ALTERNATION

Comparative Perspectives on Higher Education Systemic Change, Curriculum Reform, Quality Promotion and Professional Development

*Alter*nation

Comparative Perspectives on Higher Education Systemic Change, Curriculum Reform, Quality Promotion and Professional Development

Guest Editors
Rubby Dhunpath,
Nyna Amin
and
Thabo Msibi

2015

Acknowledgement of Reviewers

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

Oluyinka Adejumo	University of Western Cape
Sarah Bansilal	University of KwaZulu-Natal
Jeffrey Brand	Bond University, Australia
Natalie Brown	University of Tasmania, Australia
Hamish Coates	University of Melbourne, Australia
Nuraan Davids	University of Stellenbosch
Mabel Erasmus	University of Free State
Dough Goodman	University of Texas, USA
Crispin Hemson	University of KwaZulu-Natal
Jane Hendry	University of Cape Town
Dipane Hlalele	University of Free State
Vaughn John	University of KwaZulu-Natal
Frans Kamsteeg	Vrije Universithy, Netherlands
Sandra Land	University of KwaZulu-Natal
Rozena Maart	University of KwaZulu-Natal
Margie Maistry	Durban University of Technology
Suriamurthee Maistry	University of KwaZulu-Natal
Hlaviso Motlhaka	University of Free State
Vimolan Mudaly	University of KwaZulu-Natal
Luzelle Naudé	University of Free State
Mdu Ndlovu	University of Stellenbosch
Bert Olivier	University of Free State
Moira Peelo	Freelance Educational Consultant, UK
Daisy Pillay	University of KwaZulu-Natal
Kathleen Pithouse-Morgan	University of KwaZulu-Natal
Julia Preece	University of KwaZulu-Natal
Gaobolelewe Ramorogo	University of Botswana, Botswana
Labby Ramrathran	University of KwaZulu-Natal
Sanita Ramsaroop	University of Johannesburg
Peter Rule	University of KwaZulu-Natal
Michael Samuel	University of KwaZulu-Natal
Charles Sheppard	Nelson Mandela Metropolitan University
Michael Skolnik	University of Toronto, Canada
Leonard Smith	University of Cape Town
Robert Talbert	Grand Valley State University, USA
E J van der Westhuizen	UNISA
Frances van Schalkwyk	Central University of Technology

Editorial: Comparative Perspectives on Higher Education Systemic Change, Curriculum Reform, Quality Promotion and Professional Development

Rubby Dhunpath
Nyna Amin
Thabo Msibi

Quelling the Fires: Responding to Questions of our Time in a Troubled Higher Education Space

South African higher education is undoubtedly at a critical crossroad. The '#RhodesMustFall' and '#FeesMustFall', as well as other similar movements in institutional settings across the country, are demanding change – a 'business *unusual*'' approach to traditions and modus operandi of South African higher education institutions. The crisis is no longer looming; it is here. Racist, sexist, homophobic, classist, neoliberal and neocolonial practices are under some serious scrutiny from our students. This is 1976 relived, except that this time the picture is far more complicated. The democratic dispensation of 1994 has enabled greater freedoms at individual, institutional and societal levels. The irony in the context of higher education is that institutional autonomy (read freedom) has become an easy cushion for the maintenance of a racist, patriarchal and neoliberal status-quo, while the state has become more sophisticated, actively engaging in what feminist scholars would call a politics of 'accommodation' (see Youdell 2006). Such accommodations of course are never purely for the advancement of human agency. They are caught up in tactics of control; a double-edge sword that can lead to the destruction of higher education as we know it.

It is the abovementioned complexities that make the current national ructions in higher education both exciting and troubling. Students with very little experience of apartheid are asking serious questions about the state of transformation in higher education, and are mapping out the type of institutions they wish to study in. Questions around the persistence of colonial curricula, white-centric institutional cultures deliberately used to marginalise and exclude black students and staff, pretentious language policies which are conveniently crafted around the linguistic provisions of the Constitution while seeking to maintain a racist status quo, exorbitant costs of higher education access often fueled by the commercialisation of higher education and the inadequate state subsidisation, as well the shocking lack of black academic, particularly, senior staff in South African higher education institutions are rightfully among those being asked by students across the country.

Yet, of equal concern, are the images of torched buildings, of violence and the intimidation of staff and students which abound in many campuses across the country, enabling 'comtsotsis', i.e. 'youth engaged in anti-social behaviour and who attempt to justify their behaviour as legitimate political activity' (Chisholm 1992: 4) to receive undue attention . As Jansen (2015) argues, if we leave such 'thuggish' behaviour unchallenged, 'We sustain the very conditions that apartheid and colonialism embedded in our society' (online). 'Comtsotsi' behaviour as seen at the University of the Western Cape and other higher education institutions, allows for the prevalence of racist discourses that project black students as 'uncultured' and 'naturally violent'. However, this does not mean we must ignore the impact and importance of the student movement that has forced government and university administrators to agree to zero fee increments for the new academic year while simultaneously forcing some higher institutions to cease exploitative labour practices (e.g. the privatization of campus cleaning services). Most importantly, however, are the implications of the student movements for higher education provisioning in general, and for higher education teaching in particular.

Essentially, at the heart of the student protests across the country are questions of the contextual relevance of higher education provisioning: in a globalized, postcolonial higher education environment, our students are asking us to consider the type of universities that African countries should offer. We are being asked to think about whether universities in Africa can

truly be African, and what this might mean for curriculum, pedagogy, ideologies, institutional cultures, access, support services and representivity, among other things. These are very difficult questions with no clear and simple answers. However, these complex questions present opportunities for universities to 'think outside the box', to re-envision what it would mean to offer accessible higher education in post-conflict, African contexts (Jansen 2009).

At this stage, the reader may wonder what all of this has to do with this special issue. In this special issue, we present articles which seek to analyze higher education teaching and learning, with a particular focus on systemic change, curriculum reform, quality promotion and professional development. These are not very easy concepts, as each is loaded with a range of histories and possibilities, particularly for the African context. For instance, notions of systemic change, curriculum reform and quality are inevitably caught up in neoliberal, Western notions of 'standards' and policy borrowing (see Steiner-Khamsi 2013). Higher education institutions in South Africa are not immune to the practice of borrowing as is evidenced by the increased usage of university ranking systems to measure excellence and international competitiveness of our programmes, with both the reception and the translation of international policies being caught up in notions of so-called 'best practice'. Often, notions of 'best practice' arrive with expectations of uniformity (globalization) of content, the normalization of Western knowledges and inevitability, reliance on Western-centric institutional structures. However, rarely do we ask whether such 'best practice' can ever be universalised *for all.* Yet, despite students loudly asking for change, while universities (perhaps rightly) are under siege, we need to pause and reconsider what it means to be African and to teach in African universities.

While the entire notion of creating African universities may appear paradoxical, our answers may lie in what William Pinar (2009: 1) calls, 'a test our generation must pass': internationalization. Taking into account the ubiquitous pressures of globalization and the our country's violent history of colonialism and apartheid, we suggest that South African universities take seriously the process of considering foreign knowledge, processes and structures with a critically informed strategy that takes local knowledges and experiences into account to produce new universities that are decolonized and internationally competitive. Instead of using history for political expediency,

history ought to inform the ways in which we interrogate our current positionings and the futures we desire. Undoubtedly, a process of engaging in national '*currere'* (see Pinar 2012) is required.

The articles in this special issue seek to engage us in *complicated conversations*. They present national conversations on the various ways in which our history informs present-day higher education provision: be it through pedagogy, self-situating practices, theory, knowledge interrogation, funding dilemmas, technology or representation politics. Indeed a deliberate effort is being undertaken to engage in a project Soudien characterizes as a 'sociology of the cognitive encounter' (cited in Pinar 2009: 9) – an attempt to de-universalise the European experience while pursuing a 'modern indigeneity' (Pinar 2009: 9). Such approaches require an understanding of internationalization as not representing a substitution of the local, but rather as a means through which foreign knowledge can be incorporated in envisioning new African universities (including curriculum, systems, structures and quality assurances).

An article which speaks directly to issues raised in the current waves of unrest, entitled *Nostalgia, anxiety and gratification: narratives of female staff in a merged higher education institution,* by Gachago, Sosibo and Ivala, engages a process of self-situating by presenting a narrative and historical account on experiences of academic and administrative women in higher education who were involved in mergers. Understanding the effects of mergers on individual experiences of staff, particularly women is, arguably, one of the most difficult and under researched complex processes in post-apartheid higher education as the authors have correctly claimed. Gachago *et al*. found that the narratives of the eight women in their study are symbolic of both pain and loss. Such pain and loss, they argue, is characterized by deep patriarchal cultures which existed and continue to do so in higher education institutions – cultures that mainly support male networks and solidarities. The authors suggest that while both pain and loss exist, it does not exist equally and in the same way for all women. Complicated by race, class and sex, the women's experiences present some ambiguities, with some white women able to find their voices after the institutional mergers, while some working class, black administrators, find themselves in more vulnerable employment conditions. Such intersections point to different experiences shaped by individual, social identity markers. The authors conclude by appealing to new forms of indigeneity as espoused by Soudien (2009). This means collective

forms of imagination, organization and solidarities by women in higher education institutions. They argue that 'the promotion of change should be a collective and relational responsibility, emphasizing the importance of supportive leadership and women's networks for an experience where female employees can be free to be who they are'.

If we are to take seriously the need to create modern indigeneities while recreating African higher education institutions, then the article is instructive as it encourages us to carefully interrogate systems and structures in higher education provision.

Macro Issues in Higher Education: Looking at Systems and Structures

Higher education on the African continent, and particularly in South Africa, faces the daunting challenge of replenishing its ageing professoriate in contexts increasingly characterized by the casualisation of academic labour and deteriorating working conditions. In this cacophony of competing interests fueled by a decline in governments' support for funding higher education, professional development is, in many universities, an expensive luxury which is sacrificed to fund other imperatives, such as subsidizing student fees. Where professional development programmes do exist they are often characterized by elementary ad-hoc interventions or just-in-time, just-enough pedagogies to meet compliance requirements.

The question of whether responsibility for professional development lies with central executive structures or decentralized Faculty or School level entities remains unresolved, with different institutions finding value in either or both models. Typically, decisions about the location of support to staff is determined by other structural arrangements, and perhaps, more importantly, the extent to which university executives ascribe sufficient value to the enterprise to provide the requisite resourcing and support.

In their appraisal of a de-centralised professional development model adopted by a South African higher education institution, Mashiyi and Kizito argue that de-centralisation made the funding and organization of professional development activities in the faculties difficult to manage. The absence of a dedicated structure to ensure adequacy of funding and appropriate academic skills to support various professional development

activities meant that faculties were left to their own devices and the coordination of the teaching and learning activities tended to be marginal activities without requisite commitment of teaching and learning representatives. The authors identify two main reasons for this: firstly, the T&L representatives were usually junior staff with no authority to influence performance in the departments and secondly, the academics themselves had very high workloads which limited their participation in T&L activities. However, a positive outcome of de-centralization was the opening up genuine spaces within the faculty for lecturer negotiation and ownership of their own T&L processes.

The kind of neglect for professional development as key driver of institutional performance does inevitably impact on the quality of institutional offerings and outcomes. Higher education institutions in the continent and elsewhere are subjected to number of quality promotion, enhancement and assurance activities. In South Africa, higher education institutions were audited for the period 2004-2011 and have since been subjected to rigorous accreditation processes including the alignment of higher education programmes to the Higher Education Qualifications Sub-Framework. Most of these interventions are geared to enhancing the student experience by focusing, amongst others, on improving and standardizing various curriculum offerings available in higher education institutions. In this context it is prudent to ask: What lessons can be drawn from the work of quality promotion and assurance units and national quality councils and professional bodies (both nationally and globally) in respect of the curriculum and the way institutions manage quality? It is equally prudent to consider the perspectives and experiences of students and staff on quality promotion and assurance at their institutions. Matsebatlela explores the influence of the South African Higher Education Quality Council (HEQC's) institutional audits on teaching and learning at three South African Universities. Using case studies, Matsebatlela's findings indicate that the outcomes of the audits are not entirely convincing. While the processes have had a positive albeit limited and variable effect on teaching and learning at the three universities, the progress made in various areas is uneven, with some institutions struggling to implement their improvement plans effectively. Matsebatlela concludes that the HEQC should 'put in place more robust follow-up and monitoring mechanisms, including compulsory follow-up site visits, and that institutional audits be conducted at more universities'.

This recommendation warrants some reflection: higher education institutions are vociferous in their demand for autonomy, especially from the prying attentions of regulatory bodies and government. Yet, when institutions are afforded the opportunity to exercise their autonomy in crucial areas of their core business such as the curriculum, they defer their authority to these very regulatory structures they resist. Mindful of this dilemma, the Council on Higher Education's (CHE) Quality Enhancement Project (QEP) is intended to harness collective energies towards enhancement of the higher education sector rather than focus on individual institutions exercising rituals of compliance.

The concern with autonomy is routinely associated with the curriculum. It is now commonsense that a key driver of quality higher education is, indeed, the curriculum, which continues to bear the trademarks of a bygone era. To date, attempts at curriculum reform have amounted to little more than tinkering with enduring monoliths which find expression in conservatism and, more recently, anti-intellectualism, particularly evident in increasing demands by students to be rewarded more for doing less. Universities, in concert with government and regulatory bodies have been complicit in scores of students being 'academically adrift' (Arum and Roksa 2011) and having to navigate curricula that are riddled with obstacles that impede meaningful progress, while earning them qualifications that often fail to prepare them for productive livelihoods.

Recent attempts by the South African Council on Higher Education (CHE) to re-envision a relevant curriculum has resulted in a national consultative process which has concluded the there is 'wholly insufficient curriculum space to enable such [innovative] provision to be incorporated without compromising the integrity of the 'irreducible core' of knowledge in the curriculum' (CHE 2013). Rawatlal and Dhunpath challenge the conservatism in their article which is a sequel to an earlier article in *Alternation* (Rawatlal & Dhunpath, 2014) in which they argue that the proposal made to government to extend the undergraduate curriculum is fundamentally flawed because the proposal advances an econometric solution to a pedagogic problem. In their current article they propose multi-trajectory progression planning to transcend the econometric discourse in curriculum design. Now Rawatlal and Dhunpath have adopted a more conciliatory stance; they argue that if radical curriculum reform in structure and content is not likely to materialize in the foreseeable future, (with an intensification of

foundation provisioning in the form of alternative access programmes) then we need to turn our attention to investigating what structural elements of foundation programmes might be strengthened to enhance student progression. They explore the advances made in online technologies and artificial intelligence to support a multi-trajectory approach to design curriculum pathways. They argue that through the use of algorithms, it is possible to institutionalise progression mapping to enable students and academic advisors to have online, real-time data on students' progression status, and the possibility of selecting alternative curriculum pathways which have a history of success. This data, when aggregated, has the added potential to harvest evidence for more substantive curriculum reform to address what has become a stubborn pathology in higher education reform.

Collaborations and Partnerships with Civil Society Organisations

The question of 'learning spaces' in higher education has commanded much attention, especially in the context of rapid and pervasive expansion of technology. Regrettably, the tendency to conflate space and technology narrows the discourse to the realm of the physical and geographic, neglecting the philosophical and ideological dimensions of learning spaces and the political dimensions associated with who gains access into these spaces, how the dominant discourses in these spaces resonate with those of the communities they are expected to serve and how community voices are accommodated within what is often the portals of intellectual elitism. The question of where the typical NGO is located in this space remains unresolved.

Dhunpath (2003) argues that the increasing pace of globalisation has been accompanied by a concomitant increase in the status and legitimacy of NGOs as the voices of civil society. Keck and Sikkink (1997: 1110, cited in Dhunpath 2003) add that the behaviour of NGOs is 'invariably normative, prescriptive, increasingly internationalised, highly politicized and at times very effective'. In many instances, they have become the discursive and material terrain through which the marginalized subjects of anthropological / ethnographic research are brought into the public domain.

Attempts to locate the role of NGOs in higher education through three case studies of an action research project which compared student, NGO and community reflections of a community engagement experience comprise the focus of the article by Preece and Manicom. Their findings suggest that the learning spaces and environments 'enabled students and community members to engage in mutual learning, through dialogic and reflective processes that enabled application of discipline-based theory, as well as broader learning, related to power dynamics and sharing of knowledge between community members and students'.

Preece and Manicom identify three main considerations related to the pedagogical contribution of community spaces and environments. Firstly, the impoverished nature of the learning spaces created a need to focus on human relationships as a learning resource. Secondly, the environments became the pedagogical spaces for different forms of learning, which relied on the adaptive leadership principles of respect and dialogue. Thirdly, the knowledge acquired was not simply new skills or information as it also included knowledge about relationships, and the enhancement of self-awareness. Notwithstanding the potential success of the engagement, Preece and Manicom caution that such initiatives require considerable preparatory discussions and ongoing dialogue between the different agencies.

Citing Gibbons (2006), Preece and Manicom poignantly conclude with the assertion that 'structured CE in community spaces as an 'agora' can provide opportunities for mutual learning that contributed to the co-construction of 'socially robust knowledge''. This is more so the case in contexts where universities are looking at civil society organisations for partnerships in the development of students through service. Such approaches often deviate from Western positionings of universities as the only sites of knowledge production and emancipation. However, as the articles in this special issue show, universities in Africa need civil society organisations in as much as civil society organisations need universities.

Like Preece and Manicom, Hlalele and Tsotetsi, in the article premised on emancipation theories when engaging with communities, argue that engagements with communities need to be mutually beneficial for the parties involved. Hlalele and Tsotetsi reflect on a collaborative venture between their university and an NGO by the name of PULA. PULA requested the university to offer extra curricula classes in Physical Science and Mathematics to grade 10 learners in the area. In response, the university

offered PULA with student-educators who not only assisted the school learners enrolled in the NGO project but also themselves (students) to develop as future teachers. The authors concluded that engagement needs to be reciprocal, ideally of benefit to all those involved and to not assume that communities are ignorant of their own needs. An approach that recognizes the assets of all players, the authors argue, can play a significant role in bringing about social change.

Singh-Pillay's article on in-service learning among the technology education students she teaches digresses very little from the findings and conclusions of the other two articles on community engagement in this special issue by focusing on the benefits that higher education institutions receive when engaging in community projects. Reflecting on a pilot study which involved the engagement of her technology education students in a community engagement project on environmental sustainability, Singh-Pillay argues that the linking of pedagogical content in higher education with applied community engagement processes presents not only the possibilities for students to enhance their knowledge, it also results in the production of a critical citizenry that is conscious of impeding social issues around their communities. In her own words, she notes that engaging her students in a community project enabled them to develop 'a deeper understanding of the ESD [module] content [and assisted them in] social responsibility as teachers'. She, like Hlalele and Tsotetsi, suggests that student involvement in community projects is yet another approach for bringing about social change and for producing critically informed knowledge.

Higher Education Funding

Increasingly, the discourse of a socially robust knowledge is eclipsed by an econometric discourse, which values higher education as an instrument that furthers the interests of capital and multi-national corporations. Ironically, the past decade has witnessed drastic changes in the way universities are structured and financed. Globally, governments are investing less and less in higher education, leading to the emergence of private sector-funded universities, and an increasing number of privately-funded students in public universities. While this development has widened university education opportunities, it has pedagogical implications as well. Class sizes have

increased, and diverse student populations with varied learning abilities, cultural capitals, social class, and linguistic variations are accessing higher education. Alternative instructional strategies, resources and paradigms will need to be embraced and financed for successful outcomes, especially if we are to reimagine higher education for our local realities. Interestingly, universities have responded by shifting the burden of increased costs to students. Are there viable alternatives which disrupt the exponential increase in the costs related to higher education provisioning? As highlighted above, the recent '#FeesMustFall' campaigns across the country are an expression of the deep frustrations experienced by students and their families who are expected to invest in qualifications, we emphasise once again in this editorial, which do not necessarily lead to productive employment.

In the article by Bokana, he contends that the key driver of the underperformance of the higher education system is because state funding lags behind the increase in enrolments and the chief consequences have been creaking infrastructure, slow growth in the academic staffing base, high student attrition, and low throughput rates. This is exacerbated by the incoherent, inefficient and dysfunctional higher education landscape. Are there innovative non-traditional funding models involving synergies between non-traditional partners? Bokana argues that the South African government's funding framework is an important steering mechanism to achieve policy priorities, the most important of which is the overall transformation of the higher education system. He notes that government subsidies are expected to 'contribute to the realisation of (1) equitable access, (2) better quality research and teaching, (3) improved student progression and graduation rates, and (4) better responsiveness of the higher education system to economic and social needs'. The emphasis on planning, Bokana argues, is informed by the fact that if the higher education system is to respond to the national sustainable development agenda, the size and shape of the system cannot be left to the vagaries of the market, in particular, uncoordinated institutional decisions on student enrolments and programme offerings (DoE 2005: 3).

Bokana concludes with the assertion that a significant review of national educational policy reforms in higher education approaches and concomitant changes in the levels of university funding is required if South Africa is to meet the demand for enrolment growth, particularly if such growth includes all those who are willing and able to attend university.

Rubby Dhunpath, Nyna Amin & Thabo Msibi

Re-imagining Pedagogy in Higher Education

In this section, a series of articles surprised with a range, both broad and deep, offered by higher institution teachers. Certainly innovation, experimentation and the courage to think can be applied to these papers, which destabilize and question taken-for-granted pedagogies, practices, beliefs and structures in institutions of higher education.

For many years now, pass rates have been a thorny issue in South Africa as the number of African students who drop-out or fail is proportionately higher than for other race groups. Drop-out and failure rates continue to be unacceptably high, costing the country millions for unrealized educational outcomes with the cost of damage to self-esteem incalculable. In 2012, Vithal and Dhunpath theorized that both sides of the equation, students and institutions were under prepared for the dynamic South African context; the former were under prepared for higher learning while the latter were under prepared for providing appropriate support and responsive pedagogies. In particular, the lecture method has increasingly come under scrutiny for its modes of teaching, language of instruction and marginalization of indigenous knowledges and by implication, contributing not only to drop-out and failure rates, but also to limiting access to higher education. The current student actions (#RhodesMustFall; #FeesMustFall) fuelled by anger, disappointment and distrust have made apparent the under preparedness of the State to support the educational aspirations of higher education students. Whilst the macro perspective looks bleak, at the institutional, faculty or module level the quest to improve both access and success continues as is evidenced by the interventions reported by various researchers.

The debate on the relative merits of discipline-specific versus generic academic literacies development has raged on since the nineteen eighties, without resolve. Advocates of generic academic literacies routinely cite student under preparedness – a product of dysfunctional schooling, which needs to be mediated, while proponents of discipline-specific literacy programmes bemoan the inadequacy of conversational literacy to enable deep-conceptual learning. The problem has become particularly acute with the imperative of providing access to the previously excluded South African students and the internationalization of higher education.

Over the years, Universities have responded with various intervention models to address the articulation gap. These include centralized

writing centres and more localized academic development support centres. To date, it appears that the only consensus on the dichotomy between generic versus discipline specific literacies is precisely that: an unhelpful dichotomy. A more useful question to probe would be about how institutions are equipped with a continuum of literacies from generic to specific to meet varying student higher education experiences and how this can be achieved not just by applied linguists but by all academics who take seriously the responsibility for literacy development.

Mabila, Gwaindepi and Musara in this edition focus on the meanings and concepts, which they argue, are lost, when teachers foreground the use of conversational language in students' descriptions of economics and business studies graphical representations. Using Cummins (2000) model of cognitively undemanding (BICS) to cognitively demanding tasks (CALP) along a continuum of context-embedded to context-reduced tasks, Mabila *et al*. contend that the Cummins' model provides a vivid explanation for the students' difficulty in using appropriate terminology and semantics and their heavy reliance on general conversational language which is compounded by the observed negative interference of the home language. The authors conclude that curriculum developers should consider integrating subject specific language courses at all levels of study throughout the Bachelor of Education programme to enable a firm grasp of the subject specific language which will enable them to filter down the correct usage of subject specific concepts to their own future students.

A bold response to the 'under prepared' stalemate is offered by Ivala, Thiart and Gachago in the article, 'Flipping the classroom … '. Ivala *et al*. convincingly argue that the flipped classroom is based on solid theoretical underpinnings (zone of proximal development, autonomous learning, peer mentoring and learning, self-directed learning, and problem solving). Despite the strong foundation and popularity amongst some students, the study found that a number of them disliked aspects of the flipped classroom. The integrity of this article and its value for those who may want to try it out is the attention paid by the authors to the critique of the approach and the limitations of its use. The recommendations made are restrained and appropriate.

