*responsibility for each and every one of us...*' (Mlu). For us, as researchers, their responses highlight a need for HEIs in the age of HIV & AIDS to provide appropriate and ongoing emotional support to students and staff and to offer opportunities for learning how to deal skilfully and sensitively with emotionally charged situations (see also Jairam 2009; Khau & Pithouse 2008).

Distancing

Another concern that is evident in our participants' lived experiences of

curriculum innovating is what we have identified as *distancing*. Distancing is a concept often associated with public health. The term ‘social distancing practices’ refers to changes in behaviour that prevent disease transmission by reducing the contact rates between infected individuals and those who are susceptible to infection (Baum *et al.* 2009). In the public health context, social distancing interventions include school closure, increased isolation of symptomatic individuals in the household, workplace non-attendance and reduction of contact with the wider community (Kelso *et al.* 2009). Psychologists have also used the term ‘distancing’ to refer to a process in which people’s egocentric experience of a stimulus in the here and now is diminished (see Michel & Rodriguez cited in Ayduk & Kross 2010). Ayduk and Kross (2010) note that research across various areas suggests the importance of this construct for self-control and adaptive coping with stressful situations.

Some of our participants call attention to how students often distance themselves from HIV & AIDS, as is evident in Cammy’s statement that

...there will be silence in class when we come to this issue.

Similarly, Lesko’s (2007) study highlights the ways in which silences and taboos surrounding HIV & AIDS can impede the integration of HIV & AIDS into university teaching and ‘[re-produce] the social and moral divisions of who is and who is not affected by the epidemic’ (341). Desiree suggests some self-doubt in her ability to overcome such distancing by saying:

[the students] hold back and I don’t know – maybe I’m not dealing with it properly.

Additionally, Wood’s research (2011) draws attention to how this kind of self-doubt can deter integration when university educators fear that raising issues of HIV & AIDS will offend or alienate students.

The distancing experienced by participants is not only on the part of students. Some of the champions reveal that integrating HIV & AIDS is a lonely road since other colleagues feel that they are placing too much unnecessary emphasis on HIV & AIDS. Participants’ responses to this distancing by colleagues range from acceptance, to disappointment, to resilience. To illustrate:

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Desiree: *Nobody shares...we are working in our own little box...*

Pesh: ... [what] *is really putting me down, like I said, is the discouragement of other lecturers.*

Cammy: *Just make yourself visible, if they do not take [HIV & AIDS] seriously, make them see that it is serious because we are dealing with these issues.*

In addition, Mlu explains that he responds by distancing himself, in turn, from colleagues:

I think it is a strategy to isolate myself in a sense so I can do what I feel is needed

This sense of working at a distance from colleagues is also highlighted by the lecturers cited as champions of HIV & AIDS integration in Wood's research (2011).

Further to experiencing a lack of collegial support in their efforts to integrate HIV & AIDS, some of our participants also report facing disapproval from colleagues and even students who feel that they are 'diluting' 'pure' disciplines. As Desiree explains:

It is actually ... [students] who are perpetuating the divide...that it is not for me to do it, it is for the LO [Life Orientation] teachers to do it.

There is also a perception of integration interrupting the formal curriculum, as indicated by Solo:

... you've got the curriculum waiting, you need to be discussing curriculum and development.

Some participants feel that they have to defend their curricula choices to other colleagues or students who do not see any links between their particular discipline and HIV & AIDS. For instance:

Solo: *How does that link with HIV & AIDS? That is the question I always get asked.*

Pesh: ... *they will say 'What has ... [this discipline] to do with HIV & AIDS?' ... [This discipline] is about numbers.*

Distancing stands starkly in opposition to social cohesion, which Lesko (2007) sees as an important context for, and outcome of, integrating HIV & AIDS in Higher Education teaching. It is thus important to understand how to minimise the distancing experienced and created by integrating HIV & AIDS with a view to facilitating greater socially cohesive curricula and relationships.

Valuing

In using the term ‘valuing’ we refer to the ways in which participants’ responses suggest that their conscious choices to renew their pedagogy as they educate students in an era of HIV & AIDS, are based on what they perceive to be valuable. Their desire to make a difference despite the exclusionary effects that distancing creates in relation to their colleagues, students and disciplines, is sometimes at odd with what the institution values, and what the discipline values.

The need for capital to sustain and advance the interests of universities in a globalised market economy shapes much of what universities value; this, in turn, influences what university educators do. The current funding system for South African universities favours research over teaching (McGregor 2011). In addition, university educators, whose work and roles include those of teacher, researcher, community worker, administrator, manager, co-ordinator, discipline expert and materials developer, among others, are pulled in multiple directions as they endeavour to construct their professional lives (Rowland 2002:52). As a result, university educators often suffer from ‘an overload of unclarified and competing values’ and this creates a ‘paradigm mess’ (Kogan 2000:207). Teaching is bound to be undervalued (Neumann 2001:135) when sources of academic status, ‘power and honour’ (Kogan 2000:211) are rooted in research publications and funding.

By contrast, the participants in this study choose to be less accountable to the marketisation of universities and more accountable to their students and communities. In the face of competing pressures of teaching and research, they invest their efforts in designing modules which address HIV & AIDS as a social challenge; in so doing, they engage in what Subotsky (cited in Beets 2009:1174) refers to as a ‘transformative discourse’. One way in which they do this is by crossing the boundaries of strongly classified disciplines (Bernstein 1973).

Some participants highlight how students expect to be taught in strongly classified disciplines and they question the value of integrating HIV & AIDS into their own teaching. For example:

Pesh: So the ... students in that module will say 'What has ... this discipline] to do with HIV? [This discipline] is about numbers!'... The syllabus ... does not allow you to address those issues [HIV & AIDS]... it will take time to plan it so that it gels well with our disciplines ... there is still resistance [to integrating HIV & AIDS].

However, a few participants experienced co-operation and acceptance from their colleagues. Several participants allude to collaboration among some university educators within their discipline. For example:

Cammy: Colleagues know about the issues [HIV & AIDS] we are talking about and there is the proposal to have it [HIV & AIDS] as a standalone, compulsory module. We share ideas and they give us their module templates [to look at].

Cammy reports that she does not experience resistance about what she teaches about HIV & AIDS nor how she does it. The sharing of work and ideas by members in her disciplinary team affirms their collective perspective about the value of integrating HIV & AIDS. Hence there appears to be a 'commonality of values and practices in teaching' (Neumann 2001:142) within the discipline.

In contrast to Cammy's experiences, Pesh describes discouraging moments of professional isolation. Nevertheless, she persists with her integration of HIV & AIDS into her discipline:

The other challenge ... which is really putting me down, [is] the discouragement of other lecturers... people [in the discipline] don't understand what [it] has to do with HIV & AIDS ... [they think] I have much energy to waste. These discouragements make me feel bad because it's my passion. I have to learn to be resilient to survive...

In 'running the course' (Miller 2000, 2010a:62) through the lived curriculum, Pesh experiences professionally discouraging moments of isolation.

Nonetheless, she is determined that alienation from her colleagues will not translate into alienation from her own possibilities for change in her 'pure' discipline.

Despite disciplinary pressures, our participants do not overlook the context in which their disciplines are being taught, and they reveal an altruistic concern for their students as teacher trainees or teachers, for learners who will be or are being taught by these teachers, and for school communities. To illustrate:

Cammy: [Teachers] go around and find out how many children have lost their dads, mothers and those who are orphaned and live alone. [They] will have half the class crying, what will [they] as teachers [do] to handle that? When a child is sick ... you have got to know the medication [and its side effects] ... this tablet will make ... [the child] go out and empty his bladder all the time ... how will [he] catch up with the work? Talking about HIV & AIDS is scary ... how do you make learners know these things and talk about them at home?

This suggests that Cammy believes that educating teachers to teach about HIV & AIDS is vital and valuable within the South African context. She views the role of the teacher as a source of support to learners whose lives are affected by HIV & AIDS. Furthermore, Cammy refuses to view the lived curriculum as 'insulated from life and human concerns' (Greene 1971:263). She renews her pedagogy through an awareness, an attentiveness, a 'wide awakensness' (Miller 2010b:128) about how the curriculum can become more meaningful in the lives of people who live in an era of widespread HIV & AIDS. Thus, she and the other participants in this study argue for curriculum innovating: by re-orientating their approaches to teaching the curriculum can become a source of hope in the age of HIV & AIDS.

Conclusions and Implications

We consider that our study has allowed us to test out an approach to curriculum theorising which offers a useful framework for a deeper understanding of university educators' experiences of HIV & AIDS integration. While, as noted above, the work aligns with the analysis of both

Lesko (2007) and Wood (2011), we also see the three thematic areas drawn from the data – selfing, distancing, and valuing – as offering a complementary set of features to apply to our larger study.

At the same time, we have also gained some valuable new insights about carrying out research which is clearly of a very sensitive nature, something that is not necessarily acknowledged in the broader literature on HIV & AIDS integration. As we noted earlier, we found that the one-on-one interviews yielded data that was richer and more informing than the data collected electronically. While there may be other tools that we could have used as part of the electronic component, our sense is that face-to-face dialogue between the researcher and the participant is critical. In this case, we were conducting interviews with our own colleagues whom we knew well yet this face-to-face element was still key. But our findings about the emotional nature of this work, both in terms of the participants and what they are experiencing and the researchers and what we each encountered, highlights the importance of having access to appropriate support services.

Thus we want to suggest that the challenges of integration highlighted by the seven participants in our study point to the importance of Teaching and Learning Units across the various HEIs in South Africa taking on further work in the area of curriculum innovation in tandem with already existing HIV & AIDS support services on their campuses, such as counselling centres, HIV & AIDS units and health clinics.

Despite the emotional challenges of working in the area of HIV & AIDS integration, this study draws attention to the potential value for university lecturers in sharing ideas, experiences and curriculum innovating. The participants willingly shared their experiences and the passionate manner in which they responded to the interview questions showed that there is a need to establish a learning community or a support group for university lecturers who take on the somewhat risky integration of HIV & AIDS issues in disciplines. This risk may be in terms of being seen for example, as diluting disciplines or as evoking distressing emotional responses. It is, however, important for these risks and discomforts to be sensitively, yet openly addressed in a university community. In an era of widespread HIV & AIDS, the challenging process of curriculum innovating is necessary; our participants clearly point out that we cannot ignore the importance of the social issues that influence and are influenced by the teaching and learning contexts at HEIs.

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Lived Experiences of Curriculum Innovating

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Generating Curriculum Visions for Global Citizenship: Collective Stories and Creative Imagination

Noel Gough

Abstract

Defensible curriculum decision-making requires that there be available to practical deliberation the greatest possible number and fresh diversity of alternative solutions to problems. Visions of alternative futures arise from many sources, and in this essay I focus on two such sources that tend to be under-represented in both school and higher education curricula, namely, (i) collective stories that reflect some degree of cultural (or sub-cultural) consensus about desirable futures; and (ii) speculative futures imagined by creative artists in various media. I describe selected examples of these approaches to generating alternative futures with particular reference to the implications of a global knowledge economy for contemporary understandings of notions such as citizenship.

Keywords: curriculum, globalisation, futures, consensus, storytelling, speculative fiction (SF), imagination.

Curriculum Decision-making in a Global Knowledge Economy

A current imperative for education in many nations – perhaps especially those that (like all Southern African nations) form part of the majority world – concerns the implications of a global knowledge economy for the ways in which curriculum decision-makers in education institutions and bureaucracies understand notions such as citizenship, identity, community, inclusion and exclusion, and the transformations of curriculum that they

impel us to consider¹. Whenever such questions arise, I am disposed to reconsider Alasdair MacIntyre's (1984: 216) approach to practical reasoning and ethical thinking:

I can only answer the question 'What am I to do?' if I can answer the prior question 'Of what story or stories do I find myself a part?' ... Mythology, in its original sense, is at the heart of things.

Thinking about curriculum decision-making in terms of storytelling practices has been a key theme in the Anglophone reconceptualisation of curriculum studies, encapsulated by Madeleine Grumet's (1981: 115) characterisation of curriculum as 'the collective story we tell our children about our past, our present, and our future'. I always add to Grumet's formulation that curriculum is also a *selective* story that we tell our children about our past, our present, and our future, and that we should therefore attempt to be open-minded about expanding the range and variety of stories from which we select examples to tell and retell.

As Joseph Schwab (1969: 17-18) noted in his influential work on 'the practical' as a language for curriculum, one facet of effective curriculum deliberation is 'the anticipatory generation of alternatives', that is, effective decision-making requires that there be available to practical deliberation the greatest possible number and fresh diversity of alternative solutions to problems. Visions of alternative futures usually arise from four major sources and can be elucidated by corresponding methods and procedures:

- *extrapolation*: perceived consequences of present trends and events can be elucidated by trend analysis and extrapolation

¹ I prefer the term 'majority world' to the largely inaccurate, outdated and/or non-descriptive terms 'developing' nations, 'Third World' and global 'South'. Since the early 1990s the communications cooperative New Internationalist (www.newint.org) has used 'majority world' to describe this global community by reference to what it is, rather than what it lacks, and also to draw attention to the disproportionate impact that the Group of Eight countries – which represent a relatively small fraction of humankind – have on the majority of the world's peoples.

- *consensus*: opinions about what might or ought to happen can be elucidated by monitoring cultural and sub-cultural consensus using polls, commissions of ‘experts’, search conferences (Emery & Purser 1996) and variations on Delphi techniques.
- *creative imagination*: the speculative imagination of creative artists in various media produces images of alternative futures that can be further elucidated by their critique and, to some extent, by emulating their creative practices (for example, scenario-building frequently emulates science fiction)
- *combining* images from extrapolation, consensus and creative speculation produces further images of alternative futures. Combinatory techniques (such as cross-impact matrices, relevance trees, futures wheels, etc.) are among the most characteristic tools of professional futurists.

In this essay I focus on the collective and consensual stories through which we selectively produce visions of curriculum that *should* happen, and on the speculations of creative artists from which we can generate visions of curriculum that *might* happen.

Consensus: Visions of Curriculum that *Should* Happen

To date, the anticipation of futures in education has depended to a large extent on extrapolation from present trends or on a limited consensus among ‘experts’ and culturally dominant elites. For example, Jim Scheurich and Michelle Young (1997: 8) argue persuasively that ‘all of the epistemologies currently legitimated in [Euro-American] education arise exclusively out of the social history of the dominant White race’. This restricts the range of possible epistemologies and methodologies available to us, and makes non-dominant constructions of knowledge suspect, pathological, sensational, or simply illegitimate. Thus, the extension of consensus techniques to broader and more culturally inclusive publics might be one way to generate multiple alternative futures in educational inquiry.

Walter Parker, Akira Ninomiya and John Cogan (1999) describe an exemplary multinational curriculum development project that enacts a

consensual vision of global education. 26 researchers from nine nations in four regions² worked over a four-year period to plan and conduct a study that would result in a set of curriculum recommendations focused on education for citizenship. The team adapted the Delphi method³ to interview and then survey iteratively a panel of 182 scholars, practitioners and policy leaders in various fields (science and technology; health and education; politics and government; business, industry and labour; the arts) in these nations. The researchers sought the panel's agreement on major global trends over the next 25 years, the desirable citizen characteristics needed to deal with these changes, and the educational strategies likely to develop these characteristics. Delphi techniques aim to produce deep rather than superficial consensus and the strongest joint recommendation on educational strategies produced by this multinational panel of scholars and practitioners, *a minority of whom were professional educators*, was for 'critical thinking with different others' on 'ethical questions' arising from the global trends. They recommended 'a question-driven (not answer-driven) curriculum with deliberation (not transmission) the pedagogy of choice' and with an 'emphasis on multinational contacts and cooperation' (Parker *et al.* 1999: 125).

The subject matter of the curriculum devised by this multinational approach is a set of six ethical questions derived from the consensus trends, characteristics and strategies:

² The regions and nations were: East Asia (Japan), Southeast Asia (Thailand), Europe (UK, The Netherlands, Hungary, Germany, Greece) and North America (Canada, USA).

³ The underlying rationale of the Delphi method is to establish as objectively as possible a consensus on a complex problem, in circumstances where accurate information does not exist (or is too difficult or too costly to obtain), or the politics of conventional decision-making (e.g. a face-to-face committee meeting) may suppress individuals' critical judgements. Delphi is a family of techniques, rather than a single clearly defined procedure, but its typical features include: an expert panel; a series of rounds in which information is collected from panellists, analysed and fed back to them as the basis for subsequent rounds; an opportunity for individuals to revise their judgments on the basis of this feedback; and some degree of anonymity for their individual contributions (see Linstone & Turoff 1975).

1. What should be done in order to promote equity and fairness within and among societies?
2. What should be the balance between the right to privacy and free and open access to information in information-based societies?
3. What should be the balance between protecting the environment and meeting human needs?
4. What should be done to cope with population growth, genetic engineering, and children in poverty?
5. What should be done to develop shared (universal, global) values while respecting local values?
6. What should be done to secure an ethically based distribution of power for deciding policy and action on the above issues? (Parker *et al.* 1999: 129).

These questions are augmented by a set of more familiar curriculum components – concepts, skills and attitudes related to the questions – but these are seen as ancillary to the curriculum’s key attributes: *ethical questions* and *deliberation*:

The research team understands that goals are transformed right within the process of public discourse. For this reason, deliberation is not only an instructional means but a curriculum outcome itself, for it creates a particular kind of democratic public culture among the deliberators: listening as well as talking, sharing resources, forging decisions together rather than only advocating positions taken earlier, and coming to disagreement. Because the issues being deliberated in the curriculum are multinational issues, and because students are conjoining in some way (e.g. face-to-face, electronic) on these common problems, this curriculum has the potential to contribute to the development of what Elise Boulding (1988) called a ‘global civic culture’ or what today might be called a transnational civil society (Parker *et al.* 1999: 130).

There is much more to Parker *et al.*’s study than I can recount here, and the details of their research make it clear that they are not starry-eyed internationalists. Rather, they represent a team of curriculum makers working

purposely towards a multinational perspective on citizenship and citizenship education that loosens the grip of shared national identity on the meaning of ‘citizen’ and raises the more cosmopolitan concept of a ‘world citizen ... for whom the commonwealth is not only a local or national political community’ (130). Their conceptions of deliberation are informed by Deweyan scholars like Schwab (1969), but they also recognise that deliberation ‘is hugely problematic in actually existing societies where power and status control participation in deliberation as well as the topics considered appropriate for deliberation’ (Parker *et al.* 1999: 133)⁴. They therefore acknowledge that expanding the array of forums for deliberation, and expanding access to them, is central to their project.

Creative Imagination: Visions of Curriculum that *Might* Happen

I will begin with a brief quotation from one of my favourite speculative storytellers. *The Left Hand of Darkness* is a critically acclaimed novel by Ursula Le Guin (1969), often referred to as one of the first major works of feminist science fiction – or of SF⁵, to use a term I prefer. The novel’s first-person narrator is an envoi from a galactic federation to the planet Gethen, and his first sentences are:

⁴ I also appreciate Parker *et al.*’s (1999: 142) reflexive awareness of the difficulties created by referencing mainly North American literature in deference to the presumed readership of the *American Educational Research Journal*: ‘This creates the confounding problem of casting the project further in North American terms and viewpoints (further than is already the case with two of the three authors being steeped in this milieu). For present purposes, we accept this trade-off’.

⁵ As Donna Haraway (1989: 5) explains, SF designates ‘a complex emerging narrative field in which the boundaries between science fiction (conventionally, sf) and fantasy became highly permeable in confusing ways, commercially and linguistically’; SF also signifies ‘an increasingly heterodox array of writing, reading, and marketing practices indicated by a proliferation of “sf” phrases: speculative fiction, science fiction, science fantasy, speculative futures, speculative fabulation’.

I'll make my report as if I told a story, for I was taught as a child that Truth is a matter of the imagination. The soundest fact may fail or prevail in the style of its telling' (Le Guin 1969: 9).

These two short sentences capture some of the key ideas that have informed and guided my practice as a curriculum scholar and educational researcher for more than three decades, namely, *story*, *imagination*, and *fiction* (with particular reference to science fiction and the ambiguous relations of 'fact', 'truth' and fiction). I suggest that much of what we understand by the term *global education* is 'a matter of the imagination', and that it might also 'fail or prevail in the style of its telling'. If this is the case, then the work of curriculum innovation in global education will require that we attend to the modes, genres and qualities of the stories we choose to tell and privilege. I will attempt to perform this work here, chiefly through a positioned reading of Le Guin's (2000) novel, *The Telling*.

The Telling anticipates some of the ways in which humans might respond to the forced homogenisation of culture on a planetary scale, and it can thus be read as a thought experiment that offers alternative representations of present circumstances and uncertainties, and anticipates and critiques possible futures. *The Telling* dramatises social transformation on a global scale, driven by the lure of an intergalactic (rather than merely global) 'common market'. In this sense, *The Telling* depicts a material world with which we are now very familiar and demonstrates the defensibility of Donna Haraway's (1985: 65) assertion that 'the boundary between science fiction and social reality is an optical illusion'. I argue that critical readings of stories like *The Telling* might therefore help educators to produce anticipatory critiques of the possible ways in which drivers of large-scale social change (such as globalisation, digitalisation and cultural diversification) are transforming societies and conceptions of civic life and citizenship in the contemporary world.

Note that I am not simply arguing that university and school teachers with an interest in global education should be using novels such as *The Telling* as teaching resources, although this might be appropriate in some circumstances. Rather, I am arguing that educators should deliberately and self-consciously cultivate a disposition to think about university and/or school curricula in ways that are consistent with Richard Rorty's (1979: 203)

conceptualisation of the continuities between the social sciences and literature:

If we get rid of traditional notions of ‘objectivity’ and ‘scientific method’ we shall be able to see the social sciences as continuous with literature – as interpreting other people to us, and thus enlarging and deepening our sense of community.

I would supplement Rorty’s position by interpreting ‘literature’ figuratively rather than literally so as to include speculative fictions in any medium, including print, movies, video games and simulations, and popular media of all kinds.

I read fiction of all kinds not only for personal satisfaction but also because I respect the embodied and embedded cultural knowledge that novelists and other storytellers bring to my professional attention. Like Grumet (1999: 233), I understand culture to be ‘a system of meanings available to actors situated in shared space, time, history, and possibility’ and, since curriculum is both a product and a (re)producer of culture, a nation’s literature constitutes a significant discourse for curriculum inquiry. Thus, my preparation for beginning to work in South Africa in 1998 included familiarising myself with the writings of authors such as Breyten Breytenbach, André Brink, J.M. Coetzee, Michael Cope, Athol Fugard, Nadine Gordimer, Bessie Head, Christopher Hope, Alex La Guma, Anne Landsman, Miriam Tlali, Etienne Van Heerden, and many others. As a non-resident curriculum scholar, a novel such as J.M. Coetzee’s (1999) *Disgrace* provided me with an invaluable way to learn more about the ‘system of meanings’ available to my South African colleagues on an everyday basis (see also Gough 2001). When I arrived in South Africa and began to peruse bookshops and libraries I noticed the complete absence of SF by local authors. This was not entirely surprising, since I was aware of the cultural censorship that prevailed during the apartheid era, an early example of which Coetzee (1997: 70) recalls from his boyhood:

He has not forgotten Dr Malan’s first act in 1948: to ban all Captain Marvel and Superman comics, allowing only comics with

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animal characters, comics intended to keep one a baby, to pass through the Customs.

I was thus pleased to read Brink's (1998: 27) suggestions regarding new possibilities for South African writers since the dismantling of apartheid, in which he urged them

not simply to escape from the inhibitions of apartheid but to construct and deconstruct new possibilities; to activate the imagination in its exploration of those silences previously inaccessible; to play with the future on that needlepoint where it meets past and present; and to be willing to risk everything in the leaping flame of the word as it turns into world.

SF is one of the genres in which South African writers have begun to construct and deconstruct such new possibilities, exemplified recently by the internationally acclaimed novels by Lauren Beukes, *Moxyland* (2008) and *Zoo City* (2010), and Neill Blomkamp's film *District 9* (2009).

Science Fiction and Education

Karen Anijar, John Weaver and Toby Daspit (2004: 1) introduce their edited volume, *Science Fiction Curriculum, Cyborg Teachers, and Youth Culture(s)* with the following words:

Science fiction can and does provide a medium through which the future of education is visualized, through which educators and students can contemplate and reflect on the consequences of their actions in this world. Science fiction provides a genre, a medium through which the future can be speculatively visualized in the present. Science fiction can also open up students'/teachers' minds to previously unforeseen possibilities while concurrently empowering people to become curricular creators and cocreators as well as theorists (after all it is impossible to think speculatively without theorizing).

Anijar *et al.* (2004: 3-4) provide a compelling rationale for including SF as a

legitimate ‘genre of thought’ within the discourses and discursive practices of education. Although the scope of this essay does not permit me to summarise all of their arguments here, I believe it is worth noting their response to a criticism that they anticipate from some readers: daily lives

We recognize, in part, that there are those who may see our endeavors as a project which retreats from ‘reality.’ However, what is accepted as real is deplorably deranged. The (il)logics that have emerged from at least three centuries of modernist thinking have constructed violent and vile illusions – stock typifications that seem to guide our lives, but which are not created out of our lives, from our lives, or with consideration for our lives. If ever there has been a frightening dystopia, this may well be it.

The editors of, and contributors to, *Science Fiction Curriculum* are clearly aware that some SF has helped to shape these ‘violent and vile illusions’. For example, in an earlier work Anijar (2000) demonstrates that *Star Trek* constitutes a social curriculum that many teachers (at least in the USA) have embraced enthusiastically. Her critique of this curriculum is crafted from extensive interviews with Trekker teachers and raises important questions about identity politics, gender, race, ethnicity, class and language policy in education (see also Appelbaum & Gough 2002). In addition to the evidence, arguments and examples assembled in *Science Fiction Curriculum*, I suggest that there are at least three further reasons for educators to look more closely at the generative potential of SF to enhance their pedagogical practices and their own professional development.

First, many of the most popular video games⁶ are ‘storied’ in the genre of SF (in a broad sense that includes fantasy and alternative history) and educators who ignore their cultural and pedagogical significance risk irrelevance. This is part of the argument mounted by James Gee (2003) in *What Video Games Have to Teach Us About Learning and Literacy*, in which

⁶ I use ‘video games’ to encompass all games played using digital visual interfaces including computer games, web-based role-playing games and simulations, and platform games played with digital consoles or hand held devices.

he demonstrates that many video games incorporate learning principles that are strongly supported by contemporary research in cognitive science and that they can – and should – be used in schools:

Beyond using the learning principles that good games incorporate, I also argue that schools, workplaces, and families can use games and game technologies to enhance learning. Further, I believe that use of games and game technologies for learning content in schools and skills in workplaces will become pervasive. Many parents, by getting their sometimes quite young children to play games while actively thinking about the game's connections to other games, media, texts, and the world are already doing so. In field studies we are conducting at the University of Wisconsin, we have watched seven-year-olds play *Age of Mythology*, read about mythology inside and outside the game on web sites, borrow books on mythology from the library, and draw pictures and write stories connected to the game and other mythological themes. They think about the connections between *Age of Mythology* and *Age of Empires*, between mythological figures and popular culture superheroes, and the connections of all of them to history and society. This is education at its best, and it is happening at home, outside of school (Gee 2003: 2-3).

Online gaming has particular relevance to the formation of a global citizenry:

[W]hen players play in massive multiplayer games, they often collaborate in teams, each using a different, but overlapping, set of skills, and share knowledge, skills, and values with others both inside the game and on various Internet sites. In the process, they create distributed and dispersed knowledge within a community in ways that would please any contemporary high-tech, cross-functional-team-centered workplace. In this respect, games may be better sites for preparing workers for modern workplaces than traditional schools (Gee 2003a: 3).