It is not only the lecture method that needs to be re-appraised in the light of newer, available technologies; it is also the 'intent' of teaching. Teaching intent can be of two types (at least): to enable successful

completion of a module or qualification (outcome of teaching) and to ensure that students survive the study period (process of study). Understandably, when teaching in contexts of economic austerity with large numbers of poor students with poor academic histories, and deprived backgrounds, caring for students appears to be a natural response particularly as it is assumed to be benevolent, significant and worthy. Indeed, care work is intertwined with teaching intent; but is it possible that it can have a hazardous dimension? In the article by Bozalek, Watters and Gachago, teaching intent as care work is deconstructed to smash its taken for granted truths. Bozalek *et al.* argue that the intent of teaching can take on a dangerous kind of care, especially when it is wrapped in discourses that appear to benefit students. They contend that a misguided sense of care can be undemocratic, irresponsible and counter-productive, notably, because misguided care operates within the confines of paternalism and parochialism creating, for example, dependent individuals (paternalism) with limited global reach (parochialism). The authors have taken care to describe the conditions where paternalism and parochialism are necessary. The idea is not to reject caring for those we teach, but to be guided by a critical ethics of care so that it its hazardous effects are mitigated.

In keeping with ideas of support and innovation, Murray in his article which seeks to explore the effect of two bridging intervention programmes geared at increasing higher education access in the Faculty of Science at the University of KwaZulu-Natal uses regression adjustment techniques and a Heckman treatment selection model for bias control to show that both the programmes under investigation proved successful in improving throughput rates in the programme. The two programmes provide bridging facilities for students who ordinarily, due to their poor basic education schooling, would not be able to cope with a qualification in science. The one programme enables students to pursue a range of non-credit bearing courses in the first year, exposing students to the cultural capital and pedagogies of higher education (known as the foundational approach) while the other enables students to extend their first year of study to two years in order to assist students in managing their course-work (known as the augmented approach). For Murray, both these interventions proved critical, given the imperatives of access, and the general lack of preparedness by students coming from predominantly under-resourced township and rural schools. In order to respond to the 'question of the moment', Murray argues that higher education institutions need to be responsive to students' educational backgrounds by

offering support. He finds that while both approaches were useful, the foundational approach offered better outcomes as opposed to the augmented programme.

Paideya's article is another attempt at providing appropriate support to higher education students, this time in the discipline of Chemistry. Chemistry has an unfortunate history of a high failure rate and with massification of the higher education system the number of failures has risen concomitantly. Supplemental instruction, a student support intervention has been set up for a number of years with mixed success. Paideya's incisive exploration of the profile of students who attend the supplemental sessions in combination with the reasons they provide for attending the sessions is enlightening. The profile offered comprises the age, year of study, gender, past achievement, residence and language of instruction of those who attend the sessions. The study provides explicit evidence that the reasons students provide for attending or not are complex and multifaceted. Some reasons offered for not attending clearly expose the dimensions that are factored in the design of when and how supplemental instruction is offered. Clearly then, even when support structures are not well-attended by particular student profiles, the support should not be withdrawn as a profile is not fixed it can change as the circumstances of students change and could lead to a change in attendance patterns.

Finally, the reimagined trope is strengthened by two theoretically based articles. The first by Kruger, 'Experimenting with nomadic posthumanism …' speaks specifically to the problem of 'Man' as the progenitor of the ills that beset the planet. The roles played by the Enlightenment, philosophy, anthropology, science and psychology to propose, promote and propagate anthropocentric dominance cannot be ignored, especially when one considers that the sustainability of the planet is being compromised, that a dubious notion of social justice is employed to service neoliberal tendencies, and rampant capitalism has widened the gap between those who live well and those who struggle for survival. Care for plants and animals have been at best, relegated to the periphery, and at worst, destroyed in the Anthropocene period. The paper by Kruger is more than just a 'what if' proposal; it is a timely reminder to galvanize a movement (perhaps #HumansMustFall) to displace the dominant notion of the human as master of the environment and supreme life form and, more pertinently, to experiment with new ideas to solve the challenges in the sphere of education.

Unlike classical deconstruction moves which seek to collapse oppositional binaries such that they coincide and become one and thereby nullify the apparent contradictions, posthumanism displaces the ontological and epistemological foundations of identity as it has been understood anthropocentrically, in the process rearticulating it (identity) in relational terms. It seeks out and occupies a gaze from the interstitial spaces between, for example, virtuality and actuality, and truth and falsehood by deploying a different mind game (human needs do not supersede the needs of other life forms) and defiant logic (what is good for humans is not necessarily good for the planet/other life forms) so that an authentic, broad-spectrum social justice and ethical orientation can be (re)asserted. Those who are concerned with solving problems in education are advised to engage with this vibrant invitation to experiment with nomadic posthumanism.

Since time immemorial, learning has been highly valued. The displacement of informal education by a systematized, centralized and formalized education controlled by the State (even private education has to subscribe to state regulations) has always been cast in positive ways, even when there is much anecdotal evidence to the contrary. The intention is always assumed to be good, to produce educated persons leading to improved lives. Whether one refers to basic or higher education the confidence and belief in education to deliver the promise of a better future has not wavered. In fact, there is greater demand for access to higher education. It is not surprising, therefore, for relying on the intensity of the gaze on the scholarship of teaching and learning to provide insights. The scholarship of teaching and learning is relied on to improve, question and challenge what, how and why we teach or learn in the ways we do. But are we doing enough, especially given our current pressures?

As a response to the current endeavours and practices of teaching and learning, Olivier's article is a *tour de force* of theoretical musing, logic and deliberation. He starts at the beginning: What are the tacit influences on teaching and doing research? He makes explicit the links between communication action (strategic or communicative) and interests (technical, practical and emancipatory) and then draws on Lacanian discourses to explain the choices made. Further linkages are made by turning to Derrida and Ranciere to deepen explanations of the tacit influences on our teaching and research. We believe that the strength of the article lies in the deployment

of a range of theoretical/philosophical perspectives and concepts which in turn reflect the range of interwoven communication-interest combinations.

It is heartening to note that pedagogy, practice, policy and probing continue to evolve in higher education. It is also heartening that scholarship on these issues is not distant from the very difficult and complicated conversations demanded by our students. While these efforts highlighted in this special issue are commendable, much more still needs to be done. We need more voices, new ways of thinking and a reinvigoration of the activist spirit among academics. There is critical need to close the gap between 'them' (students) and us. We need to take seriously international imperatives while understanding the important questions presented by our context and of our time. An academic corps divorced from the daily realities will not survive the pressures of our time. It is time for an academic project that takes seriously questions around decolonization and internationalization in the context of systemic change, curriculum reform, professional development and quality promotion in higher education.

References

Chisholm, L. 1992. State Policy and Youth Unemployment in South Africa, 1976–1992. Paper Presented to the Economics of Education Association Conference, University of Cape Town, Cape Town, 04–05 September.

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

Dhunpath, R. 2003. The Corporatisation and Professionalisation of NGOs in South Africa. *International Journal of Knowledge, Culture, and Change Management* 3:1109-1124.

Dhunpath, R. & R. Vithal (eds.) 2012. *Alternative Access to Higher Education: Underprepared Students or Underprepared Institutions*. Cape Town: Pearson Publishers.

Jansen, J. 2015, October 9. Quiet Contemplation on the New Anger: The State of Transformation in South African Universities. Available at: http://bookstorm.bookslive.co.za/blog/2015/10/26/gangsterism-masquera ding-as-progressive-politics-jonathan-jansen-on-the-new-anger-at-sa-universities/.

Rubby Dhunpath, Nyna Amin & Thabo Msibi

Jansen, J.D. 2009. _Knowledge in the Blood: Confronting Race and the Apartheid Past_. Cape Town: UCT Press.

Pinar, W. 2012. _What is Curriculum Theory_? New York: Routledge.

Pinar, W. 2009. The Test our Generation Must Pass. Available at: http://csics.educ.ubc.ca/Projects/2010/Pinar_IAACS_09.pdf.

Rawatlal, R. & R. Dhunpath 2014. Stretching the Undergraduate Curriculum: A Compensatory Response to Curriculum Modelling? _Alternation_ 12:171-179.

Steiner-Khamsi, G. 2013. Cross-national Policy Borrowing: Understanding Reception and Translation. _Asia Pacific Journal of Education_ 34,2:153-167. Available at: https://vpn.ukzn.ac.za/proxy/ http/www.tandfonline.com/doi/abs/10.1080/02188791.2013.875649. (Accessed on 13 November 2015.)

Youdell, D. 2006. _Impossible Bodies, Impossible Selves: Exclusions and Student Subjectivities_. Netherlands: Springer.

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

Nyna Amin
School of Education
Edgewood Campus
University of KwaZulu-Natal
Amin@ukzn.ac.za

Thabo Msibi
School of Education
Edgewood Campus
University of KwaZulu-Natal
msibi@ukzn.ac.za

Nostalgia, Anxiety and Gratification: Narratives of Female Staff in a Merged Higher Education Institution

Daniela Gachago
Zilungile Sosibo
Eunice Ndeto Ivala

Abstract

The merger processes that the South African Higher Education system went through over the last 15 years are well documented. There is less research exploring the personal experiences of staff members during and after the merger and in particular the experience of female staff members. This study explored how female staff members perceived of the merging of a tertiary institution in the Western Cape. Narratives of eight academics and administrative/support staff members collected in four digital storytelling workshops form the basis of this study. Through a Dialogical Narrative Analysis lens two 'core narratives' emerged. *Stories of nostalgia*, mourning and struggling recorded the pain of letting go of the old culture. *Stories of opportunity and gains* told of those staff members who embrace the new culture and its emphasis on promoting a research career. Both core narratives reveal a sense of pain and loss. The institutional culture portrayed in the narratives of these women enculturates women into a hegemony of white male academia, exemplified by notions of solitary advancement, ambition, isolation, focus on research and lack of recognition for teaching. There is a need at the institution to engage with the collective narrative emerging from these women's stories to address the way women experienced an institutional merger and engage in a conversation on how to define academic excellence at the institution.

Daniela Gachago, Zilungile Sosibo & Eunice Ndeto Ivala

Introduction

A significant legacy of apartheid is a fragmented and unequal education system based on ethnic separation and discrimination. After 1994, the new government committed itself to equity and redress as a cornerstone principle for all education policies (Waghid & Engelbrecht 2002). Government proposed restructuring the institutional landscape of higher education (HE) in South Africa in 2002 as a top-down government-driven vehicle of transforming society (Kamsteeg 2008). The objective of this restructuring was the development of a HE system that would deliver effectively and efficiently and that would be based on equity, quality, excellence, responsiveness, good governance and management.

As part of this process, the number of universities was cut from 36 to 23 through incorporations and mergers. This was met with strong resistance from various stakeholders such as management, staff and the unions who perceived these mergers as driven more by a need for efficiency and control than a transformative agenda (Jansen 2003). International research (Wyngaard & Kapp 2004) and national authors such as Jansen (2003) use strong words when reflecting on the traumatic effects that the mergers had on involved staff. Literature on institutional mergers and lessons learnt in South Africa from a human perspective are scarce (Botha 2005; Hay & Fourie 2002; Kamsteeg 2008). There is even less research on the effect of these mergers on the specific sub-groups, who should have benefitted most from mergers which were concerned with issues of redress and transformation, such as female staff and students, staff and students of colour and staff and students with disabilities (Hay & Fourie 2002; Wyngaard & Kapp 2004).

The merged HE institution under examination was constituted in January 2005 as result of a merger between a number of institutions with students and staff from different racial and socio-economic backgrounds. Consolidation of different institutional systems was of primary concern to the institution. Less importance was given to marrying various organizational cultures and ensuring that staff and students embraced the similarities and differences that existed between them. This year (2015), this institution is

celebrating its 10th year merger anniversary. In the context of these celebrations, we found it essential to engage in a critical study aimed at exploring how female staff members, both academic and support, experienced the merger process and its effect on their lives 10 years later.

The purpose of this study was to investigate how female academic and administrative staff members perceived of the merger process through the stories they told during digital storytelling workshops. The research question thus was: How do female academic and administrative staff members experience the merged institution in which they are employed?

The structure of the paper is as follows: we first introduce a literature review on the effects of merger from a human perspective, with a particular focus on the South African HE experience. A discussion of the third wave feminist perspective and Fraser's participatory parity within the context of social justice as theoretical lenses will be presented, followed by the methodology, dialogical narrative analysis and presentation of findings. Discussions and conclusions complete the paper.

Literature Review

Apartheid affected every facet of South African life: not least education. Separate education departments, governed by specific legislation along racial lines, reinforced divisions in the education system (Engelbrecht 2006; Malherbe 1977). After the democratic election in 1994, a new democratic education system was needed: one which ensured equality in all aspects of education (Sayed 2000). In December 2002 the then Minister of Education, Professor Kader Asmal, announced that the Cabinet had approved the final proposal for restructuring the institutional landscape of HE in South Africa, confirmed in terms of the Higher Education Act in 2003 (Government of South Africa 2003). There are a number of excellent research papers detailing the historical context of these mergers (Seehole 2005; and Chetty & Merrett 2014). It is beyond the scope of this study to provide the history of the merger processes in South African HEIs. This study focuses on the experiences of the merger process from the perspective of female staff at a single merged institution.

Researchers warn of the devastating effects that mergers have on staff and students. Price (1999: 39) states that executives involved in mergers

and acquisitions often 'ignore the people issues at their peril' and that 'issues of culture, values, behaviour and working styles should be carefully managed from the very beginning of the process'. Internationally, the merger literature is one of trauma. Some of the words used to describe the effects of mergers on staff, as cited in Botha (2005: 276), are: 'traumatic, disruptive, distressing, painful, uncertainty, loss in commitment, dampening in work motivation, shock, anger, disbelief, depression, anxiety, disappointment, disillusionment and withdrawal' (Crouch & Wirth 1991: 3, 4);'emotionally exhausting' (Brousseau 1989: 72); 'loss and betrayal' (Galosy 1990: 90); and 'turmoil, confusion, low morale, low productivity and absenteeism' (Greengard 1997: 53,55). South African authors allude to the traumatic effects that mergers had on staff and students. Jansen (2003: 43), as an example, mentions that 'the impact of mergers on staff, in all cases, has been devastating for the emotional and professional lives of all staff, at all levels'.

Several studies have emphasised how mergers in South African HEIs impact on employees. Hay and Fourie (2002) focused on the pre-merger study on staff experiences. Wyngaard and Kapp (2004) conducted a qualitative analysis of staff merger experiences collected during a workshop with four Education Colleges in the Western Cape. De Lange and Olivier's (2008) study focused on in-depth interviews with staff at one merged institution. Reddy (2007) conducted a quantitative study of staff perceptions at a merged institution. What these studies have in common, is a a highly critical assessment of the various merger processes emphasizing the lack of management, communication and the non- participatory way in which these mergers were conducted. Wyngaard and Kapp (2004: 193) described the merger process of two non-named Technikons as follows (our emphasis added):

> The process was *distressingly messy* with evidence of political machination operating at the highest level of management. *There was no capacity building or empowerment of staff.* The process was characterised by 'jerkiness' (sometimes moving along fine, then coming to a halt for some time and then continuing again). The merger was declared on the 1 April (another ominous sign). […] *The process was characterised by a lack of sensitivity for equity and diversity and an absence of a business plan.* This resulted in staff strikes. Lately an Office of Change Management has been

established, the effects of which have not yet been apparent. A new council has become operational and there is some hope for a vision, mission and business plan.

This negative description highlights lack of proper management of the merger, messiness and in particular lack of support and recognition of the needs of diverse staff and students in this transitional period. Reddy (2007: 500) summarizes: 'poor communication, top-down management style, no participative decision-making, lack of extrinsic motivation, decreased job satisfaction, and the absence of institutional loyalty'. Similarly, de Lange and Olivier (2008: 60) conclude their paper by stating that*:*

> We have, however, seen that the academic staff most often felt that they had to fend for themselves as the management in the higher education institution did not fulfill their side of the deal. This becomes clear in the apparent mismanagement of the incorporation, including the lack of communication, consultation and ownership, along with its psychological consequences, clearly affecting the functioning and well-being of academics in the workplace.

These disturbing findings urged us to explore how the staff members at the institution studied, and in particular, how female academic and administrative/support staff reflected on the merger, 10 years after it happened.

Theoretical Framework

Our study of women's experiences of a merger draws upon feminist theory at the intersection of critical race and queer theory. Within feminist epistemology the emphasis falls on personal narratives to understand female experiences. In particular, when it comes to understanding the complex dynamics of oppression, sharing personal stories in women collectives have a long tradition in feminist thought (Haug 1992; hooks 2000; Romney, Tatum & Jones 1992).

Feminist theory has its roots in women's liberation (hooks 2000). Over time, its central tenet has become the challenge to, and a critical and

radical transformation of, asymmetrical and dominant power relations across the world. Chaudry (2009: 138) defines the feminist project as 'the impulse to speak subjectivities into existence in order to voice that which has been forbidden, repressed, or pushed to the margins by patriarchal codes of thinking, language, and representation'. However, to define feminist theory as focusing only on oppressive relationships between men and women is to reduce and distort its fundamental basis. According to Manicom (1992: 366), feminist epistemology has:

> a political intent and visions of social change and liberation-not simply with an aim to have (some) women 'make it' in the world of (some) men, but to learn to act in and on the world in order to transform oppressive relations of class, race and gender [...] not to change women to fit the world, but to change the world.

Feminist theorists are concerned with intersections between race, class and gender, rather than simply questions of women assuming predominant power positions occupied before by men. hooks (2000: 19) defines this as a 'simplistic definition of women's liberation'. She states that:

> Implicit in this simplistic definition of women's liberation is a dismissal of race and class as factors that, in conjunction with sexism, determine the extent to which an individual will be discriminated against, exploited, or oppressed.

We draw in particular on third-wave feminist theory: the intersection of critical race and queer theory (Schippers & Sapp 2012), which deconstructs stable notions of women/men. Defying fixed gender identities, third wave feminists are concerned with how terms such as 'gender' are discursively constructed (Butler 1999, 2004). Schippers and Sapp (2012: 30) describe third wave feminist theory as 'corporeal performance of a discursively produced and contested set of criteria for being a woman within the structural conditions of gender inequality'. Second wave feminists critique femininity as an embodiment of male domination. Third wave feminists regard femininity as a set of cultural and social ideals: what a girl or a woman should do. Power dynamics are not functions of males dominating females, but relations between people; constantly re-negotiated and re-established, as

hooks (2000: 27) states: 'When we cease to focus on the simplistic stance 'men are the enemy', we are compelled to examine systems of domination and our role in their maintenance and perpetuation'. In similar fashion Schippers and Sapp (2012: 32) urge us to examine notions such as gender and femininity, for their subversive potential to counter hegemonic constructions:

> Third wave feminist perspective rejects the assertion that men possess power and women are subject to and/or lack power. Instead, third wave feminist perspectives conceive of power as relational, having multiple tactics and strategies, and as available to subordinate groups and not just the possession of dominant groups.

An important concept for this study is feminist philosopher Nancy Fraser's (2005, 2007, 2008, 2009) normative framework on Social Justice. Fraser sees a socially just society as one where people (men and women) interact on equal terms. According to her, 'justice requires social arrangements that permit all to participate as peers in social life': a process she refers to as participatory parity (Fraser 2007: 20). Fraser defines three levels of this participatory parity: economic, cultural and political. For our study, the cultural level is of particular interest. She argues that there is a need for social arrangements that allow for equal respect and equal opportunities to achieve self-esteem for all members of society. Obstacles to cultural participatory parity are hierarchical-status order and institutional patterns of cultural value which attach status to certain people and activities. Fraser explains that: 'people can also be prevented from interacting on terms of parity by institutionalized hierarchies of cultural value that deny them the requisite standing; in that case, they suffer from status inequality or misrecognition' (ibid). Fraser uses the terms *recognition* and *misrecognition* in this context.

Methodology

Narrative inquiry, the analysis of narratives, has gained an increased following: telling and listening to stories provide comfort and the possibility of making meaning of human experience (Kohler Riessman 2008). There are many approaches to narrative inquiry and many definitions of narratives. Storytelling in this investigation is seen as social practice, co-constructed

within a specific socio-cultural and historical context; carrying notions of power and privilege; having capacities/being performative; and ultimately with the aim of disrupting norms and hegemonic discourses. Storytellers appear as multiple, disunified subjectivities involved in production of stories, rather than singular, agentic storytellers: 'the storyteller does not tell the story, so much as she/he is told by it' (Squire *et al.* 2008: 3). In terms of differentiating stories and narratives, the term *stories* is used for stories written by study participants, while *narratives* are broader narrative genres, resources, that these storytellers draw from in their stories. There seems to be a particular interest in the use of personal narratives to understand merger experiences of staff and management, both internationally (Brown & Humphreys 2003 or Vaara 2002) and locally (Kamsteeg 2014, 2008).

This study focuses on narratives collected in four digital storytelling workshops held in 2014 at the institution in which staff members involved in the study were employed. All participants were employed at one of the institutions that became part of the merged institution. A digital story is a personal narrative which combines voice, sound and images into a short video developed by non-professionals. This study is influenced by the digital storytelling model developed by the Center for Digital Storytelling (CDS) in Berkeley, USA. The CDS foregrounds communal sharing of stories in a story circle (Lambert 2010). Their model of creating digital stories is specific and involves a workshop running over several days where participants collaboratively develop their stories. Communal sharing of stories is the main element in the process of digital storytelling; another step in the digital storytelling process is writing of the story, the script that forms the basis of a digital story.

Participation at these storytelling workshops was on a voluntary basis: each workshop attracted approximately five participants. Three workshops were held with academic staff members and one with support staff members. Workshops lasted one day and participants shared their stories in the story circle. The digital story was developed in follow-up sessions on a one-to-one basis as collaboration between the participant and the digital-storytelling facilitators. In total, 20 digital stories were created, 17 by female staff members and three by male staff members. Of the 17 female staff members, 15 agreed to be part of this research and of these 15, eight had been with the institution since the time of the merger, while seven joined after the merger in 2005. The eight *written scripts* developed during these digital

storytelling workshops by female academic and administration staff members who had been through the merger process formed the focus of this study. Table 1 shows demographic details of each of the eight storytellers, the title they had given their story, the word count of each written script and the core narrative/typology each of these stories was following (resulting from the analysis of these stories). The word count of each story ranges from approximately 400-600 words – slightly longer than the traditional digital stories, which are usually of a 300-500 words' length. Examples of these stories can be found below. Each of these stories is a reflection of how the narrator experienced the merger condensed into a digital story, which is usually approximately 3 minutes long. Storytellers had to be selective about the story they told, what they focused on and how they structured their stories.

Table 1: Demographic background of storyteller/participant, title of story given by participant, word count, and core narrative/typology stories were the following:

Story	Demographics of storyteller	Title of Story	Word count	Core narrative/ typology of stories
Story 1	Academic (White)	Late Bloomer	550	Stories of opportunity
Story 2	Support (Coloured)	Getting Unstuck	485	Stories of opportunity
Story 3	Academic (Indian)	Space for Grace	553	Stories of opportunity (with elements of nostalgia)
Story 4	Academic (Coloured)	New Beginnings	586	Stories of opportunity (with elements of nostalgia)
Story 5	Academic (White)	The fragility of the transformation process	508	Stories of opportunity (with elements of nostalgia)
Story 6	Support (Coloured)	Becoming a Number	426	Stories of nostalgia
Story 7	Support (Black African)	My merger happened in 2010	569	Stories of nostalgia

	Academic (White)	The Pow in Power	435	Stories of nostalgia
Story 8				

To analyze these eight written stories, we employed dialogical narrative analysis (DNA), an approach developed by Arthur W. Frank (2010, 2012) to explore how illness stories told to him in various support groups affected people's lives. DNA is less concerned with the meaning of stories, the usual focus on narrative inquiry, and more with the 'types of work that stories do and how they do it' (Frank 2010: 120). DNA highlights the performative nature of stories, which are seen as having capacities, 'they are made of air but leave their mark' (Frank 2010: 43). Frank regards stories as actors who can have socio-material consequences on the storyteller. The telling of different stories can have different outcomes for the storyteller. Frank aims at building typologies of stories. In his work with long-term medical patients, he encountered three core narratives people drew from to construct their stories: 'the restitution narrative, the chaos narrative, and the quest narrative' (Frank 2010: 118). While he is careful to warn that none of these core narratives is final and that a good typology should always be open for dialogue and critique, he argues that 'people use typologies as guides to listening and to storytelling'(119).

Frank (2010) suggests the following five analytical foci for DNA, which we have used to analyze the eight stories collected for this study:

1. **Resources**: What narrative resources can a storyteller draw upon? What resources shape how the story is being told and comprehended? How are resources distributed?

2. **Circulation**: To whom is the story told, who can understand the story and who can't?

3. **Affiliation**: Who does the story render external or other to that group?

4. **Identity**: What identity is performed/constructed? What are the possibilities to change or remain the same? What identity is claimed, rejected, experimented with?

5. **What is at stake?**: Who is made more vulnerable by the story?

Ethical clearance was sought through institutional channels and all participants gave informed consent to be part of the research and for their stories to be included in the research. The names of the storytellers were concealed.

Findings

This section of the paper reports on the findings from analysis of the eight stories written during the digital storytelling workshops along Frank's five analytical foci for DNA, as listed above. The **narrative resources** from which stories were drawn vary: some stories focus on women's professional lives, others integrate aspects of their personal lives. Not all stories deal explicitly with the merger, although all stories are affected by the merger. In *Late Bloomer* (story 1) for example, the storyteller tells a story of her often painful transformation from housewife, mother and artist to first teacher, academic and scholar through her husband's betrayal and their consequent divorce. It is a story about her struggle for permanency and other professional upheavals experienced through the merger process. *Getting unstuck* (story 2) is a reflection on the storyteller's personal and professional growth in the merged institution, by taking the decision to embrace change and making the most out of it, such as taking up the opportunity to continue her studies. *Space for Grace* (story 3) is a story of redemption, in which the storyteller reflects on the taxing expectations that a young female academic feels at the beginning of her career, her realization that her single-minded focus on career advancement has a negative effect on her engagement with students and her resolve to challenge this system. *New beginnings* (story 4) is a story of political awakening of a young academic, her experience as 'quota' black and the growing conscientization and understanding of her own political and ethical values, which eventually makes it impossible for her to continue her work at the institution. *The fragility of the transformation process* (story 5) is a critique of academia, with its greed for credentials and a story of loss of privilege as experienced by a white academic after the merger. It is a story of reverse racism, loss of voice, critiquing the transformation process for favoring race before teaching quality in new appointments. *Becoming a*

number (story 6) is the most painful story, a heart-wrenching account of somebody's loss of professional family, status, recognition – the experience of losing one's humanity, in the context of office politics, conflicts and power plays as experienced in the merged institution. In a similar fashion, *My merger happened in 2010* (story 7), mourns the loss of status, comfort and recognition that the merger and its physical reshuffling of staff entailed. Finally the *Pow in Power* (story 8) reflects on the debilitating increase in conflict and arguments at management level, the continuous fight for recognition of issues of teaching and learning against the backdrop of neoliberal talk on efficiency and outputs as experienced in the merged institution.

From the way we sequenced these stories, two core narratives emerged, which we decided to term *stories of opportunity* and *stories of nostalgia* (see Table 1). See inserts below for examples of these stories. Shuman (2005: 62) defines *stories of nostalgia* as emblematic stories which 'are allusions to an idealized period that the stories de-historise and restitute in a particular relation between the present and the lost ideal [...] the past is coherent while the present is fragmented'. We found this definition particularly useful, since for most of the storytellers of this category of stories the present seems to be difficult, if not traumatic, and the merger experiences prove to be a turning point in their institutional careers and a turn towards a space that was experienced as negative, leaving them with a strong yearning for an idealized past. While the storytellers of what we called '*stories of opportunity'* also regard the merger as a turning point in their careers, their stories reflect a tentatively positive outcome to their post-merger experiences. Not all stories are firmly positioned either in the opportunity or the nostalgia core narrative; in some cases they represent both elements of nostalgia and opportunity. While reflecting on the opportunities that the new research culture awards them, some participants yearn for a simpler past.

With regard to **affiliation and circulation**, to whom these stories are told and who is made internal and external to these stories, in the stories of nostalgia we found a strong sense of bereavement; grief for the loss of family, intimacy and closeness that came as a result of the merging of the institutions. This is depicted in narrative 6 where the storyteller says: 'When I hear the word merger, I think about the family I lost.' Within this core narrative, storytellers still affiliate and identify with their pre-merger colleagues, failing to build new communities within the merged institution. They position

themselves as 'external', isolated from new colleagues, non-recognized and bullied, as shown in narrative 7: 'I saw myself as outsider, I didn't belong. It was a message that was sent to me and which told me that I was just not good enough'.

Within the stories of opportunity, participants establish new networks, drawing from supportive colleagues and mentors to further their careers and distance themselves from 'negative talk' circulating in the merged institution. In these stories, the storytellers have powers in the institution and find a mentor or *more knowledgeable other* to support them personal and professional development, as seen in narrative 1: 'When [name of dean] was appointed, she encouraged us to improve our qualifications and get involved in research. I became part of her study group and started writing and presenting papers at national and international conferences'. Often these mentors are experienced female academics who take junior women under their wings to support them in their academic growth.

Analysing the stories in terms of **identity and change**, the stories of nostalgia do not leave much room for change, while in the stories of opportunity, storyteller create the change for themselves. The identity claimed in the stories of nostalgia is one of merger victim, an identity characterized by loss, disempowerment and stalled growth.

LATE BLOOMER (story 1)

Growing up in the Afrikaans culture, my 'career' after I married was to bring up my two children. I sang semi-professionally and worked in my own ceramics studio. However, a sense of calling drove me to continue studying and pass my BA. At the age of 40, after 17 years of marriage, my husband left me for his young secretary. I was devastated and suddenly forced to review my role as woman and mother. It was now up to me to be the breadwinner in my family. My teaching qualification allowed me to enter formal employment again. But from being my own boss, going back and dealing with the challenges of being employed under a headmaster, was not always easy. After six years of teaching, in 1998, I started lecturing art education at the teachers' training college in [campus 3] in a permanent position. I loved my job and started to feel that what I was doing was what I had been created for.

But then from 1999, when the first merger with the [institution 2]

---

was announced, to 2003, I was shaken up again. We had to reapply for our posts, but our qualifications were never really considered. What counted were recommendations of the former rector, tainted with nepotism. From my permanent position I now found myself working on a contract. This uncertainty broke down my immune system and I became ill with tuberculosis. At the worst I weighed only 49kg. For six months I had to queue at the clinic every month for medication, but fortunately, I recovered completely.

In 2003 all contract staff was appointed in permanent positions, pending the second merger with [institution 3]. This was a relief, yet it put me on a par with younger staff members who had never taught in permanent positions. This was unfair, but I never gave up. Instead of becoming bitter like many of my colleagues, I decided to take hold of every opportunity I could get. When [name of dean] was appointed, she encouraged us to improve our qualifications and get involved in research. I became part of her study group and started writing and presenting papers at national and international conferences. I enrolled for every training opportunity and workshop that I could. After gaining my ATCL in singing in 2005 I registered for my M Ed and passed cum laude in 2008. My research continued and I received my D Ed in September 2013.

I became the chairperson of [cultural institution]. As part of my outreach to the community, I designed a Service Learning project in which my students participate. All these activities, which were supported and encouraged by the dean and senior staff, helped me get my ad hominem promotion to senior lecturer, although some cynics said that no white person would ever get promotion at [merged institution].

Although I am a middle-aged person, I feel as if my career has only started and I wish I could carry on working for many more years. For me what I am doing is not just a job: I look forward to every day and know I am where I am meant to be, doing what I am supposed to be doing.

Storytellers position themselves as tired, battle scarred or hiding in their classrooms. The oppressor is a generic, unnamed, faceless 'other', such as 'pool of new faces' (story 6) or 'senior managers' (story 8) in general. The identity that storyteller*s* claim for themselves and experiment with in the stories of opportunity is a strong one, based on a distinct drive to take up opportunities for academic self-development and change: it is an understand-

ing of the individual's role in this self-development. In the stories of opportunity and in the stories of nostalgia, which have elements of opportunity, these opportunities are linked to increased access to funding for research, encouragement to pursue an academic career through further studies and support in becoming a scholar. Many of the stories of opportunity are educative stories of unlikely success, such as the 'Late Bloomer' story, which promotes the idea that it is never too late to start an academic career. Stories of opportunity render individuals/groups 'external' that resist change: those who are bitter, cynical (story 1), do not or cannot believe in change and are stuck in an 'us versus them mentality' (story 2). In stories of opportunity, academic change and growth are possible resulting in academic progression and promotion, even if it has negative side effects, as reflected in story 3: 'What I lost was patience for my students. To my over-stressed eyes, they had become disrespectful and demanding. They no longer seemed grateful.'

If the storyteller faced oppression, it was a distinct 'other', named in their stories as a Head of Department, Dean or the rector (for example stories 1 and 4). The identity in stories of opportunity is one that challenges, resists, claims their own ways based on storytellers own values and judgments, their own political project, even if it goes against the dominant position at the institution, as shown in story 4: 'I know why I am here, I know what I would like to contribute […] I remind myself daily, to always use my voice wisely and not loudly, to have it heard despite the noise and never have it silenced through the might of others'.

What is at stake in these stories? Who is made more vulnerable? Across the eight stories, storytellers shared stories that were uncomfortable and touched on issues that were usually silenced in the merged institution. They reflected on painful moments in their academic careers, where they realized their own vulnerability and the vulnerability of their colleagues, students and the institution. In their honesty, in what they revealed, they opened themselves up to scrutiny and uncomfortable questions. Storytellers were vocal about institutional misgivings, pointing out moments of corruption and unethical behaviour. Two stories (1 and 4) openly address nepotism and corruption, both with the consequence of the storyteller either deciding to leave the institution (returning at a later stage) or temporarily leaving because of an extended illness.

For some, what is at stake is their own personal mental health, as shown in narrative 3: 'Those years are truly a blur. I feel like I was on

autopilot. You do, you say, you act…year after year…' Both academic and administration staff talk about their tiredness, their battle scars. In narrative 6, an administration staff member says 'The continuous conflict and power play make me tired, angry and frustrated. I struggle to wake up to come to work, when I remember I have to go through the front gates of [the merged institution]'. This is echoed in narrative 8, by an academic: 'When I see pictures of myself now, I am tired and battle scarred.' For others it may be their academic career that is on the line, their voice being silenced as depicted in narrative 5: 'As a white woman, I am not allowed to have a voice'.

In order to survive in this environment - often described as toxic due to, for example, its competitiveness, corruption, negativity, gossip, etc. - women in these stories report how they appropriated characteristics of white males (as so beautifully described in narrative 8: 'I put on my battle armour'). Within the patriarchal context in which the women find themselves, there seems to be low recognition of teaching and learning in favour of research (for example stories 3, 5 and 8).

Participants feel that they have to abandon roles associated with femininity and assume male-dominated roles of immersing in research (i.e. focusing on publications and academic career progression). Stories show the pitfalls of adhering to these societal norms, such as being overwhelmed with a sense of guilt when they 'act like men' as opposed to enacting as caring, nurturing self that is associated with femininity. Story 3 is a powerful example of how being overstretched with teaching and research responsibilities makes the participant misrecognize her students' vulnerabilities and needs: 'I keep thinking: Good teaching is more than just good practice and innovation. I ask myself: How have you impacted them? Did you show them love, did you show you cared? Are you able to give them truth, with grace?'

Space for GRACE (story 3)

I submitted my PhD in June 2002, and started my first lecturing position at [institution 2] in the same month. I epitomized the eager, excited, passionate lecturer. I loved teaching and I loved my students. I was grace. But soon I found out: it was not JUST lecturing, it was marking, and administration, and research, and being a supervisor, and publishing. I kept saying to myself... you are too young to be bogged down by all this responsibility!

I don't remember much between 2006 and 2013. I remember teaching more, acquiring more administration tasks, co-ordinating and teaching on five BTech distance programmes and being away from home up to 20 weekends per year. I remember having between 8 to 11 postgrads during any given year and I remember the pressure to publish. I remember my HoD giving me more and me accepting the more. I was single with no children or husband... so I coped... heck, I excelled... and slowly, [merged institution] became my substitute... for just about everything. Those years are truly a blur. I feel like I was on autopilot. You do, you say, you act... Year after year ... you do, you say, you act.

Even as my time became saturated, I still loved standing in front of the classroom. What I lost was patience for my students. To my over-stressed eyes, they had become disrespectful and demanding. They no longer seemed grateful. They demanded so much time... and time, time was my most precious commodity.

On a Tuesday morning in 2007 a female student came in to my office to explain why she did not write my test on the Monday morning. I had just finished teaching […] to the [campus 1] group, and was about to get into my car to drive to [campus 2] to teach again. I DID NOT HAVE TIME TO SET UP ANOTHER TEST. YOU KNOW THE RULES... where is your medical certificate, I blasted. I ranted and moaned... and when I paused, I thought to ask why. I remember how frightened she looked when she said to me, 'Ma'am, I was raped this weekend....' I made all the right noises, said all the correct sympathetic phrases... left her, got into my car, and cried. Grace was gone.

I wish I could say that that was my turning point, but it was not. I know I do a good job as a teacher; last year I won the Faculty award for outstanding teachers. But am I doing the BEST I can? I keep thinking: Good teaching is more than just good practice and innovation. I ask myself: How have you impacted them? Did you show them love, did you show you cared? Are you able to give them truth, with grace?

I have worked hard for the past ten years, and I have been rewarded for it. But when I worked TOO hard, it was not just me who paid the price; it was my students.

For the past few months I started praying again. Lord, give me a love for my students. Let me care for them, let me show them respect, let me treat them as whole human beings, with a life and family. Let me see them as a

complete unit. Through love, grace will flow.

Discussion and Conclusions

This study set out to explore female staff members' experiences of a merger by analysing eight written stories developed in a series of digital storytelling workshops. Two 'core narratives' or typologies emerged: *stories of nostalgia*, mourning and struggling to let go of the old culture (in the pre-merger institutions) and *stories of opportunity* of those staff members who embraced the new culture (in the merged institution). This echoes findings of other studies, such as Brown and Humphreys (2003) who found *epic* and *tragic* narratives of merger in their institution. In our study the old culture was described as one 'big family', community, solidarity, emotional attachment and a clear sense of belonging. The new culture was perceived as one of personal growth and seemingly endless opportunities for those who took them and were prepared to extend themselves: also as a competitive and unhealthy work environment. Opportunities were linked to increased access to research funding, support in furthering their studies, or presenting at local and international conferences. What is interesting but at the same time disheartening is the lonely path that some women traversed in these stories. This situation emphasized the pain associated with the merger process mentioned earlier in the literature review (Botha 2005). This pain is most strongly felt by for those who found themselves in environments that were alien to those they were accustomed to prior to the mergers.

The findings showed the complexity of the intersectionality of gender, race and class. Women of black, white and coloured racial backgrounds told stories of nostalgia and opportunity. White and women of colour mourned their loss of voice. Other white and women of colour found their voice. In all stories, there is a dichotomy of subjugation and victory, an indication that women did not experience the merger process the same way. This illustrates that there is no homogeneous 'female' experience, and points to the interrelatedness of sex, race and class oppression and the importance of recognizing the ambiguity inherent in complex social processes such as mergers (Vaara 2002). It seemed more difficult for administrative/support staff to see opportunities for personal development than for academic staff, the latter who are strongly encouraged to develop their scholarly careers, in

line with the institution's attempts at repositioning itself as a University. This mirrors Reddy's (2007) findings, that job satisfaction in a merged institution seemed to be higher at his institution for academic staff than for admin/ technical staff or Brown and Humphrey's study (2013), where management told epic stories and subordinate staff tragic stories of the merger.

As a collective, these narratives unearth underlying structural dynamics of oppression at the institution (Haug 1992). They provide a starting point to understanding a potential misrecognition (Fraser 2005, 2007, 2008, 2009) of female staff members at the institution in the context of the merger process. The focus on research and pursuing one's academic career collides with the need for supportive and caring teaching. This polarization can lead to an oppressive hegemonic working environment. Other studies conducted at the institution have previously found that staff and students are rendered vulnerable to exploitation and manipulation (Hassan 2013).

On a positive note, what emerged in some of the stories was that women found ways not only to cope, but more importantly, to resist and rise above the hegemonic situations and structures that threatened to disempower them. Individual coping comes at a cost (such as having to leave the institution, or experiencing health problems).

BECOMING A NUMBER… (story 6)

When I hear the word merger, I think about the family I lost. I came to Cape Town in 1986 to study at the [institution 1]. Coming to Cape Town was a big thing for me, because I was brought up in Afrikaans culture in a small town and was scared of what to expect of the big city.

While I was studying, I started working as a student assistant in the [name of department]. We were just a handful of staff and I was very happy and felt right at home. I was never treated as if I was less or knew less than anyone else.

We all knew each other at [institution 1], you weren't just a number […]. I felt I belonged to the [institution 1] family, from the gardener to the rector… we all knew each other's names. I can't explain the feeling that came over me when passing through the front gate knowing that **'this is where I belong'.**

Then suddenly talks about a merger between the '[institution 2]' and the '[institution 1]' started. While we were still hoping this would never

---

happen, decisions were taken and there was no stopping this idea of a merger! 2004 was the last year of [institution 1]… We had our last family get together in the CTICC with a big bash! We were all dressed up for the occasion but in our hearts we knew nothing would ever be the same again.

And in 2005 which was the beginning of the two merged institutions and we became [merged institution] - everything changed! We called it the 'Big Take Over'. I felt like I was drowning in the pool of new faces, new colleagues. The bickering, backstabbing, gossip and politics got worse day by day. After working at this institution for almost 25 years, I felt like people were treating me like a child. I felt not recognized or taken note of, just because I didn't have all the Educational credentials behind my name. I learnt not to be fooled by the smiles or the friendly greetings, if I got greeted at all.

The continuous conflict and power play makes me tired, angry and frustrated. I struggle to wake up to come to work, when I remember I have to go through the front gate of [merged institution]. I no longer feel part of this place with its toxic environment … I just know that I am *A NUMBER*.

These narratives show is that there is a need for collective agency at this institution, for female solidarity and support. We argue that the promotion of change should be a collective and relational responsibility, emphasizing the importance of supportive leadership and women's networks for an experience where female employees can be free to be who they are. Briskin (1990) reminds us that women cannot effect this radical transformation in isolation but need to forge networks and alliances with men and women across race and class lines. What makes third wave feminist theory useful in this context, is its concern with a more fluid view of gender, race and class, an understanding that how we define femininity and masculinity is not cast in stone (Butler 1999; 2004). Women have the agency to disrupt and renegotiate these hegemonic discourses while being conscious of their own roles in perpetuating certain oppressive standards and practices.

No merger is painless and the literature on mergers reminds us that it can take up to ten years for the wounds to heal and for the new institution forged from previously autonomous identities to operate as a cohesive and well integrated whole (Harman & Meek 2002). It is thus imperative for merged institutions to recognize the importance of addressing the merger effects on staff. While the institution in which participants in this study are

employed is celebrating its 10 year anniversary in 2015, stakeholders, management, staff and students can gain by reflecting on these stories as a catalyst for breaking down the silences and opening safe spaces for dialogue and debate around staff merger experiences as well as what academic excellence would mean in the context of this institution. This would help the institution, as Wyngaard and Kapp (2004) suggest, to recognise the devastating effects mergers may have on their people and allow people to re-assess and (re) construct their narratives based on an emerging collective narrative. Frank (2010) reminds us that naming types of narratives can help people think about what story they are telling and what story they want to tell. Naming narrative types can authorize the telling of particular stories and liberate people from stories they no longer want to tell. In the same way as gender, race, class is performed discursively in everyday conversations; merger processes keep being performed in our narratives, with socio-material effects on staff and students.

Further research is needed to explore whether the experiences shared in these digital storytelling workshops and in particular the collective analysis of these women's stories could allow participants to change their own narratives and develop a deeper understanding of the dynamics of oppression through the collective reading and analysis of their stories, as Haug (1992: 17) calls for 'in order to uncover the social construction, the mechanisms, the interconnections and significance of our actions and feelings'. We recognize that for a complete picture, we need to collect merger stories from male staff members, from staff and students with disabilities and other vulnerable groups.

References

Botha, M.M. 2005. Models for Mergers in Higher Education. *South African Journal of Education* 21,4: 273–280.

Briskin, L. 1990. *Feminist Pedagogy: Teaching and Learning Liberation*. Ottawa: Canadian Research Institute for the Advancement of Women.

Brousseau, K.R. 1989. Navigating the Merger Transition. *Journal of Organizational Change Management* 2:72 -78.

Brown, A.D. & M. Humphreys 2003. Epic and Tragic Tales: Making Sense of Change. *The Journal of Applied Behavioral Science* 39,2: 121–144.

Butler, J. 2004. *Undoing Gender*. New York and London: Routledge.

Butler, J. 1999. *Gender Trouble: Feminism and the Subversion of Identity*. New York & London: Routledge.

Chaudry, L.N. 2009. Forays into the Mist. In Jackson, A.Y. & L.A. Mazzei (eds.): *Voice in Qualitative Research*. Milton Park & New York: Routledge.

Chetty, N. & C. Merrett 2014. *The Struggle for a Soul of a South African University - The University of KwaZulu-Natal*. Durban: Natal Society Foundation.

Crouch, A. & A. Wirth 1991. Managerial Responses to Mergers and other Job Changes: A Comparative Study. *Journal of Managerial Psychology* 6:3-8.

de Lange, N. & A.M. Olivier 2008. Nurturing Human Capital: A Challenge for Higher Education Institutions? *South African Journal of Higher Education* 22,1: 41–63.

Engelbrecht, P. 2006.The Implementing of Inclusive Education in South Africa after Ten Years of Democracy. *European Journal of Psychology of Education* XX1, 3: 253-264.

Frank, A.W. 2010. *Letting Stories Breathe: A Socio-narratology*. Chicago and London: The University of Chicago Press.

Frank, A.W. 2012. Practicing Dialogical Narrative Analysis. In Holstein, J.A. & J.F. Gubrium (eds.): *Varieties of Narrative Analysis*. Thousand Oaks, London, New Delhi: Sage.

Fraser, N. 2005. Mapping the Feminist Imagination: From Redistribution to Recognition to Representation. *Constellations* 12, 3: 295–307.

Fraser, N. 2007. Re-framing Justice in a Globalizing World. In Lovell, T. (ed.): *(Mis)recognition, Social Inequality and Social Justice: Nancy Fraser and Pierre Bourdieu*. London and New York: Routledge.

Fraser, N. 2008. Reframing Justice in a Globalizing World. In Olson, K.(ed.): *Adding Insult to Injury: Nancy Fraser Debates her Critics*. London: Verso.

Fraser, N. 2009. *Scales of Justice: Reimagining Political Space in a Globalizing World*. New York: Columbia University Press.

Galosy, J.R. 1990. The Human Factor in Mergers and Acquisitions. *Training and Development Journal* 44: 90-95.

Government of South Africa 2003. Government Notice 1688, Government Gazette 25737, 14 November 2003.

Greengard, S. 1997. You're Next: There is no Escaping Merger Mania! *Workforce* 76f: 52-62

Harman, K. & V.L. Meek 2002. Introduction to Special Issue: Merger Revisited: International Perspectives on Mergers in Higher Education. *Higher Education* 44: 1–4.

Hassan, S.L. 2013. An Analysis of Perceptions of Academics Regarding the Reward for Excellence in Teaching versus the Reward for Excellence in Research: Critical Theory Approach. *Alternation* 9: 292–317.

Haug, F. 1992. *Beyond Female Masochism: Memory Work and Politics*. London: Verso.

Hay, D. & M. Fourie 2002. Preparing the Way for Mergers in South African Higher and Further Education Institutions: An Investigation into Staff Perceptions. *Higher Education* 44: 115–131.

hooks, b. 2000. *Feminism is for Everybody: Passionate Politics*. Cambridge, MA: South End Press.

Jansen, J. 2003. Mergers in South African Higher Education: Theorising Change in Transitional Contexts. *Politikon, South African Journal of Political Studies* 30, 1: 27–50.

Kamsteeg, F. 2008. In Search of a Merged Identity: The Case of Multi-campus North-West University, South Africa. *TD* 4,2: 431–451.

Kamsteeg, F. 2014. Narratives of Transformation: University Change in Post-apartheid South Africa. In *9th Ethnography Symposium*. University of Suffolk.

Kohler Riessman, C. 2008. *Narrative Methods for the Human Sciences*. Thousand Oaks, London, New Delhi: Sage Publications.

Lambert, J. 2010. *Digital Storytelling Cookbook*. Berkeley, CA: Center for Digital Storytelling.

Malherbe, E.G. 1977. *Education in South Africa 2: 1923-1975*. Cape Town: Juta.