Although Gee's work is situated in Western cultural practices, I suggest that

his principles are relevant to any place in which digitalisation is a driver of educational change. For example, mainland China has an enormous home-grown gaming industry, despite its government's infamous Golden Shield Project (also known as the Great Firewall of China), which attempts to restrict its citizens' access to non-Chinese websites. The total number of China's Internet users reached 338 million in June 2009⁷, about two-thirds of whom play MMORPGs (Massive Multiplayer Online Role Playing Games), such as NetEase's *Westward Journey Online II* which in 2005 had 56 million registered users and 460,000 peak concurrent users⁸.

In societies such as Japan and China, which place great value on cultural continuity and tradition, the internet provides new opportunities to build what Tom Abeles (2000: 84) calls 'time-bridges' – digital bridges between generations where the wisdom from the past can be used to link the future with the present, and young people with adults – so that adult screenagers can better understand younger screenagers and vice versa. For example, *Westward Journey Online II* is based on Wu Cheng En's classic 16th-century novel *Journey to the West*.

A second reason for considering SF in relation to global education is that it offers imaginative resources that might help teachers and learners to generate new ways of thinking about, and acting upon, ideas such as 'democracy' and 'citizenship'. Many nations embrace the rhetoric of participatory democracy, but education and other social practices in these nations do not necessarily enact or encourage active citizenship. For example, Noam Chomsky (1997) argues that throughout the 20th century US media commentators and other elites have promoted 'spectator democracy' rather than participatory democracy. Similarly, Wayne Ross (2000: 241) argues that social education in the US continues to promote spectator democracy by reproducing proceduralist conceptions of democracy in which 'exercising your right to vote' is the primary manifestation of good citizenship: 'Democracy based on proceduralism leaves little room for individuals or groups to exercise direct political action; this is a function left

⁷ 'China's Internet population hits 338 million', *Wall Street Journal Digital Network* <http://tiny.cc/r79k2> (accessed 17 November 2011).

⁸ NetEase http://corp.163.com/eng/games/westward_journey.html (accessed 17 November 2011).

to a specialized class of people such as elected representatives and experts who advise them'. In relation to my own country, I agree with Lindy Edwards (2002: 39) that social and educational policy is now a function of Australia's position in a global marketplace understood as 'a grand democracy of consumption'.

This leads to my third reason for critically appraising and appreciating speculative fictions that relate to understandings of democracy, citizenship and global education. As globalisation blurs nation-state boundaries and undermines national authority, the grounding of public education systems in national democracies is destabilised. Carlos Alberto Torres (2002: 364) notes that the purposes of public education have typically included preparing future labour for the nation's economy and preparing citizens for the nation's polity, but that globalisation 'shifts solidarities both within and outside the national state'. He thus argues that alternative futures for democratic education under globalisation must address the questions raised by the globalisation of the two traditional bases of formal education systems, namely, governance and economies:

These questions are very straightforward: Will globalization make human rights and democratic participation more universal, or will globalization redefine human enterprise as market exchanges invulnerable to traditional civic forms of governance? Whether education as a publicly shared invention, contributing to civic life and human rights, can thrive depends on the future of globalization – a future that may offer the internationalization of the ideals of a democratic education or may reduce education, and civic participation, to narrow instruments of remote and seemingly ungovernable market forces (Torres 2002: 364).

Torres (2002: 376) therefore calls for a reexamination of democratic education in the light of transformations of individual and collective identities into both more privatised and more globalised forms and concludes that 'to ask how educational policies could contribute to a democratic multicultural citizenship poses a formidable challenge to the theoretical imagination'. I suggest that part of this challenge involves questioning taken-for-granted assumptions about the types of cultural materials and media that

constitute appropriate resources for the ‘theoretical imagination’. We need to pay particular attention to the different qualities of texts drawn from different genres that deal with similar ‘big ideas’ in particular times and places, and to be cautious of investing all or most of our interpretive efforts in those that come with labels such as ‘non-fiction’, ‘documentary’ or ‘educational’ rather than those which are categorised as ‘fiction’ or ‘entertainment’. Katherine Hayles (1990) makes an important point about the relationships between texts from different cultural sites that deal with similar issues in her archaeology of textual representations of chaos theory in literature and science:

... different disciplines, sufficiently distant from one another so that direct influence seems unlikely ... nevertheless focus on similar kinds of problems [at] about the same time and base their formulations on isomorphic assumptions Different disciplines are drawn to similar problems because the concerns underlying them are highly charged within a prevailing cultural context. Moreover, different disciplines base the theories they construct on similar presuppositions because these are the assumptions that guide the constitution of knowledge in a given episteme. This position implies, of course, that scientific theories and models are culturally conditioned, partaking of and rooted in assumptions that can be found at multiple sites throughout the culture (Hayles 1990: xi).

Clearly, globalisation is a contemporary example of an ‘underlying concern’ that is ‘highly charged within a prevailing cultural context’. We can reasonably expect that ‘theories and models’ of globalisation *are* ‘culturally conditioned, partaking of and rooted in assumptions that can be found at multiple sites throughout the culture’. To understand the cultural work performed under the sign of globalisation we need to consider how different disciplines represent globalisation as a focus for inquiry and speculation and how they resolve the questions, problems and issues that arise from these foci.

Representations of globalisation in school and university curricula, and its conceptualisation as an object of academic inquiry, tend to privilege

texts from a relatively limited range of disciplines and sites of cultural production. For example, books that explicitly link globalisation and education (e.g. Burbules & Torres 2000; Stromquist 2002; Stromquist & Monkman 2000) tend to rely on the economics, politics and sociology of education, comparative education, and policy studies. Scholars from other disciplines whose work is drawn upon by teachers and education researchers again tend to emphasise economics, politics and sociology (e.g. Appadurai 1996; Bauman 1998; Beck 2000; Brown & Lauder 2001; Giddens 2000; Jameson & Miyoshi 1998; Waters 1995). These works rarely refer in any detail or depth to the arts and popular culture as sites for the production of meanings about globalisation, global education, and so on.

Scholars who relate globalisation to issues such as multiculturalism, postcolonialism and identity politics (including cultural identities associated with diasporas) seem more likely to refer to examples from literature and the arts (e.g. Coombes & Brah 2000; Grant & Lei 2001; Hage 1998; Phillips 2001; Sardar & Cubitt 2002; Wilson & Dissanayake 1996). Few educators are likely to question the relevance of Salman Rushdie's (1981) *Midnight's Children*, or Zadie Smith's (2001) *White Teeth*, to an understanding of the cultural identity politics of globalisation, but novels such as these come with relatively 'high culture' credentials. I suggest that many works of popular genre fiction might be equally rich sites for exploring the wider cultural meanings and manifestations of globalisation, as well as many 'low' cultural artefacts, including advertising, blogs and jokes.

For example, an email joke circulating a few years ago alleged that the following was a 'High Distinction answer from ECO101 tutorial, first year, School of Economics and Commerce, Faculty of Arts, Australian National University':

Q: How do you define globalisation?

A: Princess Diana's death.

Q: Why?

A: An English Princess with an Egyptian boyfriend crashes in a French tunnel, driving a German car with a Dutch engine, driven by a Belgian affected by Scotch whisky, followed closely by Italian paparazzi, on Japanese motorcycles, treated by an American doctor, using Brazilian medicine. (Sent to you by an Australian, using

American technology, which Bill Gates stole from the Taiwanese.)

Even the best teaching resources on the theme of globalisation – among which I would include, for example, Bill Bigelow and Bob Peterson’s (2002) *Rethinking Globalization: Teaching for Justice in an Unjust World* – tend to be constrained by the conventions of school textbooks that privilege instructive (and conclusive) rhetorical modes and foreground ‘what is...?’ questions. By way of contrast, much SF is speculative, inconclusive, and foregrounds ‘what if...?’ questions. In *Frankenstein* Mary Shelley ([1818] 1992) asks: what if a young doctor creates a human being in his laboratory...? In *Jurassic Park* Michael Crichton (1993) asks: what if scientists could recover dinosaur DNA from mosquitoes trapped in fossilised amber...? As Le Guin (1979: 156) writes:

The purpose of a thought-experiment, as the term was used by Schrödinger and other physicists, is not to predict the future – indeed Schrödinger’s most famous thought-experiment goes to show that the ‘future’, on the quantum level, *cannot* be predicted – but to describe reality, the present world.

Science fiction is not *predictive*; it is *descriptive* (e.i.o.).

Which brings me to Le Guin’s *The Telling* (2000), a novel that I believe exemplifies the capacity for SF stories to function as texts for global education. I repeat, however, that I have not chosen *The Telling* because I think that it would necessarily be useful as a teaching resource but, rather, because I believe that it might appeal to many teachers and academics, perhaps especially those whose expectations of science fiction have been shaped by its stereotypic association with violent high-tech futures and/or space operas. As is the case with many of Le Guin’s stories, I am confident that readers who presume that they ‘don’t like science fiction’ will enjoy *The Telling*.

The Telling: A Thought Experiment in Social Change

The Telling is a recent contribution to Le Guin’s series of ‘Hainish’ novels and short stories. The common background for this series supposes that, at least half a million years ago, intelligent humanoids from the planet Hain

spread across the galaxy and settled on nearly a hundred habitable worlds, including Terra (Earth), which were then left alone for many millennia. Le Guin's stories imagine that communication and travel between these worlds has resumed and that a loose interplanetary federation, the Ekumen, coordinates the exchange of goods and knowledge among the diverse cultures, religions, philosophies, sciences and forms of governance that have evolved separately on the various planets. Representatives of the Ekumen travel to each planet when it is rediscovered and invite peoples of Hainish descent to participate in the federation.

Sutty is a Terran Observer for the Ekumen, a language and literature specialist who travels to the planet Aka to continue studies initiated by the Observers who first made contact with the Akan people some seventy years earlier. When she arrives she finds little to study because, while she has been travelling to Aka,⁹ the traditional culture has been brutally suppressed and almost completely replaced by a technophilic ruling class that has enthusiastically embraced the 'March to the Stars'. Differing local spiritual practices and dialects, and the ideographic writing and literature she had studied, are now deemed subversive, and Sutty finds that she might be the only person on Aka who can still read texts that were written only a generation ago. The Corporation that governs Aka normally forbids Observers from travelling outside the new cities, which have been constructed and settled since the first contact with the Ekumen.

Sutty unexpectedly receives permission to travel to an old provincial town where she gradually finds her way into the unofficial, traditional culture of Aka, which survives in the locations and activities of daily life that are most difficult to police. She learns of the yearlong and lifelong cycles and patterns of feasts, fasts, indulgences, abstinences, passages, and festivals – observances that resemble the practices of most of the religions with which she is familiar. These are now unobtrusively interwoven into the fabric of ordinary life so that the Monitors of the Sociocultural Office find it difficult to identify any particular act as forbidden.

Sutty's problem (and, as I read it, the novel's) is how she and her

⁹ A period of many years – the technology exists to transmit information instantaneously across any distance, but physical travel through space still takes a long time.

fellow Observers might help to ‘save’ this culture from the destruction that the Ekumen’s arrival on Aka inadvertently precipitated. Suttu initially is hostile towards the leaders of the Corporation but she also recognises that her hostility is self-destructive and self-defeating. Suttu grew up in a period of severe religious repression on Earth, and realises that she must learn to deal with her own tragic experiences of religious warfare and terrorism if she is to deal fairly with the Akans. The complexity of Suttu’s background and its influence upon her development as an Observer offers a convincing vision of the difficulties and opportunities of contact between different cultures for the people whose identities are constituted by those cultures.

Suttu begins to resolve her dilemmas when she leaves the capital city and listens to her fellow travellers talk about their daily lives:

She heard about them, their cousins, their families, their jobs, their opinions, their houses, their hernias... These dull and fragmentary relations of ordinary lives could not bore her. Everything she had missed in [the capital city], everything the official literature, the heroic propaganda left out, they told. If she had to choose between heroes and hernias, it was no contest (Le Guin 2000: 34-35).

Part of what makes *The Telling* so compelling is its sustained focus on the lives of ordinary people and the subtlety and sensitivity with which it renders everyday life. The stakes in *The Telling* are high – the survival of an entire world’s traditional knowledge and culture – but the struggle for survival it depicts take place primarily within the registers of daily life, because it is the very richness of ‘ordinary’ life that Aka’s totalitarian ‘March to the Stars’ threatens. Cultural destruction on Aka proceeds by grand and hideous macropolitical gestures, but its traditional culture survives and flourishes in small acts – choices about what to eat, what words to use, what stories to tell. In this sense, *The Telling’s* title can be understood as a call to witness and celebrate culture as the *telling of stories* that give form and meaning to everyday life. I see the politics that Le Guin dramatises here as being consistent with Nancy Fraser’s (1993: 22) feminist view of a ‘global solidarity’ that is ‘rooted in a concrete sense of human interdependence in everyday life, a vivid sense of the forms of emotional and practical support people require from one another in daily life, not only when they are very

young, very old, or sick but also when they are healthy adults’.

Thus, one reading of *The Telling* is as a thought experiment in rehabilitating democratic ideals in the wake of their destabilisation by global corporatism. As such, it addresses Torres’s (2002) questions about globalisation’s effects on solidarities within and outside the nation-state by imagining in rich and plausible detail how we might *perform* a citizenship premised on shared responsibility for each other’s everyday existence. Although Fraser (1993: 22) theorises this mode of solidarity as ‘feminist’ she emphasises that it does not require shared identity but, rather, a shared understanding of ‘those upon whom we feel entitled to make claims for help and those whom we feel obliged to help in turn’. Fraser’s political principle clearly meets Torres’s (2002) ‘challenge to the theoretical imagination’, but Le Guin delivers a similar challenge (and represents a similar principle) without the abstractions of *theoretical* labels. *The Telling* is a work of *practical* imagination, a rehearsal of the concrete choices, decisions and actions that men, women and children can make to protect civic life and human rights (and resist their erosion) at a local, micropolitical level.

Another reading of *The Telling* is to interpret its defence of daily life as an allegory of Tibet’s plight under (mainland) Chinese occupation. The ways of Akan telling resemble traditional Tibetan Buddhist practices and the modes of its suppression resemble Mao’s Cultural Revolution. Le Guin confirms this interpretation in an interview with Mark Wilson (n.d.):

I was really just trying to work out in fictional terms what something like the Cultural Revolution in China or the rise of fundamentalism in Arabic countries does to the people involved in it – whether it’s the suppression of a religion, which is what happened in China, or the dominance of a religion and the suppression of politics, which is happening in a lot of the Arab world. These are terrifying phenomena – this stuff’s going on right now, all around us. And it is something obviously that human beings are likely to behave this way given the right circumstances. So I sort of had to write a book about it¹⁰.

¹⁰ <http://www.scifi.com/sfw/issue189/interview.html> (Accessed 27 November 2002).

Nevertheless, the Akan government is called the Corporation and the novel's vision is as applicable to the homogenisation of culture under corporate capitalism as it is to (mainland) China's cultural wars. Le Guin's thought experiment gives us detailed historicised and contextualised visions of possible and plausible futures that are rooted in the choices we face in the present moment.

These two readings do not exhaust the many possible interpretations of *The Telling* but they should be sufficient to indicate that Le Guin's fiction shares what Hayles (1990), as quoted above, calls 'isomorphic assumptions' with the more self-consciously 'academic' literature of globalisation, governance and social transformation. Many of its interpretive (and thus, I believe, educative) possibilities lie in what at first seem like minor details. For example, Aka is a world with only one continent, so that all of its peoples live on just one landmass. Sutty's reflections on the significance of this difference from Terra (Earth) – and its implications for the politics of identity – are intriguing, especially in relation to her conviction that traditional Akan spirituality is not a 'religion':

... religion as an institution demanding belief and claiming authority, religion as a community shaped by a knowledge of foreign deities or competing institutions, had never existed on Aka.

Until, perhaps, the present time.

Aka's habitable lands were a single huge continent with an immensely long archipelago of its eastern coast... Undivided by oceans, the Akans were physically all of one type with slight local variations. All the Observers had remarked on this, all had pointed out the ethnic homogeneity... but none of them had quite realised that among Akans there *were no foreigners*. There had never been any foreigners, until the ships from the Ekumen landed.

It was a simple fact, but one remarkably difficult for the Terran mind to comprehend. No aliens. No others, in the deadly sense of otherness that existed on Terra, the implacable division between tribes, the arbitrary and impassable borders, the ethnic hatreds cherished over centuries and millennia. 'The people' here meant not *my* people, but people – everybody, humanity. 'Barbarian' didn't mean an incomprehensible outlander, but an uneducated

person. On Aka, all competition was familial. All wars were civil wars (Le Guin 2000: 98f).

We hardly need to be reminded of just how deadly our sense of otherness can be. The breadth of antiterrorist legislation in nations such as Australia and the US – coupled with paranoid approaches to ‘border protection’ and treatment of asylum seekers and refugees that amounts to institutionalised racism – has eroded the foundations of respect for human rights in these countries and worldwide. *The Telling* provides us with empirical evidence of the *possibility* of thinking what to many humans is unthinkable, such as imagining a world without ‘foreigners’. What would educational policy, curriculum innovation and global education look like if we assumed that ‘the people’ meant ‘everybody, humanity’? Le Guin reminds us that it is possible to think differently about identity and community, and questions of inclusion and exclusion, without ever underestimating the remarkable difficulty of doing so.

***Avatar* and *District 9*: Provoking Postcolonialist Critique of Globalisation**

I will conclude by referring briefly to two SF stories that are likely to be more accessible to South African colleagues than *The Telling*, namely, James Cameron’s (2009) *Avatar* and Neill Blomkamp’s (2009) *District 9*. *Avatar* grossed R20.7-million in the first 19 days of its South African release in late December 2009, making it one of the most successful movies in South Africa to date.¹¹ Because of its popularity, it has sparked much discussion and debate, which can be monitored on blogs, online discussion forums, and fan sites.

Many reviews and discussions of *Avatar* focus on its treatment of colonialism. For example, Lisa Wade (2009) refers to *Avatar* as ‘a moral re-evaluation of colonization’:

In the movie, humans go about killing and displacing the indige-

¹¹ See ‘Avatar brings home the goods in SA’ at <http://tiny.cc/jb1cs> (Accessed 14 September 2011).

nous population of another planet, the Na'vi, in order to extract a valuable mineral.

The Na'vi are a fantastical version of indigenous populations encountered by Europeans during colonization. They wear feathers, bones, and skins; they have a deep spirituality and a ritual-filled life; they are accomplished and principled warriors; they hunt and fight with bows and arrows; and they have an intense connection to nature. They are, in short, the stereotypical 'noble savage'....

Avatar is a fantasy in which the history of colonization is rewritten, but it is a fantasy specifically for white people living with a heavy dose of liberal guilt. And it is one that, ultimately, marginalizes indigenous peoples and affirms white supremacy.

Leslie Butterfield (2010), via the International Campaign for Tibet's (ICT) website, quotes the *Wall Street Journal's* report that in late January 2009 mainland Chinese authorities removed the 2D version of *Avatar* from all 4,500 theatres then playing the blockbuster movie (the 3D version was allowed to keep running). Butterfield speculates that Chinese officials did not care for the 'subversive' political message featured in the film. In *Avatar*, the Na'vi people struggle to protect their land from greedy colonisers, and some Chinese bloggers see a connection between the Na'vi and the many Chinese who have been expelled from their homes by property developers. Butterfield also sees parallels between the plight of the Na'vi and the current cultural and environmental crises facing Tibetans. Although the Beijing government's methods do not employ giant robot men and enormous bomb-dropping spaceships against Tibetans, their exploitative policies have fuelled deep resentment among Tibetans. After half a century of mineral extraction, heavy logging, damming and nomad resettlement in Tibet, not to mention cultural repression and assimilation, Butterfield is not surprised that *Avatar* might touch a nerve.

Annalee Newitz (2009) sees parallels between *Avatar* and American history: '*Avatar* imaginatively revisits the crime scene of white America's foundational act of genocide, in which entire native tribes and civilizations were wiped out by European immigrants to the American continent'. Newitz also sees similarities between *Avatar* and *District 9*, both of which she interprets as 'white fantasies about race': In these *movies*, 'humans are the

cause of alien oppression and distress. Then, a white man who was one of the oppressors switches sides... , assimilating into the alien culture and becoming its savior'. However, a significant difference between *Avatar* and *District 9* – and part of what makes the latter, in my view, a superior film – is that the aliens and their lives are not romanticised or ennobled. In *Avatar* Jake loves his life as a Na'vi warrior far more than he ever did his life as a human marine and he not only assimilates into the Na'vi culture, but also becomes its leader. But in *District 9* Wikus discovers that becoming a member of an oppressed and stigmatised group is not awesome and liberating but that it is really horrible and he hates it.

New York Times columnist David Brooks' (2010) also criticises *Avatar* as a 'racial fantasy':

[*Avatar*] rests on the stereotype that white people are rationalist and technocratic while colonial victims are spiritual and athletic. It rests on the assumption that nonwhites need the White Messiah to lead their crusades. It rests on the assumption that illiteracy is the path to grace. It also creates a sort of two-edged cultural imperialism. Natives can either have their history shaped by cruel imperialists or benevolent ones, but either way, they are going to be supporting actors in our journey to self-admiration.

As these brief examples demonstrate, *Avatar* and *District 9* have provoked both academic and popular debates about their representations of colonisation, and are therefore providing rich raw material for exploring global education in schools and universities. Comparing the different ways that descendants of both colonisers and those colonised are interpreting these movies in different postcolonial locations is itself a fascinating issue for inquiry in global cultural studies.

An important point on which I will conclude is to emphasise that neither *The Telling* nor *Avatar* nor *District 9* can stand alone as textual resources for global education. All need to be 'read' *intertextually* if they are to generate interpretations that are relevant to understandings of global citizenship. Reading *Avatar* and *District 9* as intertexts of various histories of colonisation produces interpretations, such as those of Newitz and Brooks, who see it as reproducing stereotypical assumptions about race and cultural

imperialism. Reading *The Telling* as an intertext of similar histories, and of contemporary studies of globalisation, produces interpretations such as I provide above, which produces alternative understandings of identity, community, inclusion and exclusion that might assist us in realising new curriculum visions for global citizenship.

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Generating Curriculum Visions for Global Citizenship

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The Return to Reading: Acquisition, Reading, Research on Narrative and the Implications for a Multilingual Pedagogy for Higher Education in South Africa

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Abstract

As applied linguists, we still need, given the resurgence of interest and scholarship in multilingualism, to attend to research on developing and changing language pedagogy so that it is informed by cognitive linguistics and psycholinguistics. This article surveys research into bilingual language acquisition and educational linguistics and explores the implications of this work for the development and use of indigenous languages development in South Africa. Five arguments, as listed here, are presented on the basis of this research.

First, that grammatical competence develops earlier in bilinguals because the use of two languages encourages an awareness of language systems (syntax and semiotics) such that the grammaticality of language is drawn to the attention of the bilingual learners when differences between two language systems become evident in the way these language are used and even learnt. Second, that the role of vocabulary development is crucial for the successful learning of a target language and such learning becomes more profound when phonology is developed and awareness of pronunciation is reinforced through reading. Third that bilinguals become aware of syntactic differences within languages at an earlier age than do monolingual speakers owing also to language exposure and use. Fourth, that phonological awareness of language use can be developed earlier when two languages are used and further that phonological awareness development is closely

correlated to the development of reading skills as sight and sound work together to develop and enhance language awareness in bilingual speakers. Finally, that bi-lingual language reinforcement occurs best through a focus on complex narratives outside as well as inside controlled learning environments. In this regard and within the controlled learning environment (from the early school years to tertiary education level), the teaching of complex narratives is critical for the development of sophisticated reading skills.

The article concludes by stating that research on language pedagogy for second language acquisition needs to be revived and further research conducted to account for an understanding of home-language syntax in relation to target-language syntax, and to create the scaffolding to enable learners to make the transitions necessary for effective learning.

Keywords: bilingualism, multilingualism, phonological awareness, vocabulary, reading, listening, language pedagogy

Introduction

As indigenous language development gathers momentum in South Africa, several scholars in language education and applied linguistics particularly, have demonstrated the need to shift from a focus on debates on language rights, policies, and choices at the macro-level (see Balfour 2009), to a concern with the implications for detailed development of languages as media for learning. Given the resurgent interest and scholarship in multilingualism there need arises to attend to research on developing and changing language pedagogy so that it is informed by cognitive linguistics and psycholinguistics in so far as such research is relevant to language pedagogy, curriculum design and development, and the emphases we bring to particular literacies development in more than one language.

The shift has not been sudden, but seems to have occurred rather as a consequence of selected and targeted funding of indigenous language projects which have often been multi-institutional (for example the SANTED project involving UCT, Rhodes, UKZN and DUT). The purpose of SANTED was the development of indigenous languages for learning in higher

education, and it was associated most often with professional qualifications in nursing, education, dentistry and psychology), or multi-level projects (for example, the North-West University's SANPAD project, involving the development of content and pedagogies for multilingual indigenous language learning in Grades 1-3 English, Afrikaans and Setswana). The broad range of activity is to be welcomed as it suggests that higher education institutions are making provision for the development and continued support of policy provisions associated with the Languages in Education Act (LiEP 1997) and the Languages in Higher Education Act (LiHEP 2002) and innovating in other, related areas of applied language research.

In textbook development (for example, Van den Berg & Nieman 2007), classroom pedagogy (for example, Mbatha 2010), lectures and other professional theatres (for example in Nursing, Medical and Traditional Health Care, see Engelbrecht *et al.* 2010; Goggin *et al.* 2010; and Gqaleni *et al.* 2010), and finally in relation to corpus planning itself, much is being achieved for bilingual education development: for example: Madiba's (2010) work with regard to written indigenous languages corpora planning at UCT, and Ngcobo and Nomdebevana's (2010) demonstration of the uses of spoken language for corpora development in isiXhosa and isiZulu. These developments find their parallels in international as well as local literature in which English as second or foreign language is often considered from the perspective of globalisation and technology: see for example, Kajee (2006), Wu and Marek, (2007). In South Africa, Kaschula and Mostert (2010) explore the uses of online games involving role plays as a means of stimulating interaction and engagement with the target language beyond formal learning as described by Krashen (1988). The argument advanced by both Kajee (2009) and Kaschula and Mostert (2010) is that online interaction may be enriched through explicit focus on language acquisition, simultaneously increasing motivation levels, pleasure and learning. Internationally work by Coste (2001: 15) challenges even conventional notions of bilingualism by suggesting that plurilingualism concerns the variability, flexibility and changing nature of language use, in which the use of languages is dependent, not on language equality, but rather on the value and context for a situated purpose for language use (Beacco & Byram 2003). Uneven competency in language use presupposes the integration of languages, dialects and registers often serving the purpose of endorsing

language linguistics tolerance. In literacy research, the movement from bilingualism to biliteracy studies has contributed to the awareness that literacy development in more than one language accompanies bilingual language use. Reyes (2001: 98) defines biliteracy as:

mastery of the fundamentals of speaking, reading, and writing (knowing sound/ symbol connections, conventions of print, accessing and conveying meaning through oral or print mode, etc.) in two linguistic systems. It also includes constructing meaning by making relevant cultural and linguistic connections with print and the learners' own lived experiences ... as well as the interaction of the two linguistic systems to make meaning.

In South Africa, the renewed focus on language development in higher education, and specifically on indigenous language development for learning in higher education is timely, and a number of special issues of journals have appeared on this subject (Balfour 2010; Ndimande-Hlongwa & Wildsmith 2010). These testify to this scholarly interest, although the focus has differed: at the policy level (for example, Balfour 2007; and Wildsmith 2010) the issue of sustaining acquisition of indigenous languages so that their habitual use and development may become part of the on-going work of academics in South African higher education institutions (or HEIs). Wildsmith (2010:29) offers international precedents (notably Canada and the USA) for this development, while Balfour (2007) and Mbatha (2010) explore the implications of dual medium instruction in two South African languages in school contexts. Mbatha argues (2010:65) that mother tongue instruction should be the primary focus of the Foundation Phase, while Balfour (2007:2) suggests that an early transition to two languages, rather than a focus on one, is necessary especially in multilingual classrooms where target languages are routinely available to learners either through each other or through the teacher.

It is impossible to describe in detail the research reported in the previous two paragraphs and the purpose of providing this cursory overview is to shed light on the aim of this article, which is to explore the implications of research on bilingualism for language pedagogy in South Africa (beyond the level of corpus development, or content development for curricula). The

earlier research described indicates a commonality of purpose, particularly in relation to indigenous language development, but it also points to a gap which exists: as applied linguists, we still need, given the resurgence of interest and scholarship in multilingualism, to attend to research on developing and changing language pedagogy so that it is informed by cognitive linguistics and psycholinguistics. We also need to explore those implications for the uses of corpora, content materials and instructional aids.

My argument is intended to complement the research already undertaken. In order to achieve this, the article is divided into four sections, the first of which describes what is 'given' in research to date on bilingual acquisition concerning grammar, syntax and vocabulary and phonology. The second section explores these four dimensions where research has demonstrated the advantages to bilingual acquisition from an early age. This last point is important for this article, since being exposed to more than one language at an early age, and successful learning of languages in order to achieve coordinate bilingualism, cannot be an aim in higher education given the implications for the entire education system. The third section of the article explores the dilemmas for bilingual education as a project in South Africa, whether at the level of schooling or indeed higher education. The fourth section refers to the research explained in the first section and then extrapolates its implications for what might be achieved in South African higher education. The argument in this article suggests that research on bilingual language acquisition is relevant to universities' curricula if indigenous language development is to be supported.

What We Know about Bi- and Multi-lingualism

Definitions of multilingualism may be derived from an extensive literature in which bilingual research features prominently. Social interaction in multilingual societies may require more than two languages, and in this case it is useful to distinguish as does Krashen (1988) between languages which are acquired and languages which are learnt. For the former comprehensible input is needed, while the latter is associated not only with such input, but also with the explicit presence of formal language learning (syntax in relation to the development of semantics) towards the development of awareness and grammatical competence. Butler and Hakuta (2004:118) divide this

bilingualism as early or late bilingualism since the achievement of fluency associated with each differs depending on the ‘age of exposure to two (or more) languages’ (118).

In relation to the above, scholars have variously defined bilingualism as the degree to which a person can command native-like control over more than one language (Bloomfield 1933: 56), to persons who can communicate meaning in more than one language (Haugen 1953: 7), to persons who while using only one language, may have an understanding of others (Grosjean 1999; Peal & Lambert 1962; Weinreich 1953; and Widdowson 2001) distinguish between dormant (awareness of two languages, but the use of one), balanced (the more or less equal use of at least two languages), dominant (where the use of one language is privileged over another because of status or context), compound (the learning of two languages in the same place where one language is used to learn another) and coordinate bilingualism (the learning of two languages in two places, or where two language are learnt independently). The literature associated with classification of bilingualism has been extensively described by Butler and Hakuta (2004:116). I wish here to distinguish between the bilingualism necessary for daily communicative interaction, and the bilingualism necessary for formal learning and teaching in South Africa. It is the latter with which I am mostly concerned and in this domain, there is a further need to distinguish between what is possible in the early years of learning in schools, and in the early years of tertiary education.

Few members of the population have achieved what Widdowson (2001) would term ‘coordinate bilingualism,’ where a person can express or understand complex meaning in more than one language in the four basic literacy skills. The reason for this is, as noted by Barnes (2004): the education system in South Africa has not, historically, been able to offer formal and sustained learning as well as acquisition opportunities for the majority of the population in more than one language, despite there being a wealth of languages and literatures available. Instead learners have either had to make the transition from mother tongue education too early, or had to acquire languages (English and Afrikaans) inadequately as a consequence of insufficiently educated teachers, inadequate resources for language development, and too few opportunities to use the target language. Language development for higher education has thus been a patchwork characterised

by unequal proficiency and inequitable distribution of opportunity. Unequal in this sense: what indigenous languages that were offered to children were either offered for only a short period (for example, the 1980s a child could learn Setwana or Sesotho in primary school, but then switch all English or all Afrikaans classes after the age of 11). Inequitable: in many schools the introduction to English or Afrikaans occurred too late for children (after the age of 11) who by this time had passed what is often referred to as the maximal window period for language learning.

Despite this, what emerges, repeatedly in research into language choice in South Africa (see Balfour 2010), is that people negotiate culture, face (or dignity) and identity through more than one language, and balance the need for modernity, the value of tradition, with awareness that multiculturalism is normative in South Africa. The education system post-1994 attempts to support multilingual language development through encouraging the learning of more than two languages throughout schooling, and the use of at least two languages for learning in higher educational contexts (see Singh 2009).

For Vygotsky (1962/ 1932) and for Peal and Lambert (1962) it was clear that knowledge of more than one language might actually be ‘enriching and enhancing’ of a child’s development (Bialystok 2004: 579). What are the advantages for bilingual learners and how can these be used for enhancing language pedagogy? Clark (1978: 36) speculates that ‘learning two languages at once, for instance, might heighten one’s awareness of specific linguistic devices in both’. Understanding the relation between words and their meanings consistently emerges as superior in bilingual children in two major areas of research.

Grammatical competence studies: the famous study conducted by Piaget demonstrates the implications of enhanced word recognition. Children were asked if it was possible to exchange the words ‘sun’ and ‘moon’ and retain their meanings. Having agreed to do so they were then asked what star would then shine at night? Most children in the group responded that the sun would shine at night and the moon by day. When asked what colour would the sky be if the sun shone at night?, bilingual children were the first to reply that the sky would be dark at night. Edwards and Christopherson (1988) and Eviatar and Ibrahim (2000) have consistently shown that bilingual children solve this problem earlier than monolinguals.

Vocabulary acquisition studies: Feldman and Shen (1971) experimented with a combination of real and nonsense names for children to learn. Both bilingual and monolingual children learned the names equally well and scored similarly on vocabulary tests, but bilingual children were consistently able to use the names accurately in new sentences, accepting that new names could be used ‘arbitrarily in a real linguistic context’ (Bialystok 2004: 582).

Syntax awareness: Ben-Zeev (1977) showed that bilingual children are also more advanced than monolingual children when recognising syntactical rules. Asking a group of children to substitute the word ‘we’ with the word ‘spaghetti’, bilingual children could consistently make the substitution in when asked ‘how would you say ‘we are good children?’ ‘Spaghetti are good children’’. Bilinguals are thus able to apply syntax rules more skilfully than monolinguals because awareness of two languages draws attention to the syntactic structures.

Phonological awareness: Bruck and Genesee (1995) working with English-speaking children in a French immersion programme found that monolingual children had an advantage over bilinguals in terms of phonological awareness. Bialystok, Majumder and Martin (2003) found that there were no differences between bilingual children and monolingual children and concluded that ‘bilingualism is insufficient to fundamentally change the path to metalinguistic development’ (Bialystok 2004: 588).

Huang and Hanley (1994) suggest that there is a complex relationship between phonological awareness and learning to read. In other words, we need to consider in our pedagogy the relationship between reading, which is essentially the silent pronunciation of words on the page, and understanding. Galambos and Goldin-Meadow (1990) suggest that while bilingualism alters the rate of language development, it does not change the course of development for learners. This point is worth exploring further in the context of South Africa. Butler and Hakuta (2004:126) suggest that the age of exposure to a language is an important factor in acquisition, but not necessarily a factor in learning. While children exposed to unstructured language in the early years learn languages with speed, adults can typically learn languages equally fast in controlled environments, provided there are sufficient opportunities for acquisition and learning. The point here serves to confirm that there does indeed exist a critical age during which language

acquisition is accelerated, but that if controlled support for learning occurs in later years, there is no evidence to suggest that languages cannot be multiply acquired by adult learners; a point to which I shall return.

Phonological awareness has been ignored after the early years in education in South Africa. And yet listening tests conducted with university students (Balfour 2002) show that students experience difficulty regarding the comprehensibility of English as spoken by different non-native speakers, or by native speakers of the language. Of particular importance is Stevens's (1965) finding that non-native speakers of English are less aware of loss or lack of comprehensibility. This research suggests that listening skills development which takes into account accent and pronunciation is key also to the development of reading skills for coping with higher education in South Africa.

Finally, we can confirm that the ability to distinguish between meaning and form, is more advanced for bilingual learners. This ability suggests that bilinguals not only are able to make sense of the world, and thus knowing and knowledge, in more than one language system, but that the compulsion to move between one language and another fosters an awareness of systems and the means by which human beings make sense of experience and knowledge.

Dilemmas in South Africa as Regards Bilingualism and Education

While these findings support the assertion that bilingualism advantages learners, the success of bilingual learners depends on a number of factors, not least of which is previous exposure to the additional language in terms of vocabulary, and also learning age (Bialystok 2004: 585). In this regard, a number of caveats or qualifications delimit the extent to which interventions in language education are effective, and the extent to which a 'weak' language can be used for education in tertiary education in South Africa.

As regards teacher education, there is no consistent measure which provides us with data concerning the degree of depth of 'previous exposure' to English or any other language, for the following three reasons. First, the national assessment exercises, whether in Grade 3 or Grade 12, require the

demonstration of competencies not fully developed or adequate for university level requirements. Initiatives to explore the predictive value of language and mathematics as predictors for success at university level suggest that these two subjects are crucial, but beyond that finding, the bridge between development and the competent demonstration of skills remains a concern. This is complicated by other realisations: first, the quality of teacher education (in the past and present) is variable, and second, because models for initial teacher education are revised in five to ten year cycles. It is thus difficult to determine which pedagogic models, if any, best support teaching and learning and what training is required in order to equip teachers to support learning. Finally, because the curriculum itself shifts in relation to new knowledge developments and generation it is not possible to argue that research, or insights arising from research in language acquisition are fixed beyond change. Indeed, developments in cognitive and neuro-sciences shed light on cognitive processes which change the ways we understand learning.

Given the variable access to high quality language education in South Africa, it is necessary consider what interventions support learning in a weak language in higher education, as opposed to those programmes which are designed to encourage acquisition of a language.

We have yet to develop immersion type programmes, high enough in status and adequately supported by economic and social need. For example, a Bachelor of Commerce (in Entrepreneurialism in Africa) might demand that students learn academic content through immersion types modules where the target language, be it Swahili or Arabic, is also the language of learning. A number of factors need to be considered in this regard: first, where we already have programmes in which learning through a weak language is supported. Learning through English and Setswana is supported thus at NWU, and to a lesser extent isiZulu at UKZN), but the estimation of resource development in relation to gain needs to be considered. For example, in some South African universities classes/ modules are offered in two languages. Second, the costs associated with parallel medium education are astronomical, in terms of hours devoted to double teaching, the translation of materials and the availability of translation expertise in institutions. Related to this second point is the fact that in many instances, the outcomes (separation of language groupings and an absence of integration) of parallel medium education are also undesirable; for example,

in terms of the reinactment of language ghettos and the reinforcement of language shift in contexts where strong and weak language divides are evident. On the other hand, targeted interpreting and translation support, as has been successfully done at NWU, does enable a more efficient articulation between human resources and language-related expertise, even though not every class/ module can be interpreted, nor can materials in translation be available to every programme. A complex organisational bureaucracy, itself a gatekeeper to access, must be put in place to ensure that interpreters are available and materials developed all at least a year in advance.

Totally ignored in higher education curricula in South Africa is the role of vocabulary acquisition for bilingualism to develop. It is only in the recent past (Balfour 2010) that attention has refocused on vocabulary acquisition, and we have not yet addressed the need to concentrate on phonological awareness in association with reading skills development (Kilfoil 1998). Such neglects are not accidental and the next section of this article explores the extent to which absences of focus arise from theoretical underpinnings of curricula and associated pedagogies.

Problems Associated with Language Learning Theories in South Africa

Communication Language Theory (CLT: Krashen & Hymes *et al.*) has long been dominant in language curriculum design in South Africa. CLT assumes that exposure to the target language is sufficient for acquisition. If this were true for all contexts how would we explain that the input routinely used in the monolingual non-English classroom does not activate either conscious control over language, or the ability to use it for purposes outside the communicative context? (Balfour 2008a). For Krashen (1988) the quality of L2 input is critical, whereas for Ellis (1994), the role of the L1 is essential since adequate knowledge of the mother tongue enables the scaffolding (that is the use of understanding of one concept to build the understanding of a new concept in language) (Wong-Fillmore 1985/1994) of language learning to be developed. In both positions there is an assumption that knowledge of the L1 and the L2 are critical for the movement of learning from the compound bilingualism to coordinate bilingualism. Yet as demonstrated in

the rural monolingual classroom and the urban middle class multilingual classroom, learners are not enabled by teachers to make use of either the L1 or the L2 as a learning opportunity. Given that no formal scaffolding is created upon which the internal cognitive processing of L2 through the L1 is made explicit, learners are left to make connections on their own, developing a compound bilingualism that, as we know from the variable success of academic development programmes, seldom progresses beyond the interlanguage stage. Simply put, code-switching is neither desirable nor useful in the classroom unless it is incorporated into an explicit pedagogy that seeks to develop the adequate use of the L1 as a tool for acquisition and learning of the L2. If this seems logical and acceptable to us, then the remaining question must surely be concerned with education since both the monolingual and multilingual contexts provide the only opportunity for learners to develop their formal awareness of the L1, and (at least in the monolingual rural environment) their acquisition of the L2.

In Balfour (2008b) I argue that second language pedagogy and research are located on opposite extremes of a continuum in this regard. For some, like Wong-Fillmore (1985) this interference requires diminution if the learning of the second language is to be reinforced, since immersion leads to accelerated learning. For Ramsay-Brijball (2004), code-switching is a critical part of the acquisition process, and because of its psycho-social aspects, an important part of validating one's own language and culture in order to promote what Lambert (1974) refers to as additive bilingualism. Other theories of acquisition are equally extreme in positions and hypotheses. On the one hand, Krashen and Terrell (1983) propose that the relationship between learning (the formal and pedagogic awareness of a language) and acquisition (the natural acquiring of another language through contact and input) is mutually exclusive. This is known as the non-interface position, according to which one can acquire a language more successfully through contact and comprehensible input (Hymes 1972), than through learning, focussed as it is on form and conscious awareness of structure. On the other hand, Ellis (1994) and Francis (2002) argue that a focus on form draws on learners' long-term memory, through consolidation of awareness in the short term working memory and thus develops not only one's capacity to recall languages, but also to use them.

Research demonstrates (Geva, Wade-Woolley & Shany 1997) that without strongly developed reading skills in the main language, the transfer of such skills to an additional (weak) language is compromised.

Research also suggests (Bialystok 2004: 596) that learners who are partially bilingual do not achieve the same advantages as in cases where children attain bilingualism at an earlier age. Bialystok argues that ‘the absolute levels of language proficiency and the relative balance between languages’ are crucial in determining whether skills learnt in the main language are transferrable to the weak language (2004: 596). In other words, ‘children who speak two languages poorly, or two languages in the absence of literary experience in at least one of them, may not reap any benefit from their experience’ (2004: 596). Exposure to the language of literacy instruction and narrative experience in the weak language encourages phonological awareness. Furthermore, Bialystok (2004) confirms that the transfer of reading skills is not automatic where orthographies differ as is the case with English in contrast to isiZulu for example. In such circumstances the explicit teaching of differences between the systems is a requirement for understanding how both work. This supports my earlier point about the need to develop reading and vocabulary skills in both the ‘main’ and ‘weak’ language.

Implications for Language Pedagogy in Higher Education in South Africa

Previous sections have made the following arguments: that the use of two languages in a teaching context is desirable in terms of increasing grammatical awareness; that the use of two languages in a classroom (or controlled learning environment) can have the effect of developing awareness of syntactic differences between languages and this aid in the learning of a target language; that we focus on the role of vocabulary development in controlled learning environments, and that we focus also on the phonology of the target language (in other words, focus on the spoken and the written text) to reinforce acquisition through reading and speaking. Although the above can be achieved at higher education level, it needs also to be noted that in relation to learning in the early years that phonological awareness of

language use can be developed earlier when two languages are used, and further that the use of narratives even at an early age, should be encouraged to develop bilingual speakers.

At both education levels (early years and higher education) the discourse structure of narrative is key to the development of coordinate bilingualism. The implications of understanding this for South African education are profound. It means that teacher education programmes should make normative the teaching of subject content matter through more than one language, rather than focusing merely on basic interpersonal communication skills. These are useful in everyday contexts, but not useful enough for learning or complex argument in reading or writing. In view of perspectives such as these the following implications for education to better support bilingual acquisition are worth articulating.

First, given that reading has consistently (since and even before 2002) been identified as the one skill inadequately developed in higher education, we should emphasise the development of extended reading skills early in the curriculum. At university level, learners should be exposed to a wide variety of reading forms and genres, in order to become accustomed to reading extended narrative texts. Thus the shift from shorter readings to more elaborated texts, and the shift from shorter forms of assessment, to those associated with essay-writing or project-writing needs to occur earlier and more intensively in the curriculum.

Second, the emphasis in our national curricula on assessment exercises which are similarly based on shorter texts, basic comprehension and limited vocabulary acquisition must be recognised as inadequate and a disservice to the learners and ultimately to the nation. The approach to literacy which has hitherto focused on writing development and the formal development of semantic awareness (writing for comprehension) is inadequate. Bialystok argues that 'Acquisition of the more detailed knowledge about how the (language) system works, requires the contrast of being exposed to two different systems' (Bialystok 2004: 592). Thus, assessment needs to challenge learners more in terms of communicating a sophisticated understanding of texts, comparison, or the synthesis of longer texts in which different perspectives on the same topic are provided.

Third, (and already alluded to earlier) research consistently demonstrates for first as well as foreign language acquisition that vocabulary

remains the key to the development of structured and complex meaning in reading or writing. Acquisition of language is not dependent on exposure to short texts or basic comprehension skills. Complexity of meaning is understood within the narrative that encapsulates it, and because of this we should, in schools and later at universities, pay particular attention to vocabulary acquisition through exposure to complex narrative structures, so that learners grasp the awareness that word recognition is formed in relation to syntactic as well as semantic positioning. A wide-ranging vocabulary makes for better understanding of specialist terminology and communicative language competence. Glossary development, vocabulary testing (in order to improve memory store, for example, ought to feature as part of learning).

The fourth implication arises not from the literature above, but from the pedagogy associated with second language acquisition. We find in most language classrooms, concerning the role that the teacher adopts when teaching the features of the target language, and the roles learners adopt when interacting with each other to explain how the target language works, the use of what Widdowson (2001: 10) terms a ‘permissive pedagogy’:

which allows for, even encourages, the learners’ engagement of the L1, but again makes no acknowledgement of its existence in the design of the instruction itself. Monolingual teaching is justified in this case on the grounds that input in the L2, so long as it is comprehensible, will automatically activate learning.

Thus language education curricula ought to take as an assumption that learners need to be aware of at least two languages (one of which they might have as a home language), and that target language learning should focus on the similarities and differences between syntactic systems. Arising also from the context of higher education in South Africa, is an awareness that the language made available in the tutorial venue or lecture theatre, if not reinforced outside of those contexts, remains superficial and partially comprehended. Learners in bilingual environments should have access to out-of-class stimuli, including language laboratories, to support to formal acquisition as it occurs in the curriculum setting.

Finally, the research in international applied language studies on how bilingualism influences the development of proficiency in reading is in need

of further development. South Africa needs to contribute to this scholarly work, given our unique position enshrined in legislation, in terms of indigenous language development. The opportunity exists here for work in which language pedagogy development for the purposes of bilingual (or multilingual) language acquisition, can be undertaken. We should begin to incorporate in teacher education programmes a curriculum which makes for language teaching on the basis of more than one language from the outset of schooling so that the home language becomes a means for learning about the foreign or additional language whether this is English or any other language. The development of such curricula requires that monolingual models for acquisition (along with the pedagogic assumptions involved) are rejected since these do not reflect the multilingual nature of South Africa (see Balfour 1999). Accepting English as the lingua franca need not imply the automatic development of subtractive bilingualism since, if multilingualism is supported through pedagogy from the beginning years, and throughout schooling and tertiary education, I believe that most, if not all, the current difficulties associated with English (or for that matter Afrikaans) as barriers to access will become a feature of the past.

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e-Learning Terminology Trends – A Lens into Institutional Paradigms?

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Against the backdrop of debates about pedagogy and the future viability of higher education, an increasingly polarized technology argument is brewing (Mott).

Abstract

A disturbing dichotomy is becoming apparent within e-learning. On the one hand are reports of increasing use of e-learning environments by higher education institutions, however on the other hand are indications that the use is limited and pedagogically rigid. By exploring the changes in e-learning terminology and research foci over the past ten years it is possible to trace underlying pedagogical currents in higher education. The paper firstly presents a framework that classifies e-learning tools into three categories. Then using search engine count estimates based on both Google Scholar and five top ranked journals, the paper examines trends in the terminology associated with these three categories between 2001 and 2010. The findings indicate that Type 1 environments, typified by Learning Management Systems continue to dominate, while Type 2 environments such as Virtual Learning Environments are becoming increasingly popular. However, despite technological innovations in Web 2.0 platforms, Type 3 Personal Learning Environments appear to already be floundering. The results indicate that outdated approaches to learning, supported by ‘industrial-age’ models may be hampering the adoption of alternative learning paradigms which are more readily supported by Type 3 environments. Future research may need to focus on exploring new informal learning environments, such as social networks, that are more authentic to the student learning and communication experience.

Keywords: e-Learning, Facebook, Learning Management Systems, pedagogy, Personal Learning Environments, Virtual Learning Environments

Introduction

Higher education is not only being reshaped by developmental imperatives and relationships with the state and business, but also by the tools and technologies used and espoused by higher education institutions. These tools offer opportunities to explore new approaches to teaching and learning or alternatively to institutionalise existing pedagogies.

While the Learning Management System has become central to the business of colleges and universities, it has also become a symbol of the higher learning status quo (Mott 2010: 1).

In the modern digital age these tools, or e-learning environments, are becoming the place where teaching and learning takes place (Heider, Laverick, & Bennett 2009). Whatever pedagogy is espoused, the e-learning environment is where the approach and theories are increasingly being delivered.

In a similar way to offline environments, where the environment reflects, and often perpetuates the pedagogy (Blewett, Quilling, Bulbulia & Kanyiwamuyu 2011), so too e-learning environments can reflect, and perpetuate, underlying paradigms and pedagogies. As such, an analysis of the various types of e-learning environments provides a lens to explore underlying paradigmatic orientations and approaches.

It is possibly the emerging tension between platform and pedagogy that has resulted in the dichotomy that seems to exist within e-learning. On the one hand it is argued that ‘more and more instructors are beginning to abandon traditional approaches to instruction ... for cutting-edge strategies’ (Heider *et al.* 2009:104) which is confirmed both by the increasing number of e-learning tools and universities actively promoting their usage (Williams, Karousou & Mackness 2011). However, on the other hand are claims that ‘studies of diverse learners’ use of new media cast doubt on the speed and extent of change’ (Warschauer 2007: 41).

This raises the question as to why it is, when education technology advocates are lauding ‘the advent of new technologies (that) will radically transform what people learn, how they learn, and where they learn’ (Warschauer 2007: 41) and students in their non-academic lives are immersed in online spaces (Lim 2010), higher education seems to be making little progress in the use of e-learning environments.

There is growing awareness in higher education of student levels of engagement in Web 2.0 environments, in contrast to their engagement in the learning management systems (LMSs) hosted by their institutions (Sclater 2008: 1).

In the face of the changing landscape, both pedagogically and technologically, this dichotomy needs to be investigated.

The importance of understanding LMS as well as its related technologies lies in the role it will play in future approaches to instruction as the needs of today’s learners are not being met by current approaches (Watson & Watson 2007: 31).

Exploring e-learning environments, which includes a long and changing list of terms, may provide insights into underlying institutional paradigms (Sclater 2008). However, not only is it important to investigate the evolution of the terminology associated with e-learning environments, but also to identify trends that this usage may signal (Zawacki-Richter, Backer & Vogt 2009).

This paper presents an analysis of academic literature relating to e-learning environments, in order to address the question of how the terminology associated with e-learning environments has changed? Examining the trends in terminology may provide insights into underlying paradigms and also signal future directions in the development of e-learning environments.

Firstly this paper will present a classification of e-learning environments into three types. Next the findings and analysis of the terms associated with the various types of environment will be presented. Finally a

discussion around what the trends in terminology indicates about pedagogies and university approaches to e-learning, will be presented.

Classifying e-Learning Environments

There is a lot of confusion in the terminology used for e-learning environments (Dobozy & Reynolds 2010). Terms such as Learning Management System (LMS) are substituted with Course Management System (CMS) or Virtual Learning Environment (VLE), etc. As a result, various attempts have been made to classify and explain the terminology associated with e-learning environments (Dobozy & Reynolds 2010; Mott 2010; Wilson *et al.* 2008).

Dobozy & Reynolds' (2010), framework provides a useful point of departure for this undertaking. They classify e-learning environments into three dimensions:

- Dimension 1: Foundation stage (come and grab)-LMS/VLE 1.0
- Dimension 2: Developing stage (come and interact)-LAMS/VLE 1.0
- Dimension 3: Experiential stage (come and be)-(MU)VLE/VLE 2.0

Using their three 'dimensions' as a point of departure, it is possible to identify three 'types' of e-learning environments. The *first type* of e-learning environment is associated with Learning Management Systems (LMSs). Dobozy and Reynolds (2010), refer to these as 'come and grab' environments. These environments are primarily concerned with management and content and are characterised by a 'product' focus (Mott 2010).

The *second type* of e-learning environment is associated with Virtual Learning Environment (VLEs). They refer to these as 'come and interact' as they are exemplified by the space where interactions take place (Dobozy & Reynolds 2010). These environments are characterised by a 'place' focus.

The *third type* is associated, with what they call, VLE 2.0. They refer to these as 'come and be' (Dobozy & Reynolds 2010). These environments are characterised by a 'people' focus. However, rather than versioning the second type (VLE), a more useful term for these environments are Personal Learning Environments (PLEs) (Mott 2010).

While this classification masks the inconsistencies in naming of environments, it provides a useful framework to analyse the names associated with the various e-learning environments and the nomenclature associated with the functions of these environments. Using an extended form of Dobozy & Reynolds' (2010) classification, a three type e-learning environment framework is presented below.

Type 1 - 'Product' e-Learning Environments

Type 1 e-learning environments focus on 'production' issues, mirroring the first generation of the Web. 'The first generation of the Web has much in common with an 'industrial' approach to material productive activity' (Watson & Watson 2007:30). These environments were (and are) concerned with the content and process of learning.

Williams *et al.* (2011:40) citing Collins and Halverson say that 'traditional modes of learning arose in response to the industrial revolution and were based on standardised mass-production'. Watson & Watson (2007:31) concur, stating that 'today's education system remains mired in the Industrial Age, putting the onus for learning on teachers, encouraging students to remain passive.' Type 1 e-learning environments typify this continued focus.