Manicom, A. 1992. Feminist Pedagogy: Transformations, Standpoints, and Politics. *Canadian Journal of Education* 17,3: 365–389.

Price, L. 1999. Helping People to Stay on their Feet During Mergers and Acquisitions. *People Dynamics*, 17:38-42.

Reddy, T. 2007. Staff Perceptions of the Merger between Two South African Regional Technikons. *South African Journal of Higher Education* 21,3: 485–502.

Romney, P., B. Tatum & J. Jones 1992. Feminist Strategies for Teaching about Oppression: The Importance of Process. *Women's Studies Quarterly* 20,1/2: 95–110.

Sayed, Y. 2000. Post-apartheid Educational Transformation: Policy Concerns and Approaches. Paper Presented at *EAKA Conference*. New Orleans.

Schippers, M. & E.G. Schapp 2012. Reading Pulp Fiction: Femininity and Power in Second and Third Wave Feminist Theory. *Feminist Theory* 13,1: 27–42.

Shuman, A. 2005. *Other People's Stories: Entitlement Claims and the Critique of Empathy*. Urbana, Chicago and Springfield: University of Illinois Press.

Squire, C.M., M. Andrews & M. Tamboukou 2008. Introduction: What is Narrative Research? In Andrews, M., C. Squire & M. Tamboukou (eds.): *Doing Narrative Research*. London, Thousand Oaks, New Delhi, Singapore: Sage Publications.

Vaara, E. 2002. On the Discursive Construction of Success/ Failure in Narratives of Post-merger Integration. *Organization Studies* 23,2: 211–248.

Waghid, Y. & P. Engelbrecht 2002. Inclusive Education, Policy and Hope: Mapping Democratic Policy Changes on Inclusion in South Africa. *International Journal of Special Education* 17,1: 20-25.

Wyngaard, A. & C. Kapp 2004. Rethinking and Reimagining Mergers in Further and Higher Education: A Human Perspective. *South African Journal of Higher Education* 18,1: 185–201.

Daniela Gachago
Centre for e-Learning
Cape Peninsula University of Technology
gachagod@cput.ac.za

Zilungile Sosibo
Faculty of Education
Cape Peninsula University of Technology
sosibol@cput.ac.za

Narratives of Female Staff in a Merged Higher Education Institution

Eunice Ndeto Ivala
Centre for e-Learning
Cape Peninsula University of Technology
ivalae@cput.ac.za

An Appraisal of the Decentralized Professional Development Model Adopted by a South African Higher Education Institution

Nomakhaya Mashiyi
Rita Kizito

Abstract

Structural arrangements aimed at developing teaching excellence and enhancing student learning have been put in place at South African universities since 2000. These include the creation of directorates for teaching and learning, featuring teaching and learning as a strategic goal in the university institutional operating plan, the development of strategic plans for teaching and learning and the adoption of various models of professional development. This study examines how the decentralized model of professional development is being implemented and received at a South African university in the Science and Economic Management faculties. From a document analysis of the Senate Teaching and Learning Committee quarterly reports (from July 2012 to July 2013) conducted in the two faculties, there is evidence of an uptake of professional development programmes and the use of innovative pedagogical practices in some departments. However, it is difficult to obtain accurate measures of how the new structural arrangements translate into observable change in classroom practice. Interviews conducted with a few academics reveal minimal acceptance of decentralizing the provision of professional development. The conditions for successful implementation of professional development were identified from the interviews. The study concludes that there will often be a gap between espoused and enacted models and policies and that *buy-in* and support from management (deans, heads of departments) and lecturers is vital in the transformation of teaching and learning practices.

1   Background to the Study

The widening of access to higher education in post-apartheid South Africa has presented tertiary educators with a number of opportunities and challenges, namely, under-prepared students who take longer to graduate from their programmes and lecturers who have to devise ways of responding sensitively to a diverse profile of students. A perturbing finding in the Council on Higher Education draft report (2013) is that only 5 per cent of black African and coloured students graduate in regulation time[1].

From 2000, directorates of teaching and learning were set up in all the 23 universities and universities of technology in South Africa to promote teaching and learning, enhance student learning and improve throughput. Centralized and decentralized professional development models have been adopted at different institutions with the aim of addressing the challenges mentioned above. Despite the efforts made, professionalizing university teaching continues to be an enormous challenge. Traditionally, university teachers rely on individual craft knowledge associated with expertise and dexterity in the different disciplines to inform their teaching practice (Elton 2001; 2009). Novice teachers learn from their predecessors and often perpetuate outdated practices. Lecturers are often unaware of what should be done to support under-served students as they do not receive any professional teaching development when they join universities.

Overall, the last two decades have witnessed an increase in the demand for the professionalization of university teaching, resulting in the establishment of units such as the Quality Assurance Agency and more recently, the Higher Education Academy, both in the United Kingdom. These units are structured to ensure that university teaching professionals are properly trained, recognisedand rewarded for their contributions as teachers in higher education settings. The recognition that teaching is researchable and

---

[1] Regulation time is the designated time for completing a degree or diploma degree. The majority of South African undergraduate degrees (except Medicine) are 3-4 years. The diplomas range from 2-3 years.

worth recognition has also been stimulated by educationist Boyer's (1990) publication, *Scholarship Reconsidered*, and Elton's (1998; 2009) efforts to link continuing professional development to the scholarship of teaching and learning.

South Africa is following in this direction and, from 2013, has established a Quality Enhancement Project run by the Council of Higher Education to analyze issues of improving the quality of higher education and the professional development of academics. A number of South African institutions have developed post-graduate programmes for academics. One of them is the Post-Graduate Diploma in Higher Education in Teaching and Learning, offered jointly as one programme by a consortium of universities in the Western Cape: the University of the Western Cape (UWC), Cape Peninsula University of Technology (CPUT) and Stellenbosch University. UWC has also embarked on an in-house professional development programme for beginner academics.

The challenge is that the current approaches to professional development for university teachers have not always produced solutions for the educational conundrums of the contemporary context, such as, for example, finding innovative pedagogies for students from highly diverse educational and multilingual backgrounds, or providing for the growing demand for e-learning' (Scott, Yeld & Hendry 2007: 60). Moreover, as Clegg (2003: 37) points out, '…the discourse about professional learning and development itself is characterized by conceptual vagueness'.

In addition, within the South African context, there is differentiation of professional development delivery across institutions. Well-resourced universities have central units dealing with professional development issues headed by a deputy vice chancellor of teaching and learning (University of KwaZulu Natal, University of Pretoria), or a dean of teaching and learning (University of Cape Town). In less resourced universities such as UWC, there is a directorate of teaching and learning supported by two management tiers, the deputy deans for teaching and learning and the teaching and learning specialists[2] in each faculty.

---

[2] Teaching and learning specialists are tasked with supporting lecturers' adoption of effective teaching and learning related activities.

2   Approaches to Professional Development

In this paper, we focus on two dimensions of professional development: (a) professional development models and (b) the distinction between decentralized and centralized models of professional development provision.

2.1   Professional Development Models

The professional development models used in higher education could be classified as extensions of existing teacher training models. Traditional models of in-service education for teachers are based on a deficit model. In such a model, participants are required to attend the occasional one-day workshop away from their teaching sites and are lectured on a topic selected for them by experts who draw mainly on their own experience (Sandholtz 2002). Participants invariably find the once-off workshops irrelevant and often forget most of what they have learnt. Such in-service education courses have been criticized for not promoting active learning and for undermining teachers' experiences (Lieberman & Miller 1990). In fact, in-service courses have been rated as the least effective forms of professional development (McCulloch, Helsby & Knight 2000).

       In contrast, a constructivist approach to professional development is based on adult learning theories which identify the following conditions as ideal for promoting adult learning in the workplace: opportunities for individuals to work with and learn from others; collaboration in group work and learning; chances to work with and learn from others in similar positions; and variation, autonomy, and choice in the allocation of work roles and tasks (Smylie 2015). However, according to Sandholtz (2002), these conditions are absent in most teacher professional development provisions. Constructivism underscores personal discovery of knowledge and the need for teachers to provide a learning context that promotes active learning (Hung 2001).

       In this study, we adopted Lester's (2010: 2) interpretation of a professional as an individual who 'makes proficient use of expert or specialist knowledge, exercises autonomous thought and judgment, and makes a voluntary commitment to a set of principles'. We also subscribe to Padwad and Dixit's (2011) view that there are generally two approaches to professional development – a narrow (or shallow) view and a broad (deep) view. The narrow view is instrumentalist, focusing on specific sets of skills

that professionals are required to teach (for example, training teachers to use an online learning management system such as Moodle) and the broad view which is, according to Padwad and Dixit (2011: 7):

> … a much deeper, wider and longer- term process, in which professionals continuously enhance not only their knowledge and skills, but also their thinking, understanding and maturity; they grow not only as professionals, but also as persons; their development is not restricted to their work roles, but may also extend to new roles and responsibilities.

Various modes of learning in different professions include learning by teaching; learning by doing; conducting personal research; consulting experts and networking; engaging in professional interactions; and attending courses and conferences (Becher 1996). The following have been identified as sites of professional development: daily work practices; team, department and other mandated meetings, team or departmental professional development sessions, reading, subject and professional associations and centrally provided courses and workshops. Each of these has its strengths and weaknesses (Knight & Trowler 2001).

2.2 *Centralised and Decentralised Models of Professional Development*

Coupled with these approaches are the ideas of centralized and decentralized models of professional development. In a centralised model, there is a centralized university entity tasked with developing, implementing and managing all professional development activities within a university. In a decentralized model, each faculty develops and manages its own professional development activities, usually in an *ad hoc* manner. The decentralized approach can also be categorized as site-based (Ono & Ferreira 2010; Frick & Kapp 2006) as participants identify and respond to their own learning needs. It draws on constructivist theories of learning and employs methodologies such as reflective practice, adult learning, and peer coaching and mentoring. This approach is also premised on the understanding that learning occurs at the work place and is more effective if it is owned by the participants

themselves. As such, professional development is seen as 'permanent or continuing education' (Avalos 2004: 121). An effective site-based professional development programme should be seen as part of the improvement goals of an institution.

A decentralised structure or 'ripple-down model of institutional change' (Bozalek & Dison 2013) for organizing professional development has been adopted at UWC. The structure is headed by the director of teaching and learning and supported by teaching and learning specialists from each of the seven faculties. Each of the faculties has a teaching and learning coordinating committee with departmental representatives. These committees are coordinated by deputy deans of teaching and learning from each faculty. Thus the academics who are experts in their professions play a vital role in the planning and implementation of their own professional development, with guidance from the teaching and learning specialists. The directorate provides the overall guidance by developing policy and a direction for operations, but the strategies and delegation of duties occurs at the faculty level.

The university offers professional development interventions which are initiated centrally such as, for example, induction workshops for all newly appointed heads of departments and staff. Recently, the institution has embarked on an institutional, 14-week course titled '*Towards the professionalization of teaching and learning*' which is offered jointly by the directorate and facilitators from all the departments.

The decentralized model described here responds to the recognized need for a more coordinated, collaborative, and comprehensive approach to professional development across an institution. However, whatever approach is used, the establishment of a space for negotiation, collegial support and ownership is critical if these interventions are to be sustained. As Sayed (2009) contends, although there are merits and demerits for each model, it is the recognition of the conditions that will make them work which is crucial to their success. This study is an attempt to identify the conditions.

2.3   Statement of the Problem

Poor participation in teaching and learning activities and its impact on teaching practices remain a great concern to teaching and learning specialists. It is this concern that has motivated this systematic appraisal of the

decentralized model of professional development provision adopted by UWC. In this study, we appraise the professional development model adopted by UWC to find ways of increasing lecturer participation in the teaching and learning activities planned by the directorate of teaching and learning to promote 'epistemological access' and lecturer effectiveness. The rationale behind the appraisal is to explore how lecturers can derive maximum benefit from the various teaching and learning interventions of the university. The researchers adopted a 'distant attitude' in their appraisal in order to suggest possibilities on how to make the model more effective.

3   Aim of the Study

The overall aim was to establish how significant the decentralized model of professional development is in promoting teaching effectiveness and student learning in the two faculties. Specifically, we sought responses to the following questions:

3.1 How has a decentralized model of professional development for academics been received by Economic and Management Science and Science academics?

3.2 Are there any adjustments or changes needed to ensure that the current professional development model at UWC promotes successful teaching and effective student learning?

This appraisal was conducted in two parts: (a) interviews with faculty-based teaching and learning committee members and selected heads of departments to determine staff understanding and perceptions of the teaching development initiatives of the directorate of teaching and learning; and (b) a document analysis of Senate Teaching and Learning Committee reports (2012 -2013).

4   Research Methodology

The study employs a pragmatist research paradigm which is concerned with action and change and the interplay between knowledge and action (Goldkuhl 2012: 136). This makes it appropriate for research approaches intervening into the world and not merely observing the world (*ibid*) as is the case when

the intervention is organizational change. Pragmatism employs mixed methodologies within the same study and focuses not only on what *'is'* but also on what '*might be'* (Goldkuhl 2012: 136).It foregrounds both efficiency and appropriateness 'which is a matter of combining a whole range of evaluative factors, not efficiency and effectiveness alone but also their broader normative nature' (Rescher 2000: 175). Three inter-related kinds of pragmatism have been identified: the functional, the referential and the methodological (Goldkuhl 2008). Functional pragmatism is concerned with the creation of actual practices while referential pragmatism scrutinizes the actions in these practices and their unique characteristics. Methodological pragmatism deals with the development of knowledge in each set of practices.

For the purposes of this research, the discussion on pragmatism will focus on functional pragmatism which views 'knowledge as a basis for action' (Goldkuhl 2008: 9). Pragmatic research can be carried out through action research[3] where the researcher has a direct influence on local practices or, alternatively, the researcher can adopt a 'distant attitude' and not engage in local practices. In this study, the two researchers did not engage in action research and, as already mentioned, instead adopted a 'distant attitude' in their appraisal of the model. In other words, the researchers sought to interrogate the research questions from a distance as observers of the phenomenon being researched.

4.1   *Data Collection and Analysis*

Semi-structured interviews and Senate Teaching and Learning Committee reports were used as the main sources for data collection. The semi-structured interviews were flexible and allowed the researcher to modify the questions and to ask follow-up questions (Scott & Garner 2013) to clarify an earlier response or a new idea offered by the respondent. The interviewees were six academics from two faculties. Each respondent was assigned a code to avoid compromising their identity and the confidentiality of the interview. An interview guide was also employed by each researcher to see 'the agreements

---

[3] Action research is research initiated to solve a problem or to reflect on a process of progressive problem-solving in a community of practitioners to which the researcher belongs.

and disagreements among the respondents and the different ways in which they framed the answers' (Scott & Garner 2013: 283).

The interview data collected from the six selected participants was subjected to discourse analysis, a research method that 'emphasizes the role of language in the construction of social reality' (Talja 1999: 460) and focuses on the analysis of texts to interrogate assumptions, identify the explicit purpose(s) of texts and unearth multiple discourses in texts (Rex, Bun, Davila, Dickson, Ford, Gerben, Orzulak & Thomson 2010). Discourse analysis also refers to attempts 'to study the organization of language above the sentence or above the clause, and therefore to study larger linguistic units, such as conversational exchanges or written texts' (Stubbs 1993: 1). Foucaultian-influenced discourse analysis does not study the rules and conventions of mundane talk; rather, it examines 'serious speech acts or institutionalized talk or practices' (Talja 1999: 460) as represented in texts. Discourse analysis was chosen as a method because interview data can be analyzed at a macro, micro and meso levels as social texts (Rex *et al*. 2010).

Using the constant comparison method, data was separated into categories that the researchers considered significant to the inquiry at hand (Guba & Lincoln 1985). The coding and analysis of the data occurred simultaneously and repeatedly until recognizable themes emerged. The researchers coded the data separately but spent time to discuss and agree on the emergent themes and to apply Budd and Raber's (1996: 217) approach in exploring the form (structure of the language as code, including grammar and semantics) and function (language as a social phenomenon) of the utterances made by the respondents during the semi-structured interviews.

In addition, the 2012 -2013 Senate Teaching and Learning Committee reports were subjected to document analysis which was directly linked to the pragmatic- or practice-based discourse analysis used to explore the interview data. The documented text served to describe what was done (in action) as a supplement to how the respondents felt in the interviews. The document analysis was used to determine in which professional development activities lecturers participated from 2012 to 2013 within each faculty.

Fourteen documents comprising the Senate Teaching and Learning Committee minutes were analyzed in search of categories and themes. A review protocol in the form of tables was used to capture the different forms of professional development activities in which academic staff engaged between 2012 and 2013, the period in which the two researchers were

appointed as teaching and learning specialists at the university.

An analysis of the Science and Economic and Management Science reports helped the researchers to better understand how the different recorded elements related to each other; how the elements in the reports provided an interpretation of the teaching and learning practices and how these were congruent with the prescribed decentralized model. This analysis also gave the researchers an indication of priority areas (generic issues about teaching and learning that cut across disciplines and subject specific concerns). The aim was to reveal meaning or an understanding of the teaching and learning practices by studying the interviews of a few selected individuals and the Senate Teaching and Learning Committee reports. Ultimately, the aim was to identify what support lecturers felt they needed to enable them to execute their duties efficiently and to improve student learning.

5   Findings

This discussion of findings is made in relation to the research questions with a focus on the emergent themes. The themes emanating from the semi-structured interviews and the Senate Teaching and Learning Committee documents are not mutually exclusive, but are intertwined and overlapping in meaning.

5.1   Themes Identified in the Interview Data

Five major themes emerged from the data: personal versus professional values, institutional support, mandate and engagement, contestation between research and teaching and learning, opposing discourses and enabling and constraining factors impacting on teaching and learning.

5.1.1 Personal versus Professional Values

All the interviewees (A1, A2, A3, A4, A5, and A6) viewed the professional staff development activities (the workshops, induction programme, and seminars) as crucially important and value-adding. In addition, they were of the view that these professional development initiatives should focus on discipline-specific concerns of lecturers as well as generic issues that cut

across the disciplines (A6, A1, A3 and A4) and that most of the work should be done at departmental level. They participated in these activities with varying frequency because of time constraints and because of the *ad hoc* scheduling of workshops (A5). According to interviewee A2, the faculty-based workshops, the Cape Higher Education Consortium courses and the lunch-hour seminars '*made me think about my own practice, the way I run my tutorials and infuse technology into my teaching'.* Another view was that it should be compulsory (A5) for staff to attend professional development activities '*during vacation, on and off-campus because of the competing responsibilities such as teaching and marking' (*A2*).*This interviewee viewed professional development activities as a space for reflective practice and personal professional growth. However, interviewee A5 attended the workshops not because they were compulsory, but because '*I'm curious. I do enjoy engaging'*. S/he had dropped out of a structured teaching and learning programme at another university because of work-related pressure, but had decided to complete the 14-week long '*Towards the Professionalization of Teaching'* programme because it was compulsory. These contradictory discourses demonstrate the extent to which employees will engage with change if they perceive the programme as a formalized and valued process in the institution.

5.1.2 Institutional Support, Mandate and Engagement

Interviewee A1 identified the following challenges that threaten to undermine teaching and learning at UWC: '*skewed resource allocation, night/part-time teaching, and a lack of resources to cope with the growth of student numbers, the fact that there was no dialogue between Teaching and Learning and Academic Planning'* and recommended the use of '*a fusion between a top-down approach and a bottom-up approach to professional development'* to change perceptions *'about teaching and learning and increase participation rates'.* Implied in this statement is the view that teaching and learning is not taken seriously. In addition, interviewee A2 argued that *'training must have a practical orientation'...*and that '*teaching practice and micro-teaching were an integral part of one's induction into teaching'.*

Academics also reported finding it hard to juggle the teaching and research because of time constraints and other competing responsibilities. For

example, as interviewee A5 explained: *'My sense is like you know we're skimming, you know just touch the surface on everything and maybe it's just the person that I am. I'd like to, okay let's take a moment and really just engage and really explore much more. The amount of time that we have is just not sufficient to do that… we're so busy running around doing everything so just having these little things every now and then. We're just going to keep on running, chasing our tails.'*

There were also differences in the way younger and older academics engaged with the professional development initiatives as can be seen by this excerpt:

Interviewer: Do academics in your department participate in these professional development initiatives aimed at promoting excellence in teaching and learning?
A5:You have very clearly two groups I think - like in most departments.
A5: You have the younger people who are really keen on developing and interacting. They try to do their best. But they're also coming under tremendous pressure to be productive, to do research and everything and then, you know, again the time becomes difficult. But again, on the other side there are those other people.
A5: …Who are not interested and that would seem to be the older ones for whom there's not …
A5: It's not because people don't want to contribute and engage. It's just time.

Lecturers seemed to prefer intentional to *ad hoc* interventions.

A5: You know this is one of those things we need to schedule and just you know must make time for it rather than just having it ad hoc.
Interviewer: Oh, okay. So are you getting that sense that it's kind of ad hoc?
A5: Yes. You get email every now and then there's this but you, there's no sense of how important it is. There's no sense that, listen you guys let's get together and just deal with this because it is important.

As a way of providing differentiated services to the different categories of academics, the United Kingdom professional development framework

(Brown, Bower, Skalicky, Wood, Donovan, Loch, Bloom & Joshi, 2010) uses three standard descriptors that cater for early career academics, those with substantial teaching roles and academics tasked with leading and mentoring roles. Each standard descriptor is used to develop a discipline based framework, thus catering for the needs of the different groupings of lecturers.

Ironically, the directorate of teaching and learning at UWC sometimes self-sabotages its intentions by not making enough provision for all eligible academics to attend induction programmes as the following interview excerpt shows:

> **Interviewer***: In terms of the workshops or conferences or induction? You came to induction. Did you?*
> **A5:** *No. That was, again, that was one of those interesting issues because it was myself, P... and Q, I think. There is a number of new staff and we all were supposed to go but there was only space for one person.*

In addition, lecturers preferred intentional to *ad hoc* interventions.

> **Interviewer:** *How do you think we should go about it? To make it continuous, let's just say because we are competing for time and we also want to do something -as you said -more engaging. Who should do it and when should we do it and where should we do it.*
> **A5:** *My sense is everyone should be involved. It should be very structured. It should be in the form of a programme. We can't have it ad hoc.*
> **A5:** *I like the idea of a very strong centralized Teaching-learning Unit… but at the same time you need to have very close links with the individual departments so that there's a very clear engagement and it's not just, you know, the departmental representatives.*

According to interviewee A5, the Rhodes University model of professional development is stronger because it is structured and centralized and that a weakness in the UWC model is its prioritization of the role of the faculty-based teaching-learning representatives, over the creation of a strong, structured partnership between the directorate and the departments. The

authors believe that the UWC model could be strengthened if Teaching and Learning Committee members were experienced enough to influence teaching and learning decisions in the departments.

A need for re-positioning teaching and learning as a central university function was also identified.

> *A2: Teaching is the core activity of the university – the primary reason why we have been employed here. Course content is evolving and new knowledge is generated. There's therefore a need to upgrade ourselves …learn new approaches to teaching – new ways of doing things. We have to keep abreast of changes in our fields.*

Interviewees A3 and A4 were of the view that the decentralized professional development model could be strengthened by substituting the teaching and learning committee structure with a head of department-led structure as heads of departments have the authority to implement, or fast-track change. For example, interviewee A3 maintained that *the Directorate of Teaching and Learning should have people who work directly with the senior professors- get understanding- hear from them what the problems are and then try to address those problems* and, when asked who the influential people in the department were, replied *Those are the heads of departments.*

Interviewees A3 and A4 also expressed a need to address challenges brought about by diversity in their classrooms, improve pass rates and throughput rates, especially in Science. According to interviewee A3, staff invited visiting scholars, attended workshops organized by the department that addressed their specific needs, conferences and faculty-based workshops but the latter were not found to be helpful because … *sometimes you are there, you are lost because you don't know – they are talking about teaching in Computer Science and you are not really interested in this because this is not your field. It's like a waste of your time when you are sitting there.*

Any course/intervention that did not address the needs of the participants was perceived as a waste of time. Generally, interviewees felt that a better proposition would be to have faculty-based Teaching and Learning Committee members working closely with the teaching and learning staff to establish a community of practice in each department to engage in matters relating to discipline-specific teaching and to the scholarship of teaching and learning. According to interviewee A3, ideas to

ensure that teaching and learning was embraced could include: (a) a focus on relevant, discipline-based issues with which academics grapple (b) advocating for compulsory attendance of a minimum number of professional development activities, (c) awarding continuous professional development points for participation in professional development activities, and (d) paying closer attention to when workshops are scheduled.