These environments have existed (and continue to exist) under a wide range of names, such as 'Learning Management Systems', 'Learning Content Management Systems', 'Managed Learning Environments', and 'Content Management Systems'. Watson & Watson (2007), drawing from The American Society for Training & Development use the following terms when describing the functional requirements of an LMS; 'integration', 'manage', 'administration', 'standards', 'configuration'.

Etymologically the nomenclature associated with these environments encourages a connection with 'product', 'management', and 'content' pedagogies. 'It has not gone unnoticed that even the term learning management system suggests disempowerment – an attempt to manage and control the activities of the student by the university' (Sclater 2008:1).

Critical theorists have long argued that language exhibits and carries epistemological baggage. 'It is crucial to appreciate the ways in which ... epistemological 'baggage' has already been packed into theories and

concepts' (Garry 2004:304). As such the nomenclature signals paradigmatic and pedagogical assumptions.

Watson & Watson (2007:28) in defining an LMS provide an interesting insight into the embedded pedagogy.

An LMS is the infrastructure that delivers and *manages instructional content*, identifies and assesses individual and organisational *learning goals*, *tracks* the progress towards meeting those goals, and *collects* and presents data for *supervising* the learning process... An LMS delivers *content* but also handles course *registration* and *administration*, *skills gap analysis*, *tracking* and *reporting* (e.a.).

Obviously missing from this definition is the learner (Mott 2010). Learning goals are mentioned but as part of the management process. Most of the other words emphasised are management related. A pedagogical bias towards instructivism is revealed in the term 'manages instructional content'. The definition says that the 'LMS is the framework that handles all aspects of the learning process' (Mott 2010), yet the learner is missing.

These environments are the primary target of commercial offerings as they appeal to the institutional need for control and management, and allow lecturers (without any paradigm change) to switch from offline to online modes of delivery by uploading slides and other material (Mott 2010).

Type 1 environments, typified by LMSs resonate with elements of the 'Industrial Age', where the mechanisation, control and focus on production are central to the process. Type 1 environments are therefore referred to as 'Product' e-learning environments. 'They conform to a classroom metaphor, which may explain, at least in part, why we 'can't ... stop lecturing online' (McLoughlin & Lee 2007:668). Type 1 environments reflect elements of Behaviourism both in the nomenclature and embedded instructivist pedagogy.

Type 2 - 'Place' e-Learning Environments

Watson & Watson (2007) argue that society has progressed from the Industrial Age into the Information Age. This is supported by a concomitant move towards Type 2 e-learning environments. Type 2 environments focus

mainly on the ‘place’ of learning. While Type 1 environments focus on computerised systems (production), especially prior to the proliferation of the Internet through the World Wide Web, Type 2 environments seek to make use of the reach and virtual nature of the web. As such, Type 2 environments characterise the boom of the Information Age (Williams *et al.* 2011).

The terminology associated with Type 2 environments reveals a focus on the ‘virtual’ or ‘place’ aspect of the environment. Type 2 environments are called ‘Virtual Learning Environments’, ‘Online Learning Environments’, ‘Collaborative Learning Environments’, etc. Dillenbourg *et al.* (2002), make use of the following phrases in defining a VLE - ‘information space’, ‘social space’, ‘turning spaces into places’, ‘virtual space’.

Due to Type 2 environments often being hosted in the cloud, rather than on institutional platforms, the focus moves from a lecturer-centric control to a lecturer/student control. In Type 2 environments lecturers are still responsible for course setup, administration, etc., but students typically have some options around customising their space, through themes and widgets. So while Type 1 environments focus on content, Type 2 environments focus on the space where the content is delivered and some of the affordances of virtual spaces, such as customisation (Williams *et al.* 2011).

Dobozy and Reynolds (2010) refer to these Type 2 environments as VLE 1.0, versioning the term VLE in an attempt to distinguish it from Type 3 environments. However, while Type 2 environments focus on the virtual nature of learning they have not fully embraced Web 2.0 with its development of a rich set of collaborative tools such as blogs, wikis, microblogs, and social networks (Al-Khatib 2009; Ullrich *et al.* 2008). While the underlying learning theories of Type 2 environments are not as obvious as in Type 1 environments elements of Humanism (focus on motivation) are apparent.

Type 3 - ‘People’ e-Learning Environments

Growing out of the affordances of Web 2.0, and particularly social technologies, is the next type of e-learning environment with its ‘people’ or

social focus. The focus of these environments unlike the previous types, ‘what’ and ‘where’ orientations, is on ‘who’. ‘Unlike the “industrial” artifactual nature of Web 1.0 products, Web 2.0 is defined by a “post-industrial” worldview focused much more on “services” and “enabling” than on production ... (more on) “leverage”, “collective participation”, (and) “collaboration”’ (Lankshear & Knobel 2007:12).

While Watson & Watson (2007) argue that the ‘information age’ has replaced the ‘industrial age’, others suggest that we are now in the ‘network age’ (Castells 2004). This shift highlights another important transition in e-learning environments. While the ‘industrial age’ environments focused on ‘product’, the ‘information age’ environments focused on ‘place’, the current ‘network age’ age is neither the product or the place, but the connections between people. As such Type 3 e-learning environments characterise the network age and the nomenclature tends to focus on connectedness or personalisation.

A key element of Web 2.0 is the concept of networked spaces as exemplified in SNSs like Facebook (www.facebook.com) and Twitter (www.twitter.com). While Type 1 and Type 2 environments typically consist of a single space where the learning takes place, Type 3 environments, as typified by Personal Learning Environments (PLEs), are a ‘mashup’ of technologies that are made available to the user in a customisable way. Type 3 PLEs are ‘not a pre-built collection of tools and content but a framework that allows a learner to assemble his own suite of applications and content sources’ (Ullrich *et al.* 2008:710).

Typical Type 3 terms are Personal Learning Environments, Self Organising Learning Environments, Personal Learning Networks, Mashups etc (Dobozy & Reynolds 2010:94). In defining a PLE, Mott (2010) makes use of the following phrases - ‘connections’, ‘students...select and organise’, ‘conversation-centered’, ‘personal space’. Emerging out of this is the focus of Type 3 environments on ‘people’, connections between people, and the personalisation of learning spaces.

The PLE concept is relatively new as it pertains to the creation of enabling technologies that foster learning exchanges or networks that privilege the individual over the institution (Severance, Hardin & Whyte 2008:48).

In addition to the driving technologies of Web 2.0, Type 3 environments are ‘motivated by a lifelong and informal learning agenda outside the boundaries of current institutionalized education’, and its proponents are attempting to position it as a replacement of Type 1 and Type 2 environments (Sclater 2008:5).

Type 3 environments with their focus on the individual and building of spaces to learn contain paradigmatic suggestions of Cognitivism and its focus on building ‘mental’ structures to assist in learning. Additionally Type 3 environments also reflect elements of Constructivism and its focus on the construction of knowledge by individuals.

The above classification of e-learning environments into three types is somewhat artificial, as the generational evolution of the types is neither discrete nor neatly delineated. Elements of the functionality of Type 1 environments may be found in Type 2 environments and vice versa. However, in addition to providing a useful conceptual framework for understanding the evolution of e-learning environments, this categorisation provides a lens to examine the evolution of pedagogical paradigms at work in these environments and in higher education in general.

Research Method

One of the aims of this research is to determine how the phrases associated with the various types of e-learning environments have changed. The list of phrases associated with the three types of e-learning used for this research is shown in Table 1 below.

| Type | Phrase | Abbreviation |
|-------------|-------------------------------------|---------------------|
| 1 | Learning Management System | LMS |
| 1 | Learning Activity Management System | LAMS |
| 1 | Learning Content Management System | LCMS |
| 1 | Managed Learning Environment | MLE |
| 1 | Content Management System | CMS |
| 1 | Learning Support System | LSS |

| | | |
|---|------------------------------------|-----|
| 2 | Virtual Learning Environment | VLE |
| 2 | Collaborative Learning Environment | CLE |
| 2 | Online Learning Environment | OLE |
| | | |
| 3 | Personal Learning Environment | PLE |

Table 1 - e-Learning Terms

While this list is not comprehensive, it does reflect some of the more commonly used terms associated with the various types of e-learning environments. Using this list, a two-fold approach was taken to determine the usage of these phrases in academic research between 2001 and 2010. The first approach made use of Google Scholar (scholar.google.com) and the second used top-rated journals.

Google Scholar

The first approach used Google Scholar’s search engine count estimates (SECEs). Using SECEs to determine trends has become increasingly popular in recent years (Janetzko 2008) and is used for a range of purposes including tracking trends through word usage (Spörrle & Tumasjan 2011). Janetzko (2008:8) says that ‘using query hits is beginning to gain acceptance as a kind of data that facilitates scientific studies’.

Google Scholar is considered a ‘worthwhile’ source for undertaking frequency type research within academic articles (Harzing & van der Wal 2008). However, it must be noted that there are issues of

inclusion of non-scholarly citations, double counting of citations, less frequent updating, uneven coverage across disciplines and less comprehensive coverage of older publications/citations (Harzing & van der Wal 2008:2).

While these issues are noted, their impact is minimised due to the relative SECEs, and changes in SECEs, being more important than the absolute SECE values.

Use was made of Google Scholar’s advanced search as this allowed

for both exact phrase matching and delimitation of the period. The following is an example of a search string generated to search for the phrase ‘learning management system’ in the year 2009: http://scholar.google.com/scholar?hl=en&q=%22learning+management+system%22&btnG=Search&as_sdt=0%2C5&as_ylo=2009&as_yhi=2009&as_vis=0.

While Janetzko (2008) and Spörrle and Tumasjan (2011) suggest the use of multiple search engines to reduce biases, no other similar scholarly search engine exists. Other search engines such as www.google.com, www.yahoo.com, and www.bing.com index web pages, newspapers, and a range of other non-academic content. The intention of this research is to explore trends in the usage of e-learning phrases within scholarly articles. However, in an attempt to minimise any bias that Google Scholar’s SECEs may contain, a second set of searches was performed using five top ranked journals.

Journal Searches

The second approach searched for the use of the keywords within top ranked journals on e-learning. Elbeck & Mandernach (2009), using a combination of factors (journal popularity, journal importance, and journal prestige), identified the following five journals as the top ranked out of 46 reviewed;

1. International Review of Research in Open and Distance Learning
2. Journal of Asynchronous Learning Networks
3. eLearning Papers
4. Innovate: Journal of Online Education
5. American Journal of Distance Education

A variety of search approaches were used for these journals depending on whether they were open access, had suitable on-site search tools, etc. Table 2 summarises the search approaches used.

| Journal Name | Type | Search |
|--|-------------|---|
| International Review of Research in Open and Distance Learning | Open Access | Google - e.g.: ‘learning management system’ site: irrod.org daterange: 2455198-2455562 (where numbers at end are dates in Julian format) |

| | | |
|---|--------------|--|
| Journal of Asynchronous Learning Networks | Subscription | Ebscohost advanced search - e.g. 'JN "Journal of Asynchronous Learning Networks" AND TX "collaborative learning environment"' |
| eLearning Papers | Open Access | Site's advance search - e.g. http://elearningpapers.eu/en/search?keys=%22learning+management+system%22&content_type%5BArticles%5D=Articles&name= |
| Innovate: Journal of Online Education | Subscription | Ebscohost advanced search - e.g. 'JN "Innovate: Journal of Online Education" AND TX "collaborative learning environment"' |
| American Journal of Distance Education | Subscription | Ebscohost advanced search - e.g. 'JN "American Journal of Distance Education" AND TX "collaborative learning environment"' |

Table 2 - Journal Searches

Table 3 presents an overview of the searches for each of the sources, including the date when each search was conducted. While Google Scholar has data ranging back to 1990 and before, for the sake of comparison with the 5 journals selected, the data was limited to the ten-year period 2001-2010, which most of the journals covered.

| Source | Search Date | No. Articles | Dates Searched |
|--|-------------|--------------|----------------|
| Google Scholar | 6 June 2011 | unknown | 2001-2010 |
| International Review of Research in Open and Distance Learning | 12 Jan 2012 | approx. 500 | 2001-2010 |
| Journal of Asynchronous Learning Networks | 16 Jan 2012 | approx. 370 | 2001-2010 |
| eLearning Papers | 16 Jan 2012 | approx. 760 | 2002-2010 |

| | | | |
|--|-------------|-------------|-----------|
| Innovate: Journal of Online Education | 16 Jan 2012 | approx. 210 | 2004-2009 |
| American Journal of Distance Education | 12 Jan 2012 | approx. 260 | 2002-2010 |

Table 3 - Data Sources

Results

Firstly a comparison of the results between Type 1, 2 and 3 environments is presented, followed by the trends within each Type.

Comparison of Type 1, 2 and 3 SECEs

Table 4 shows the SECEs for the various terms associated with Type 1, 2 and 3 e-learning environments as reported by Google Scholar. While the absolute values depend on how many terms are included in each ‘type’ of e-learning category, they nonetheless provide a comparative indication of the frequency of usage of the various terms.

| Year | TYPE 1 | | | | | | TYPE 2 | | | | TYPE 3 | |
|------|--------|------|------|-----|------|-------|--------|-----|-----|-------|--------|-------|
| | LMS | LAMS | LCMS | MLE | CMS | Total | VLE | CLE | OLE | Total | PLE | Total |
| 2001 | 226 | 0 | 27 | 71 | 159 | 483 | 343 | 267 | 284 | 894 | 13 | 13 |
| 2002 | 553 | 0 | 83 | 74 | 340 | 1050 | 490 | 364 | 455 | 1309 | 39 | 39 |
| 2003 | 889 | 9 | 130 | 109 | 451 | 1588 | 677 | 402 | 498 | 1577 | 18 | 18 |
| 2004 | 1160 | 25 | 168 | 126 | 613 | 2092 | 828 | 465 | 658 | 1951 | 21 | 21 |
| 2005 | 1150 | 64 | 264 | 121 | 815 | 2414 | 950 | 518 | 791 | 2259 | 35 | 35 |
| 2006 | 1570 | 75 | 259 | 141 | 932 | 2977 | 1260 | 517 | 785 | 2562 | 68 | 68 |
| 2007 | 1950 | 96 | 314 | 108 | 985 | 3453 | 1390 | 587 | 909 | 2886 | 109 | 109 |
| 2008 | 2160 | 97 | 304 | 79 | 1030 | 3670 | 1540 | 604 | 971 | 3115 | 155 | 155 |
| 2009 | 2310 | 92 | 247 | 75 | 1170 | 3894 | 1870 | 574 | 938 | 3382 | 232 | 232 |
| 2010 | 2190 | 74 | 191 | 65 | 1030 | 3550 | 2020 | 601 | 900 | 3521 | 224 | 224 |

Table 4 - SECEs from Google Scholar

Figure 1 shows how Type 1 phrases dominate, although recent years have seen Type 2 phrases making more inroads into research. However,

comparatively, Type 3 ‘Personal Learning Environments’ have received little attention.

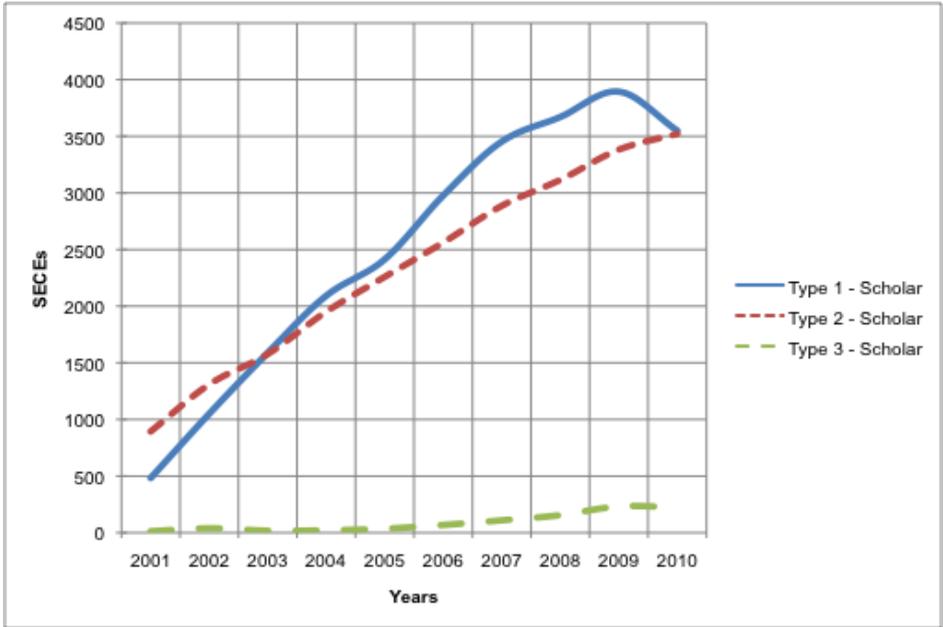


Figure 1 - Comparison of Type 1, 2, and 3 SECEs (Google Scholar)

A comparative count from the journals yields a similar set of results as shown in Figure 2. As can be expected with the smaller sample size, there are more obvious perturbations in the data.

The spike in Type 1 is mainly due to an increase in attention around the term ‘Learning Management Systems’ in the journal ‘International Review of Research in Open and Distance Learning’ in 2006. Fitting a linear trendline reflects the similarity in the term usage between the journals and Google Scholar. The journals, even more so than Google Scholar, depict the dominance of Type 1 phrases.

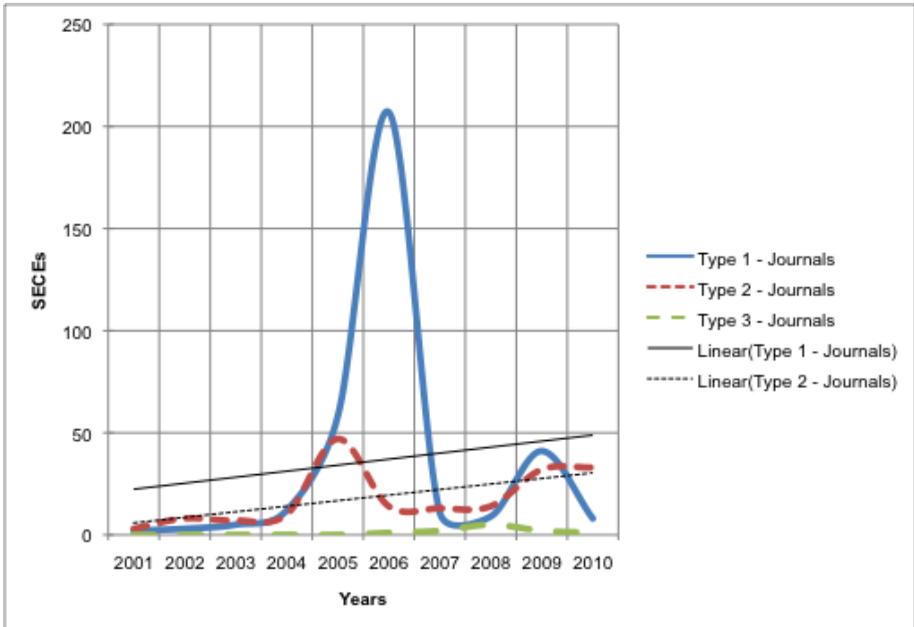


Figure 2 - Comparison of Type 1, 2, 3 SECEs (Journals)

Type 2 also exhibits a perturbation in 2005. This is mainly attributable to increased attention around the term ‘Online Learning Environments’ in the journal ‘International Review of Research in Open and Distance Learning’ in 2005. While the term ‘Online Learning Environments’ is used as a name for e-learning environments it is also used generically to refer to ‘online learning environments’. This may have partially contributed to the spike in its usage in the journals. However, fitting a linear trendline once again reflects the similarity in term usage between the journals and Google Scholar, with Type 2 showing a steady increase in usage.

The results for Type 3 from the journals are similar to the results from Google Scholar. The journals had no mention of the term ‘Personal Learning Environment’ prior to 2006 and overall Type 3 environments received minimal attention in the journals. In fact the recent decrease in Type 3 SECEs is even more pronounced in the journal results than in Google Scholar.

The next section presents the trends for the terms within each type of e-learning environment.

Type 1 Term Usage

While Type 1 environments are characterised by a number of terms, Figure 3 shows that ‘Learning Management Systems’ is the dominant phrase. This domination of the phrase has resulted in the term becoming synonymous, in some respects, with e-learning environments.

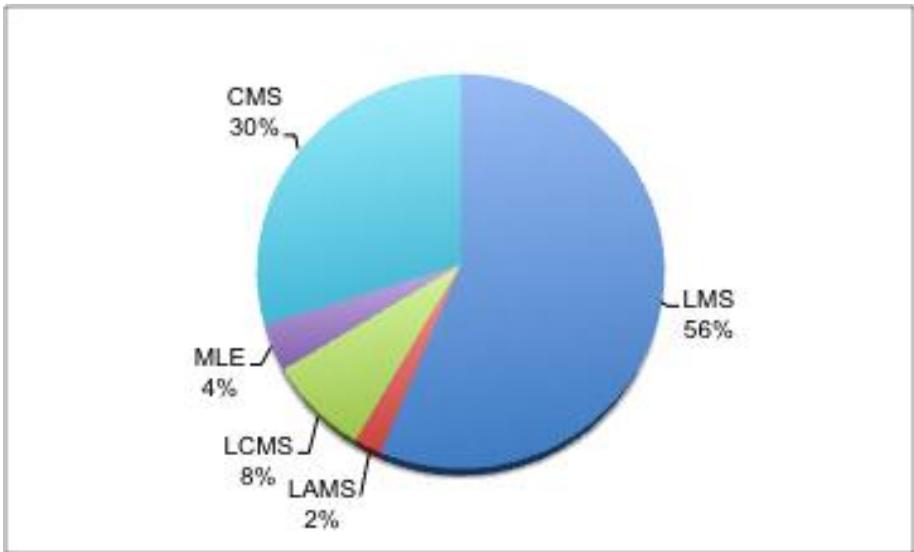


Figure 3 - Type 1 e-learning phrase usage (Google Scholar)

This same trend is even more pronounced when examining phrase usage within the journals, as depicted in Figure 4.

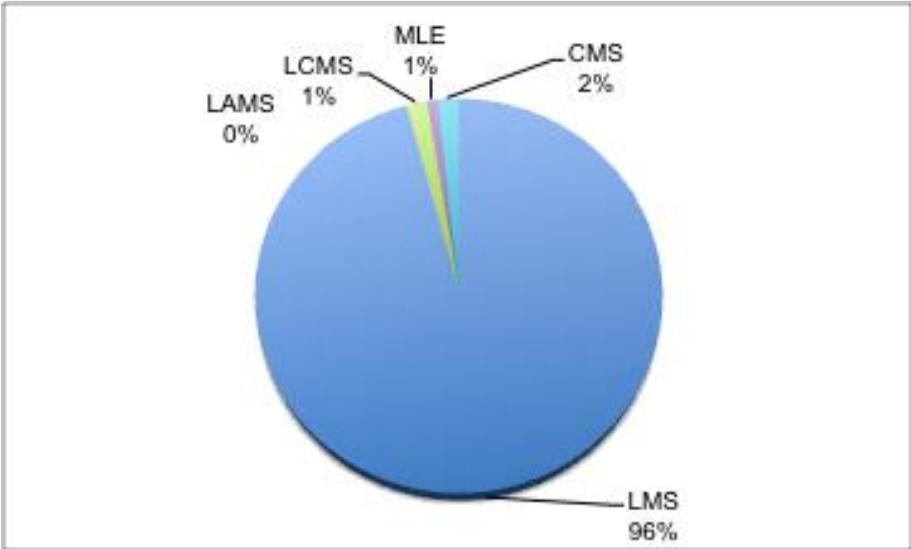


Figure 4 - Type 1 e-learning phrase usage (Journals)

In the journals ‘Learning Management Systems’ represents 96% of the Type 1 environment terminology. Again, this reinforces the view held by some researchers that ‘Learning Management Systems’ is the correct term, but that it is simply misapplied (Watson & Watson 2007).

Type 2 Term Usage

Figure 5 shows the distribution of the various Type 2 e-learning phrases from Google Scholar. As is clear from this chart, Virtual Learning Environments dominate the terminology.

However, in the review of the journals (Figure 6) while VLEs account for 21% of the term usage, OLEs account for 73%. As was mentioned earlier, this is largely as a result of the term ‘online learning environments’ being used to generically refer to any learning that takes place online rather than as a label for an e-learning environment.

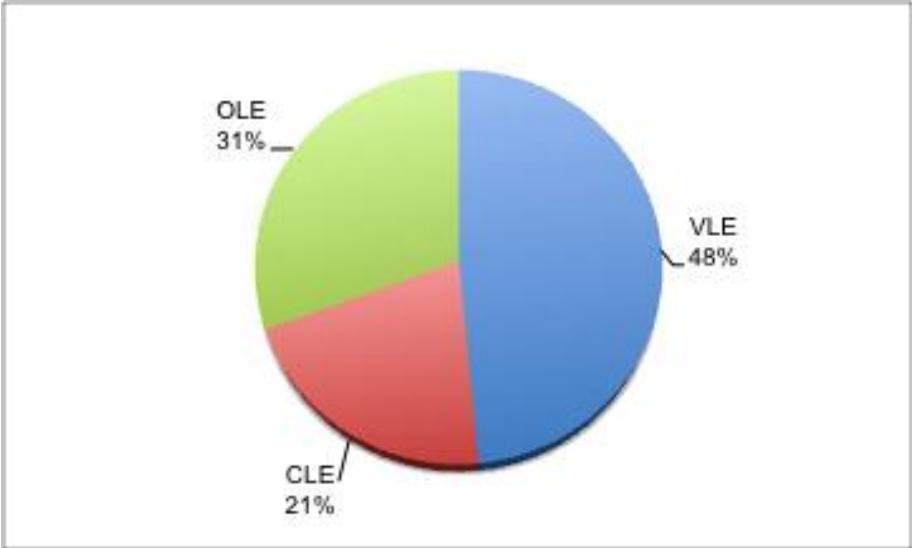


Figure 5 - Type 2 e-learning phrase usage (Google Scholar)

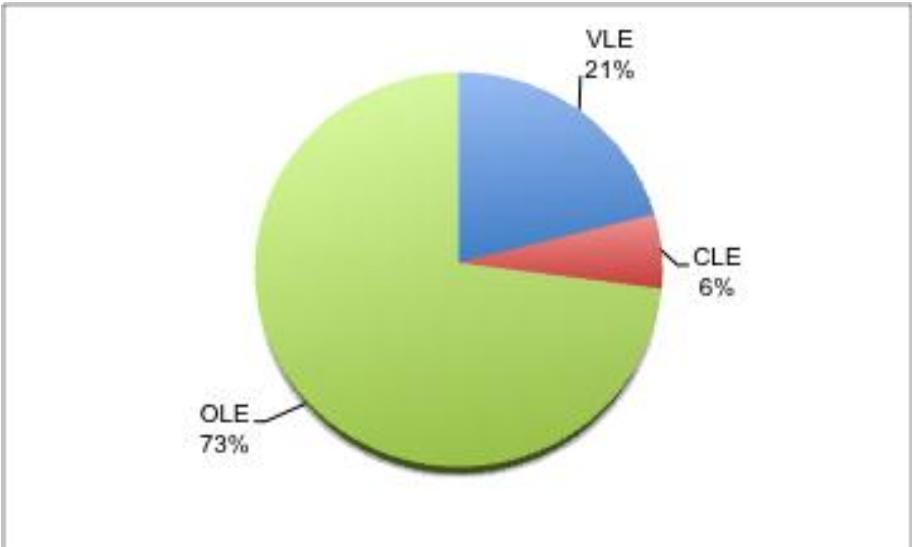


Figure 6 - Type 2 e-learning phrase usage (Journals)

Type 3 Term Usage

While this research only includes the term ‘Personal Learning Environments’ in the Type 3 category, it may be argued that terms such as ‘Mashups’ or ‘Mashup Environments’ could also be included. However the difficulty with this is distinguishing learning environment mashups from other forms of mashups (social mashups, news mashups, etc.).

Another term that could be used is ‘Personal Learning Systems’. This also suffers from a similar issue in that it can be used to refer to a variety of things including manual systems to assist people with learning. As such the predominant Type 3 phrase ‘Personal Learning Environments’ was used to signal Type 3 research. While it may not be prudent at this early stage of Type 3 environment usage to make predictions, the data does show a slight decline in research around Type 3 environments despite an initial interest in these environments.

Discussion

Having presented the results, this section now discusses these results in order to explore how the terminology has changed and what this may indicate about underlying pedagogical preferences.

The results show that the ten-year period, 2001-2010, saw a dominance of Type 1 terms, followed closely by Type 2, while the more recent Type 3 environments appear to have made little impact. While there are a wide range of terms that appear to etymologically share underlying epistemologies, one term dominates each type. Type 1 environments are dominated by the term ‘Learning Management Systems’, Type 2 environments by the term ‘Virtual Learning Environments’ and Type 3 by the term ‘Personal Learning Environments’. A comparison of the usage of these three terms, as returned by Google Scholar, is depicted in Figure 7 below.

As with the overall comparison of Type 1, 2 and 3 shown in Figure 1, LMS (Type 1) has dominated although the past few years have seen a slight decrease in the usage of the term. Overall it appears that while ‘Learning Management Systems’ and associated Type 1 terms continue to dominate research, increasing critiques of the embedded pedagogies and implications associated with these environments are resulting in its decline (Mott 2010; Sclater 2008).

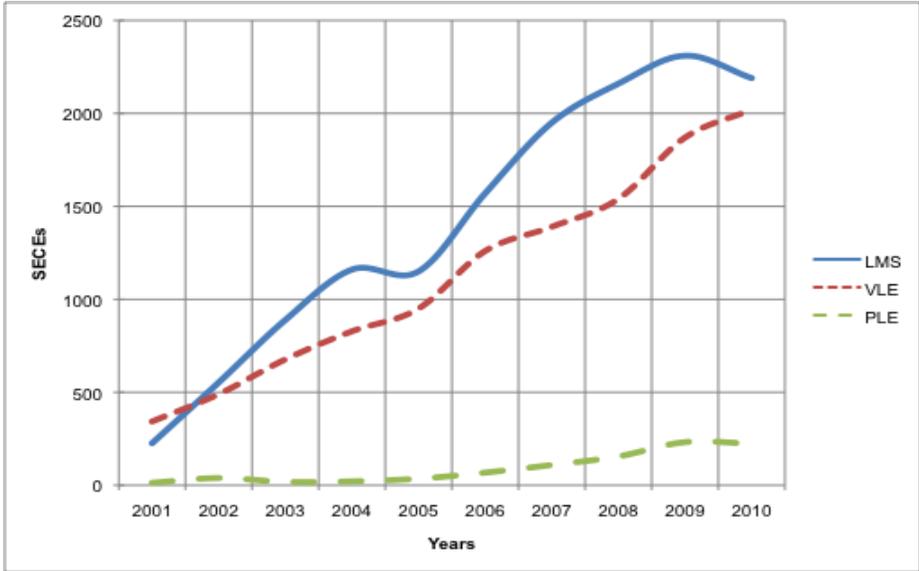


Figure 7 - Comparison of LMS, VLE, PLE (Google Scholar)

Research into Type 2 environments has consistently increased over the years, with the last few years seeing a continued increase in words associated with ‘virtual’, ‘online’, ‘environment’ etc. The term VLE (Type 2) is being used increasingly, and appears to be starting to replace the Type 1 term LMS. Wilson *et al.* (2008) suggest that terms such as VLE are more common in the UK, while LMS is more common in the USA. Future research could take a more country specific approach whereby results are categorised by country to see how the global trends are reflected by country.

Finally, Type 3 environments, with their focus on the personalisation of learning, and underlying Web 2.0 approaches appear to be floundering without having reached the levels of Type 1 and Type 2. PLEs had an initial growth but the last few years have seen a flattening/decline in research activity. Type 3 environments while offering a rich set of opportunities for student-driven learning appear to suffer from too many options, and too little control. These environments provide students with mashups through browsers or the ability to potentially customise learning spaces with any tools they want for learning. However this ‘personalized’ or ‘customized’

approach is in contrast to the ‘controlled’ environments provided by hugely popular social networks like Facebook. Current Web 2.0 experiences appear to be leading towards less user customisation, and this may be reflected in the declining uptake of Type 3 environments.

The results show that despite the promise of Web 2.0 technologies and its ubiquitous use in many social and business areas, Type 3 environments continue to be ‘marginalized, unsupported and even in some cases banned within educational institutions’ (Wilson *et al.* 2008:1). Conversely, Type 1 production-focused environments continue to be the most widely researched e-learning environments.

So while there has been a dramatic shift in technologies from offline to online to online 2.0, there has only been a ‘gradual move from pedagogies of consumption’ (Type 1 and Type 2) ‘to pedagogies of participation and production’ (Type 3) (Dobozý & Reynolds 2010).

Determining the reasons for the continued prevalence of Type 1 environments, and to a lesser extent Type 2 environments, is beyond the scope of this paper. Reasons may include switching costs, technical support ability, existing Service Level Agreements, etc. However Rambe & Ng’ambi (2011) suggest that university administration needs drive the use of Type 1 environments. Wilson, *et al.* (2008) suggest that it may be because of the ‘Dominant Design’ concept. This concept describes ‘the emergence of a broadly accepted core design principle from a number of competing incompatible alternatives’ (Wilson *et al.* 2008:1). Examples include the inefficient QWERTY keyboard, the VHS video standard and the IBM PC. ‘The primary characteristic of a dominant design is that, once it emerges, innovative activity is directed to improving the process by which the dominant design is delivered rather than exploring alternatives’ (Wilson *et al.* 2008:1). In e-learning, Type 1, and to a lesser extent Type 2 environments, have exemplified this Dominant Design concept. ‘LMSs have dominated the teaching and learning landscape in higher education for the past decade’ (Mott 2010:1).

Conclusion

This research set out to examine academic literature relating to e-learning environments, in order to explain how the terminology associated with e-

learning environments changed. The results indicate that Type 1 environments, typified by Learning Management Systems, and their focus on content, production, and control, have dominated over the ten year period, with a slight decrease in the last few years. Type 2 environments, typified by Virtual Learning Environments, have been increasingly researched and appear to be close to eclipsing Type 1 environments. Type 3 environments, typified by Personal Learning Environments, despite resonating with current Web 2.0 technologies and student preferences for digital engagement, appear to be floundering in terms of current research agendas.

It is postulated that Type 1 environments and the associated 'industrial' nomenclature continue to dominate because of institutional imperatives and the acceptance of the dominant design exemplified by LMSs. 'The LMS has become a symbol of the status quo that supports administrative functions more effectively than teaching and learning activities' (Mott 2010:1). Additionally this trend may also reflect a continued institutional alignment with instructivist pedagogies that are more closely aligned with 'organisation' and 'control' than those promoting 'exploration' and 'construction'.

However while e-learning environments that are more closely aligned with cognitivist and constructivist paradigms (Type 2, 3) appear to be receiving less research attention, students are increasingly engaging in informal learning within social spaces like Facebook and Twitter. These spaces are contrary to Type 1, 2 and 3 environments in many ways (Sclater 2008). As such a new Type 4 environment may arise in the future that is unlike previous formal e-learning spaces and more like current informal learning spaces found in social networks.

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Exploring Success Rates in a Professional Development Programme for In-service Teachers

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Abstract

The purpose of this study is to explore the success rate of practising teachers in an in-service programme at the University of KwaZulu-Natal for the period 2007 to 2011. Success in this context is taken as the ability to complete the programme in the minimum time of two years. The participants were a group of mathematical literacy teachers, most of whom were over 35 years old and were enrolled in an advanced certificate in education programme funded by the KwaZulu-Natal Department of Education. Data was sourced from students' assessment records and the student management system. The factors that were identified as influencing the participants' success were gender, race, level of prior qualification and Grade 12 mathematics results. It was found that the group of students with the lowest rate of success was the female African teacher who had not studied beyond her initial three-year college diploma. The findings of study suggest that universities that offer programmes for upgrading teachers should design support systems to help the female African teacher with a three-year diploma to cope with the demands of the formal programme.

Introduction and Background

The past two decades have witnessed many interventions in South Africa in an attempt to reverse some of the damages to the teaching and learning caused by the legacy of the apartheid education system. Two of these interventions are of particular relevance to this study. First, the closing down of all colleges of education, and second, the introduction of the school subject referred to as 'mathematical literacy' (ML).

During the 1990's many colleges were shut down while some were incorporated into higher education institutions (universities) in 2001. One of the reasons was the evidence that suggested that many colleges of education were producing teachers of poor quality (Rogan 2007; NEPI 1993). The shutting down of the colleges meant that many graduates from the colleges had to pursue studies at higher education institutions (HEI's) in order to upgrade their qualifications. Teachers with only a three-year college qualification¹ are labelled under-qualified and need to study further for recognition as fully qualified.

The second intervention referred to above was the introduction of ML. The purpose of ML is not for learners to do more mathematics, but to use it in more applications that will help them make sense of the world (DoE 2007:7). The introduction of the subject ML, which in the year 2010 had 280 836 candidates enrolled for the matriculation examination (DBE 2011) meant that large numbers of teachers needed to be trained to teach the subject. Prior to its introduction, no university had any initial teacher training programme in ML, and the only teacher training opportunities were the retraining of practising teachers who were prepared to teach the new subject. One example of a retraining programme is the Advanced Certificate in Education – Mathematical Literacy (ACE ML) qualification. The University of KwaZulu-Natal (UKZN) partnered with the KwaZulu-Natal education department to offer an ACE ML programme for those teaching ML and who needed to be trained to teach the subject.

The ACE qualification has proved to be a popular upgrading opportunity to the under-qualified teachers since it allows the teachers to improve their REQV from 13 to 14 on completion of the programme. During their review of ACE programmes, the Council for Higher Education reported that in 2006 there were 69 different kinds of ACEs in the country and that over 290 specialisations were being offered, (CHE 2010). Another reason why many teachers enrolled for ACE programmes was that it provided a pathway to higher education. Teachers who had an ACE qualification, could go on to study for honours degrees (provided their performance was con-

¹ A three- year initial teacher qualification is also referred to as a relative education qualification value (REQV) of 13. Teachers with an REQV of 14 and above are classified as fully qualified.

sidered good enough), and then progress further if they desired².

When the ACE ML was launched, many teachers viewed this as a fully funded opportunity to retrain, upgrade or enter the higher education pathway for further formal learning. Furthermore ML is a subject which has intersections with domains of learning from other subjects such as geography, economics, accounting, mathematics. There was an assumption that any teacher could be trained to teach the subject³. In short, participants in this programme joined for different reasons and came from diverse backgrounds.

In attempting to explore the success of this in-service intervention, this study aims to look at one aspect of the programme, which is the success rates of the in-service teachers enrolled on this programme. The success rate of a group is defined as the percentage of the group who completed the programme within the minimum two-year period. It is clear that investigating success also involves studying non-completion and drop out.

In recent years in South Africa there has been much interest in the issue of drop-out and the completion rates of university degree programmes (Letseka 2007; Letseka & Maile 2005; Scott, Yeld & Hendry 2007; Zewotir, North & Murray 2012). However, much of this has been about the full-time undergraduate student entering university for the first time. There has been little interest in research about teachers who are enrolled in in-service programmes, although with the numerous curriculum changes, large numbers of teachers have been funded to receive retraining in new specialisations. It is therefore intended that this study will add to knowledge about the diversity of this group of in-service teachers and the variations in success rates of various subgroups. This knowledge will contribute to an understanding of the differential needs of teachers who enrol in in-service programmes, and also alert teacher educators to students that are possibly ‘at-risk’ of not completing the programme.

² Note that with the new qualification framework (DoHET 2011), teachers with an ACE need a further qualification in order to qualify for studies at honours level.

³ However this view is not shared by the writers of the current teacher education qualification framework (MRTEQ) who have stipulated criteria for an ML teaching qualification as equivalent to that required for a Senior Phase mathematics teachers.

The Success and Drop-out Rates of Students in Higher Education

In this literature review section, I first report on studies that have been conducted on success rates of full time students in South Africa. I then highlight some pertinent issues around the changing demographics of students before focusing on the situation of mature students, who are very different from the usual undergraduate young student. Research results around gender and mathematics are then briefly covered before the final section which presents some arguments about why the needs of teachers need to be foregrounded in the design of any professional development programme

Zewotir *et al.* (2012) comment that the challenge facing HEIs is to improve success rates while maintaining the high quality of the programme. Recently there have been many studies in South Africa which have focused on success rates and drop-out rates of students in HEIs; most notably the HSRC Human Pathways study (Letseka 2007) which examined full-time student drop-out rates in seven selected HEIs. The DoE estimated that approximately 30% of students who enrolled in 2000 had dropped out in their first year of study (Letseka 2007). A further 24 000 (20%) dropped out during their second and third years. Of the remaining 60 000, 22% graduated within the specified three years' duration for a generic Bachelor's degree (Letseka & Maile 2005). Over 80% of the student drop outs cited academic failure and poor career advice as reasons for dropping out. Other reasons were lack of finance, institutional culture and personal or family issues. The DoE study of the 2000 national cohort (Scott, Yeld & Hendry 2007) showed that, after five years, only 50% of students who were first-time entrants into (contact) universities had graduated while 38% had left their original institutions.

In comparison to these national trends, full-time first-time students at UKZN have fared a little better. For example, 56% of first-time students graduated after five years, as compared to the figure of 50% reported in the DoE study for full-time contact students. Also, the student attrition at 28% in UKZN, though high, is less than the DoE figures of 38%. If we restrict the results to the school of education only, the success rates are even higher. Graduation rates in the education faculty for full-time students are 63% in a minimum time of four years and 73% in five years, with an attrition rate of 16% (Dhunpath, Maphosa & Vithal 2010). This is an improvement of almost 150% when compared to the national percentage of completion within five

years. However these figures are only applicable to the full time student who is enrolling for the first time and is likely to be under 25 years. In contrast this study focusses on part-time mature adults who are full-time teachers. It will be shown that the corresponding figures for the in-service teacher in the programme under scrutiny, are much lower for completion within minimum time but after five years, the completion rates are similar.

In trying to explore student success and failure in programmes it is necessary to recognise the diversity of the student population. Fraser and Killen (2005: 26) have noted that the

social, cultural and economic backgrounds of students now entering most South African universities give them different life experiences. When these factors are combined with a diversity of abilities, attributes and motivations, the result is that students have vastly unequal levels of readiness for studies in higher education.

Cross and Carpenter (2009:7) note similarly, that universities have increasing numbers of students from historically disadvantaged groups. The academic trajectory of students from underprivileged backgrounds is ‘strongly characterized by low throughput, drop-outs and failures ... [casting] doubts upon the prospects of democratization on academic success’ (Cross & Carpenter 2009:7).

Fraser and Killen (2005) showed that while there were some levels of agreement between lecturers and students about factors which influence success, there was considerable diversity about factors which contributed to failure. The authors attribute the lack of common agreement about factors with the potential to lead to failure, to the ‘different life experiences of the lecturers and students’ (Fraser & Killen 2005: 36). Some factors seen as contributing to success were self-motivation, consistent effort as well as a willingness to accept a challenge. The authors argue that students who have a strong personal connection with the institutional culture are more likely to be motivated and to study more effectively. They comment that such personal connections may be difficult to establish unless both students and lecturers have a shared understanding of what might support the students’ learning efforts.

Gender differences amongst students is one area that has received attention in research Zewotir *et al.* 2012; Saito 2010; Howie 2005; Reddy

2006; Kalideen 2004; DBE 2011). In evaluating student success in terms of gender, Zewotir *et al.*, (2012) found that across most faculties in UKZN, there was no significant difference between first-year males and females with respect to their failure rates. However female undergraduate students enjoy greater success than their male counterparts in the school of education. Their study (Zewotir *et al.* 2012) also found no significant disadvantage associated with females when compared to their male counterparts across the other faculties at UKZN. This result is consistent with results from some other recent studies showing that the gender gap in mathematics has decreased and in some cases has been reversed for the current school pupils. Results from the Southern and Eastern Africa Consortium for Monitoring Educational Quality tests, SACMEQ II and SACMEQ (III) reveal that girls outperformed boys in mathematics (Saito 2010). In terms of the reports for the Third International Mathematics and Science Study (TIMSS) conducted in 1999, there was no difference in the scores of the boys and girls (Howie 2005). However, TIMSS 99 scores revealed that whereas there was no gender difference in national performance there was a difference in performance by girls and boys in African schools. In TIMSS 2003 there was no gender difference in any of the groups (Reddy 2006). Likewise, at Grade 12 level there is little difference between the performance of girls and boys in mathematics. In the 2010 Grade 12 examinations, 52% of boys passed mathematics while 44% of girls passed (DBE 2011). In certain cases girls have been seen to be outperforming boys at mathematics in Grade 12, as in the case in Gauteng in 2003, where it was reported that female candidates had obtained more distinctions than boys. In townships, an interesting trend was that more girls than boys took mathematics and science on the higher grade and passed (Kalideen 2004). Therefore, gender disparities favouring male students seem to have been minimised in the current ‘born free’⁴ generation of students in South Africa. However, for this group of mature inservice-teachers it will be shown that male participants had a significantly greater chance of success than their female counterparts.

In this study the students are in-service teachers who have to manage their learning while juggling their domestic and work related responsibilities.

⁴ The term ‘born free’ is used to describe the generation born after the demise of apartheid in 1994, who have therefore not been subjected to political and systematic forms of race-based discrimination.

Pokorny and Pokorny (2006) remark that generally there is agreement that mature students adopt a deeper learning approach than do younger students. However they comment that the relationship between age and academic performance is complex, with many studies are inconclusive about this relationship. Perhaps the inconclusiveness may be due to the diverse reasons why mature students take up studying later in their lives as well as the diverse study fields they embrace. This study is focused on a particular group of mature teachers who had enrolled to improve their understanding of the subject and/or to upgrade their qualification level. Pokorny and Pokorny also report that there is evidence that mature students aged between 26 and 30 outperformed students younger than 21 but that performance after age 30 declined progressively with age. Eighty per cent of the teachers in this study were over 35 years old. However this study has not been able to establish any related association, between increasing age and propensity for success or failure in university studies. It is clear that research around the type of support needed by the mature student is urgent, however it is important that such research is relevant to the context of the student.

Johnson, Hodges and Monk (2000) argue that most research on teachers' professional development centres around the dominant concerns of northern/western researchers working in developed countries. They suggest that teacher trainers expend much of their effort in trying to change teachers by asking 'How can I make them behave otherwise?' Instead a shift in focus is advised where teacher trainers should rather try to find out more about the contexts and reasoning behind the practices of teachers. These authors are adamant that teachers who come from the economically developing countries are 'constrained by a somewhat different set of circumstances, have different perspectives on the work they do, and need different in-service provision to those in developed countries' (180). It therefore does not make sense that interventions for teachers who have had poor preparation in teacher training should be designed around the needs of teachers who come from well supported and functioning systems. Sztajn (2008) reminds mathematics teacher educators who work with practising teachers of their need to be 'both responsible and responsive to teachers, attending to both teachers' knowledge and to teachers' needs' by acknowledging that the practising mathematics teachers we work with are adults who come to a learning situation with their own sets of goals (300).

An additional challenge faced by students is their affiliation with the institutional culture which may be at odds with their own life experiences. Cross and Carpenter (2009) draw on Bernstein's work to argue that the university system is governed by two different logics which may not be reconcilable: the logic of performance and the logic of competence. The main characteristic of the model of performance consists of strict distribution of roles. Students are required to raise 'themselves to a high level of performance, by skilfully mastering the rules and procedures of the process of knowledge acquisition'(Cross & Carpenter: 2009:12). The power to determine the contents of academic knowledge resides with the lecturer. In contrast the model of competence emphasises the overall development of students, and not just their capacities of knowledge acquisition. In this second model, the relationships between students and lecturers are 'governed by a conception of social justice, incorporation and participation' (Cross & Carpenter 2009:12). In trying to cater for these different logics, there will inevitably be contradictions. Cross and Carpenter (2009:7) comment that universities are forced into a paradox of trying 'to accelerate and reinforce social inequalities, whilst pretending to neutralize and fight them'. These arguments by Cross and Carpenter are relevant to this study based on the success rates of in-service teachers in a professional development programme because it raises questions about the type of logic emphasised by the HEI concerned.

Methodology

In this section, before discussing the research design I will first provide a description of the participants in the study, as well as the actual programme under scrutiny. I then discuss the research design, which covers the type of study, the data sources as well as the quantitative procedures that were used to analyse the data.

Participants

The participants in this study were a group of 691 in-service teachers who were enrolled on an ACE ML programme at UKZN. The teachers came from all 13 of the education districts in KZN, with 78% of the group being over 35 years old. There were 168 males and 523 female teachers. Although it was a

condition that each participant was teaching a class of ML learners, the student records revealed that at least 189 teachers were not teaching ML, but managed to get onto the programme. The teachers who joined the programme were initially selected by the DoE based on the criteria that they were teaching ML, had a minimum teaching qualification at M+3⁵ level and had studied mathematics up to Grade 12 level. The application had to be endorsed by the principal of the teacher's school. Thereafter the applications were screened at UKZN to ensure compliance with the institution's internal selection criteria.

Details of the Programme

The ACE programme under discussion in this article is made up of eight modules. These are made up of four modules devoted to the development of content knowledge skills in ML, two modules focus on the development of pedagogic content knowledge skills in ML and two are generic education modules. This mixed mode programme was run over two years with classes held in block sessions during the school holidays and on Saturdays.

Research Design

This study used a quantitative research approach. Neumann (2011) comments that one of difference between quantitative and qualitative research come from the nature of the data. '*Soft data*, in the form of impressions, words, sentences, photos, symbols and so forth' require different techniques than that of '*hard data*, in the form of numbers' (Neumann 2011: 151). Furthermore the analysis in this study in line with a quantitative approach, utilised a 'language of variables and hypotheses' (Neumann 2011: 151). Neumann also states that the quantitative research process can be characterised by the re-organisation, and coding of data by using explicit rules, formal procedures and techniques. In this study I have drawn upon logistic regression and the

⁵ 'M+3' refers to a three-year post-matric qualification such as a teaching diploma obtained from a former college of education and is classified as REQV 13 in the new dispensation where any lower qualification renders the teacher as 'underqualified'.

chi-square test for independence as the formal procedures. ‘Success’ in this study is defined as completing the programme within the minimum time of two years.

Data Sources

The data was collected from student records, comprising details of completion dates, age, gender, race, previous qualification, institution where the qualification was obtained, matriculation points and mathematics symbol acquired in the matric examination. In capturing the quantitative data, records for 691 students were accessed from the student management system and archival records from their files. Each entry contained a record for gender, race, actual mathematics symbols, matric points, prior qualifications, performance in each of the eight modules and the time taken to complete.

Data Analysis

The technique that was used for the investigation was regression analysis, which is used to ‘assess the relationship between one dependant and several independent variables’ (Gaur & Gaur 2006). The dependent variable that was investigated was completion within minimum time and was named ‘complete 2’. This categorical variable took on the value ‘0’ if the student did not complete within two years and ‘1’ if the student completed within two years. The dependant variable was categorical and not a continuous variable, so the type of regression that was used was logistic regression. The chi-square test for independence was also used to confirm that the categorical dependent variable and the categorical independent variables were independent of each other in each case. The level of statistical significance that was considered was $p = 0.05$. This level (usually taken as 0.05 or 0.01) ‘is a way of talking about the likelihood that results are due to chance factors’ (Neumann 2011:371). When a researcher says results are significant at the 0.05 level, it means that such results ‘are due to chance factors only 5 in 100 times’ (Neumann 2011:371).

The four independent variables that were investigated were ‘gender’, ‘race’, ‘actual matric mathematics points’ and ‘level of prior qualification’. The ‘race’ variable was coded to form a dichotomous variable consisting of

the two categories, African and non-African. ‘Actual matric mathematics points’ were coded as A=8, B=7, etc. for symbols on the higher grade, with the standard grade being rescaled two points downwards (unlike Zewotir *et al.* 2012 who scaled them down by 1 point). The variable ‘level of prior qualification’ was categorised into two levels: M+3 qualification, above an M+3 qualification. There were 122 teachers for whom data such as teaching experience, matric results and qualification levels were not available.

Results

In this section, I will first present the completion rate of the entire group as assessed five years after commencement of the programme, before going on to the results of the regression analysis. This is followed by a detailed breakdown of the success rates in terms of gender, race and level of prior qualification. Finally I consider the success rates of groups disaggregated by a combination of three of the independent variables.

Overall Completion Rates

The rates of completion of the programme are presented in Table 1. The table shows that 55% of students completed the programme within the minimum time (2 years), with an overall 75% completion rate by the end of five years. The drop-out rate was 25% while those who did not complete and were still in the system after five years comprised a figure of 5%.

Table 1: Completion rates as assessed at five years after commencement

| | Frequency | Per cent |
|-------------------------------|------------------|-----------------|
| Completed in 2 years | 377 | 54.6 |
| Completed in 3 years | 105 | 15.2 |
| More than 3 years to complete | 36 | 5.2 |
| Still in system | 33 | 4.8 |
| Drop-out | 140 | 20.3 |
| Total | 691 | 100.0 |

I now present the results of the logistic regression that investigated the effects of four factors on the dependent variable ‘complete 2’.

Regression Analysis

The results of the logistic regression are detailed in Table 2 below.

Table 2: Results of logistic regression with ‘complete 2’ as response variable

| | B | S.E. | Wald | df | Sig. | Exp(B) | 95% C.I. for EXP(B) | |
|----------------------------|--------|------|--------|----|------|--------|---------------------|--------|
| | | | | | | | Lower | Upper |
| Race(1) | 1.763 | .453 | 15.112 | 1 | .000 | 5.828 | 2.396 | 14.174 |
| Gender (1) | -.722 | .225 | 10.298 | 1 | .001 | .486 | .312 | .755 |
| Actual maths points | .192 | .054 | 12.568 | 1 | .000 | 1.212 | 1.090 | 1.348 |
| Level of qualification | | | 49.407 | 2 | .000 | | | |
| Level of qualification (1) | -2.368 | .777 | 9.281 | 1 | .002 | .094 | .020 | .430 |
| Constant | 2.158 | .798 | 7.307 | 1 | .007 | 8.650 | | |

The full model containing the four predictors was statistically significant χ^2 (7, N=583) = 133.8, $p=0.000$, indicating that the model was able to distinguish between respondents who completed and did not complete within minimum time. As is evident from Table 2, all four of the variables made a unique statistically significant contribution on completion of the course within two years. These factors all have significance levels $p < 0.01$. The details of the differences in the rates of completion within two years, for each of these four variables, are explored further below by considering each variable in turn.

Gender

In terms of the gender effect, the percentage of male teachers that completed the course within two years was 68% as compared to the 50% of female students who completed in that time. A chi square test is significant in this case (chi square= 14.56, $p=0.000$), confirming that the difference in completion within two years was statistically significant.