5.1.3 Contestation between Research and Teaching and Learning

All six participants agreed that there was very little recognition given to teaching and learning as compared to disciplinary research. Research was positioned as more important than teaching and learning. For example, A1 strongly criticized the *'aggressive drive (by senior management) for academics to pursue PhDs that were sometimes not even related to the discipline that one was teaching, and viewed this as a 'disservice to teaching –learning'*. For A1, teaching and learning was at the heart of the academic enterprise.

> **Interviewer:** *So how can we strengthen lecturer participation in professional development initiatives?*
> **A3:** *You see there, it sounds now terrible what I'm going to say but as long as people don't feel they get rewarded for teaching and learning - I mean in the meeting yesterday… it's about research. The prestige which goes with it, right? It's like I'm the top guy. You see in terms of the publication and NRF rating and all those things. In teaching and learning they can do many things, who is going to recognize them for it? Nobody. And I can say to you from our meeting yesterday – What is important are the rewards that people receive for excelling in what they do ...that's why they focus on research, that's the main task here.*

For A6, the nexus between research and teaching-learning could be strengthened by ensuring that teaching is research informed.

This contestation between research and teaching and learning has been increasingly identified in a number of recent studies, for example, Bozalek and Dison (2013) and Leibowitz (2014).

Three forms of contestation, namely pedagogy, organizational culture and epistemology have also been identified in short-term teaching-learning projects (Gosling & Turner 2014). For example, at UWC, although the adoption of appropriate pedagogies is encouraged, the institution continues to reward research as the epitome of academic achievement. The poor attendance of induction workshops and teaching and learning conferences are indications of the value assigned to some of the professional development activities in which interviewees had participated. Interviewee A3 concluded that *Staff focus on disciplinary research, and pedagogy is a peripheral matter in the department, that for as long as the department is not going to be held accountable, nothing would happen.*

5.1.4 Opposing Discourses

Two opposing discourses emerged from the interviews regarding what would constitute an effective model for academic professional development of staff at UWC. As indicated earlier in this paper, UWC currently has a decentralized model where each faculty develops and manages their own professional development activities. Interviewees A2 and A6 supported this model but not the manner in which was currently being implemented while interviewees A1, A4 and A5 opposed the current model. Although interviewee A2 saw the current model as *'good'*, s/he stressed that *'the lecturers' mindsets, a lack of enthusiasm about teaching and learning, too much focus on disciplinary research and employment conditions and status, inactive Teaching and Learning Committee members, threatened to undermine teaching and learning'*. Thus there was a disjuncture between the model and how it was implemented.

> **Interviewer:** *How can the current model of professional development be strengthened?*
> **A6:** *Most of the professional development work must be done in faculties, with the Dean and Head of Department driving teaching and learning. Generic issues that cut across discipline should be tackled during induction and discipline experts and the faculty teaching and learning staff could work very closely on the discipline-specific matters. This would make the current model more efficient.*

A1 was critical of a model in which the faculty based teaching and learning staff were not a discipline expert[s]', conflating the role of the teaching and learning staff with the work that could be carried out in the Academic Planning Unit. Interviewee A1 believed that teaching and learning '*should not be divorced from discipline and industry experience*' and that it was important that appointments to the position of the teaching and learning staff in the faculties be based on disciplinary expertise and extensive industry experience. S/he also argued that there were ample opportunities for the professional development of staff in the Economic and Management Science faculty which were not offered by the directorate of teaching and learning, for example, research training by agencies such as South Africa-Netherlands Research Programme on Alternatives in Development, the industry consultancy experience of staff, and conference attendance and staff took advantage of these opportunities.

Similarly, interviewees A3 and A6 were of the view that one teaching and learning staff member appointed to address the teaching development needs of academics in different departments within a faculty did not have the capacity to do so. From these discussions, there seems to be some overlap between the work of a teaching and learning staff member (usually a generalist with background in Education) and that of a curriculum specialist in a particular field. However, it is often difficult to identify specialists in all the disciplines within a faculty.

Interviewees A4 and A5 felt that the centralized Rhodes University model was stronger, and better coordinated than the UWC model which was '*too diffused*'. Instead of *ad hoc* arrangements for professional development, they felt that the university could adopt a more structured programme and make participation mandatory for every staff member and allow them to gain continuous professional development points. They believed that this would raise the profile of teaching and learning and that, as A5 contended, with this arrangement '*people would learn even though they were resistant*'.

5.1.5 *Other Constraining Factors Impacting on Teaching and Learning*

Other constraining factors identified by interviewees were a lack of monitoring systems to ensure uptake of the interventions. Although faculty

courses and workshops are needs-based, not many academics attend them. There was also a perceived lack of support from management, the perception of poorly coordinated professional development activities (A4), and no direct link between participation in the professional development activities and academic promotion. These constraints were further intensified by lecturer work pressures and lack of time. This erratic participation in professional development activities creates challenges and highlights the importance of balancing lecturer needs with institutional purposes for introducing systemic changes.

6.2   An Analysis of the Senate Teaching and Learning Committee Documents

The Senate Teaching and Learning Committee reports from both faculties reveal that UWC has adopted an eclectic model (as evidenced by the variety of professional development activities in which staff participate in addition to workshops and courses). This model focuses on the implementation of an institutional strategic plan led by the director and supported by the deputy deans and specialists of teaching and learning.

In the analysis of the Senate Teaching and Learning Committee documents, the reported data was categorized into four main areas. These include:

a) *Externally run initiatives* such as partnerships with other universities in the region, for example the Post Graduate Diploma in Teaching and Learning in Higher Education run by UWC in collaboration with Stellenbosch and CPUT and offered through a blended delivery mode and other short learning programmes.

b) *University-wide collaborations* (including on- and off-campus teaching and learning initiatives) such as the on-campus support by the Centre for Innovative Educational and Communication Technologies and the library. The use of teaching portfolios as a criterion for promotions and appraisals for staff on probation, not just for promoting reflection on individual practice.

c) *Needs-based faculty initiatives* such as individual consultations, lunch hour seminars and workshops).

d) *Challenges and successes* or the enabling and constraining factors impacting on teaching and learning. Lecturers cited the following constraining factors and challenges as key reasons behind the low participation rates: under-staffing, heavy teaching and marking loads, a lack of resources, time constraints and the pressure to improve their qualifications and publish in their disciplines.

From the Senate Teaching and Learning Committee report analysis, it is evident that decentralization makes the funding and organization of professional development activities in the faculties very difficult to manage. At UWC, there is no dedicated structure to ensure sufficient funding to support the running of the internal teaching and learning workshops, or for staff to attend local or regional colloquia and conferences. Left to the faculties, the coordination of the teaching and learning activities tends to become marginalized as the teaching and learning representatives are not always committed to their respective portfolios. There are two main reasons for this: (i) teaching and learning representatives are usually junior staff with no authority to influence performance in the departments; (ii) academics have heavy workloads which limit their participation in teaching and learning activities. However, a positive outcome of decentralization has been the opening up of authentic spaces within the faculty for lecturer negotiation and ownership of their own teaching and learning processes.

7   Conclusion and Recommendations

This analysis of the two sets of data demonstrates how a decentralized model of professional development for academics has been received by Economic and Management Science and Science academics. The analysis also highlights the difference between an espoused and an enacted model of professional development.

The analysis has also identified some of the conditions required to make decentralization or centralization model of professional development in higher education effective. Although the current model of promoting teaching

and learning at UWC has proved successful in creating an authentic conversation about teaching and learning, uptake of the model has been erratic in some departments, and, as confirmed by the academic professional development studies reviewed in this paper as well as the contextual factors impacting on teaching and learning, there is evidently a need to improve the effectiveness of the current UWC model.

Some of these conditions for the successful implementation of professional development are outlined below*:*

1. A variety of sustainable professional development interventions other than workshops could be adopted to promote reflective practice. Courses and workshops are not the only mechanisms for responding to a changing South African higher education context. For example, Knight and Trowler (2001) view courses and workshops as only occasional contributors to professional learning and emphasize the importance of creating other opportunities for academics to behave as a learning community.

2. The designation of professional development leaders in the faculties and the possibilities of their roles are important. Knight and Trowler (2001:147) and Knight (2002) identify such teams and departments as effective sites of educational development and are critical of the dominant provider model of educational development. It helps if teaching and learning committee members in the faculties are senior academics with a track record in their fields. The role of the heads of departments in professional development also needs to be clearly articulated as improved communication and engagement with individual departments through the heads of departments can raise the profile of teaching and learning considerably. In a decentralized model, communication lines between the director and the respective heads of departments and faculty-based teaching and learning committee members would require reinforcement to be effective.

3. An institutionalized and structured support for teaching and learning (for example, participation at teaching and learning events) directed and encouraged by senior management can also raise the profile of teaching and learning and participation rates.

4. The model also needs a clearly articulated moderation and evaluation component to gauge its success. Kutner, Sherman, Tibbetts and Condelli (1997) suggest the following evaluation framework for adult professional development: evaluation of the impact on instructors, programmes and students using multi-purpose evaluation strategies such as questionnaires, interviews, *observation of practice* (our emphasis), portfolios, practitioner journals and alternative assessments.

5. A generic professional development framework for developing academic competencies (Brown *et al*. 2010) could also be designed. For example, the United Kingdom and Australian generic professional standards in teaching provide leadership for the professions in terms of quality and consistency, a shared language around teaching and learning that can inform institutional policies and planning, as well as a basis for accreditation, recognition or reward and a guide for professional learning (Australian Science Teachers Association, 2002; United Kingdom Professional Standards Framework; the Ministerial Council on Education, Employment, Training and Youth Affairs, 2009).

6. A minimization of the artificial binaries between teaching and research through a system which rewards teaching and learning appropriately and strengthens the nexus between teaching and research.

Within the UWC context, the status of teaching and learning needs to be reinforced to ensure that it is on a par with research. Heads of departments should play a key role in promoting teaching and learning and the scholarship of teaching and learning to ensure that the emerging culture of valuing teaching and learning at UWC is nurtured. In addition, teaching and learning also needs to be properly rewarded. The higher monetary rewards given to top researchers in comparison to the value of the teaching and learning awards, will continue to drive the perception that teaching and learning is not valued by university management.

However this article seeks to stress that important steps are being taken: for example, UWC is in the process of consolidating its teaching and

learning activities as well as its induction course for newly-appointed lecturers and its Post-graduate Diploma in Higher Education in Teaching and Learning will prepare the novice lecturer as well as the experienced lecturer for a productive and reflective role in academia.

These suggestions are, of course, potentially applicable to other South African institutions with similar professional development structures.

References

Avalos, B. 2004. CPD Policies and Practices in the Latin American Region. In Day, C. & J. Sachs (eds.): *International Handbook on the Continuing Professional Development of Teachers.* Open University Press.

Australian Science Teachers Association/ Monash University 2002. *National Professional Standards for Highly Accomplished Teachers of Science.* Available at: http://asta.edu.au/resources/professional_standards/asta_national_ps.

Becher, T. 1996. The Learning Professions. *Studies in Higher Education* 21,1: 43-55.

Brown, N., M. Bower, J. Skalicky, L. Wood, D. Donovan, B. Loch, B.W. Bloom & N. Joshi 2010. A Professional Development Framework for Teaching in Higher Education. *Research and Development in Higher Education* 33:133–143.

Boyer, E. 1990. *Scholarship Reconsidered: Priorities of the Professoriate*. San Francisco: Jossey-Bass.

Bozalek, V. & A. Dison 2013. Using the Human Capabilities Approach as a Normative Framework to Evaluate Institutional Teaching and Learning Interventions at the University of the Western Cape. *South African Journal of Higher Education* 8,2:388-400.

Budd, J.M. & D. Raber 1996. Discourse Analysis: Method and Application in the Study of Information. *Information Processing and Management* 32, 2:217-266.

Council on Higher Education 2013. Report of the Task Team on Undergraduate Curriculum Structure (Discussion document), August 2013.

Clegg, S. 2003. Problematising Ourselves: Continuing Professional Develop-

ment in Higher Education. *International Journal for Academic Development* 8,1-2:37-50.

Elton, L. 1998. Dimensions of Excellence in University Teaching. *The International Journal for Academic Development* 3,1:3-11.

Elton, L. 2001. Research and Teaching: Conditions for a Positive Link. *Teaching in Higher Education* 6,1:43-56.

Elton, L. 2009. Continuing Professional Development in Higher Education: The Role of Scholarship of Teaching and Learning. *Arts and Humanities in Higher Education* 8,3:247-258.

Frick, L. & C. Kapp 2006. Continuing Professional Development of Lecturers in the Natural Sciences: Enhancing the Quality of Learning. *Education as Change* 10,2:81-96.

Goldkuhl, G. 2008. What Kind of Pragmatism in Information Systems Research, AIS Special Interest Group on Pragmatist IS Research, Inaugural Meeting. Paris.

Goldkuhl, G. 2012. Pragmatism versus Interpretivism in Qualitative Information Systems Research. *European Journal of Information Systems* 21:135-146.

Gosling, D. & R. Turner 2014. Responding to Contestation in Teaching and Learning Projects in the Centres for Excellence in Teaching and Learning in the United Kingdom. *Studies in Higher Education* 40,9:1573-1587.

Guba, E.G. & Y.S. Lincoln 1985. *Naturalistic Inquiry*. Sage: New York.

Hung, D. 2001. Theories of Learning and Computer-mediated Instructional Technologies. *Education Media International* 38,4:281-287.

Knight, P.T. & P.R. Trowler 2001. *Departmental Leadership in Higher Education.* Buckingham: The Society for Research into Higher Education & Open University Press.

Knight, P. 2002. A Systemic Approach to Professional Development: Learning as Practice. *Teaching and Teacher Education* 18,3:229 – 241.

Kutner, M., R. Sherman, J. Tibbetts & L. Concelli 1997. *Evaluating Professional Development: A Framework for Adult Education.* Pelavin Research Institute, United States Department of Education, Division of Adult Education and Literacy. Available at: http://www.calpro-online.org/pubs/evalmon.pdf.

Leibowitz, B. 2014. Conducive Environments for the Promotion of Quality Teaching in Higher Education in South Africa. *Critical Studies in Teaching and Learning* (CriSTaL) 2,1:49-73.

Lester, S 2010. *On Professions and Being Professional*. Available at: http://www.sld.demon.co.uk/profnal.pdf.

Lieberman, A. & L. Miller 1990. Teacher Development in Professional Practice Schools. *Teachers' College Record* 92,1:105-122.

McCulloch, D., G. Helsby & P.T. Knight 2000. *The Politics of Professionalism*. London: Cassell.

Ono, Y. & J. Ferreira 2010. A Case Study of Continuing Teacher Professional Development through Lesson Study in South Africa. *South African Journal of Education* 30,1:59-74.

Padwad, A. & K. Dixit 2011. Continuing Professional Development of English Teachers in India*:* The ETCs' Experience*.* In Beaumont, M. & T. Wright (eds.): *The Experience of Second Language Teacher Education.* Basingstoke: Palgrave.

Rescher, N. 2000. *Realistic Pragmatism: An Introduction to Pragmatic Philosophy.* Albany, NY: Suny Press.

Rex, L.M., M. Bunn, B.A. Davila, H.A. Dickson, A.C. Ford, C. Gerben & M.J. Orzulak 2010. A Review of Discourse Analysis in Literacy Research: Equitable Access. *Reading Research Quarterly* 45,1:94 -115.

Sandholtz, J.H. 2002. In-service Training or Professional Development: Contrasting Opportunities in a School University Partnership. *Teaching and Teacher Education* 18, 7:815- 830.

Sayed, Y. 2009. Continuing Professional Development and Education Policy: Characteristics, Conditions and Change. Paper presented at the 2nd Annual Continuous Professional Development Conference, Walvis Bay.

Scott, G. & R. Garner 2013. *Doing Qualitative Research: Designs, Methods and Techniques*. Boston: Pearson Education.

Scott, I., N. Yeld & J. Hendry 2007. A Case for Improving Teaching and Learning in South African Higher Education. *Higher Education Monitor* No. 6. Pretoria: Council on Higher Education. Available at: http://www.che.ac.za/documents/d000155/index.php. (Accessed on 3 November 2008.)

Smylie, MA 2015. Developing Teacher Leadership: What Teacher Leaders can Do. Available at: http://www.nnstoy.org/wp-content/uploads/2015/08/Mark-Smylie.pdf.

Stubbs, M. 1993. *Discourse Analysis*: *The Socio-linguistic Analysis of Natural Language.* Chicago: University of Chicago Press.

Talja, S. 1999. Analysing Qualitative Interview Data: The Discourse Analytic

Method. *Library and Information Science Research* 21,4:459 -457.

United Kingdom Professional Standards Framework (UKPSF). Available at: https://www.heacademy.ac.uk/recognition-accreditation/uk-professional-standards-framework-ukpsf.

University of the Western Cape Senate Teaching and Learning Reports (2012 to 2013).

Nomakhaya Mashiyi
Faculty of Economic and Management Sciences
University of the Western Cape
nmashiyi@uwc.ac.za

Rita Kizito
Nelson Mandela Metropolitan University
Rita.Kizito@nmmu.ac.za

The Influence of the HEQC's Institutional Audits on Teaching and Learning at Three South African Universities

Emmanuel M. Matsebatlela

Abstract

Institutional audits constitute one of the ways through which South Africa's Higher Education Quality Committee (HEQC) executes its quality assurance mandate. The study investigated the effect of the HEQC's institutional audits on teaching and learning at three South African universities. A case study design was used for the investigation. A total of 58 participants spread across the three selected universities were interviewed in 27 interview sessions.

The findings indicate that the audits have had a positive, albeit limited and variable, effect on teaching and learning, and on the support functions for teaching and learning at the three universities. Though there seems to have been considerable progress made in some areas, in other areas the institutions seemed to be struggling to implement their improvement plan effectively and probably need support. Some of the recommendations based on the present study's findings are that the HEQC should put in place more robust follow-up and monitoring mechanisms, including compulsory follow-up site visits, and that institutional audits be conducted at more universities to test the findings of this study.

Keywords: institutional audits, universities, teaching and learning, quality assurance, systems theory, total quality management.

1. Introduction and Brief Background to the Study

Institutional audits constitute one of the ways through which South Africa's Higher Education Quality Committee (HEQC) executes its quality assurance mandate. The HEQC is a permanent subcommittee of the Council on Higher

Education (CHE) – an independent statutory body which functions as the quality council for higher education in South Africa (CHE 2004). Many countries use institutional audits as a quality assurance mechanism to improve and enhance the quality of the higher education sector (CHE 2004). Since the intended outcome of institutional audits is continuous quality improvement and development, it is essential to determine to what extent the institutional audits have led to quality improvement and enhancement.

Owing to its historical legacy, South Africa has been characterised by disparities on many fronts. On the social front, there are glaring inequalities emanating directly from the apartheid legacy. According to Statistics South Africa's Income and Expenditure Survey 2005/2006 (Statistics South Africa 2008), inequality continues to remain high among the various population groups and within individual population groups. The Gini coefficient[1] based on disposable income (from work and social grants) for the entire country was 0,72 (Statistics South Africa 2008).

Disparities in the education sector, which had been strategically orchestrated by the apartheid government, played a pivotal role in creating further varied forms of social injustice. The apartheid government's University Extension Act of 1959 exacerbated racial discrimination at even the higher education level and had the result that historically black universities became under-privileged institutions in terms of resources (Ilorah 2006). At the same time, under the apartheid government the historically white Afrikaans universities received a disproportionately high percentage of state funding and also had some of the best academic facilities in South Africa (Mabokela & Wei 2007).

In an endeavour to transform South African higher education, the CHE was established in May 1998 in terms of the Higher Education Act, 1997 (Higher Education Act No. 101 of 1997). The CHE discharges its quality assurance functions through its permanent subcommittee, the HEQC.

---

[1] The Gini coefficient, invented by the Italian statistician Corado Gini, is a number between zero and one that measures the degree of inequality in the distribution of income in a given society. The coefficient would register zero (0.0 = minimum inequality) for a society in which each member received exactly the same income and it would register a coefficient of one (1.0 = maximum inequality) if one member had all the income and the rest had nothing.

The HEQC was mandated to conduct institutional audits on the country's higher education institutions in the context of continuing reform and restructuring, with the goal of producing a transformed higher education system of high quality, able to address the complex knowledge and development needs of South African society.

The HEQC's institutional audits ran from 2004 to 2011. The audits focused on institutional policies, systems, procedures, strategies and resources for managing three core functions, namely teaching and learning, research, and community engagement, as well as academic support services (CHE 2007). The HEQC established a set of criteria for the conduct of institutional audits after consultation with higher education institutions (CHE 2007). According to the HEQC criteria for institutional audits (CHE 2004), the following two broad areas were the focus of evaluation in the audits:

- Area 1: Mission of the institution, links between planning, resource allocation and quality management.

- Area 2: Teaching and learning, research and community engagement.

In line with standard international practice, the HEQC uses an audit methodology consisting of institutional self-evaluation, followed by an external validation process by an audit panel of experts and peers appointed by the HEQC. After conducting a self-evaluation, institutions are required to develop an audit portfolio, comprising a self-evaluation report (SER) and supporting documentation. The SER as well as supporting evidence is used to assess the institution's effectiveness and the efficiency of its core academic activities against the HEQC's audit criteria and any other relevant indicators or criteria that the institution has set for itself, such as its mission and vision (CHE 2007).

The members of the audit panel then attend a portfolio meeting with HEQC staff to discuss the SER submitted and to plan the site visit (CHE 2007). After the portfolio meeting, the audit subpanel visits the campus of the institution being audited. The purpose of the campus visit is to inspect the infrastructure that supports teaching and learning. The audit subpanel does not conduct interviews during the campus visits but while on site asks various members of the university community questions to gain clarity. The university management and student leadership are in turn afforded an

opportunity to make presentations to the subpanel about the infrastructure that supports teaching and learning.

Then a report based on the campus visit is shared with all members of the audit panel during the audit visit at the audited institution. The panel validates the institution's claims in the SER during the audit visit by checking the on-site evidence made available by the institution in a dedicated area at the institution's premises (CHE 2007). The main focus of the audit visits is on the interviews the panel conducts with a wide range of the institution's stakeholders, including senior management, academics, academic support staff, students, industry partners, employers and alumni (CHE 2007).

The panel makes an independent judgement about the effectiveness of the institution's internal quality arrangements, which judgement forms the basis for oral feedback and the audit report. The oral feedback, which is presented to the institution on the last day of the audit visit, is the audit panel's account of its preliminary findings (CHE 2007). It is presented at the end of the audit visit at a meeting with the vice-chancellor and senior leadership of the institution, and other staff members invited by the vice-chancellor (CHE 2007).

After the audit visit, the HEQC produces an audit report with commendations and recommendations for the audited institutions, subsequent to which an executive summary of the report is published on the Council on Higher Education's website. Afterwards the HEQC embarks on the post-audit processes, which consist of the submission of the improvement plan by institutions, making visits after the implementation of the improvement plan (if necessary), the submission of the progress report by the institution and the closure of the audit.

In 2011, when the institutional audits of the remaining two public higher education institutions had been completed, the focus shifted to the follow-up processes to ensure that the audited institutions compiled improvement plans in response to the recommendations made in the institutional reports and the subsequent progress reports.

After the cycle of institutional audits had been completed in 2011, the HEQC progressed to the next phase, referred to as the Quality Enhancement Project (QEP). The QEP is a follow up to the institutional audit process conducted by the HEQC. It is a five-year project which focuses on the improvement of teaching and learning in public as well as private higher education institutions, and is carried out in parallel processes (CHE 2015).

The institutional audits revealed that much work was needed to improve the quality of teaching and learning, given the context of a predominantly undergraduate higher education system with consistently poor throughput rates (CHE 2015). In addition, an external evaluation of the HEQC in 2008 had recommended that more attention ought to be given to the enhancement aspect of external quality assurance in the suite of programmes it offered (HEQC 2009).

2. Problem Statement and Focus of the Study

Although the HEQC monitored the progress made with the implementation of the quality improvement plan by analysing the mid-cycle progress report from the higher education institution, usually three years after the audit visit, the process was primarily paper-based and, apart from a few exceptional cases of concern, institutions are not subjected to follow-up visits to verify said the claims made in the progress report (CHE 2004). In addition, the HEQC's monitoring mechanisms focus on engagements with the institutions' senior management members. Furthermore, few studies have been done since the conclusion of the institutional audits in 2011 that sought to establish the effect or consequences of institutional audits on South African universities.

The studies that have been done about the institutional audits in South Africa have focused primarily on the audit process. This study therefore attempts to fill this void as it seeks to establish the influence of HEQC's institutional audits on teaching and learning at higher education institutions by seeking the opinions of academics, students and senior management members at selected universities in South Africa.

The primary aim of this study was to investigate the influence of the HEQC's institutional audits on teaching and learning at three South African universities. To this end, the research questions were categorised into the main research question and subordinate research questions. The general main research question and the more specific subordinate questions helped to narrow down the focus of this research (Punch 2009).

a) The main research question
- How have the HEQC's institutional audits influenced teaching and

learning and their support functions at three South African universities?

b) **Subordinate questions**
- What discernible effect has the HEQC institutional audits had on teaching and learning policies, practices and behaviours?

- How have the HEQC institutional audits affected the support functions for teaching and learning?

As mentioned above, this study is based mainly on the two broad areas forming the focus of the evaluation in the institutional audits; it does not cover all the aspects of each area. The study specifically covers the following themes: postgraduate supervision, the assessment of students, the institution's vision and mission, resource allocation, and support for black and female academics.

3. Quality Assurance in Higher Education

The processes used in external quality assurance include self-evaluations or reviews, the audit visit, and the post-audit follow-up processes. A self-evaluation affords organisations an opportunity to review the status quo of their processes and performance levels (Brits 2005). The self-evaluation activities preceding the actual site visits and reviews are often seen as having a greater impact than the external review itself (Stensaker *et al.* 2011). Indeed, a study on the impact of quality assurance based on the discussion among representatives of external quality assurance agencies found that there tended to be general agreement that the self-evaluation report was the main benefit of external quality assurance processes (Harvey 2006).

Various studies show that the effects of quality assurance on teaching and learning policies, practices and behaviours in higher education have been largely positive. In the study of Stensaker *et al.* (2011), senior management, academics and students were generally positive about the effects of external quality assurance on the resources and facilities for research. In addition, Stensaker (2003) points out that earlier studies from the Netherlands found there were positive effects of external quality assurance processes on teaching

and learning at higher education institutions. Other studies found that the tendency for external quality assurance to focus its lens mainly on teaching had, to some extent, redressed the historical imbalance between teaching and research, which had been created by the greater value placed on research by higher education's prestige economy than to teaching, particularly at traditional universities (Ewell 2010). Ewell's (2010) observation is corroborated by Minelli *et al.* (2006) and Mohrman (2011) who found that quality assurance interventions led, *inter alia*, to more transparent processes; improved professional practices such as more effective teaching methodologies; the enhancement of the decision-making process in teaching departments; more attention being given to undergraduate education; and an improvement in the allocation of higher education institutions' resources.

The study by Minelli *et al.* (2006) further corroborates the positive effects of external quality assurance on support functions, which investigated the effect of external quality assurance on Italian and Dutch universities. The findings of the study included the increased transparency of processes; reinforcing the universities' overall transformation; and significantly influencing resource development, particularly in the process of financial and human resource allocation (Minelli *et al.* 2006).

In spite of the aforementioned positive effects of quality assurance on higher education, it is important to acknowledge that the relevant stakeholders have not always perceived such higher education quality assurance favourably. In a study by Worthington and Hodgson (2005), academics resented the time they spent on producing documentation for quality assurance and considered it a waste of time. These authors' research also points to a dichotomy between the way academics perform when under the scrutiny of the quality assurance officials during quality audits and what they actually do in practice once they are no longer under this scrutiny (Worthington & Hodgson 2005).

These findings are corroborated by Anderson (2006) whose study on academics' responses to quality in some Australian universities revealed that academics hated the amount of time they spent on quality assurance mechanisms. In fact, Australian academics' ambivalence towards quality assurance, which was initially identified in the early 1990s, appears to be undiminished by the passage of time (Anderson 2006).

This ambivalence could be due to some academics' feelings of fear that the audit was a fault-finding exercise and their perception that

institutional audits were a symbol that they were not trusted (Cheng 2009). In this regard, Billing (2004) observes that university staff members tend to act in a more mature manner if they are treated as responsible adults instead of as mischievous children; they then voluntarily take charge of evaluation and self-control.

Some academics from the UK's higher education institutions felt that the quality assurance system, which focused on a greater need for documentation and box-ticking, was too bureaucratic and only addressed quality at a superficial level (Hoecht 2006). The academics commented that this superficial approach to quality assurance was at the expense of more direct quality-enhancing activities such as teaching preparation. This revelation is consonant with a study by Jones and De Saram (2005) who found that academic staff in Hong Kong felt that quality assurance processes diverted their efforts to marginal administrative requirements instead of allowing and encouraging academics to focus on the authentic, core elements of quality improvement.

Quality assurance agencies have been subjected to scathing criticism and some have even faced closure. Some of the reasons for the criticism are related to the perceived failure of higher education quality assurance mechanisms to address graduate unemployment adequately, inspire public trust in universities, and ensure the optimisation of returns on government investment. The Australian Universities Quality Agency (AUQA), which was established in 2001, was shut down in 2011. The agency was criticised for focusing primarily on process instead of improving the academic standards (Matchett 2011). In fact, some even barely stopped short of regarding AUQA's work as a waste of time (Matchett 2011).

In 2012, an ENQA review panel found that the Swedish National Agency for Higher Education (HSV) had failed to meet the requirements of the regulations of the European Association for Quality Assurance in Higher Education (ENQA) (Myklebust 2012). The panel found that Sweden's quality assurance system was not in compliance with the European Standards and Guidelines (ESG) for Quality Assurance in the European Higher Education Area (Myklebust 2012). Furthermore, the panel stated that though the end result of a basic principle of ESG should be quality enhancement, the Swedish system made no recommendations on improvement (Myklebust 2012). It was also observed that the Swedish quality assurance system did not always take cognisance of institutions' arrangements for internal quality assu-

rance (Myklebust 2012).

In 2014, the future of the Quality Assurance Agency (QAA) was threatened after the Higher Education Funding Council for England (HEFCE) announced that it would invite external bodies to bid for the work undertaken by the QAA (Grove 2014). The HEFCE stated that the move was necessitated by a need to develop innovative approaches to quality assurance which should be risk-based, proportionate, affordable, a low burden and responsive to rapid change in higher education (Grove 2014). Some critics felt that the QAA's institutional reviews for many universities had become virtually ceremonial and that there had to be a greater focus on improving standards and measuring graduate outcomes (Grove 2014).

4. Conceptual Framework

The HEQC's institutional audits covered various themes pertaining to teaching and learning, and also the support areas for teaching and learning. However, in the present study, themes were identified in the criteria of the HEQC's institutional audits, from the analysis of the HEQC audit report summaries and from the findings of the literature review. The themes were subsequently categorised into teaching and learning areas and the support areas for teaching and learning.

Although the HEQC's institutional audits covered many groups of role players at different levels and in both the academic and support sections, the present study focused on three groups of role players. The interviews held with these role players were based on the identified themes and sought their experiences with and opinions about various aspects of teaching and learning and the support areas for teaching and learning (see Figure 1).

It was envisaged that feedback from the three groups of role players would shed light on the possible effects that institutional audits had on teaching and learning, and on the support areas for teaching and learning at South African universities. A review of the literature shows that although institutional audits have had positive as well as negative effects, the overall effect has been positive (Hoecht 2006).

This study is underpinned by Total Quality Management (TQM) and systems theory. Figure 1 shows that the TQM concepts should be embedded in the higher education system and guide approaches and processes so as to increase the likelihood of positive effects from the audits.
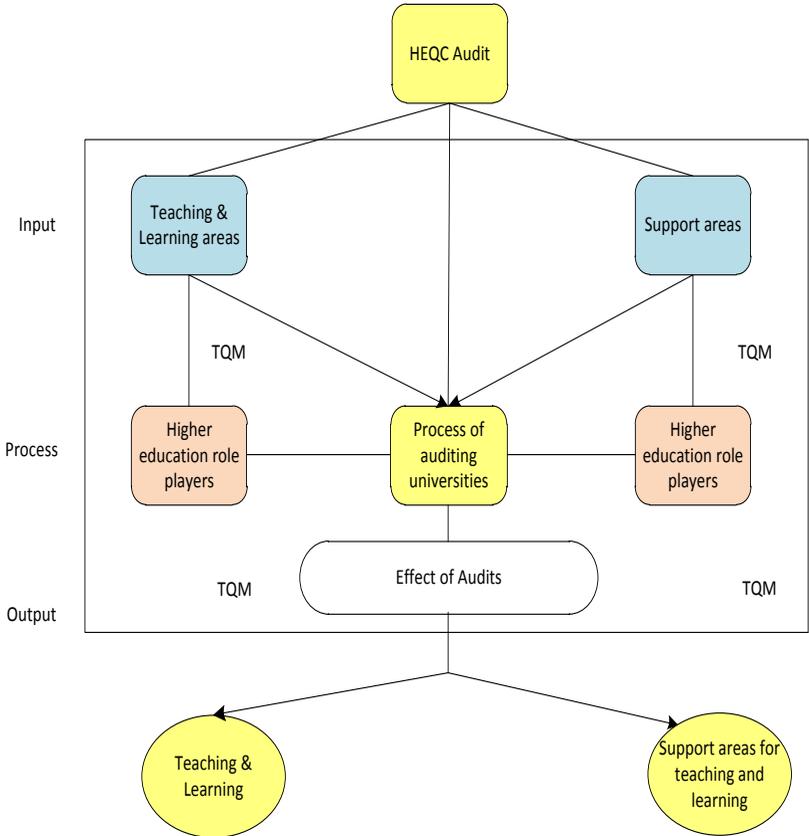
Fig. 1 Conceptual framework of the role of institutional audits in improving quality in higher education (*source: Matsebatlela 2015*)

TQM's basic concepts consist of a committed and involved management; a focus on the customer, both internally and externally; the involvement of the entire workforce; continuous process improvement; treating suppliers as partners; and establishing performance measures for the processes (Besterfield 2004). By contrast, systems theory is premised on a holistic approach, where the focus is on the way subsystems interrelate and how systems work over time and in the context of larger systems (Miller-Williams & Kritsonis 2010). As indicated in Figure 1, higher education institutions should be seen as one system with interrelated subsystems. The different role

players at various levels should comply with the institutional audit processes and work in a synergistic manner in order to produce the envisaged outcomes.

In line with the systems approach to quality assurance, different stakeholders at each institutional level must accept and implement a culture of quality and self-evaluation (Fourie 2000), and work synergistically to produce the envisaged outcomes. There is a connection between the conceptual framework of this study and the HEQC's notion of quality in teaching and learning and in support functions. The notion of customer satisfaction is derived from TQM and resonates with the notions of quality that were identified by the HEQC, such as value for money and transformation (Fourie 2000). In the context of the systems approach to quality management, continuous improvement, value-adding and transformation should occur at different levels and in different areas of an institution (Fourie 2000).

5. Research Methodology

This study investigates the influence of the HEQC's institutional audits on South African public higher education institutions. A case study design was used for the investigation to ensure that focused attention would be given to each of the three selected institutions. A case study was the most appropriate research design to help the researcher to answer the research question, as this design involves a systematic and in-depth investigation of a particular phenomenon and the use of multiple sources of evidence with data converging in a triangulating fashion (Yin 2009; Rule & John 2011).

The population comprised all the South African public higher education institutions that had been audited during the HEQC's institutional audits. The sample consisted of three selected public higher education institutions: a traditional university, a comprehensive university and a university of technology. These are referred to as University A, University B and University C respectively. A total of 58 respondents were selected, comprising 12 senior management members, 12 academics and 34 students, spread across these three South African public higher education institutions. The sample also covered rural-based and urban-based universities as well as historically advantaged and disadvantaged institutions. The three universities

are located in two provinces in South Africa. The extent of the diversity among the three universities resulted in information-rich cases that provided an opportunity for maximum variation sampling (Patton 2002). The logic of maximum variation sampling is that when a researcher selects a highly diverse sample, the collection and analysis of data will produce detailed and high-quality descriptions of each of the cases in the sample (Patton 2002). The value of variation-of-sample contexts is corroborated by Botha, Favish and Stephenson (2008) whose study on the comparison of the institutional audit experiences of three South African universities (the University of Cape Town, Stellenbosch University and Rhodes University) found that the different institutional contexts influenced the way in which each of the three universities responded to the institutional audit.

The choice of sample was also based on distance, owing to budgetary and time constraints because the researcher conducted all the interviews personally. As Neuman (2003) notes, one of the main disadvantages of face-to-face interviews is their high cost. Ultimately, three of the initial six universities requested to be part of this study, were selected on the basis of their relatively quick and positive responses.

Table 1, shows the sampling of participants at each of the three selected universities.

Table 1: Sampling of participants per university

Participants	University A	University B	University C
Senior management	Deputy Registrar	Registrar	Deputy Vice-Chancellor: Academic
	Director of Quality Assurance	Director of Quality Assurance (joined by a Quality Assurance Manager)	Director of Quality Assurance (joined by a Quality Assurance Manager)
	Executive Dean	Executive Director of Staff Development	Executive Dean: Faculty of Humanities
	Director of School	Director of Student Administration	Executive Dean: Faculty of Science

Academics	4 Academics: Faculty of Science and Agriculture	2 Academics: Faculty of Management Sciences 2 Academics: Faculty of Humanities	4 academics: Faculty of Science
Students	6 Undergraduate 4 Postgraduate From Faculty of Science, Faculty of Management Sciences, and Faculty of Humanities	7 Undergraduate 5 Postgraduate From Faculty of Science, Faculty of Management Sciences	9 Undergraduate 3 Postgraduate From Faculty of Science, Faculty of Management Sciences, and Faculty of Humanities

(Source: Matsebatlela 2015)

The necessary adjustments had to be made to the original sample of participants. For example, with regard to senior management staff, the original intention had been to interview a registrar at each of the three universities. However, due to unforeseen challenges, only the registrar at University B was interviewed. At University A, only the deputy registrar was available for the interview, and University C's registrar was not available. The predetermined number of participants and categories remained unchanged in spite of the replacement of some participants.

Furthermore, as regards the spread of participants, the initial intention was to interview academics in similar faculties across all three of the universities. Interviewing across institutions proved impractical owing to the responses from academics who were approached to participate in this study and the difficulties encountered in setting up some interview meetings, so this idea was not pursued. The students were from the faculties of science, management sciences and the humanities (see Table 1). As the sample of participants was not representative of all the faculties at each institution, the participants' views should be read with circumspection regarding generalisations.

Qualitative research uses generalisation to a limited extent, since the intent of this research method is not to generalise findings to individuals, sites or places other than those under study (Creswell 2014). Yin (2009)

distinguishes between two types of generalisation: statistical and analytical generalisation. Statistical generalisation typically applies to survey research whereas analytical generalisation applies to case studies. Concomitantly, in this study, the notion analytical generalisation is deployed.

One of the criticisms of case studies is that they provide little basis for scientific generalisation (Yin 2009). In response, Yin (2009) submits that, like experiments, case studies can be generalised to theoretical propositions but not to populations or universes. In essence, case studies, similarly to experiments, do not represent a 'sample', and a researcher's goal in conducting a case study will be to expand and generalise theories (analytic generalisation), not to enumerate frequencies (statistical generalisation) (Yin 2009).

5.1 Data Collection
The data were collected over eight months in 2012 and 2013. Interviews were held with a total of 12 senior management members and 12 academics, spread across the three identified South African public higher education institutions. Focus groups were conducted with a group of 10 to 12 students at each of the three universities. A sound-recording device was used for recording a verbatim account of the interviews for the purposes of transcription and analysis.

5.2 Data Analysis
This study is comprised of data obtained from 27 interviews. After conducting the interviews, data from the digital recorder were transcribed. Atlas.ti, a data-analysis software package for qualitative data, was used for analysing the data from the interviews. The researcher used Atlas.ti to code the data, write memoranda, and create code families and networks to display the data from the transcriptions. Data were further categorised into themes. In addition, content analysis was used to analyse information thematically which was contained in the executive summaries of the audit reports published on the CHE website.

5.3 Research Ethics
Before conducting the interviews, ethical clearance for this study was sought and obtained from the Faculty of Education at the University of Pretoria.

Formal permission was also obtained from the relevant management structures and participants at the three institutions to conduct interviews. All participants were informed of the anonymity and confidentiality of their participation.

6. Findings

This section presents a summary of the main research findings. This section is structured according to the subordinate questions of the research.

What discernible effect has the HEQC institutional audits had on teaching and learning policies, practices and behaviours?

- *Postgraduate supervision*

Of the 22 public higher education institutions that had been subjected to institutional audits, 21 received recommendations pertaining to supervision or postgraduate education. The recommendations made to the three universities central to this study in the area of postgraduate education covered the following issues: supervisors acting as examiners of their own students, high workload for supervisors, lack of supervision capacity, delays in the proposal approval process, inadequately qualified supervisors, and using the same external examiners for too long without variation. The prevalence of some of these challenges is corroborated by Singh (2011) who found that universities were grappling with a lack of critical mass in terms of suitably qualified and experienced supervisors, and an increase in the workloads of supervisors.

Feedback from senior managers, academics and students revealed that University A, University B and University C faced various challenges regarding postgraduate education. These challenges included supervision capacity, lack of grievance procedures for postgraduate students, delays in the process of approving proposals and supervisors having to perform the role of examiners of their own students. It became clear during interviews with senior managers, academics and students that, of all the aforementioned challenges in postgraduate education, supervisory capacity posed the greatest challenge at the three universities. This finding is corroborated by the PhD study conducted by the Academy of Science of South Africa (ASSAf) in (2010) which found that the percentage of permanent academic staff with PhDs at South African universities ranged from five per cent to 61 per cent

per university. The study furthermore points out that in 2007 the top nine South African public higher education institutions were responsible for producing 83% of the PhD graduates in the South African public higher education sector (ASSAf 2010). The ASSAf report states that the three universities in this study are positioned in the bottom eight universities as regards permanent academic staff with doctoral qualifications. Consequently, it is not surprising that University A, University B and University C face challenges with postgraduate supervision capacity. What is surprising however, are the varying degrees of commitment and urgency with which this issue is being addressed at the three universities. As mentioned above, at one of the three universities (University A) the problem was so dire that some schools did not offer any postgraduate qualifications beyond the honours degree level, because of the lack of sufficiently qualified academics to supervise master's and doctoral students. During the interviews at University A, some students even stated that inadequately qualified lecturers were allowed to supervise students.

The interviewed academics at the three universities stated that the lack of postgraduate supervisors had resulted in heavy workloads for the academics who were qualified to supervise research. The problem was further compounded by the apparent lack of policy on workloads for supervisors. In spite of the challenges that the three universities encountered as regards postgraduate education, it was evident during the interviews that mechanisms were being put in place to address the issues raised. In an attempt to address the lack of supervision capacity, some universities have collaborated with other universities to share supervision capacity and agreed with the other universities that their experienced supervisors would be allowed to mentor their emerging researchers, placed their lecturers in the master's and doctoral qualification programmes of their partner universities, and established supervision forums where meetings have taken place, allowing some interaction between experienced and novice supervisors.

- *Assessment of Students*

Eighteen of the 22 universities that had been audited received recommendations regarding assessment and the security of tests and examinations, including all three of the universities under study. The three universities received recommendations which primarily focused on the

consistent implementation of assessment policy across the university, the practice of using past examination questions in test and examination papers, the integrity and security of student records, and the provision of timely feedback on assessments.

It is evident that the three universities face various challenges pertaining to the assessment of students. The major challenge at the three institutions is the inconsistent application of the university-wide assessment policy. Feedback from participants suggests that this was due to the ineffective communication of the assessment policy; some of the academics were not even aware of their university's assessment policy. In fact, the assessment policy appears to be consistently implemented in some faculties, schools and departments, instead of across the university because academics appear to be more aware of their faculties' assessment policies than of the overarching institutional policy.

Another challenge at the three universities was the practice of repeating examination questions. The problem was so serious that in some cases the cutting and pasting of questions from previous examination papers was glaringly obvious. Whole papers were being repeated. The repetition of examination questions could affect students' learning process. In fact, Struyven, Dochy and Janssens (2005) contend that students' perception of assessment tends to influence their approach to learning; these approaches can be either positive or negative. When students perceive that assessments are inappropriate, this tends to encourage surface learning approaches (Struyven *et al.* 2005). Accordingly, the repetition of previous question papers by academics at University A, University B and University C could adversely affect the learning process by encouraging superficial learning approaches. In fact, it is easier to induce surface-learning approaches than to promote the desirable deep-learning approaches (Struyven *et al.* 2005). The assessment practices of some academics at University A, University B and University C suggest that if the universities do not give adequate attention to the area of assessment, there could be a gradual move towards surface learning in at least some sections of these universities.

Academics play a key role in students' learning approach; but the findings in a study by Struyven *et al.* (2005) suggest that academics are not successful in providing adequate guidance to students about optimum approaches to learning.

Interviews with the academic participants also revealed that University A and University C had serious challenges with the leaking of examination papers. These participants also stated that even though some question papers had reportedly been leaked, they continued to be written or marked regardless. Although it is encouraging to note that some universities in this study acknowledged the challenges they faced with assessment and were making efforts to overcome them, it is still cause for great concern that these assessment practices were allowed to occur and to degenerate to this extent. This is even more telling because assessment defines the higher education curriculum in students' eyes, exerts a profound influence on their learning and has long been perceived as the driving factor for improving teaching and learning (Beaumont, O'Doherty & Shannon 2011).

How have the HEQC institutional audits affected the support functions for teaching?

- *The Crafting and Communication of the Vision and Mission*

All three of the universities received recommendations in their audit reports, pertaining to their visions and missions. The recommendations urged the universities to conduct university-wide debates when reviewing the meaning and appropriateness of their visions and missions, and to communicate these effectively. The responses from the interviews at the three Universities about the vision and mission showed that, in the main, senior managers felt that the process of crafting the universities' strategic directions was widely inclusive of and well communicated to all stakeholders. By contrast, the responses from the academic participants showed general dissatisfaction with the process of crafting and communicating the vision and mission. Some academics thought their senior management had unilaterally decided on the university's vision and mission, whereas others only became aware of their university's vision and mission via the internet. The general view among the students who were interviewed was that they did not know about the mission and vision and felt these had not been communicated to them. The widely divergent perceptions about the universities' visions and missions among senior management on the one hand and staff and students on the other, suggest a marked disjuncture between the former's processes and the latter's expectations and need for communication.

Although at some universities the members of senior management pointed out the measures that were being taken to improve and monitor the effectiveness of communicating the vision and mission, these efforts appeared to be piecemeal and insufficient.

- *Resource Allocation*

Thirteen of the 22 South African universities received recommendations about resource allocation in the HEQC institutional audit reports. University A, University B and University C had all been given recommendations about resource allocation. The main recommendations made to the three universities in the present study, pertained to the equitable allocation of resources between the main and satellite campuses and the resourcing of libraries.

There was general concurrence among senior management members at the three universities that the satellite campuses, including their libraries, were not as adequately resourced as the libraries at the main campuses. However, though senior managers at University B and University C acknowledged that inequitable resource allocation was an unfortunate fact that should be corrected, their counterparts at University A attributed the concerns about inequitable resourcing at satellite campuses to misconception and misunderstanding. The view held by senior managers at University A, who dismissed complaints about inequitable resourcing as a product of misconception, is cause for concern as it may imply that the University is reluctant to address this concern about satellite campuses. It is also worrying that a senior management member at University C expressed pessimism about satellite campuses since this gloomy sentiment could signify inertia regarding conditions at this University's satellite campuses.

The interviewed academics were generally satisfied with the service provided by the libraries at the main campuses, whereas the participating students at the main campuses expressed concern about library space and resources such as computers, including limited internet access. The participating students at the satellite campuses of the three universities generally felt marginalised as they had the impression that the University management gave more attention to the resources at the main campus.

The three universities seemed to have made notable progress with the resourcing of their libraries, although more still ought to be done, particularly

about the equitable resourcing of infrastructure and human resources at the main and satellite campuses. Each of the universities had appointed new incumbents to head their libraries. The feedback from the stakeholders suggested that these new appointees were accomplishing positive changes at the university libraries.

- *Support for Black and Female Academics*

Twelve of the 22 universities that had been audited by the Higher Education Quality Committee had received recommendations pertaining to support for black and female staff members. University A, University B and University C received recommendations focusing on the provision of support for black and women staff members, the elimination of a patriarchal culture and an equitable representation of female academics. The responses from senior management at these three universities were mainly positive about the support given to black and female academics. Senior managers generally had the impression that the universities were providing adequate support to the two groups that had historically been marginalised. They also indicated that the institutions were taking measures to improve the support given to these groups of academics. Conversely, academics generally pointed to a lack of support for black and female academics. At University B, South African black academics stated that they felt marginalised as the University seemed to prefer foreign black academics. At University C, academics had the view that support for female academics was inadequate and that there was a low proportion of female academic staff, particularly in the science and engineering fields.