Enrolment Purpose

In this particular cohort of this programme, it became necessary to distinguish between those teachers who used the funded opportunity to upgrade their status to fully qualified, from being under-qualified, and those who did not require the upgrading but enrolled for the purpose of being retrained to teach the new subject ML. In order to distinguish between those teachers who enrolled for upgrading purposes and those who did for retraining purposes, the prior qualifications were scrutinised where available (there were 112 teachers whose records were not available). I categorised those teachers who had only an REQV 13 or M+3 qualification as enrolling for the upgrading, purpose while those teachers who had an REQV 14 or higher (greater than M+3) were categorised as enrolling for retraining purposes. The logistic regression identified that enrolment purpose (level of prior qualification) was a significant explanatory variable. Furthermore a chi square test is significant with chi square= 84.9 with a *p*-value of 0.000. It was found that 74% of the retraining teachers (above M+3) completed the course within two years, which is significantly higher than the upgrading group (M+3) at 44%.

Matric Mathematics Symbol

The logistic regression results of Table 2 show that ‘actual matric mathematics points’, which represents the matric mathematics symbol, is a significant explanatory variable. Table 3 below presents the details of the differences between the matric mathematics points of those who completed in minimum time as compared to those who did not.

Table 3: ‘Complete 2’ versus ‘actual maths points’

| | Completion status | N | Mean | Std. deviation | Std. error mean |
|---------------------|-----------------------------|----------|-------------|-----------------------|------------------------|
| Actual maths points | Did not complete in 2 years | 230 | 1.54 | 1.777 | .117 |
| | Completed in 2 years | 353 | 2.52 | 1.961 | .104 |

When performing a test for difference between means for the ‘completed in 2 years’ and for the ‘did not complete within 2 years’ groups, the first group had a significantly higher mean ($t=-6.102$ with a p -value of 0.000). Table 3 shows that the mean of the group who completed within two years is 2.52 (between a D and E standard grade) while those who did not complete within two years had on average a matric mathematics point of 1.54 (between an E and F standard grade). It is important to note that the variable ‘matric points’, which is the total number of points obtained by the students in all the subjects they studied in matric, is closely related to the actual mathematics point variable. If the former variable is used in the regression (instead of actual maths points), it is also reported as a significant factor, as is the case for ‘actual maths points’ (Table 2).

Race

The logistic regression results showed that ‘race’ is a significant explanatory variable, and is in fact the strongest predictor of whether or not a student would complete in two years. When comparing the percentage of African to non-African respondents who completed within minimum time, it was found that 48% of African respondents completed the programme in minimum time. The corresponding percentage for non-African respondents was 91%. A test for differences showed that these differences were significant (chi square = 63.0 with a p -value of 0.000).

Considering a Disaggregation of Three Factors

When the whole group is broken down into groups according to the variable categories, significant differences are evident in the rates of completion within two years. However, the question arises: What happens to the probabilities of completing within minimum time when a group is affected by two or more variables in combination? In order to understand the overall effect of these factors on the success rates for this group of students, it is instructive to consider groups made up by a combination of the three variables of race, gender and prior qualifications. Breaking down the groups further according to matric mathematics symbols will not be practical because then the groups would be too small for any meaningful comparisons to be made. Table 10 shows a disaggregation of the data into eight groups,

each reflecting different completion within minimum time rates. The missing values refer to the 122 students whose records concerning their prior qualification were not in the database.

Table 4: Combined effect of race, gender and qualification level

| | | | Not completed in 2 years | Completed in 2 years |
|----------------|--------|-------------|---------------------------------|-----------------------------|
| Missing values | | | 77 | 35 |
| M+3 | Male | African | 33 | 42 |
| | | Non-African | 1 | 6 |
| | Female | African | 128 | 68 |
| | | Non-African | 1 | 10 |
| Above M+3 | Male | African | 13 | 36 |
| | | Non-African | 0 | 17 |
| | Female | African | 56 | 112 |
| | | Non-African | 5 | 51 |

Table 4 shows the stark difference between the group of male, non-African, above M+3 respondents and that of the female, African, M+3 respondent. The rate of completion within minimum time for the former group is 100% while for the latter group it is 35% (excluding the missing records). Of interest also is that the success rate for an African male M+3 respondent is 56% as compared to the 35 % of the female counterparts. This difference is also evident with the above M+3 African grouping where the success rates of the male is 73% while that of the female group is 67%.

Discussion

In this article I examined the effect of four dependant variables of race, gender, matric mathematics symbol, and prior qualification on the success

rate (taken as the rate of completion within minimum time). The programme under consideration is the ACE ML which is a professional development programme for teachers. A logistic regression revealed that all four factors made a statistically significant contribution towards the success rate. It was also shown that the group that is most marginalised is the African female teacher who had enrolled for upgrading purposes, and whose success rate in the programme was only 35%.

In this scenario of upgrading and retraining teachers to teach ML, what would be considered as acceptable levels of throughput? The success rate of 50% of the entire group of teachers is higher than that of the fulltime undergraduate South African student although it is lower than the 63% success rate achieved by full-time students in the school of education. Unlike the case of undergraduate students, the students in this group are not first time students. They have already been successful at an initial qualification in education, and the ACE may constitute a second or even third qualification. Furthermore, this qualification is a professional one which will upgrade the under-qualified teacher who is supposed to be teaching the subject at school. Therefore, a pass rate of 50% within minimum time is very low. On the other hand, the fact that mathematics competence levels in the country is very low both among teachers and learners, means that a 50% success rate may be commendable, in view of the severe disadvantages that many of these teachers incurred from their apartheid education at schools and at colleges of education. Perhaps this level of success can serve as a starting point for teacher educators to develop more successful programmes that are tailored around the teachers' needs. If teachers find the programme relevant and responsive to their real needs, they will be more motivated which research suggests (Fraser & Killen 2005) will lead to greater success rates.

A significant factor that emerged was the purpose behind students' enrolment. I put forward two possible reasons for enrolment purpose emerging as a significant factor influencing students' success. Firstly, the teachers who had higher qualifications than M+3 would have had more experience of studying than the upgrading group, because of their higher level qualification. Thus it is to be expected that students with more experience of studying would be more likely to be successful in an academic programme than those with less experience, especially if appropriate scaffolding is not in place. I proffer a second reason for this disjuncture in the success rates of the two groups. Many who had higher qualifications would have studied at universi-

ties or colleges which were accredited to offer M+4 qualifications. They may thus have been more adequately prepared for the challenges of studying in a university environment. The teachers with an M+3 qualification had only studied at teachers' training colleges which was often more reflective of a school environment than an institution of higher education. Many colleges offered a limited curriculum with an emphasis on mastering high school content and classroom management skills (NEPI 1993; Adler 1997). This study shows that teachers who have no qualification beyond that obtained at a teacher training colleges are not sufficiently prepared for further study, based on the evidence that their success rate was only 44% as compared to the 73% of the retraining group. Thus it seems that the under-qualified teacher would benefit from additional academic support in the programme.

Race emerged as a significant factor as well, which is not unexpected. The teachers in this programme attended schools as well as colleges during the apartheid era. Although the apartheid laws have long been removed, its devastating after effects continue. Enslin (2003:76) argues that apartheid provided 'restricted, ethnically ascribed, second class citizenship for blacks'. This study shows that it is very hard to compensate for deficiencies experienced for twenty years in schooling and in teacher training. If higher education institutions are serious about improving the quality of education, a starting point has to be recognition that black teachers have been unfairly disadvantaged by apartheid schooling. Professional development programmes which ignore the dimension of poor schooling experiences are disregarding the needs of the people they are supposed to be helping. Sztajn's (2008: 300) reminds us that teacher educators need to be 'both responsible and responsive to teachers, attending to both teachers' knowledge and to teachers' needs'.

Concluding Remarks

What lessons does this study offer about the in-service training for retraining versus in-service training for upgrading purposes? The new Teacher Education Qualification framework (DoHET 2011) is adamant that the two purposes must be separated and addressed in different programmes. Teachers with an M+3 qualification only will have to complete an Advanced Certificate in Education (ACT) before being allowed to move on to an

Advanced Diploma in Education (ADE) which will open up pathways through postgraduate study. In the current situation a person with an ACE qualification is able to progress to studying towards an honours degree. The results from this study support the call that some teachers with an M+3 qualification from the previous colleges of education may benefit with more time allocated to a programme designed for upgrading their qualifications. More than 50% of the upgrading group could not complete the qualification in the two-year period, but this number increased to 63% within a five year period, showing that their perseverance paid off.

The results of the study also have implications for the implementation of future professional development programmes such as the ACE ML. It has been shown that there are wide disparities in success rates between male and female, African and non-African as well as those with different levels of prior qualification. If this diversity in achievement is ignored when designing future programmes, the programme designers will be guilty of promoting unequal access to further formal learning opportunities. How could future offerings of this programme ensure that the marginalised groups are supported to improve their chances of completing the programme? Firstly it is important to note that 75% of the group was able to complete the programme in five years. This suggests that some people may benefit with increased contact time and an opportunity to complete the programme over a longer period. These in-service teachers have teaching duties and family commitments, which programme designers need to take into consideration.

The commitment of programme designers to successful outcomes ultimately depends on whether they follow a logic of performance or the logic of competence (Cross & Carpenter 2009). With the former, it is the students' responsibility to raise 'themselves to a high level of performance (Cross & Carpenter 2009:12). However if the programme designers are driven by a model of competence, they will seek to be responsive to their needs of their students and actively promote their 'conception of social justice, incorporation and participation' (Cross & Carpenter 2009:12). It is vital that higher education institutions do not inadvertently 'accelerate and reinforce social inequalities, whilst pretending to neutralize and fight them' (Cross & Carpenter 2009:7)

This was an exploratory quantitative study which has raised many issues that could be further explored by using more nuanced qualitative research methods. Together, such studies can provide a deeper understanding

of the contextual complexities of in-service provision within the South African context. In particular it is hoped that this study will encourage others to explore why African women teachers with only a college diploma, fared so badly in this programme. Could their struggles be related to vastly unequal levels of readiness for studies in higher education? Or does it reflect a lack of a strong personal connection with the institutional culture, which are reasons put forward by Fraser and Killen (2005) for students' failure at university studies? Or are their other deeper reasons that could account for these low rates of success?

In conclusion, this study only focused on teachers' success in completing the programme within minimum time. A broad notion of success of the programme ultimately depends on the extent to which the programme led to improvements in teachers' practice in the classroom. This aspect demands a large-scale study and should form the focus of further research.

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Exploring the Impact of Mentoring In-service Teachers Enrolled in a Mathematics, Science and Technology Education Programme

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Abstract

The Advanced Certificate in Education programme in Mathematics, Science and Technology (MST ACE) offered by the University of KwaZulu-Natal was a collaborative effort between the university and the national Department of Education. The programme was originally offered by the university with classroom support provided to in-service teachers in the general education and training phase. The programme aimed to improve the subject content knowledge and teaching skills of teachers. One innovation of the programme was the inclusion of classroom based mentoring. This paper explores the impact of classroom-based support as offered in the programme on the development of in-service teachers. Data was collected through programme evaluation questionnaires, written submissions from in-service teachers and school visit mentors. Our results show that both in-service teachers and school visit tutors were supportive of the inclusion of the school visit support component of the MST ACE programme. The findings of the study will contribute to a nuanced understanding of the need for classroom support for in-service teachers' programmes and provides an empirical basis for further curriculum innovation as well as academic monitoring and support.

Keywords: innovation, mentoring, school visits, in-service teachers, school visit mentors, development, general education and training

Introduction

The concept of mentoring dates back 2000 years to Homer, who described the goddess Athena in his poem, *The Iliad*, as a mentor to Odysseus' son

Telemachus. A mentor in ancient times was viewed as a teacher or guardian (Subtonik *et al.* 2010). Despite the historical origins of the term mentoring, there is currently no agreed definition of mentoring. A modern definition of mentoring often involves a long-term commitment by mentors to support mentees. Thus mentoring does not only rely on role modelling, but involves intellectual and emotional support (Jacobi 1991). Wang and Odell (2002) identified a variety of qualities needed in mentoring, for example, essential aspects include supporting the development of effective classroom practice. Mentoring for the purpose of this paper is defined as an appointment of competent teachers with experience to undertake the supervision of novice teachers during teaching practice in schools (Wilkin 1992).

There are different ways of running mentoring programme. For example, some mentoring programmes run by schools and higher education institutions (HEI) focus on short-term role modelling designed to motivate and inspire learners (Subotnik *et al.* 2010). The mentoring of in-service teachers reported in this paper takes the form of role modelling where school visit mentors were able to assist in-service teachers with lesson planning and the actual teaching of the lesson.

Mentoring in pre-service has been included in all teacher development programmes and usually takes the form of a partnership between the higher education institution and the school. For this paper, the higher education institution views the mentoring partnership as an important tool for promoting learning of pre-service, novice and in-service teachers. We examine the mentoring partnership by focusing on the relationship between school visit mentors (representing the HEI) and in-service teachers. The individuals chosen to be visiting mentors were tasked with helping in-service who registered for MST ACE programme. The mentoring relationship, it was assumed, would improve their teaching skills in general and in teaching the mathematics, science and technology subjects in particular. In other words, the mentors' role at school, in alignment with the ACE-MST programme, was to develop the in-service teachers' content knowledge and teaching skills.

The reflections of the in-service teachers and school visit mentors gave an indication of the value of the school visits to teacher development programmes such as the MST ACE programme. consequently, the importance of this study can be traced to issues of context: first, the geographical spread of the in-service teachers and second, the schools where

in-service teachers were based did not have experienced teachers in the mathematics, science and technology (MST) specialisations. It transpired then that the effectiveness of mentoring of in-service (MST) was dependent on the quality of the mentors and this paper provides insight into the ways and limits of the mentoring approach used.

Background to the Roles of School Visit Mentors

The Third International Mathematics and Science Study (TIMSS) in 1994/1995 and TIMSS-R (repeat survey, 1999) found that South African learners were weak in mathematics and science at grade 8 level compared with other learners internationally. One of the factors identified as a contributor to the poor performance of learners was the lack of competent teachers. In trying to address this problem, the national Department of Education and the University of KwaZulu-Natal decided to offer an in-service programme to provide school visit support to teachers in order to improve their teaching skills and subject knowledge in MST subjects. A budget was built into the programme to allow the university to purchase and supply General Education Training (GET) science, mathematics and technology kits to in-service teachers to support their daily teaching at school.

Conceptualising the school visit aspect of the MST ACE programme provided two major challenges; firstly, most of the in-service teachers were employed in schools which were situated a considerable distance from the university thus reducing the viability of university staff visits to supervise and mentor the students. Secondly, the large number of students in the cohort would not have allowed for the relatively small number of staff involved in the programme to conduct the school visits themselves. The alternative was to request the schools at which the students worked to nominate a mentor from the school to provide teaching practice support. This route was not however possible because there are few qualified and experienced mathematics, science and technology teachers in the UMzinyathi District in KwaZulu-Natal. As a result, retired educators with expertise in the teaching of MST subjects were identified and recruited as school visit mentors. School visit mentors were trained on how to conduct school visits, use of the observation schedules and how to give constructive feedback.

The mentors' roles were to provide guidance on how to plan a lesson and to demonstrate use of the science kits provided in the programme. The mentors in this programme did not conform to the role of the mentors as identified in the literature; hence the concept 'school visit mentors'. These mentors were able to provide classroom support to in-service teachers on a short term basis. For example, the mentor helped with lesson planning and provided a written record of how the lesson was taught and of the suggestions made to improve their teaching practices. Each mentor also completed an overall evaluation of the teaching practice support component of the UKZN MST ACE programme at the end of the school visit period. An overall evaluation was also completed by in-service teachers at the end of the programme.

Review of Literature on Mentoring

A review of the literature on mentoring from 1990 to 2007 carried out by Crisp and Cruz (2009) revealed that there were at least 50 definitions of mentoring. For example, some researchers have used the term mentoring to describe the role of mentors (Watson 1999) and others have defined mentoring as a concept (Roberts 2000). According to Feiman-Nemser (2003), mentoring should be linked to a goal of good teaching that promotes teacher learning. This means that mentors should provide support to mentees on their teaching and make sure that teachers develop during the process.

There are several studies on mentoring; for example Fischer and Van Andel (2002) looked at two-way professional development between mentor and mentee during the mentoring process. When looking at mentoring in-service teachers and issues of role diversity, Halai (2006) found that both mentors and mentees perceived subject knowledge expertise as a significant aspect of the mentors' role. The mentors suggested that there was a need to expose teachers to new ideas, new knowledge and understanding to foster growth through reflection. There was also a need for collaborative interaction between mentors and mentees to promote learning by both parties.

Most studies on mentoring focus on the relationship between the mentor and the mentee (Hawkey 1998). A minority of studies focus on students' experience of mentoring and their contribution in the mentoring

process (Zanting *et al.* 2001). Richards (2010), underscores the importance of mentors in professional development of new teachers.

The role of on mentoring of pre-service and in-service teachers undertaking a professional qualification is well understood in the literature. However, the role of mentoring teaching practice for in-service teachers is not very clear. For example, Edwards (1998) identifies the roles of school-based teachers' mentors and university tutors. One of the primary roles of mentors is to give feedback to mentees on their teaching. However, there is little documentation on the mentors' role in the context of in-service teacher development (Halai 2006).

Fricke (2008) studied mentoring programmes of in-service teachers, such as the Teacher Mentoring Programme. This programme focused on mediating problematic areas and promoting the classroom practice of teachers. Mentors were used to support individual teachers at schools. The programme was aimed at assisting mathematics and science teachers in order to promote the matriculation pass rate and motivate learners to take up science-related careers. The programme provided support to teachers by holding winter schools and teachers attended upgrading courses at higher education institution. Although this programme studied mentoring of in-service teachers, the type of support provided in that programme is different to the one reported in this paper.

From the literature it is clear that there is little or no research on in-service teachers' mentoring. There is, however ample evidence that many studies on mentoring focused on pre-service teachers. This study fills the gap by contributing to the literature on the effectiveness of mentoring in-services teachers in critical subjects such as mathematics, science and technology in the general education and training phase. A unique aspect of mentoring illustrated in this paper is that the school visit mentors assumed both the roles routinely undertaken by the school-based mentor and of university lecturers.

Theoretical Framework

Most studies on mentoring have focused on models on mentoring. For example, Maynard and Furlong (1993) view mentoring as occurring in stages, such as apprenticeship, competency and reflection. The apprentice model takes place at the beginning of teaching practice when the trainee teacher

works closely with the mentor and the mentor acts as a model and assists the trainees to understand the teaching process. The competence model is the second phase of stage of the teaching practice. At this stage the, mentor assumes the role of trainer and engages the trainer in a more organised training programme that includes observation of lessons and begins to give feedback on agreed outcomes. The reflective model is the final stage of teaching practice and at this stage the mentor take the role of co-enquirer in order to encourage a more critical reflection of the teaching and learning of the trainees .At the reflection stage the mentor encourages the trainee teacher to reflect on his/her teaching and learning.

Similarly, McIntyre and Hagger (1993) have identified three version of mentoring mentors based on the expertise offered by the mentors. They view mentoring as consisting of minimal, developed and extended versions. In the minimal version of mentoring, provide basic supervision to mentees to develop their knowledge and skills. Whilst in the developed version of mentoring, mentors help mentees to reflect on their ideas and practice and at this stage the mentors share their expertise with mentees and give advice on the issues pertaining to the teaching process. At the last stage, the extended version of mentoring, the mentees' learning is extended to include the issues involving whole school and the community.

The effect of each model on mentoring is likely to produce different results. This study takes the version of the mentoring that is based on the expertise of mentors as suggested by McIntyre and Hagger (1993) as a lens to mediate the findings.

Methodology

A qualitative research approach was used to analyse the reflections of in-service teachers, school visit mentors, and academic coordinators regarding the relevance and efficacy of the school visit mentoring support programme. The participants for the study were in-service teachers enrolled in the MST ACE programme, school visit mentors and university coordinators of the programme. The selection of multiple groups of participants was essential to validate the findings and to get a wider perspective of mentoring as an approach in the MST ACE programme. The methods used to collect data include a questionnaire, written submissions from both the in-service teachers

and the mentors and classroom observation schedules. In this paper, the focus is largely on the data derived from in-service teachers and school visit mentors.

The in-service participants were registered in the Advanced Certificate in Education. In-service teachers provided a convenient sample and they volunteered their participation in the study. The number of in-service teachers in the study numbered 163. During this period, in-service teachers were observed teaching once per semester and four times over the entire period. Each in-service teacher was visited four times by the same school visit mentor. The reflections of in-service teacher participants were rich sources of data.

The questionnaire was administered to in-service participants over a period of 2 years. A total of 163 students responded to this questionnaire. The questions solicited their opinions about the running of the general programme, learning materials, tutorial sessions, assessment, learning outcomes, and communication technology and lesson observations. In this paper only data on questions focusing of lesson observations will be analysed and reported on. The students were asked to respond to positively phrased statements using a five-point Likert scale where A meant strongly agree, B agree, C neutral, D disagree, and E strongly disagree.

The participation of mentors in the study was to get their perspectives on the development of in-service teachers. The idea was not to discredit or validate data from in-service teachers, but to provide another layer of interpretation to infer the impact of the mentoring aspect of the MST ACE programme. We asked the six participating mentors to comment on the students' performance during classroom observation. The mentors had to write their observations twice for the duration of the programme, one at the end of the second visit and an overall comment at the end of the fourth visit.

The analysis proceeded as follows: firstly, in order to obtain a mean, each response category was awarded a numerical value, for example, 1 for strongly disagree and 5 for strongly agree. Secondly, categories with A & B values were aggregated to mean a positive response and categories with D & E were aggregated to mean a negative response.

The data was captured on Excel computer software and the written comments from in-service teachers were captured in a word document and exported to in vivo for analysis.

Results

The paper seeks to address the following research question: What was the impact of the school visit mentoring support in the 2008-2010 MST ACE programmes on in-service teachers' development? The answer is framed by two categories, namely, the significance of school-based mentoring, and learning provided by school visit mentoring. We discuss each in turn.

The Significance of School-based Mentoring

Table 1 describes in-service teachers' responses to the three statements concerning the impact of school based mentoring. There was a consistent agreement about the importance of the programme and there were also some in-service teachers who were not satisfied with the programme.

Table 1. In-service teachers' responses to the questions on developmental aspects of school visits on their teaching

| Item | Question | Number of Respondents | | | Mean | |
|------|--|-----------------------|------------|-----------|------|------------|
| | | Total | % positive | % Neutral | | % negative |
| I | I have a greater awareness of approaches to teaching mathematics, science and technology as a result of the feedback from the school visit mentors | 160 | 90 | 5 | 5 | 4.2 |
| II | I am able to use a greater variety of teaching strategies in my own classroom as a result of feedback from school mentors | 160 | 93 | 5 | 3 | 4.3 |
| II | I found that my teaching practice in the classroom improved as a result of feedback from the school visit mentors | 160 | 90 | 7 | 3 | 4.3 |

The results in Table 1 indicate that more 90% of the in-service teachers were positive about the feedback they received from the school visit mentors and were aware of their teaching approaches and that their teaching had improved. Only a small percentage (10%) of the in-service teachers said that they did not benefit from the school visit mentoring. In general the results indicate that the in-service teachers said that their teaching improved because of their participation in the MST ACE school visit mentoring programme.

In the questionnaire, in-service teachers were required to comment on their experiences of the school visit and the feedback they received from the mentors. Only 102 in-service teachers wrote comments about school visits. The written comments were analysed and certain categories identified. These were developmental, learning, and negative comments. These categories were coded on nodes in In Vivo which was used to group similar comments.

The results indicate that out of the 102 in-service teachers who made comments, 40 in-service teachers reported that mentoring had helped them to improve their teaching and 26 said that they learnt something from the mentors. The analysis of written comments concerning the impact of school visits showed that in-service teachers felt school visits were strongly linked to personal development. The following data excerpts illustrate what the in-service teachers said about the developmental aspects of the MST ACE programme.

- I improved my teaching style, I networked with other teachers. They help a lot where I lacked knowledge; I learned that I have to plan for the grades before my class and for the grades after my class.
- The school visit mentors encouraged me to improve my teaching and I try to use more resources while teaching a lesson.
- The school visits were useful and constructive; they made me prepare my lesson thoroughly; as a result I learnt new approaches and information.
- The school visits were very useful to us; made us to have self-confidence as our mentors gave guidance.
- The school visits helped me a lot especially in improving my style in teaching and how to organize my work when preparing my lesson.

In the quotes in-service teachers said that the school based mentoring improved their teaching in many ways: they improved their approach to teaching through the use of more resources, enriched content and improved lesson preparation. Apart from directly improving content knowledge and pedagogical knowledge, they acquired knowledge of classroom preparation, lesson planning, and organisational skills. One can infer that mentoring in this instance provided more than that envisaged in the MST ACE programme as it enhanced and equipped the basic knowledge and skills we assume in-service teachers have.

From the perspective of mentors the following excerpts are instructive:

- Some of the students taught well and others satisfactory as they involved learners in practical work of the lesson to give more clarity whether they did not understand the lessons, some even brought objects in the classroom to drive the point home. For example bicycle was brought in class for teaching gears. There was some improvement since some of them did not involve learners in their teaching.
- The students taught well, they prepared well. The students made some improvements; they did not repeat the same mistake observed previously. The second visit was different from the first one.

The rest of the mentors had comments similar to these. The mentors seem kept records of the teacher's teaching practices and were able to notice changes in students' teaching during the two school visits. Whilst most of the in-service teachers felt they benefitted from the mentors support, the mentors were able to identify the range of the impact, from satisfactory to teaching well, and making 'some improvements'. The mentors were modest and restrained about the gains made by in-service teachers from their mentorship. However, the examples they gave of how resources were used to enhance teaching is evidence that supports the assertions made by in-service teachers. It is important to note too, that mistakes were not repeated, meaning that learning had taken place.

In the second report, the school visit mentors were requested to comment on the development of the in-service teachers for the period of the

mentorship. Table 2 is a summary of the mentors' comments after the fourth visit. The written reports from six mentors show that mentors noticed an improvement in how the in-service teachers conducted lessons. All six mentors said that they noticed an improvement in the manner in which the in-services teachers conducted their lessons. For example, one of the mentors indicated that some teachers did not involve learners from observations made during the first school visit. This changed as in the second visit there was a definite involvement of learners in the lesson. This means that there was a noticeable movement towards a learner-centred approach to teaching.

Table 2. Mentors' responses to in-service teachers' development indicators

| Mentor | General comments about the school visits |
|--------|---|
| 1 | Improved – teachers did not repeat previous mistakes. The second visit was different from the first visit |
| 2 | Improvement noticed. Pleasing to note |
| 3 | Improvement, result of being mentored. Positive change was noticed after first visit |
| 4 | Improvement in change of teaching method, style, approach to lesson development |
| 5 | Improvement, some initially couldn't involve learners in the lesson |
| 6 | Improved due to mentoring – the presence of the external person observing the lesson boosted morale to teach professional development. Regular contact between educator and mentor |

Learning Provided by School Visit Mentoring

Concerning the learning aspects of the MST ACE programme, the following quotes illustrate what the teachers said:

- My mentor clarifies everything and he also answered my questions concerning my teaching, including the new curriculum.
- The visits have made me gain more knowledge and made me more confident when teaching because I was advised on how to improve on my areas of weakness.
- My mentor was good; he also discussed the findings after lesson observation and also helped me in many things. He praised me if I do well on how I presented the lesson in an interesting way.