The recommendation on changing a patriarchal culture at University A has apparently not been given adequate attention. During the interviews for this research, the University's executive management team of 13 members consisted of only one female member and all the deans of faculties were male. As regards support for female academics at University A, the responses from the academics interviewed seem to suggest that the responsibility for supporting female academics was assigned to an association for women researchers, which was aimed at providing support to female staff and to female students engaged in postgraduate research. The association was subsequently formally launched in 2012, suggesting that the University had

made an effort to address the recommendation pertaining to the provision of support for female researchers.

The disparity in the views of senior management and academics regarding the support given to black and female academics suggests that more still has to be done to support black and female academics to ensure that these demographic groups feel as valued as the other historically advantaged demographic groups, such as male and white academics.

7. Conclusions

Overall, the influence of institutional audits on teaching and learning and their support functions at the three universities has been positive but limited and variable. A key function of external quality assurance is to stimulate change and to improve teaching and learning (Stensaker *et al*. 2011). Positive changes in and progress with the various the areas of teaching and learning do seem to have occurred since the HEQC's institutional audits had been conducted at the three institutions. These changes include an improvement in the infrastructure for teaching and learning, the contracting of experienced postgraduate supervisors from other universities to help supervise postgraduate students and mentor novice supervisors, and using technology to enhance the teaching of large classes. There was general concurrence among the three universities that the self-evaluation exercise and institutional audits had added value by making staff members more aware of their strengths and weaknesses, thus enabling them to improve the level of quality in the identified areas. Support structures had also apparently been put in place to support black and female academics at the three universities, although it is evident that more should be done in this area.

However, the three universities appear to have variably addressed the different areas of concern pointed out in the HEQC institutional audit reports. For example, communicating the vision and mission is still a challenge at the three universities. It is evident from the interviewee responses that the crafting of the universities' vision and mission was not sufficiently inclusive and not effectively communicated to members of the universities' communities. Moreover, the three universities seem to address the allocation of resources across the main and satellite campuses variably and inadequately.

Although the three universities have made efforts to address the recommendations made in the HEQC audit reports, it is evident that these universities still have to do more to implement their improvement plans adequately.

8. Recommendations

Instead of the current primarily paper-based practice of assessing the progress that institutions have made with addressing the recommendations in the audit reports, the HEQC should put in place more robust follow-up mechanisms, including compulsory follow-up visits, site visit inspections and follow-up interviews with selected members of the university community at different levels, not only with a university's executive leadership.

In order to overcome the challenges pertaining to the assessment of students by academics, it is recommended that the universities should consider making it compulsory for all academics to have done a course or attended a workshop on assessment in their first year of joining the university, to ensure that they are apprised of the university's assessment policy and practice.

The findings in this study could be validated by conducting similar research at more universities. This could be achieved by applying both qualitative and quantitative approaches to interviewing and distributing the questionnaires to a larger number of universities and participants.

References

Academy of Science of South Africa 2010. *The PhD Study: An Evidence-based Study on How to Meet the Demands for High-level Skills in an Emerging Economy*. Pretoria: ASSAf.

Anderson, G. 2006. Assuring Quality/ Resisting Quality Assurance: Academics' Responses to 'Quality' in Some Australian Universities. *Quality in Higher Education*,12,2:161-173.

Beaumont C., M. O'Doherty & S. Lee 2011. Reconceptualising Assessment Feedback: A Key to Improving Student Learning. *Studies in Higher Education* 36,6:671-687.

Besterfield, D. 2004. *Quality Control.* 7th Edition. New Jersey: Pearson Education International.

Billing, D. 2004. International Comparisons and Trends in External Quality Assurance of Higher Education: Commonality or Diversity? *Higher Education* 47:113-137.

Botha, J., J. Favish & S. Stephenson 2008. Institutional Audits: A Comparison of the Experiences of Three South African Universities. *Quality in Higher Education* 14,1: 29-53.

Brits, H. 2005. A Pilot Audit Exercise Based on the Principles of Total Quality Management: A Case Study. *South African Journal of Higher Education* 19,6: 1033-1046.

Cheng, M. 2009. Academics' Professionalism and Quality Mechanisms: Challenges and Tensions. *Quality in Higher Education* 15,3: 193-205.

CHE – Council on Higher Education 2015. *Content Analysis of the Baseline Institutional Submissions for Phase 1 of the Quality Enhancement Project*. Pretoria: Council on Higher Education.

CHE – Council on Higher Education 2007. *HEQC Institutional Audits Manual*. Pretoria: Council on Higher Education.

CHE – Council on Higher Education 2004. *Framework for Institutional Audits: Higher Education Quality Committee*. Pretoria: Council on Higher Education.

Creswell, J. 2014. *Research Design: Qualitative, Quantitative and Mixed Methods Approaches.* 4th Edition. Los Angeles: Sage.

Ewell, P. 2010. Twenty Years of Quality Assurance in Higher Education: What's Happened and What's Different? *Quality in Higher Education* 16,2:173-175.

Fourie, M. 2000. A Systems Approach to Quality Assurance and Self-evaluation. *South African Journal of Higher Education* 14,2:50-55.

Grove, J. 2014. QAA 'No Match' for Rapid Change in Higher Education Sector. *Electronic References*. Available at: http://www.theaustralian. com.au/higher-education/auqa-over-and-out/story. (Accessed on 1 July 2015.)

Harvey, L. 2006. Impact of Quality Assurance: Overview of a Discussion between Representatives of External Quality Assurance Agencies. *Quality in Higher Education* 12,3: 287-290.

HEQC 2009. *External Evaluation of the Higher Education Quality Committee of the Council on Higher Education*. South Africa: Pretoria, CHE.

Hoecht, A. 2006. Quality Assurance in UK Higher Education: Issues of

Trust, Control, Professional Autonomy and Accountability. *Higher Education* 51,1:541-563.

Ilorah, R. 2006. The Dilemma of the Historically Black Universities in South Africa. *South African Journal of Higher Education* 20,3:442-460.

Jones, J. & D.D. de Saram 2005. Academic Staff Views of Quality Systems for Teaching and Learning: A Hong Kong Case Study. *Quality in Higher Education* 11,1:47-58.

Mabokela, R. & N. Wei 2007. Lingering Effects of the Past on a University Merger Process in Post-apartheid South Africa. *International Education Journal* 8,1:160-171.

Matchett, S. 2011. AUQA takes its Final Bow. Available at: http://www.theaustralian.com.au/higher-education/auqa-over-and-out/ story. (Accessed on 1 July 2015.)

Matsebatlela, E.M. 2015. *The Effect of the Higher Education Quality Committee's Institutional Audits on Public Higher Education Institutions.* Unpublished Doctoral Thesis, University of Pretoria.

Miller-Williams, S. & W. Kritsonis 2010. A Systems Approach to Comprehensive School Reform: Using the Realms of Meaning and the Baldridge Model as a Systems Framework. *National Forum of Applied Educational Research Journal* 23,1:1-8.

Minelli, E., G. Rebora, M. Turri & J. Huisman 2006. The Impact of Research and Teaching Evaluation in Universities: Comparing an Italian and a Dutch Case. *Quality in Higher Education* 12,2:109-124.

Mohrman, K. 2011. Quality Assurance in China: The Changing Context. *International Higher Education* 64,1:24-26.

Myklebust, P. 2012. Row over Ministry Meddling and Quality Assurance Blow. Available at: http://www.theaustralian.com.au/higher-education/ auqa-over-and-out/story. (Accessed on 1 July 2015.)

Neuman, L. 2003. *Social Research Methods: Qualitative and Quantitative Approaches.* 5th Edition. Boston: Allyn and Bacon.

Patton, M.Q. 2002. *Qualitative Research and Evaluation Methods.* 3rd Edition. London: Sage publications.

Punch, K 2009. *Introduction to Research Methods in Education*. London: Sage.

Republic of South Africa 1997. *Higher Education Act No. 101.* Pretoria; Government Printers.

Rule, P. & V. John 2011. *Your Guide to Case Study Research*. Pretoria: Van

Schaik Publishers.

Singh, S. 2011. An Intervention to Assist Students with Writing their Dissertations and Theses. *South African Journal of Higher Education* 25,5:1020–1030.

Statistics South Africa 2008. *Income and Expenditure of Households 2005/2006: Analysis of Results*. Pretoria: Statistics South Africa.

Stensaker, B. 2003. Trance, Transparency and Transformation: The Impact of External Quality Monitoring on Higher Education. *Quality in Higher Education* 9,2:151-159.

Stensaker, B., L. Langfeldt, L. Harvey, J. Huisman & D. Westerheijden 2011. An In-depth Study on the Impact of External Quality Assurance. *Assessment and Evaluation in Higher Education* 36,4:465-478.

Struyven, K., F. Dochy & S. Janssens 2005. Students' Perceptions about Evaluation and Assessment in Higher Education: A Review. *Assessment & Evaluation in Higher Education* 30,4:325–341.

Worthington, F. & J. Hodgson 2005. Academic Labour and the Politics of Quality in Higher Education: A Critical Evaluation of the Conditions of Possibility of Resistance. *Critical Quarterly* 47,1-2:96-110.

Yin, R. 2009. *Case Study Research: Design and Methods*. 4th Edition. Washington DC: Sage.

Emmanuel Matsebatlela
International Electives and Education Office
Faculty of Health Sciences
University of Pretoria
Emmanuel.matsebatlela@up.ac.za

Transcending the Econometric Discourse in Curriculum Design: Multi-trajectory Progression Planning

Randhir Rawatlal
Rubby Dhunpath

Abstract

In 2014, *Alternation* carried an article by Rawatlal and Dhunpath (Special Edition 12) titled 'Stretching the Undergraduate Curriculum: A Compensatory Response to Curriculum Modelling?' In that article, the authors contended that the South African Council on Higher Education's (CHE) proposal to the South African government to extend the undergraduate curriculum by an additional year does not make a sufficiently compelling case, primarily because the proposal is inherently conservative in failing to move beyond the remedial. Furthermore, in challenging the veracity of the modelling scenarios presented in the proposal, we argued that the proposal inappropriately seeks to advance an econometric model to solve a pedagogic problem. In 2015, the Department of Higher Education and Training (DHET) rejected the CHE proposal because the modelling on which the proposal was based failed to account for a key driver in curriculum reform: The Foundation/Access Programmes, which, the DHET argues, had impacted student progression over the interceding years. In this article[1], the authors cautiously support the DHET decision to reject the CHE proposal, arguing that in the absence of radical curriculum transformation in structure, form and content, new possibilities do emerge from the now institutionalised Foundation/Access Programmes that support a Multi-Trajectory Approach (MTA) to designing curricula. The MTA approach is a

---

[1] This article is an extension of the arguments presented in one that appeared in *Alternation* Special Edition 12, 2014.

departure from the perfunctory approach to curriculum design, and disrupts curriculum rituals by infusing a scholarship of intellectual generosity without sacrificing rigour in delivery. The authors conclude by offering a tangible illustration of MTA in the form of Progression Mapping which allows students to have real-time, online access to their projection trajectories.

Keywords: curriculum modelling, curriculum extension, progression mapping, econometric discourse

Introduction

The South African higher education system's ability to advance the project of an intellectually agile and productive citizenry has been the proverbial 'elephant in the room' for generations. Instead, what has persisted is a higher education curriculum which is often critiqued for its conservatism rather than its liberatory potential. This was the case until the SA CHE attempted to diagnose the enduring pathology. In 2013, the CHE boldly pronounced that the source of the problem may be located in the curriculum which had 'wholly insufficient curriculum space to enable such provision to be incorporated without compromising the integrity of the 'irreducible core' of knowledge in the curriculum' (CHE 2013). To solve this problem, the CHE proposed to extend the three- and four-year undergraduate academic curricula by a year with a concomitant increase in the number of credits. The motivation for the original proposal was ostensibly to ameliorate the unsustainably low graduation rates in Higher Education. We argued in the original article (Rawatlal & Dhunpath 2014) that the notion of an 'irreducible core' underpinning the curriculum is inherently conservative and will not result in radical structural curriculum change, perpetuating a pedagogy that fails to move beyond the remedial. Secondly, we argued that the draft proposal provides financial modelling scenarios to motivate the feasibility of funding the extension of course duration, but fails to offer analogous scenarios to model the student progression and graduation benefits to be derived from funding such an extension. Our own modelling scenarios challenged the veracity and validity of the modelling scenarios set out in the proposal and their attendant resourcing implications. We concluded the article by proposing a different approach which involves the identification of alternative progression routes for students who

fail out of the mainstream. We argued that modern analytic methods such as those originating in the field of Artificial Intelligence (AI) enable data-mining of progression information from successful students to determine how existing curricula and timetables may be optimised to better support students progressing through these alternative routes.

In this article, which might be regarded as a sequel to the 2014 article, we explore the government's rejection of the CHE proposal, to establish whether the rejection is soundly motivated and whether the recommendations made by the Minister of Education and Training in response to this proposal are likely to generate productive outcomes. We then explore some of the disabling characteristics of existing curricula and how arbitrary ritualised curriculum structures continue to survive, despite their failure to promote student success. Finally, in concretising our conception of the Multi-Trajectory Approach (MTA) to navigating a curriculum, we offer, through the lenses of the Engineering curriculum, a tangible strategy in the form of Progression Mapping which enables students to take responsibility for their own progression, using existing technologies in real time. This is contingent upon curriculum leaders examining the logic of sequencing module content and coverage to ensure that students are exposed to fundamental conceptual knowledge and foundational principles before more complex content is attempted.

Back to the Design Board

Despite the popular approval the CHE received from the higher education sector on its proposal to extend the undergraduate curriculum by an additional year, the Minister of Higher Education and Training rejected the CHE's advice based on an apparent omission in the CHE's modelling scenarios, which do not factor in the impact of DHET interventions. This is articulated by the Minister as follows:

> DHET has in recent years introduced several important interventions impacting on teaching and learning at our universities. These include, inter alia, earmarked grants allocated to serve specific purposes. These grants are now firmly embedded in the system, having matured into effective instruments for developing capacity and bringing about change and improvements in performance. I believe that the Flexible

Extended Curriculum proposal, based on 2005 cohort data, has underestimated the improvements brought about by these and other interventions, and thus has perhaps underestimated the possibilities of curriculum reform within the current structural dispensation (DHET 2015).

Is this rejection justifiable? To answer this question, we revisit the modelling which informed the proposal. In the 2013 proposal, the claim is made that the modelling demonstrates an increase in graduation rates from 21,000 to 28,000 using an intake of the same size (42,000). By extrapolation, the report points out that without curriculum change, to achieve the higher graduation rate of 28,000, an intake of 53,000 would be required. The report goes on to discuss the increased efficiency of subsidy usage that could be realised, but of course the basic premise is that by changing the curriculum, the graduation rate will increase by one third; this is the key assumption to be probed.

Nowhere in the document titled 'Advice to minister of higher education and training on the reform of the undergraduate curriculum in higher education' (2014) is this assumption probed. To do so, the reader must refer to the original document titled 'A proposal for undergraduate curriculum reform in South Africa: The case for a flexible curriculum structure'. Even before the model is presented, the document argued at length that increased efficiency can be achieved in graduation rates, should the DHET increase the subsidy levels. It also assumes that despite the prescribed additional year of study and the additional 120 credits in all curricula, the cost of education will remain unchanged. Setting aside the obvious questions that these statements raise, let us examine the modelling.

It should be noted that 'flexibility' in the report refers to the notion that criteria can be developed to determine which students can be exempted from the 120 additional credits. This would be extremely difficult to accomplish without being exclusive and potentially discriminatory. The obvious question that arises is: why create a more politically fraught system when alternative access in the form of Foundation Programmes has already been institutionalised? A further question is: why set an inflated default from which a student must be exempted?

The model development occurs quite late in the document, in chapter 8. In fact, in this chapter we find not so much model development but a set of scenarios resulting from particular assumptions. In the status quo scenario, the

current graduation and dropout stats are cited for the purpose of benchmarking. The first scenario relies on two assumptions: 1) that current minimum time students will continue to graduate in minimum time by receiving exemption from the increased 120 credits and 2) that students who take the extra year will achieve higher graduation rates due to the additional credits improving their preparedness for the subsequent years of study.

As described earlier in this article, the first assumption is not feasible. The second assumption is unsubstantiated and unjustified. At present, there is no indication of what the additional 120 credits will be; thus, it cannot be assumed that these credits will enhance cognitive development to attain other credits. In fact, it is entirely possible that the additional credits and concomitant time required to complete the extended degree programmes will simply be an additional set of hurdles that will accelerate student dropout.

With such large questions hanging over the basic assumptions of the CHE proposal, it is necessary to perform a risk analysis to determine what the outcomes might be, should the assumptions not be justified. In short, the proposal for extension is overly contingent and overly optimistic to inspire confidence in its potential to address the core of the problem which is the curriculum itself, rather than the time required for its successful completion.

In his response to the CHE proposal the Minister of Higher Education and Training recommends the following:

> Instead of adopting the extended curriculum as a guiding vision for reform, and introducing the recommended pilot process, I recommend the following:
>
> - That a more recent cohort study be undertaken to assess the extent to which interventions towards improving teaching and learning in the sector have borne fruit, and thus the extent to which the proposal to implement an extended curriculum as the norm is required;
>
> - That the number of students registered for Foundation Programmes be considerably increased, to reach at least 30% of all students entering first year.
>
> - That clearer advocacy takes place on the need for extended programs

in order to persuade students, their parents, and the institutions themselves of the benefits of such programmes for academic progress and success;

- That the use of a placement mechanism be introduced along with more realistic admissions points for 'regular' admissions, so that students who are currently struggling, although they have met admissions requirements, are placed in foundation programmes and receive the assistance they need; and

- That the Higher Certificate (Foundational) be introduced as a new intervention that will impact on the 'articulation gap' and preparedness for higher education study, as a matter of urgency in terms of access and preparation for specific fields of study (DHET 2015).

The original CHE proposal was based on the 2006 cohort data (CHE 2013); hence, the Minister is indeed justified in calling for a more recent cohort study to assess the extent to which interventions have borne fruit, and its implications for the curriculum extension proposal. It may be that the Minister's 'recommendations' will be implemented as the new de-facto policy and practice. What is not clear, however, is how the Minister arrived at the conclusion and what body of evidence, indicates the success of the Foundation Programmes to warrant their expansion to at least 30% of enrolments. There is some indication in the Report of the Ministerial Committee for the Review of the Funding of [South African] Universities (2013) that various universities consider the Foundation Programmes as useful in providing access to underprepared students. However, little attention is paid to the success of access students. The report also signals the weaknesses in the implementation of foundation provisioning within extended curriculum programmes. Among other things, it concludes that provisioning has been very uneven across universities and in some cases across Faculties or Schools in the same university. This unevenness has occurred in key areas such as:

- the extent to which foundation provision articulates effectively with the relevant mainstream curriculum (an essential condition for foster-

ing student success through to graduation);

- The profile of the student intake;

- The qualifications and service conditions of the staff appointed to teach foundation courses and manage extended curriculum programmes (in many cases the teaching staff are junior or under-qualified, inexperienced and on very short-term contracts, all of which inhibit the development of expertise and professionalism in a challenging educational area); and

- The extent to which foundation courses are properly accommodated in the institutional administrative and quality assurance system (*Report of the Ministerial Committee for the Review of the Funding of Universities* 2013).

The Report cautions that 'it is of the utmost importance that the foundation provision articulate with the mainstream programmes and pedagogy' (DHET 2013:324). Based on this somewhat unflattering portrait of foundation provisioning, it remains a mystery why investment in them should triple, without concomitant investment in the structure and quality of delivery. Earlier research into access programmes (Dhunpath & Vithal 2012) affirms the weaknesses identified above.

The Multi-Trajectory Approach (MTA) to Designing Curriculum Pathways

We maintain, as we did in the original (2014) article, that curriculum reform that is remedial rather than radical will not address the chronic underperformance of the South African higher education system. However, noting the rejection of the CHE proposal by DHET and its affirmation of Foundation/Access Programmes as a viable alternative to curriculum extension, we now turn our attention to exploring what possibilities exist to salvage or bolster these programmes, if the decision to implement the Minister's 'recommendations' is a fait accompli. In the section that follows, we expand and explicate our conceptualisation of the MTA to designing curriculum

pathways, which could complement the declared benefits of the Foundation Programmes. It should be noted that in this article, our focus is less on the content of the official 'curriculum' and more on programme design and its influence on student progression. While still not entirely convinced that the notion of the 'irreducible core' in the curriculum is a defensible construct in a rapidly changing world, we nevertheless suspend our scepticism and turn our attention to examining possibilities for enhancing the overall performance of the existing curricula.

By definition, Foundation/Access Programmes provide an alternative progression route through the prevailing mainstream curriculum (See DHET 2013). In the present article, we differentiate between the curriculum as a body of knowledge and the associated experiences, arranged in a specific sequence, determined by logic and conditions for scaffolding (Vygotsky 1978), distinct from a progression plan, which is a specific route taken by a student or group of students through such a curriculum. The sequence of the curriculum may be preserved in the progression plan, but the period of time between courses may vary depending on the rate at which the student(s) pass courses. As a review of any group of student registrations on any academic programme will reveal, there exist multiple routes for progression through a curriculum.

When one focuses on a narrow view of curriculum, as progression through a chosen curriculum path, then progression through an access route and progression through an extended route are just that – alternate routes, or trajectories through the curriculum. As proposed in the original 2014 article, we maintain that through a rigorous process of data-mining of student registration information, it is possible to identify alternative trajectories which may be identified, studied and institutionalised for enhanced student progression. To echo the words of Adam Heidebrink (2015:1) 'As educators, we must do more than expect critical engagement from our students - we must model it in our efforts to change, modify, and adopt new learning practices'.

In optimising the multiple benefits to be derived from studying alternative progression routes, the first, most important, 'in principle' step is to determine whether the curriculum structure makes any pedagogic sense. Typically, in curriculum design, the academics involved achieve some degree of consensus on which concepts should be established as the fundamental basis of disciplinary knowledge, which concepts can/should be derived, and which may be translated into applications. Regrettably, once established, curricula acquire a reified status and their design features are rarely interrogated,

resulting in the perpetuation of historicised, ritualised practices. The prevalence of pre-requisites and co-requisites in certain disciplines, which often serve as gatekeepers or gateway courses, are evidence of this ritualised behaviour in which the curriculum is accorded sacrosanct status, regardless of the outcomes.

As part of established compliance requirements, some informal review can and does occur at the discretion of regulatory structures. These include reviewing concession requests from students to register for courses for which they do not meet pre-requisites. In these and similar instances, concessions may be granted in exceptional cases or where the course convenors make the effort to ascertain whether the pre-and co-requisites are actually material to the students' progress or ability to perform in a particular profession or vocation. However, these modifications tend to be arbitrary and concessionary rather than serve as valuable data to probe curriculum structure. In short, these incidental exceptional variants of ritualised practices, which have the potential to provide insights into the less visible elements of curriculum structure, are rarely explored or interrogated and are therefore squandered.

The second, practical outcome to be derived from studying alternative progression trajectories (APTs) is the potential to influence the logistical aspects of curriculum offerings, such as timetables, which are often mapped on pre-existing historical templates. Where an alternative request and concession is frequent, this justifies changing the timetable structure so that clashes in academic activities are minimised. For example, if a frequently occurring alternative progression plan is haphazardly timetabled, without due consideration for feasibility, it could prove counterproductive by limiting the number of courses students are able to register for, undermining the value of the APT.

Third, simply acknowledging that an APT exists and the design of the progression could significantly improve student engagement levels. At present, when a student fails out of the minimum time trajectory, s/he is faced with the 'terrible unknown' of how to proceed. It is left to the student to navigate the sea of possibilities, and receive advice from a variety of sources, including, at best, staff who are aware of the alternate trajectory, and, at worst, other students who also failed and resorted to alternative paths. The simple act of labelling and acknowledging an alternative progression path grants the curriculum designer control over this possibility by mapping out a clear set of goals within the curriculum plan that the student is able to follow to optimise progress.

Viewed in this light, Access Programmes and extended curricula can be

implemented as virtual routes without the need to increase credit loads. Most importantly, the minimum time trajectory is unchanged, and remains an aspiration for the entering student. The original CHE proposal included the possibility of students exiting from the extended programme in minimum time. However, logistically, such an alternative exit option would simply have been impossible for practical reasons, especially considering that the proposal also necessitated a proportional increase in credit load with the increase in the duration of the programme.