- He motivated us and showed us how to involve learners in the learning area.
- The school visits from the mentors were helpful and the input from the mentor has developed me as a teacher and the way I approach some of the learning areas and teaching the lesson.
- The school visits were helpful. I did get a lot of information.

In the quotes it can be seen that teachers said they learnt from the mentors, their knowledge base had improved, and they learnt how to involve learners in class activities. Mentorship was experienced as beneficial as it motivated the teachers to become competent professionals.

In an attempt to understand the levels of learning and improvement of the in-service teachers' in their teaching of the MST subjects, we asked mentor to make the final decision by awarding the in-service teachers a grade during the fourth visit. The analysis of the school visit schedule shows that most of the in-service teachers improved their teaching and they were awarded a pass mark for their teaching experience. In table 3 a summary of the grades awarded by the mentors to in-service teachers are presented.

Table 3. Summary of teaching practice grades for MST ACE programme in-service teachers

| Grades | No of in-service teachers | Percentages |
|-----------------------|---------------------------|-------------|
| Pass with distinction | 30 | 15 |
| Pass | 144 | 72 |
| Supplementary | 2 | 1 |
| Not stated | 25 | 12 |
| Total | 201 | 100 |

The results indicate that 15% of the in-service teachers passed with a distinction. This figure is impressive considering that a majority of these teachers teach in poor, rural schools.

Although , the results from the both in service teachers and mentors indicate that the programme did help teachers to develop by learning from the mentors, there were a few in-service teachers who had negative feeling about the programme and the following quotes illustrate what they said,

- They must visit the school before the examination and we are visited in the learning areas we are not teaching.
- We need to be informed about the visits in time.
- They are useful and I think three visits are enough.

The data revealed that the in-service teachers disenchantment were mainly about their rights to be informed about the schedule of visits. More importantly, they were dissatisfied that the mentors did not come when they were teaching MST subjects, indicating that they valued input for these high stakes subjects. It seems too that some of them felt that a fourth visit was not necessary. We inferred that because in-service teachers are state employees there may have felt the need to demonstrate that they were quick learners with limited need of mentoring. They may have also misconstrued the mentoring relationship as an assessment of their abilities rather than professional development.

Discussion of Results

There is little doubt that the MST ACE school visit mentoring programme enhanced in-service teachers' teaching skills in MST subjects. The development of a teacher is always mediated by the mentor's experiences (Subotnik *et al.* 2010). The role played by the school visit mentors in the development of in-service teachers through reflection was critical to the success of the MST ACE programme. A number of positive issues emerged from mentors visits to the schools.

Considering the South African arena with its record of dismal results in key areas like mathematics science and reading, (see e.g. Bloch 2009), any programme that enhances professional learning has to be lauded. The improvement of in-service teachers' professional competencies means that many children in schools will be the beneficiaries of better teaching. It must be recognised, though, that the gains came about through mentoring relationships and partnerships with between schools and higher education institutions. The possibility exists for this particular mentoring approach (using school-based mentors) can be extended to subjects beyond mathematics, science and technology.

The data revealed that both visit mentors and in-service teachers perceived the MST ACE the school-based mentoring as important in the improvement of classroom practice. These findings are similar to those observed by Fricke (2008), where teachers said they benefited from the mentoring programmes. They also indicated that their subject content knowledge and confidence in teaching mathematics and physical science at the further education and training phase had improved. The importance of both pedagogical and content knowledge for good teaching outcomes has been emphasised by Shulman (1987), and the results from this study demonstrate that to be the case in this instance.

However, there were also some negatives expressed by participants that will need to be factored in to improve the outcomes of the MST ACE programme. First is the need to negotiate the visit schedule so that mentor and mentee know exactly when the visit will occur. There may also need to be flexibility built into the programme design to either reduce or increase the number of visits depending on the rate of development and confidence levels experienced by in-service teachers. There is a possibility that some of the in-service teachers could become school visit mentors in the future.

Implications of the Study

The school visit mentoring programme reported on in this study shows that in-service teachers developed competencies and skills from the programme and the mentorship relationships. There remains a concern about the silence in the data about the quality of the programme because of the lack of involvement of the subjects specialist from the university. We have a hunch that the mentor relationship is dominated by and overly dependent on practice with little integration of theory. This hunch will require further research.

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Community Work through Reflective Practice: Social Work Student Perspectives

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Abstract

In this paper I present empirical evidence from the experiences of 10 final year social work students involved in community work practice. The students were involved in a garden project using a sustainable livelihood model in a low income community in KwaZulu-Natal. Data was produced in six phases involving methods of participant observations, interviews, and focus groups. The minutes of meetings held with students and members of the community were also sources of data. Three themes were distilled from the data: reflections on self, reflections on team meetings and reflections on working with community members. A major finding of the study was the importance of reflective practice for learning to be a professional social worker in general and understanding of community work in particular.

Keywords: Reflective practice; community work; student perspectives

Introduction

In the Post-1994 era, the South African government has challenged the higher education sector to become more inclusive and respond appropriately to the socio-economic challenges facing poor communities (Patel 2005; Lombard 2008). South Africa's high levels of poverty, HIV and AIDS and unemployment calls for future social work graduates to be able to deliver optimally, value strengths, diversity, indigenous knowledge systems and local assets in communities where there are insufficient resources and in which there are competing developmental challenges. Furthermore, as a national prerogative, social work academics across the country have been urged by both the National Department of Higher Education and Training and the

South African Council for Social Service Professions (SACSSP) to not only increase the number of social work graduates but to produce a cadre of professionals who are well prepared to meet the complex developmental challenges in communities as well as to continue with research once they leave university.

This article examines the quality of community work practice experiences of 10 final year social work students in the implementation of a community garden project using the sustainable livelihood model (SLM) from 2009 to 2011 in Bhambayi. Using participatory action research methodology a key objective of this study was to gain insight into students' reflections of the values that enhance community work practice. Using reflective practice as the conceptual foundation for this study, three key themes that emerged from the data analysis are deliberated: reflections on self, reflections on team meetings and reflections on working with community members. This paper contributes to the body of knowledge in two ways: providing a nuanced understanding of community work practice training from the perspectives of students and secondly, by encouraging academic debate about the significance of reflexive practice in social work practice education.

The article begins with a review of the current higher education context in South Africa and contextualises these debates within the welfare sector. The second section discusses conceptual debates about and the significance of reflective practice and reflexivity in social work education training in contemporary South Africa. Section three outlines the research methodology. This is followed by the presentation and discussion of the three key themes. The final section of the article synthesises the students' reflections on community work practice and highlights key implications of the research for academic institutions which offer social work field practice training.

Higher Education in South Africa and the Context for the Current Project

The question of how to make the educational programmes taught at universities more innovative, interesting and relevant to the wider community while embracing participatory teaching and learning strategies has been the concern of academics internationally over the past two decades (Swartz *et al.*

2002). Curriculum changes in South African post-apartheid policy documents and those of higher education institutions reflect similar concerns (see e.g. Department of Education 2001, UKZN 2012). The principles of democratic participation and social justice, derived from foundational policies such as the White Paper on Education and Training (Department of Education 1995), the South African Qualifications Act (Act No 58 of 1995) and the National Education Policy Act (Act No 27 of 1996) emphasised the need to move from rote to transformational and emancipatory learning which are skills-based and learner-centred. To this end the core aspiration of academics is the production of human service professionals who may contribute optimally to,

A prosperous, truly united, democratic and internationally competitive country with literate, creative and critical citizens leading productive, self-fulfilled lives in a country free of violence, discrimination and prejudice (Department of Education 1995:112).

The Global Qualifying Standards for Social Work Education and Training (Sewpaul & Jones 2004) as well as the National Qualifications Framework of the Bachelor of Social Work qualification underline the fundamental value of field practice education in social work education. In KwaZulu-Natal, as elsewhere in the country, a major concern is the need to facilitate students' learning opportunities and to support social work practice in authentic ways, for example, working with vulnerable communities. It is an expectation for university students to not only be given the requisite forms of knowledge, skills and dispositions to succeed in a highly competitive global economy but also to attain the critical consciousness that comes from 'intervening in reality as makers and transformers of communities' (Freire 1993:54). This perspective requires students to engage in transformative action in communities, and more importantly, for critical self-exploration and opportunities to value local strengths and assets while simultaneously, acquiring practical life-skills such as assertiveness, communication, problem-solving and negotiation which are imperative for health and social work professionals (Sewpaul 2003; Sewpaul & Raniga 2005).

Additionally, South Africa's high levels of poverty, HIV and AIDS and unemployment require future social work graduates to value the strengths, diversity, indigenous knowledge systems and local assets available in communities where there are insufficient resources and in which there will

be competing developmental challenges. Simpson and Sathiparsad (2011) acknowledge that historically, agencies across the health and welfare sectors have partnered with higher education institutions through contractual agreements with students, academic supervisors and social work practitioners to provide valuable field practice training for social work students in a structured environment. Providing students with necessary skills and experience in community work practice has always been a challenge for the majority of these agencies (Simpson & Sathiparsad 2011).

I have been actively involved in providing fieldwork supervision to social work students in the Bhambayi community since 2007 as part of the Advanced Social Work Practice Module. It was then that a research partnership was formed with the Bhambayi Reconstruction and Development Forum (BRDF) to investigate the effects of poverty and HIV and AIDS on households in the community. Ethical clearance was obtained in June 2007 from UKZN Research Ethics Committee. Phase one of this larger study comprised a quantitative survey of 351 households, which revealed that 67% of the economically active population were unemployed (Raniga & Simpson 2011). As an outcome of this larger study, 42 residents who formed part of a senior citizens club called Siyazama, invited the researcher and social work students to pilot a local economic development initiative, namely a community garden project using the sustainable livelihood model (SLM). This paper pays particular focus to the field experiences of 10 final year students who were involved in the facilitation, implementation and evaluation of the community garden project. The specific objectives of this study were as follows:

- To examine community work practice learning through students' implementation of a community garden project using the sustainable livelihood model;
- To gain insight into students' reflections of values necessary for community work practice; and
- To improve social work practice education training.

The Mandate for Community Work Practice in South Africa

In South Africa the eradication of mass poverty, unemployment and HIV and AIDS infection as well as addressing the extreme inequalities of the apartheid

are the fundamental development challenges facing many communities. Despite the efforts of government, policy makers, academics and development practitioners, these problems have deepened in the past decade (Ife & Teseriero 2006). It is believed that the implementation of community projects using the SLM has the potential to reduce the impact of poverty, unemployment and HIV and AIDS in communities (Patel 2005).

Community work has traditionally been recognised as a macro intervention strategy where 'people with shared interests come together, work out what their needs are and then jointly take action together to meet those needs, by developing projects which would enable them to gain support to meet the need or by campaigning to ensure that they are met by those responsible' (Payne 1995:165). In social work, community development is therefore appropriate as an intervention strategy most suited for addressing poverty, and social and economic development (Lombard 2008; Gray 1996; Patel 2005). As enshrined in the White Paper on Social Welfare (National Department of Social Development 1997) community development is conceptualized as 'various intervention strategies that combine the efforts of local people with the state to improve socio-economic, cultural and environmental conditions in communities' (Patel 2005:45). The White Paper on Social Welfare (1997) has challenged social workers to become more involved in the provision of community work services in order to meet social development needs in communities. In response to this concern, Green and Nieman (2003) conducted an in-depth literature study and qualitative research which confirmed that good practice principles such as participation, utilising groups and networks, ensuring that training is available and encouraging innovation that would be valuable to social work practitioners in operationalising social development projects.

Furthermore, the SLM has emerged as a key intervention strategy within the developmental welfare paradigm that communities may adopt in their endeavours to improve their social and economic profile and reduce poverty. Patel (2005:242) notes that the SLM has been widely advocated as a 'means of improving the livelihood outcomes of the poor through increasing income, reducing vulnerability, strengthening of social networks, improving the utilisation of resources and opportunities and promoting a more sustainable environment'. The model attempts to link the micro- and macro-level contexts in which households seek their livelihoods. The approach is structured on the principle of people-centredness, holism and dynamism. It

builds on five sets of livelihood assets essential to their livelihood strategies that all households are viewed as possessing: human capital, natural capital, financial capital, social capital and physical capital (Patel 2005). Utilising these assets, households adjust to their physical, social, economic and political environments through a set of livelihood strategies designed to strengthen their well-being (Ife & Tesoriero 2006). The contexts in which households operate involve a number of threats that render them vulnerable to negative livelihood outcomes. These can include periodic droughts, floods, pest infestations, crop and livestock shocks, economic shocks, conflict and civil unrest, as well as the illness and death of household members. Households are viewed as being sustainable if they can adjust to threats without compromising their future ability to survive shocks to their livelihoods. Smit (2006) makes an important point that in informal settlements, income generating projects and social networks are strategies for poorly resourced households to increase food security, well-being and to reduce vulnerability.

What is valuable about project is the positive networking relationships with the Bhambayi Reconstruction and Development Forum (BRDF). The local civic structure has been nurtured over 16 years of the university's presence in this community. Unlike the structured organisational placements, students in Bhambayi have to deal with many complex challenges such as lack of material resources, space, social service providers, inter-organisational conflict and political tension during their field practice experience (Simpson & Sathiparsad 2011). It is important to note that how students think and feel about their field experiences and the support they receive from both academic and agency supervisors is central to the debate about the quality of practice education training (Wilson *et al.* 2008; Ruch 2002; Simpson & Sathiparsad 2011).

In an endeavour to address a gap between community work theories, practical training and research, this paper provides empirical evidence of final year social work students' perceptions of community work practice learning through the implementation of a community garden project using SLM. A reflective approach to social work practice education is suggested to encourage students to develop a strong sense of critical self awareness and to explore multiple approaches of framing and understanding community work and alternate ways of acting in practice. Further clarity on this conceptual foundation is elaborated below.

The Significance of Reflective Practice and Reflexivity in Social Work Education Training

The concepts of reflection and reflexivity are linked to the conceptual theory of reflective practice which has traditionally been associated with the work of Schön (1983) and has received increasing attention in social work education in the past two decades. Thompson (2000) suggests that the process of reflection is a benign introspection of one's experiences while reflexivity entails using self-reflection to give meaning to one's experiences by synthesising knowledge of the practitioner to similar previous experiences and understanding of one's professional role. For the purposes of this paper the concept of reflexivity is used as a pivotal characteristic of reflective practice.

Schön (1983:241) describes reflective practice as 'on the spot surfacing, criticising, restructuring and testing of intuitive understanding of experienced phenomena; often it takes the form of a reflective conversation with the situation'. Schön's (1983) conceptualisation has much in common with Paulo Friere's (1993) notion of learning from experience through reflection-in-action which leads to more learning and new action. Schön (1983) maintains that a central feature of reflective practice is reflexivity which is about 'paying close attention to one's own thoughts, feelings, actions, values identity and their effect upon others and social structures'. In other words reflexivity goes beyond reliving events as it involves 'becoming aware of the limits of our knowledge and how we shape organisational realities, shared practices and review ethical ways of being and relating' (Schön 1983). Ruch (2002:202) maintains that reflective practice offers an alternative model of knowledge construction associated with positivist thinking and the dominance of modernity which proposed that 'there is one right response to one practice scenario and that the expert practitioner will accurately identify, intervene in and resolve'. A consequence of this technical-rational definition of knowledge has been a marginalising of the self in practice and a total disregard to experiential, intuitive knowledge that espouses the uncertainty and emotional complexity of practice education (Howe 1994).

The essence of reflective practice is a stark contrast to this technical, positivist thinking and instead acknowledges the uniqueness of each practice situation, the complexity of human functioning and emotional/irrational

dimensions of education and practice (Dominelli 1996). Leung (2007) suggests that in a postmodern era social work practitioners need to have knowledge, skills and competence to deal with complex social problems as well as professional sensitivity to make sense of their own subjectivity and bias in practice. Embracing the concept of reflexivity, a pivotal characteristic of reflective practice is its capacity to 'bring together the rational and irrational aspects of human functioning' (Ruch 2002:203). Reflective practice acknowledges the interconnectedness and informative understanding of the 'self' and its role in social work practice. In other words reflective practice encourages intellectual understanding as well as critical awareness of the self which imply that the artificial distinctions of professional and personal identities are dissolved. Ruch (2002:204) adds that it thus becomes possible to understand 'the contribution of personal knowledge to our professional practice and to be alert to professional experiences on our personal wellbeing'.

Bearing in mind these deliberations, Wilson *et al.* (2008:36) indicate that 'how students think and feel about their learning opportunities and support they receive are central to the debate about the quality of their field practice experience'. It is therefore imperative that students receive unconditional care and support from their educators as well as local community members as this facilitates their own investment in the learning process and contributes to what Wilson *et al.* (2008) refers to as 'deep learning'. In the same breath, attempts to promote critical reflexivity of students' own values and identities affect the resources they bring to the teaching, practice and learning context (Rohleder *et al.* 2008). This means that students and educators as well as local community members have to come to realise that each is a co-creator of knowledge and skills acquirer, and that learning is a three-way partnership (Swanepoel & De Beer 2006).

Based on the foregoing discussion, one can infer that emancipatory education which is the nucleus of reflective practice pays particular attention to the concept of 'learning by doing' which is based on the idea that students learn more effectively from actual experience. Furthermore, a component at the core of reflective practice is dialogue, the idea that educators and students interact with one another such that both are partners of learning, speaking and acting. Consistent with the radical humanist school of thought and Habermas' (1973) emancipatory sources of knowledge, the aim of such education, according to Freire (1993), is to develop 'critical consciousness'. Sewpaul

(2003:305) argues further that, ‘critical and emancipatory pedagogy raises important issues regarding how we construct our identities within particular historical, cultural and social relations, with the intention of contributing to a more democratic life’. A key feature of this study which entailed active experimentation of community work skills underscores the idea that reflexive, dialogical methods can help students (micro level) use their personal experiences to not just understand their own professional identity but to effectively process, reflect on and respond to the challenges of working with communities. By adopting a more liberatory role through facilitating forums for critical thinking and dialogue, social work educators can encourage students to break through apathy and inaction when working with communities (Vodde & Galant 2002 cited in Rohleder 2008; Ruch 2002). A central part of this process is engaging students’ in a process of continuous reflexivity as well as understanding reflection as a collective approach (Thompson 2000) which takes account of the assets and strengths of local community members who contribute in a valuable way to their learning process.

Methodology

Participatory Action Research

Consistent with its objectives, this study was informed by participatory action research (PAR) methodology as it is ‘associated with small-scale studies that are practical, hands-on and involve real-world problems and issues’ (Sewpaul & Raniga 2005:269). Proponents of critical theory note that PAR endeavours to remedy power differentials by engaging participants in research design, data collection and evaluation (Marlow 1998). This study brought together student social workers, social work educators and community members from the Bhambayi community. Rohleder *et al.* (2008:134) indicates that PAR ‘provides researchers with the opportunity to problematise their own roles as educators/researchers and to use this as an initial probe with which to investigate the learning context and to provide solutions to problems encountered’. As such, the research process in this study focused on building the research capacity of all stakeholders (students, community members and academic) and enhancing self-determination, planning and co-ordination of the community garden project in the Bhambayi community.

Six key phases comprised the research process (see Table 1). The research process was guided by Marlow’s (1998) organizing framework for conducting participatory action research.

Table 1. Outline of the research process

| Phase | Intervention | Focus |
|--------------------------|---|---|
| 1. Concrete experience | Monthly training workshops with students placed in Bhambayi | Objectives of the study. Readings on community work process, reflexive practice and community mapping. |
| 2. Reflexive observation | Meetings with stakeholders in community | Sharing purposes of the study with stakeholders. Brainstorming challenges in Bhambayi. Weekly meetings with students. |
| 3. Training | Training workshops with 15 Siyazama members | Planning and implementing two, three-hour training workshops using SLM with community members. |
| 4. Action | Joint implementation of the community garden project | Discussing reflexive responses. |
| 5. Reflexive de-briefing | 12 team meetings with students and 3 monthly meetings with Siyazama members | Discussing student experiences of the project. Reflexions on values that enhance community work practice. |
| 6. Evaluation | Evaluation of project | Individual in-depth interviews held with 15 Siyazama members. |

Participants

Purposive, availability sampling was used to guide the selection of the participants for this study. Every year final year social work students complete a three-month block placement from beginning of August until the end of October as part of the Advanced Practice Module. For the period August 2009 to October 2009, four students were involved in the project in Bhambayi. For the same duration for the years 2010 and 2011, there were four and two students involved in the study respectively. Thus a total of 10

student social workers were involved in the initiation, implementation and evaluation of the community garden project using the SLM livelihood model. All participants opted to complete their block placement in Bhambayi. Students were expected to spend five days a week for 12 weeks at the site. Key informants comprised 15 community members from the Siyazama support group who opted to be involved in the garden project.

Four qualitative methods were used to collect the data: minutes of team meetings, participant observation, in-depth interviews with students and community members, and focus group sessions held with students and Siyazama members. Permission was sought from participants to tape record interviews and focus group sessions. This was combined with secondary data from literature reviews and policy analyses.

Data Analysis

The weekly sessions held with students, their reports submitted for assessment purposes and the focus group sessions were used as data for analysis for the empirical data presented in this paper. Content analysis of the students' verbal and reflection reports were used to identify the key themes discussed in this article. As an on-going study, and this is the first of a series of articles in which descriptive results are reported. For the purposes of this article, transcribed data from thirty reflection reports from the participants and three focus group sessions (one at the end of the block placement for 2009, 2010 and 2011) were analysed.

Ethical Issues

At the orientation meetings held in August each year (2009-2011), all 10 students were informed about the nature and aims of the study. Even though written, signed consent was given by the students at the onset of their respective placement period, at the end of their field practice they were given the opportunity to decide whether or not they wanted their reports and verbal input in the focus groups to be used for research purposes. They were also informed that any verbal or written data used for research purposes and publication would be treated anonymously. All participants gave consent to use the data for publication purposes.

Results and Significance of Findings

Three themes which could begin to generate a reflective practice culture in community work and emerged from the data analysis are: reflections on self, reflections on team meetings and reflections on working with community members.

Reflections on Self

During the in-depth interviews held with the students, it was evident that they perceived the experiences of implementing the community garden project using the SLM in Bhambayi as positive and that it served to enhance their own awareness of self and the quality and creativity of community work skills. Working in the context of Bhambayi provided the students with the opportunity to engage in a process of continuous professional reflection as they were expected to cope with minimal resources and infrastructure in the community. Some comments shared by the students were:

This was a meaningful experience for me because for the first time I got exposed to what are the pros and cons of planning a project. It taught me to always stay calm when working with people.

Personally and professionally this was a big learning curve for me. I have grown and experienced the reality and complexities of community work practice. I learnt to keep an open mind and to deal with anxiety in Bhambayi.

This experience gave me an opportunity to practice and translate theory to practice and research. The garden project motivated me and created more love of helping people. I was very happy and felt like I am already a social worker. I was happy that I am practicing what I have learned all these past three years.

Personally I have grown and realised the importance of incorporation of different sectors in this profession such as agriculture, community development and education. What I have seen is that doing community work is not easy. I learnt to be aware of my own strengths and weaknesses.

Starting the community garden project at Bhambayi was very exciting and I was looking forward to networking and working with

the community on daily basis. I had to learn to be humble and accept people for who they are.

This study corroborates Weyers (2011) findings that highly effective community work practitioners need to spend time on reflections on self as this leads to self-renewal. It is clear from the students' comments that such reflection on self and to constantly being aware of their own thoughts, feelings and how this relates to community work practice is crucial. Ruch (2002:203) states that the significance of reflective practice is the centrality of self and eloquently reveals that: 'social work students must perceive the human situation which they confront in their practice and recognize that their perceptions are filtered through their own thinking and knowing processes, through their emotions and feeling processes and through the way they themselves integrate and regulate their own doing and behaving'.

It is widely acknowledged by proponents of critical theory that the positivist-technical orientation of social practice education has led to the marginalisation of the 'self' (Dominelli 1996; Howe 1996; Ruch 2002; Sewpaul & Raniga 2005). In the same time, it is argued, in the postmodern era the centrality of self is a vital source of knowledge production and skills training for professional social work (Sewpaul 2001; Swanepoel & De Beer 2006; Ife & Tesoriero 2006; Weyers 2011). This study supports Ruch's (2002) assertion that reflexivity in practice helps students to make sense of their own subjectivity and biases. Students in this study recognised the need to continually assess their competence in practice and the extent to which they were able to translate the project planning and SLM training into practice. They also identified the team approach through the association with peers and community members as an important strategy to empower themselves in practice. This is elaborated in the discussion of the theme on reflections on team meetings.

Reflections on Team Meetings

In order to facilitate reflective learning for the 10 social work students, it was essential that the team meetings operated at both process and content levels and resisted technocratic approaches to planning the community garden project using SLM. The use of community mapping exercise (Rohleder *et al.* 2008) with students in the initial team sessions proved useful as a tool for

shifting students' thinking from a predominantly technical-rational level to one which encouraged critical and more practical levels of reflection. Rather than allowing me as the researcher to provide answers to all student queries posed during the team meetings, the students were encouraged to tell their peers what they felt about the experiences during the project implementation. I believe that acknowledging the importance of students' personal stories and lived experiences in practice through team meetings helped me to adopt a more liberatory stance and ensured too that an ethos of trust was generated. Many of the students shared this sentiment and revealed that the team meetings served as a safe context to share their problems, cope with difficulties and inspired confidence to work independently.

One group of four students commented:

... in our team meetings weekly, it was good to talk about our fears of facilitating the garden project with community members who had high expectations of us.

The weekly meetings were a safe place for us to talk about feelings with the other students and my lecturer. Another student in 2010 commented: I was excited because I enjoy challenges as I learn and grow from them. I also like the idea that our supervisor was not always there with us, this actually gave exposure to lot of things because I was doing the work on the project that the professional social worker does. It also helped me because I had the chance to use my analytical thinking skills and actual convert theory into practise.

I have also learned to work in teams and how I must not look at the problem but a solution to the problem.

The experience and knowledge that I have gained is strength as I have been trained and thought about how to plan and organise community projects and how to react to people. I have learned that people won't always help you or do what you want, and that we need each other in the process of development.

In these sessions students were enabled to work independently with minimal structured supervision and, consequently, were able to practice without surveillance. This platform served to help students reflect more holistically on their practical experiences and responses to their peers and community members (Ruch 2002:203). Students were constantly encouraged to be

critically reflexive of the impact of professional experiences on personal well-being. This critical reflexivity helped the students demonstrate their openness to new ways of thinking and to embrace the fundamental value of dialogical reflection. Moreover, as a dialectical approach, it focused on the quality of interpersonal interactions (local community members, social work practitioners, and researcher) in the practice context (Wilson, Walsch & Kirby 2008). An important theme that students identified as enhancing a reflective practice culture was the involvement of the 15 community members from the Siyazama support group in the garden project. This theme is discussed further below.

Reflections on Working with Community Members

Writers such as Swanepoel and De Beer (2006), Ife and Tesoriero (2006), Green and Nieman (2003) and Weyers (2011) agree that a vital component of project management is working in solidarity with the local people of that community. Wilson *et al.* (2008), from their study with masters students on quality standards in practice learning, concluded that while relationships with practice educators are important, the relationships that students develop with other stakeholders in the placement should not undervalued. That students in this study collaborated successfully with the 15 Siyazama support group members can be seen as a positive outcome. Additionally, students stated that they learnt not to impose their own needs as they have come to the realisation that community members are in the best position to inform ‘outsiders’ of their own needs. What was also significant in this study was that six of the ten students who worked in the community were from rural communities in KwaZulu-Natal and included a student from Lesotho and three from the province of Limpopo. Even though students did feel like ‘outsiders’ in the community it was clear that they learnt to respect the voices of community members. The benefit for both students and community members was the ethos of trust that developed. The four students who worked with the Siyazama members in 2009 stated, ‘it was clear that local people understand the problems, issues, strengths and needs in their community’. Interestingly similar sentiments were shared by the four students who worked with the support group members on the garden project in 2011 as well. They indicated that, ‘we valued the guidance and mentorship that we received from older

women in the support group who had been actively involved in community projects for the past 15 year'. The experiences of students of another study (Ife & Tesoriero 2006:129), who learnt it was 'imperative to embrace that local strength, skills and processes are grounded in local expertise', is echoed in the narratives of the participants of the Bhambayi garden project as enunciated hereunder:

Being introduced to the Bhambayi community for the very first time was interesting to me. Even though the community is completely different from what I have seen comparing it to other communities I know. What I have learned about the people in the Siyazama support group is that they know exactly what they want. Being placed in the community like Bhambayi for me meant I am an outsider who have never seen such a community before considering its structure and the type of life they are living

I really enjoyed working in the Bhambayi community. The community members were very supportive towards us, it felt as if it was my second home because I also come from a similar background and I'm familiar with most things. The people are always looking forward to seeing us every year because they know about the good work that is being produced by the University and the student social workers. Working in a community that is full of warmth and support is good as you get inspired when it time to go the placement as you know that you are not alone. I enjoyed waking up in the morning knowing that I was going to Bhambayi.

Through the facilitation of the community garden project using the SLM the students revealed that they were able to gain insight into how a synergy could be created for successful outcomes. At the outset students were able to see the transparent, empowering and partnership-based approach that is fundamental to participatory action research (Heron 1996). Students also learnt that making personal sacrifices and being flexible are important values when working in communities and that social work is not an eight to four profession. Some of the sentiments shared by students were expressed thus:

I have learned that if you working with people in communities you need a degree of compromise, for me I was not working on Sunday

but I had to compromise and work on the project on a Sunday.

Planning and working on the project together, I have learnt to be optimistic and positive about people and situations, I have gained knowledge and experience that will be with me forever.

The project was a big learning curve for me because I have never chaired a meeting before. I learned that proper planning in advance is very helpful because I was not shaking at all or blank for a second. I knew what I came for and I did exactly that. This experience has been positive for me. I learned certain things about myself for example the fact that I can work well under pressure and still remain calm, focused and professional.

Ruch (2002) makes the point that since research partnerships are elusive and complex, power imbalances are seldom eradicated. In this study power differentials were neutralised as there was a balance of roles and responsibilities in the facilitation of the community garden project by all stakeholders involved (students, educator and community members). Ruch (2002:211) asserts that such an approach means that the 'risk of researching oppressively is reduced'. She warns that if rational theory is given priority over practice and research without acknowledging the core components of reflective practice, namely open dialogue and centrality of self (what they think, feel and do) then the triad of practice, education and research is at risk (Ruch 2002). Acknowledging these components creates the opportunity for students to recognise the overlaps amongst academic, practice and research experiences. Moreover the benefits of the triadic relationship (educator/researcher, students and community members) are manifest in the supportive opportunities to enhance students' skills, values and knowledge and therefore 'the potential for them to develop more transparent and less defensive practice and the connectedness to research' (Ruch 2002:208).

Conclusion

This article provides insight into social work student community work practice experiences through the implementation of a community garden project using the SLM. The central premise is that reflective practice can help students to engage in a process of continuous professional reflection and to effectively process and respond to the challenges of community work practice

learning. The adoption of a liberatory approach by a social work educator facilitated forums for critical thinking and dialogue, inspired reflexive practice, and encouraged students to break through the technical-rational dominance of thinking when working with a vulnerable community. The paper also highlights the inextricable and essential partnership between higher education and the wider community in social work practice education. The benefits of the triadic relationship are manifest in creating and supporting learning opportunities, exploring alternative ways of framing and understanding community work practice and ‘the potential for [students] to develop more transparent and less defensive practice’ (Ruch 2002:209).

It is important for social work educators to consider Finn and Jacobson’s important point that ‘reflective practice makes power, inequality and transformational possibilities the foci of concern, thus offering a theoretical bridge between social justice and social work’ (cited in Rohleder 2008), suggesting that the transferability of reflexive practice could ensure that the quality of social work education and practice training is enhanced.

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Access to Labour Market Equity: Advancing the Case for National Development in South African Higher Education

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Abstract

The responsibilities of higher education and training (HET) institutions include, but are not limited to, preparing students for absorption and productive participation in the labour market. Although the post-1994 period has witnessed a rapid expansion in enrolment into tertiary institutions in South Africa by black people who were previously excluded, this has not resulted in transforming the South African labour market. Although increased black graduate production has resulted in more black people emerging from the university system, the labour market outcomes of black graduates and those emerging from previously black tertiary institutions (referred to as previously disadvantaged institutions) is less than consistent. While this must reflect on the reality of a racialised labour market selection process that favours white rather than black students or their 'traditional' institutions, it is necessary for supply side institutions to respond appropriately. The role of universities in this process is considered critical. This article argues for a more responsive higher education system that provides a bridge between the worlds of the institution and work.

Keywords: Education and labour market, South Africa, higher education, access

Introduction

In the South African context, the attention to redress, equity and inclusion in response to a past that has been exclusionary looms large. In this paper we argue that the responsibility of higher education and training institutions must include responsiveness to national development prerogatives. Current labour market contradictions in South Africa suggest that much more is needed to change the labour market dynamics and also to enable a more inclusive labour market. The role of higher education is thus more expansive. In addition to knowledge production and higher level scientific education and training provision, the sector has to be more responsive to making a contribution to the national redress project. It is therefore necessary to insert a labour market component to the responsibilities that universities face. This has conventionally taken the form of ensuring access of those that have been hitherto excluded. This paper proposes an interventionist notion of access—suggesting that institutions of higher learning might need to consider going beyond their traditional supply-notion of qualifying appropriately-skilled personnel for the labour-market. It requires institutions to think through the possibility of providing opportunities to black learners to be inserted into the labour market. This also suggests that institutions need to go beyond simply creating higher education (HE) and training access¹ opportunities. South African universities should, we propose, fulfil their national development mandate by ensuring that some institutional mechanisms are in place to maximise student success in the labour market. Preparing students for absorption and productive participation in the labour market may provide an important mechanism for ensuring that these HE institutions are both appropriate and relevant to our needs. This suggests that institutions need to go beyond simply creating increased entry to vulnerable and previously disadvantaged sectors, nominally referred to as access in this paper and the conventional literature (Badsha & Cloete 2011; Akoojee & Nkomo 2011). In light of labour market dysfunctionality, there is perhaps need to ensure that some mechanisms are in place to maximise the students' success in the labour market particularly for black students as research has shown that labour market outcomes for white students surpasses those of blacks (Bhorat, Mayet, & Visser 2010).

¹ Access in this article refers to both enrolment and success of graduates that have been included in the system.

We begin with an analysis of the theoretical context that underpins the economy and labour market. We then explore the nature of the South African labour market, identifying employment and unemployment patterns that are essentially conditioned by economic parameters. This is followed by an overview of the skills conundrum in South Africa - a situation which allows skills shortages to co-exist with considerable unemployment. The discussion is anchored on existing evidence of labour market outcomes of higher education graduates, with recommendations and challenges associated with the recommendations.

Theoretical Context: Making the Case for Linkages between Education and Economy

The relationship between education and the world of work is always fraught with difficulty, not the least because of the tenuous relationship between education, training and the world of work. Economists, working within a human capital framework have always argued that the primary responsibility of education and training is its service to the labour market. But the reality of a whole range of intervening variables that include life and human development are important components of the fundamental purpose of education and training. While the latter is clearly a primary focus for education and training, it is important that for individual, community and human development, education and training should include livelihoods development. A livelihoods development approach must make, of those that receive it, productive individuals who give their life meaning thereby. Thus the relationship between education and work as encapsulated by this cartoon must represent an important element in the contemporary education and training landscape.

Human capital theory has impacted in various ways on the importance of education and its relationship with the labour market. While a discussion of the intricacies of the theory would be beyond the scope of this paper, we agree that the purpose of higher education includes, but is not limited to, imparting students with skills, both for public and private good, which they will use in the labour market in support of the country's economic development (Ehrenberg & Smith 2009; Bowles & Gintis 1976). However, the manner in which these students access that labour market and the

differential access to it has not been problematised by mainstream theorists. As Allen and De Weert (2007) argue, the theory overlooks the differences in the types of knowledge and skills produced in higher education in relation to labour market demands. The roles of social, economic or political factors to either enhance or compromise it need some serious attention in the international literature.

Figure 1: High School – University - Employment path



Source: The Star, Wed. January, 9th 2011, p.8

Human capital theorists admit the challenge with labour (the ability to work) is inseparable from the labourer. Educated people cannot sell their education, just as height, complexion and weight cannot be sold because they are not tradable commodities. The implications of the link between labour and labourer for learning institutions is the recognition that what students learn is what is tradable in the labour market (Bowles & Gintis 1976). From this perspective, the major purpose of schooling is to equip students with skills that they will need for their later work life. Higher education institutions, therefore, need to identify and address the obstacles that prevent graduates from trading their skill in the labour market. While human capital

would arguably overstate the case for labour market linkages, the reality of the labour market needs to be taken seriously.

The relationship between education and labour market has also been emphasised in Bourdieu's (1997) assertion that access to human capital is a product of socio-economic considerations. Bourdieu (1997) draws attention to the skill formation process, and unlike the human capital theorists who only consider the economic perspective of skill formation, he emphasises the role of cultural and social capital in securing social mobility. He contends that the success of human capital is based on the cultural and social foundation laid by the family. Thus, those from elite family backgrounds have leverage over their counterparts from poorer socio-economic backgrounds. Access is, therefore, a result of human, cultural and social capital and would explain that the likelihood of those excluded from the labour market is most likely to be determined by their backgrounds and circumstances rather than credentials and certification, whose attainment, we are reminded, is the product of social circumstances (Bourdieu 1997). Intervention in this regard is, therefore, necessary since the social circumstances that determine credentials and certification acquisition are constructed by context, and mediated as they are by human intervention – i.e. as a product of personal, economic and political expediency.

Drawing from this broad perspective, the analysis of the South Africa racial imbalance has been considered by some to be rooted in key cultural factors. Alexander (2011) argues that the language acquisition element of social capital has implications for educational outcomes, in other words, as performativity of students. Language from this perspective proved to be a powerful predictor of school success and furthermore, augured well for possibilities outside of it. Those that have English language skills were clearly advantaged both within the education system and for pathways and possibilities outside of it. There is therefore need for understanding the key features of inequity and realise that despite the most well-meaning legislative environment that could 'nudge' employers to recruit black graduates, the possibilities are perhaps a bit less likely, as is evidenced by the current evidence. Undoubtedly there is, need for intervention by various social role players for real equity to be realised.

Unemployment and the Racialised Labour Market

South Africa experiences high levels of poverty, inequality and unemployment leading to a range of concomitant social challenges. In particular, crime and corruption are becoming endemic, perhaps as a consequence of these considerations.

Unemployment is significant in the South African context, with significant racial characteristics. One report conducted in 2009/10 (SAIRR 2010), revealed that unemployment reached 4 310 000 in 2010, with 3 704 000 (86%) of that number being Africans and unemployment (wide definition) reached 6 149 000 with 5 430 000 (88%) of that being Africans. Hofmeyer's (2009: 33) depiction of unemployment patterns over the past decade shows increased employment in the period from the early 1990s (9.6 million) to 2008, (13.7 million). However, the rate of unemployment declined from 27.8% between 1990 and 1994 to 25% in 2011. The absorptive capacity of the labour market shows a small percentile improvement from 41.5% in 1990-4 to 45.4% in 2009. The high of 46.6% in 2008, when the international recession began, was a result of infrastructural spending for the FIFA World Cup hosted by South Africa in 2010.

There are also serious race characteristics (see Table 1 below), which indicate that unemployment amongst Africans reached 29.7% (on the narrow definition²) and 38.2% (expanded definition) as compared to 6.1% and 6.9% respectively among Whites.

Table 1: Unemployment rates by race

| | African | Coloured | Indian | White | Total |
|----------------------------|----------------|-----------------|---------------|--------------|--------------|
| Official definition | 29.7% | 21.8% | 4.6% | 6.1% | 25.2% |
| Wide definition | 38.2% | 24.9% | 11.4% | 6.9% | 32.4% |

Source: (SAIRR 2010)

The challenge of obtaining employment as identified by Borhat *et al.* is the following:

² The terms narrow and wide indicate the nature of the unemployed, with the narrow excluding those 'job seekers' considered to have been 'discouraged' (i.e. were not actively seeking employment within two weeks from the survey date).

... the most stinging indictment yet of employment practices in the domestic economy is that, on the basis of this evidence, even when type of institution and field of study are controlled for, African graduates are finding it distinctly harder to secure employment than their white counterparts (Bhorat, Mayet & Visser 2010: 109).

The challenges of obtaining employment are reinforced by Moleke (2005: 6) who argues,

although Africans were concentrated in fields of study with lower employment 'prospects', a comparison within the study fields indicated that their white counterparts had better prospects (Moleke 2005: 6).

The latter study showed that more than 50% of whites found employment in all fields in which they studied. The only fields with a success rate of more than 50% of African graduates were 'engineering' (88%), medical sciences (66%), and agriculture (53%).

It is clear that the significant unemployment levels in the country is not only associated with skills and education level, it also reflects the reality of a racialised labour market with a distinctly apartheid-like architecture. This is reinforced in the current occupational profile as the following table shows from the labour force survey in 2010.

Table 2: Occupational skills profile of manufacturing employment by race, 2010

| | African | Coloured | Indian | White | Total |
|----------------------------|----------------|-----------------|---------------|--------------|--------------|
| Managers | 15.6 | 7.2 | 9.1 | 68.2 | 100.0 |
| Professionals | 44.8 | 9.0 | 10.6 | 35.6 | 100.0 |
| Technicians | 48.4 | 19.9 | 5.9 | 25.8 | 100.0 |
| Clerks | 38.5 | 20.3 | 10.8 | 30.4 | 100.0 |
| Service & Sales | 56.4 | 18.1 | 6.4 | 19.0 | 100.0 |
| Crafts | 68.3 | 17.5 | 3.3 | 10.8 | 100.0 |
| Operators | 76.5 | 17.5 | 4.1 | 1.9 | 100.0 |
| Elementary | 77.5 | 17.2 | 3.1 | 2.2 | 100.0 |
| Total | 62.0 | 16.7 | 5.2 | 16.1 | 100.0 |
| Total (*000s) | 1 026 | 277 | 87 | 267 | 1 656 |

Source: Statistics South Africa (StatsSA 2010)

The racialised nature of the labour force shows that more than a decade of democracy has not changed racial patterns. White males still dominate the top echelons of workplaces, with more than two-thirds (68.2%) of the managers in the manufacturing sector, as compared to less than a fifth (15.6%) Africans³, the other groups Coloureds (7.2%) and Indians (9.1%) accounted for the rest. Conversely, the 'lower echelons' of the organisational structure has a predominant African (77.5%) component. Coloureds (17.2%) make up the second largest and a minimal White (2.2%) and Indian (3.1%) composition. This must suggest that well paying positions are occupied by Whites and the least paying ones by Africans⁴.

The unequal race distribution in the employment sector is reinforced by the report of the *Commission for Employment Equity* which pointed out that Whites are, '... continuing to be recruited and promoted in the private sector and are likely to continue to benefit from training and development opportunities' (Nkeli 2010). Indeed, despite the range of equity and skills development legislation, there is still considerable unease that little has changed since 1994 and that there is need for urgent transformation to ensure redress and equity in workplaces (RSA 1998a; RSA 1998b). The Minister's preface to the Draft Green paper on Higher Education and Training (DHET) for instance points out that,

...the focus on employment is not to the exclusion of all other development and transformational goals; quite the contrary - unemployment can only be reduced if the transformation agenda is taken forward with renewed vigour. Opening the doors of learning is as important today as it was when the Freedom Charter was written. Today, the barriers to post school education are not formalised or legalised through the colour of one's skin and racial designation. However, the legacy of apartheid lives on in a host of problems related to the poor quality education in many parts of the country, and the socio-economic conditions that young people have to grapple with as they pursue their education and work careers (DHET 2012: viii).

³ Our use of racial categories should not indicate acceptance of these broad ethnic identities identified by the country's constitution.

⁴ Census data (2005) shows Africans make up 79.5% of the total population, White and Coloured 9% each and Indian, 2.5%.

Skill Shortages, Mismatches or Selectivity?

The South African labour market is associated with considerable contradictions and nuances that need to be reviewed before examining the relationship between education and the labour market. Three broad areas are analysed in this section to explore the sometimes quite glaringly conflated education and labour market relationship before one or other explanation of the relationship is proposed. The first is the notion of skill shortages, second, skills mismatch and the third a notion of selectivity. Each is described in turn.

The Workings of the Labour Market

High unemployment accompanied by a conundrum of skills shortages in South Africa. At this stage, the notion of skills shortages is an important component of the official government discourse in the country (see draft Green paper 2011: 9). There is a widely-held and repeated concern that skill shortages represent a critical area that holds back economic growth (see e.g. the latest National Development Plan RSA 2012) (National Planning Commission, RSA 2012). For instance, the per capita numbers of qualified engineers in the country does not coincide with either its level of development or its population. The increase of engineering professionals is an indispensable feature of South Africa's economic development. Indeed, in the case of engineers⁵ it has been suggested that the numbers are less than that required. Although the South African average is below that of other middle income countries, one cannot refer to the country as having a shortage of engineers outside of the creation of work that justifies their production or existence. The head of the engineering council is on record as saying that unless the economy is stimulated in the near future by the government's investment into large-scale infrastructural projects and the capital investment⁶ necessary for this, the need for engineers will be muted.

⁵ The case of accounting professionals have also been similarly cited, see for instance (Excell 2010; Kruss *et al.* 2011).

⁶The much vaunted Strategic Infrastructural Plan has just this year been launched. The head of the Consulting Engineers of South Africa (CESA) argued that outside of this plan, the shortage of engineer was perhaps more imagined than it was real (Esterhuizen 2012).

The reference to widespread skill shortages⁷, with its attendant and associated contradictions has for this reason been described as a conundrum. The considerable human potential and large unemployment suggests that there is likely other dynamics at play to understand the labour market in South Africa. While it is likely that there are indeed some shortages in key higher level areas of those with expertise and experience, the discourse of a 'skills shortage' does allow some attention to be paid to education and training.

Another widely cited dynamic of the labour market workings is based on the notion of skills mismatch (Sharp 2010; Shevel 2011). Here it is argued that the real skills necessary for effective labour market synergy is not being produced by national entities. Wolf (2011), for instance, in reference to the British system, notices an oversupply from certain higher education fields and recommends that consideration also be given to demand-side imperatives when government incentives are considered. This is echoed by some local commentators. Lolwana (2011) attributes skills mismatch to the 'graduate oversupply' phenomenon and to the lack of effective relationship and a 'connection' between education and the labour market. In effect, the conclusion is that the areas of 'education' and the 'labour market' run parallel to each other rather than conjoin for effective synergy and understanding.

While skills shortages and skills mismatches are likely to be important contributors to labour market contradictions, a key feature of the labour market is its candidate selectivity. The mediation of human actors with peculiar biases, prejudices and notions of efficiency represent a critical area of labour market activity. Dias (2005), for instance, has argued that the employment and labour market in South Africa is less a product of skills shortages than it is about selectivity and choice which is, quite interestingly, a product of excessive labour supply. In this view, the primary issue is the labour market's inability to absorb new entrants with tertiary qualifications. Hence the cautionary corollary that improving the education qualifications of the unemployed is not likely to be a passport to employment since the labour market itself is saturated. In an important manner, this explanation complements the selective inclusion of some individuals rather than others

⁷ See for instance Akoojee (2008), for a discussion of this conundrum as it applies to the South African Further Education and Training College sector.

that both Kraak (1993) and Yakubovich (2006) attribute to the lack of transformation in the labour market.

It is therefore evident that the South African labour market, whether it is beset with challenges related to skill shortages, skills mismatches or candidate selectivity, there is need for a clearly defined rationale relevant for various sectors of the economy and areas of economic activity. The notion of both skills shortages and skills mismatch, while useful need also to be understood within a framework that takes as a starting point the selectivity of individuals within a considerable wide and diverse labour market pool.

Graduate Unemployment and Labour Market Contradictions

The skills shortages discourse could, ostensibly, have explained the graduate unemployment phenomenon in general. But, whether it is due to labour market saturation or inappropriate skills, the unemployment of graduates with degrees is clearly a paradox in light of the skills shortages claim. The fact that the claim for skills shortages coexist with racially based graduate unemployment suggests that there are considerable challenges in the way in which the labour market is structured. Thus, whether the skills shortage discourse is real or not, is not as serious as the reality of a racialised labour market. Whereas there are a large number of unemployed graduates in short supply in designated fields like engineering, the reality is that black graduates find it more difficult to obtain employment as compared to their counterparts in the other racial categories. It is clear that no amount of intervention is likely to change this situation. We want to posit that the situation, which is a product of historical misappropriation, can be resolved by a labour market that will need to be cajoled into understanding that race is indeed less of a predictor of workplace efficiency. Clearly the reality of a higher education intake and enrolment system that is less informed by labour market demand than it is by supply-side capacity needs to be addressed.

The recruitment and selection practices in some firms reflect the manipulation of the labour market for the social reproduction function of particular companies which is described as the extended internal labour market (Kraak 1993; Yakubovich 2006).

Access and Higher Education: Expanding the Agenda

Our key argument is that the role of higher education needs to be expanded.

Indeed, it is argued that in light of the national development responsibility of higher education institutions, some attention should be paid to their labour market responsibility. While not proposing a technicist neo-liberal perspective that assumes that the role of higher education should be geared to labour market ends, the knowledge generation activity needs to take cognisance of labour market outcomes of those that the institution is charged. It is therefore necessary to understand the relationship between the higher education institutions and the labour market.

Higher education has been widely lauded in the country for its transformational perspective. Not only has enrolment expanded within steadily tightening fiscal conditions, institutions are clearly asked to do more and more with less and less (Altbach 2008). Thus it is not insignificant that the gross enrolment ratio of higher education institutions has significantly increased in the post-apartheid period. Between 1986 and 2007, enrolment increased by as much as 151% from 303 000 in 1986 to 761 092 in 2007 and was forecast to reach 836,800 in 2011 (Department of Education 2009). The massive expansion led some to review its unbridled expansion and amidst concerns about its quality implications, some in the Department of Education considered various means for containing expansion. Thus although the Department of Education (2005: 23) considered capping head-count enrolment ‘at 723 000 in 2005, at 730 000 in 2007 and at 740 000 in 2009’, the decision to cap enrolment was consequently left to the Ministry of Education and the respective HEIs.

While the enrolment figures have increased, associated as it has been with a larger black intake, concerns have been voiced about issues linked to quality.. These have to some extent been responded to by various mechanisms including the issue of non-readiness of school graduates for university. Thus various government measures to expand and fund academic development programmes and various initiatives for ‘extended degree’ have been implemented. . Government’s response to access was designed for expanding the possibilities of success of those not adequately prepared for the rigours of university life in an effort to increase throughput of those disadvantaged by the previous system.

Despite these measures, some concern has been raised in recent times regarding the high rate of failure and throughput at higher education institutions. It has been estimated that on average government annually

spends R18 000⁸ (World Bank 2010b) per Higher Education student. While it would be disingenuous to reduce education to monetary terms, the reality of a sector not doing enough with its spending in tight fiscal conditions is troubling. Consequently, it is alarming that the current graduation rate is 16% for under graduate degrees and diplomas 19% for Masters degrees and 13% for doctoral degrees (DBE 2010). This was not new. The *National Plan for Higher Education* (DoE 2001) nine years earlier had reported that, at 15%, South Africa had the lowest graduation rate in the world. The same document also raised the issue of the disparity between black and white student graduation rates with black students spending more than double the time spent by white students for completion. Institutional efficiency was also differentiated, with graduation rates ranging from 6% at the low end and 24% at the high end.

Attrition of students has also been of concern. A study conducted by the Department of Education in 2005 showed that of the 120 000 students entered into HE, about half of them had dropped out by their third year (30% had dropped out by the first year), and of the remaining 50%, fewer than half (22%) graduated within the three years stipulated (DoE 2005).

If one superimposes this attrition on demographic data, it is not surprising that attrition affects black students more than they do the other racial groups. A key finding of the graduate destination study was the crucial role of finance in dropout rates (Letseka & Maile 2008).

That black students are unable to obtain the requisite qualification, and that those who do are not able to access labour market opportunities is a telling indictment of the social transformational prerogatives which have been marginalised. Some attention has to be paid to those black students that succeed despite all the odds to which they have been exposed. The shifting of focus from failure to successful completion is a starting point of transformation. Translation into practice, therefore, calls for an expanded notion of access that takes as a critical responsibility the labour market placement of those that are able to graduate from HE institutions.

This means that some attention has to be given to institutional placement as a responsibility which must take account of the context in which it finds itself. Expanding the notion of access provides a powerful mechanism

⁸ This is only government's contribution and excludes private contribution in the form of fees.

by which to close the loop that deprives access. We refer to this notion of access, as meaningful or ‘productive access’- i.e. access designed to lead to production and utility of the qualification in the labour market. The objective in this case is related to the national transformational project.

Evidence suggests that exposure to workplaces represents a powerful means by which initial employment is secured. This is confirmed in national policy proposals. For example, the National Planning Commission’s Diagnostic Report points out that the ‘inability to support young people to make the school-to-work transition is probably the biggest challenge in the labour market’ (NPC 2011: 13). This is clearly drawn from an age-old apprenticeship model which considers the crucial role of exposure to workplaces as an indispensable component of education and training. Indeed, economists⁹ have now considered the value of this model in skills development practise.

Conclusion

This paper suggests that for real access to be realised, institutional responsibility needs to be expanded to enable black students to access labour market opportunities. Furthermore, the work of universities needs to go beyond that of preparing students academically. The work of the university, we argue, should be about expanding access for those graduates that have been disadvantaged in the past. The paper does not assume that by so doing the challenges that preclude the market from employing graduates will be eliminated, but that by providing some support to these graduates, that some progress in enabling labour market outcomes would be realised. While we are mindful that this might well lead to charges of being technicist or reductionistic by human capital theorists who assume that HE institutions simply need to respond to labour market imperatives, the reality of a

⁹ It is therefore not surprising that contemporary commentators, for instance, Sharp (2010: 12) suggests that, ‘most valuable lesson emerging from the skills development experiment is that marketable skills are acquired on-the-job, in a practical workplace setting’. In addition, the September, 2010, Adcorp Quarterly Report (Adcorp Holdings 2010) argues that the primary obstacle to skills development for inexperienced youth is finding their critical first job.

misaligned education-labour market relationship means that interventions with a critical dimension are necessary to respond to the economy.

One possible way of making inroads in the inaccessible labour market challenge includes institutional commitment to productive student experience. While this is likely to expand on the university mission, the consequences of not doing this in a developing context like ours is likely to be severe, not only to those that have been included in the system as a result of redress initiatives, but also to undermine the entire higher education project with, potentially, disastrous consequences for national development.

The cartoon which in Figure 1 shows multitudes crossing an unsteady bridge from high school to university appear not to have any link with the world of employment from university. The access suggested in this paper will begin the process of links with the labour market.

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