Finally, we contend that rather than extend the duration of the (extended) curriculum as a default option, the minimum time trajectory should be retained as a normative aspiration; that Access Programmes be regarded as a pre-selected alternative path; that an extended curriculum be regarded as an alternative path which an under-performing student may adopt and that other alternative paths be identified, aggregated and analysed from student registration information. In the latter model, an excavation of student progression trajectories will reveal the naturally-occurring alternative trajectories which will provide additional insights into the curriculum that could inform its re-design. We posit that all of these can be achieved through existing technologies in dialogue with AI.

Reinforcing the Foundations of a Curriculum

In South Africa, curricula have changed over the past decade in incremental ways, and not necessarily in productive ways. The trend has been to reduce content in the earlier years of a curriculum by removing credits from courses that were once considered as developing the fundamentals of a field of study. In Engineering, for example, the tendency has been to reduce the credits typically dedicated to physics and foundational mathematics. As there is pressure to increase the output of students for professions, the courses with a stronger bias for action and application have taken precedence over deep comprehension and establishment of fundamentals. [Note the reference to US data of 233 institutions here: http://www.nspe.org/resources/blogs/pe-licensing-blog/engin-eering-credit-slide-continues]

This has the short-term result of curricula enjoying higher pass rates in the earlier years. However, when the applied concepts are confronted in later years, in the absence of deep understanding, each application appears to be new

content rather than being derived from some underlying principle. Consequently, there is a content explosion in the latter years of the curriculum. Where a student of the past would find a few principles to be understood and applied to a specific question, to a present day student, it appears that there is a vast multitude of specific methods and formulae that must be adapted to the problem at hand. This is the long-term disadvantage of the short-term gain.

Overall, in the discipline of Engineering, the shift in content away from foundations has negatively impacted the throughput rate. This is counter-intuitive; one would expect that as the total loading decreases, the pass rate would increase. However, this supposition precludes the notion of the penny dropping; that when a student is exposed to a high level and high volume of content, that student must rapidly develop engagement with the curriculum-specific discourse to the point of becoming fully conversant with it.

The lesson to be derived from this reality is that we do students a disservice by drip-feeding incremental, trivialised versions of deep content. Instead, we create a generation that is deeply conscious of the value to be accrued by merely mimicking and maintaining an appearance of comprehension without ever acquiring substantive disciplinary engagement with the content. We therefore argue that if there is to be curriculum revision, it should involve deeper establishment of the fundamentals in the earlier years of study (Dukhan & Schumack 2013).

Scaffolding from Fundamentals – Development of Higher Level Concepts

Drawing broadly on the rich theoretical body of work on cognition advanced by Leon Vygotsky, and using the discipline of Engineering as our unit of analysis, we argue for scaffolded mediation of complex concepts to ameliorate simplistic constructions of subject-object relationships. The Social Development Theory advanced by Vygotsky (1978) proposes that social interaction precedes cognitive development (Riddle 1999). Central to this theory is the belief that biological and cultural development do not occur in isolation. Vygotsky believed that this life long process of development was dependent on social interaction and that social learning actually leads to cognitive development. He called it the Zone of Proximal Development, which he describes as 'the distance between the actual development level as determined by independent

problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers' (Vygotsky 1978:33).

According to Bailey-McEwan (2009), engineering problems require a high level of conceptualising, since students are required to conceptualise problems using mathematical concepts and principles of the basic sciences (Bailey-McEwan 2009).

Engineering curricula generally position the fundamentals through science courses in the first year of study, with courses increasing in frequency through the subsequent years. As such, the courses offered towards the middle and final stages of the curriculum tend to be more applied in nature. It is unfortunately the case that these courses tend to be taught without strong connection to the fundamentals (Dukhan & Schumack 2013). As a result, the earlier courses simply appear to be irrelevant and are construed by students as a waste of their time, while courses offered later in the curriculum are seen as stand-alone and content heavy. In other words, the content of the later courses becomes taught as a series of methods to be memorised rather than as concepts that arise from a well-developed basis.

Although academics often bemoan this state of affairs, even a cursory review of the assessments of these courses will reveal little to no efforts to connect with fundamentals. The result is that students are capable of solving only those types of problems for which they already have a prepared solution. In the authors' experiences, students in recent years tend to express indignation when faced with unfamiliar problems to which they have not been previously exposed, even though these problems are based on the fundamentals required to develop solutions.

Therefore, a second aspect of curriculum reform is that, alongside the establishment of the fundamental basis in the earlier years, the materials of the senior years should reinforce the fundamentals by requiring students to demonstrate the mastery of the basis through exposure to problems that do not have pre-determined stock solutions.

In summary, and as argued by Rawatlal and Dhunpath (2014:177), 'the cultural capital that students require to reduce the articulation gap and enhance students' capacity to negotiate higher education can be provided by anticipating and demythologising access strategies'. This can be achieved by institutionalising scrupulously designed and sustained awareness programmes, such as structured progression counselling consultations, distinct from the

ritualistic orientation programmes that currently typify many South African universities. However, awareness campaigns are a necessary but insufficient condition for ensuring that students are fully in control of their curriculum choices and progression trajectories. Assuming therefore, that no further significant changes in structure and form are anticipated in the immediate future, it is possible to provide students with the requisite tools to take control of their ability to navigate the curriculum without onerous investments in systems and technology. This is possible through the implementation of Progression Mapping, one of the strategies under the banner of the MTA, to adopt existing Learning Management Systems and databases to provide real-time advice for students on their progression and alternative possibilities available to them.

Implementation of Progression Maps

Implementation of multi-trajectory progression planning is eminently possible today due to the existence of on-line systems which may be connected to an institution's database to generate progression maps which highlight particularly sensitive areas of a curriculum that may require re-design. This is done by data-mining student academic records of a specific academic programme and creating frequency counts of the various progression pathways. These frequency counts signpost 'bottleneck regions' indicative of a large group failing a certain number of credits. Hence, if student progression as a collective can be mapped across courses, then we can identify which progression routes are the most effective; that is, successful programmes which utilise a particular set of courses. This intelligence can be used to proactively advise future students particularly where students are identified as 'At Risk' by the university's extant monitoring system.

In particular, the application of AI algorithms enables analyses of large data sets to generate output which translates to natural-language advice to staff and students in managing academic progress. While several early warning systems exist to determine the academic standing of a student, there are now far more options available with advances in online technologies. In addition to the power of analysis made possible by AI, it has been demonstrated[2] that the strategies used in providing alerts to students in the

---

[2] Derived from an initial feasibility study into the implementation of AI-based approaches to generating customised student advice.

mapping exercise have the effect of making students extremely sensitive to specific presentations of their rankings within their individual programmes, to the extent that such interfaces can significantly incentivise enhanced student learning. It is not entirely clear why the interface design has such a large observable impact on student effort; early speculation is that since the interface presents an impartial view without human prejudice, it has a higher level of authority, according it a proportionally higher level of priority for students to act on.

In addition to advising students, such a system can also map progression data for academic programme managers. For example, the Nanostream Advisor systems being implemented in a pilot at the University of KwaZulu-Natal (UKZN) in South Africa data mines student information to obtain alternate progression paths, and advises on the means by which specific routes can be further supported (e.g., by changes to timetable systems). Once the UKZN data structure is mapped to the online facility, the Autopilot (a progression mapping tool), which is accessible to both students and academics, can be used to identify the routes by which students pass academic programmes, and to perform academic route frequency counts to expose progression plans which should be further supported to achieve improved overall graduation rates.

It is beyond the scope of the present article to analyse any specific progression maps in the process of being generated. However, it is useful to examine the nature of the progression mapping tool by way of illustration. In developing the illustration, we borrow some concepts from the field of Graph Theory.

In Figure 1 below, we plot the trajectories of students through an academic programme by plotting the percentage of credits passed against the number of students having passed that number of credits. In Graph Theory, a graph is composed of a set of nodes and edges (Diestel 2010). A node signifies a discrete event such as the end of a semester; it is at these points that we consider the number of students who have passed a certain percentage of credits. The length of an edge, i.e., the line connecting two points, reveals the increase in the percentage of credits passed. The longer the edge, the more credits passed. Note that route C (which also contains point A) is the best possible path for students since students who progress on this path do so in the minimum time.

It will be noted in this illustration, that three simplifications have been imposed:

1. We are assuming a five-semester programme since it allows us to discretise ideal percentage credits passed as 20%, 40%, 60%, etc. We note in the ideal route C that students complete the degree with just five edges (i.e., five semesters). When applying the method to real data, it is expected that there will be six and eight edges for three- and four-year degrees, respectively.

2. We note in this illustration that there is an assumption that 100 students enter the programme (see 0% credits); in this case, the total number of students at each stage will be 100 less the number of dropouts, plus the number of entries from other programmes/institutions. It is not necessary to include these effects in what is intended to illustrate the basic concept at this stage.

3. When a student fails out of the minimum time route, s/he will fail 50% of the credits (10% of the credits that should have been passed).

It is important to note again, that these simplifications will not be present in the actual analysis; they are used here to simplify the graphic to exemplify the core mapping concept.

We also note that the trajectories are not independent from each other; the group of trajectories are actually a 'tree'. Although cohort analysis (Glenn 2005) is an established concept, the graph developed here is more appropriately viewed as a tree. Trees are particular types of graphs in the field of Graph Theory; the interested reader is directed to a fuller treatment of this field in Trudeau (1994). In the present context, a new branch of the tree is created when a group of students splits off from the minimum-time group by failing a certain number of credits (restricted here to 10% for illustration as noted above). It is possible for students to fail the same number of credits, but to do so in different ways, i.e., by failing a different set of courses. See point A in the figure; the two new 'fail-out' paths could, in principle, be added together to obtain a new path if we wanted to know at what point in the

curriculum the failures are most likely to occur. However, the most important indicator which might be construed as the default outcome of progression mapping is its potential to highlight what courses students offer which result in their failure.
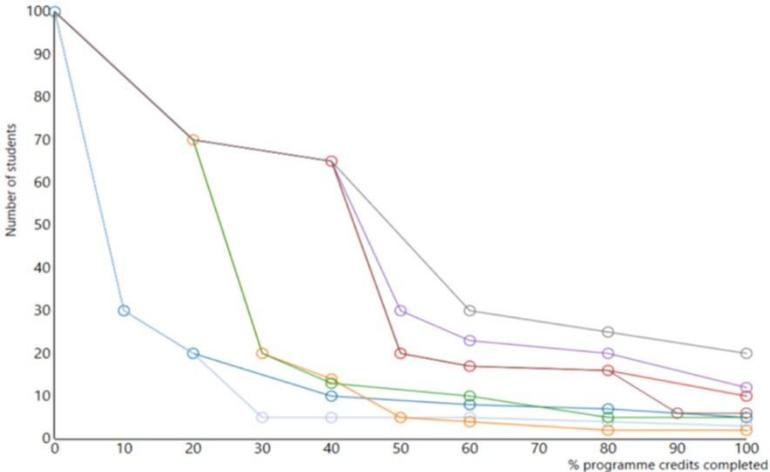

Figure 1. Progression maps observed in a specific academic programme

Applications of the Progression Map

Earlier in this article, we elucidated the potential benefits of applying Progression Mapping. First, by examining the paths on this map, it becomes possible to identify bottlenecks in the academic programme. This is not quite the same as simply considering the overall pass rate in a course; the pass rate reveals overall success, whereas the maps reveal which groups of students pass a course. It is possible that students' weakness in particular subject areas results in accumulated deficits which inhibit progress in higher level courses. This is revealed by finding trajectories where students that failed particular courses earlier on in the trajectory have a greater likelihood to fail at the point being considered. This may then reveal a cognitive dissonance (Festinger 1957) that requires cognitive disruption (Christensen 2006) reinforcement or scaffolding (Vygotsky 1978). If it is found that there is no cognitive correlation, it might

provide just cause for re-visiting the course pre-requisites. In other words, it may be the case that a course is a bottleneck merely because it is a pre-requisite for other courses rather than because it is required for scaffolding more advanced concepts in subsequent courses.

The major advantage of the progression map is that it reveals the number of students who will graduate through a specific route. It may well be that, even after making the potential revisions outlined above the most frequent route for passing a degree will not be the minimum time route. In this case, it is possible to re-consider timetabling and develop rules that would allow for a reduction in the time taken to complete. Where students have offered a course and failed it previously, we may reduce the number of clashes with new courses and exempt them from attending a certain fraction of the lectures of the previous course.

Arguably, the greatest benefit in Progression Mapping is igniting awareness amongst students of the benefits of the typical 'non-minimum' time route. At present, when students fail out of the minimum time, they have to navigate an unknown and uncertain future, and go on to receive advice from a variety of sources of varying quality. Through mapping, control of such advice is passed increasingly to the hands of staff who are more experienced in such matters. The student is then able to commit to a clear route to graduation.

It should also be noted that the implementation of such a system is not as onerous as one might expect. The present development is explicitly designed to ease the process of connecting the progression mapping to a foreign database. As such, it does not matter how the data in an institution's database is labelled, and, to an extent, even how it is structured. A translator module can be developed for virtually any database such that curriculum maps can be derived for all the institution's academic programmes. Furthermore, by applying modern development techniques, access to such systems is facilitated without the need for data to be transferred to any third party. In other words, the institution is able to develop progression maps without transfer to any server that is not under the control of that institution. These are all important aspects concerning the feasibility of implementing such systems.

Finally, we are reminded by Fisher and Scott *et al*. (2011:1) that 'despite significant progress in expanding access since 1994, higher education in South Africa remains a low participation–high attrition system'. A significant contributor to this under-performance is that higher education participation is narrowly perceived as access to university education. High

attrition rates are compounded by the inappropriate choices students make, fuelled largely by the dysfunctionality of the Further Education and Training (FET) sector which could potentially enable transitions from universities to FET institutions and vice-versa (see Akoojee & Nkomo 2012). Furthermore, given the isolationist and competitive cultures universities adopt which prevent unfettered movement of students within the university system, without loss of accumulated credits, there is a critical need for systematised articulation mechanisms which can be 'objectively' determined (Ngete *et al*. 2008). Given the pliability and adaptability of Progression Mapping, cross-institution mappings are also possible, allowing for bench-marking of programmes and an easing of the process of transferring credits from one institution to another, infusing a more fluid post-school system.

Concluding Observations

This article contributes to the on-going debates on higher education curriculum transformation. While there is consensus that the prevailing curriculum fails to adequately advance the intellectual project and develop a productive citizenry, there have been few attempts to develop and implement tangible alternative curriculum strategies. The CHE has candidly articulated the curriculum crisis and advanced an extended version of the current offerings as an alternative proposal to government. This proposal was dismissed by government as inappropriate in the context of apparently successful interventions in the form of Foundation Provisioning. We have attempted to interrogate the legitimacy of the government's rejection by examining the reasons advanced for expanding Foundation Provisioning as their alternative solution. We found that this policy position is based on flimsy evidence which does not justify the massive investments in these programmes which have not convincingly demonstrated their ability to address structural issues beyond access.

Noting that the government decision to upscale Foundation Provisioning is likely to materialise in the foreseeable future, the authors explore what alternative strategies exist to strengthen the capacity of the existing curriculum to enhance student progression. We explore the advances made in online technologies and artificial intelligence to support a MTA to designing curriculum pathways. The authors argue that using algorithms, it is possible to institutionalise Progression Mapping to enable students and

academic advisors to have online real-time, data on students' progression status, and the possibility of selecting alternative curriculum pathways which have a history of success. This data, when aggregated has the added potential to harvest evidence for more substantive curriculum reform to address what has become a stubborn pathology in higher education reform.

A key challenge in developing this article was identifying a body of literature on Progression Mapping as it relates to higher education curriculum reform. There simply isn't a substantive pre-existing theoretical basis to authorise our MTA as a viable alternative to the existing curriculum. The real test of the model will be in its application, beyond the pilot, to cohorts of students in different disciplines and, more ambitiously, in different institutions to derive comparative perspectives. This is a challenge to which we commit and keenly anticipate.

References

Akoojee, S. & M. Nkomo 2012. Access, Equity and Quality in Higher Education: Academic Versus Institutional Development. In Dhunpath, R. & R. Vithal (eds.): *Alternative Access to Higher Education: Underprepared Students or Underprepared Institutions?* Cape Town: Pearson Publishers.

Christensen, C. 2006. The Ongoing Process of Building a Theory of Disruption: a Model of the Theory-Building Process. *Journal of Product Innovation Management* 23,1: 39–55.

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

Council on Higher Education (CHE) 2014. *Advice to the Minister of Higher Education and Training on the Reform of the Undergraduate Curriculum in Higher Education.* CHE.

Daugherty, J.L. 2012. Infusing Engineering Concepts: Teaching Engineering Design, National Center for Engineering and Technology Education. Available at: www.ncete.org.

Deil-Amen R. &. J.E. Rosenbaum 2003. The Social Prerequisites of Success: Can College Structure Reduce the Need for Social Know-how? *The Annals of the American Academy of Political and Social Science* 586,1: 120-143.

DHET 2013. *Report of the Ministerial Committee for the Review of the Funding of Universities.* Pretoria: Department of Higher Education and Training.

DHET 2012. *Ministerial Statement on University Funding: 2013/14 and 2014/15.* Pretoria: Department of Higher Education and Training.

Dhunpath, R. & R. Vithal (eds.) 2012. *Alternative Access to Higher Education: Underprepared Students or Underprepared Institutions?* Cape Town: Pearson Publishers

Diestel, R. 2010. *Graph Theory.* Springer; 4th Edition 2010. Corr. 3rd Printing 2012 Edition, ISBN-10: 3642142788.

Dukhan, N. & M. Schumack 2013. Understanding the Continued Poor Performance in Thermodynamics as a First Step toward an Instructional Strategy, Paper presented at the 120 ASEE Annual Conference and Exposition, June 23-26, 2013.

Festinger, L. 1970. A Theory of Cognitive Dissonance, *Encyclopaedia of Human Behaviour* 1: 543-549.

Fisher, G. & I. Scott 2011. Closing the Skills and Technology Gap in South Africa, Background Paper 3: The Role of Higher Education in Closing the Skills Gap in South Africa, University of Cape Town.

Glenn, N.D. 2005. *Cohort Analysis* (Quantitative Applications in the Social Sciences), SAGE Publications, Inc. 2nd Edition ISBN-10: 0761922156.

Heidebrink, A.2015. Cracking Open the Curriculum, Hybrid Pedagogy. Available at: http://www.hybridpedagogy.com/journal/cracking-open-curriculum/.

McEwan, B.M. 2009. *Difficulties of Mechanical Engineering Students in Developing Integrated Knowledge for the Cross-Discipline of Mechatronics: A Conceptual Investigation*. Johannesburg: University of Witwatersrand.

Ng'ethe, N., G. Subotzky & G. Afeti 2008. Differentiation and Articulation in Tertiary Education Systems: A Study of Twelve African Countries. Association for The Development of Education in Africa, Working Group on Higher Education and the Association of African Universities in Partnership with the World Bank.

Rawatlal, R. & R. Dhunpath 2014. 'Stretching' the Undergraduate Curriculum: A Compensatory Response to Curriculum Modelling? *Alternation*, Special Edition 12:171-179.

Riddle, E.M. 1999. *Lev Vygotsky's Social Development Theory*. United States:

Ball State University.

Stephens, N.M., S.A. Fryberg, H.R. Markus, C.S. Johnson & R. Covarrubias 2012. Unseen Disadvantage: How American Universities' Focus on Independence Undermines the Academic Performance of First-Generation College Students. *Journal of Personality and Social Psychology* 102,6: 1178-1197.

Thorne, S. 2013. The Scholarship of Intellectual Generosity. *Nursing Inquiry* 20,4: 279. Available at: http://onlinelibrary.wiley.com/doi/10.1111/nin. 12050/pdf.

Trudeau, R.J. 1994. *Introduction to Graph Theory.* Dover Publications; 2nd Edition, ISBN-10: 0486678709.

UKZN 2013. *Response to CHE Task Team Report on the Proposal for Undergraduate Curriculum Reform in South Africa: The Case for a Flexible Curriculum Structure.* Durban: UKZN.

Vygotsky, LS 1978. *Mind and Society: The Development of Higher Mental Processes.* Cambridge, MA: Harvard University Press.

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

Randhir Rawatlal
Chemical Engineering
University of KwaZulu-Natal
rawatlalr@ukzn.ac.za

The Pedagogic Contribution of Community Spaces and Environments in Service Learning Projects

Julia Preece
Desiree Manicom

Abstract

The purpose of this paper is to analyse the use of different community-based learning spaces and environments as a pedagogical resource for student learning through university community engagement. It draws on the findings from a recently completed community engagement and service learning action research project, where students responded to NGO community requests for assistance to work in small teams with grass roots communities. The methodology included initial consultations between NGO communities and the participating students, with follow-up observations and interviews with students, the NGOs and, where possible, their grass roots community participants. This paper reports on three case studies of the action research project and compares the student, NGO and community reflections of the community engagement experience. The findings suggest that the learning spaces and environments enabled students and community members to engage in mutual learning, through a dialogic and reflective process that enabled application of discipline-based theory, as well as broader learning, related to power dynamics and sharing of knowledge between community members and students. However, the engagement initiatives require considerable preparatory discussions and ongoing dialogue between the different agencies.

Keywords: community engagement, community learning spaces, service learning, community learning environments

Introduction

Space does not permit a lengthy exposition of the evolving concept of university community engagement (CE) and its relationship to service learning (SL), which has been discussed at length elsewhere (see for example Preece *et al*. 2012), but a brief explanation follows. Universities have traditionally espoused community service as a third, 'public good' mission that complements their core functions of teaching and research. In an effort to move away from the philanthropic connotation of 'service', the concept of 'engagement' gained popularity during the 1990s, when it was increasingly used to reflect a more collaborative and mutual learning relationship between community and university. The debate about CE led to discussions of how knowledge can be co-created as a non-discipline based form of knowledge that emerges from practice, coined by Gibbons (2006) as 'Mode 2', or 'socially robust' knowledge. SL has been a feature of CE in the United States for some 20 years. It is an experiential pedagogical approach, whereby students contribute to community needs and reflect on their practice as part of their assessed course work (Bringle & Hatcher 1995).

In the South African context, SL was introduced in response to the post-apartheid policy agenda for higher education. The policy purpose was twofold. On the one hand, the aim was to engender a sense of community responsibility amongst the relatively privileged population of higher education students. On the other hand, it aimed to enhance the notion of higher education as a public good, and to contribute towards the redress of the inequities of the apartheid regime (Kotecha 2011). Since then, the notion of SL has evolved as a pedagogical strategy in its own right, along the lines of the aforementioned American model. The focus of this pedagogical approach has been placed upon enabling students to develop a critical, reflective stance that explores the application of academic theory to practice in real life settings. The emphasis, therefore, is placed on how and what students learn (Hatcher & Erasmus 2008).

Problem Statement

The South African context has inevitably influenced the way in which SL is practiced in this country, and writers such as Erasmus (2011) have argued for more culturally sensitive and pedagogically embedded SL curricula, which contribute to community empowerment and co-creation of knowledge. Others

such as Le Grange (2007), Kruss (2012) and O'Brien (2010) have explored different models of SL as a process and resource for knowledge creation. There has been a shift in emphasis, from simply focusing on learning gains for students, to embedding SL within CE philosophy, which argues for a community-led approach to engagement and a focus on mutual benefits from the engagement relationship (Preece 2013). Less attention, however, has been paid to exploring the way in which the community learning spaces themselves have contributed to a community-student learning relationship, and in what way those community learning spaces and their environments contribute to the co-creation of knowledge, or to the idea of knowledge in terms of knowledge of the self or enhanced understanding of others. Knowledge in CE contexts is interpreted more broadly than discipline-specific knowledge, as referred to by Gibbons (2006).

This paper draws on empirical findings from three recently completed SL case studies, in which students interacted with non-governmental organisation (NGO) organisers and grass-roots community members in urban and rural settings. It will first outline the policy context for SL and CE in South Africa, and the University of KwaZulu-Natal, followed by a discussion of selected literature that addresses learning spaces and environments as pedagogical resources and the notion of SL. This will be followed by the research methodology. The final sections present the findings from student and community perspectives, which are discussed thematically, with attention to power dynamics and the contribution of community learning spaces to the co-creation or sharing of knowledge, and also some of the logistical challenges of managing this form of CE.

Literature Review
Policy Context
The ideologies of CE and SL are not without their critics (see for example Butin 2010; and Higgs 2002). Nevertheless, in South Africa, there exists an enabling institutional and policy environment for CE and SL. Several national policy documents have been produced to promote these endeavours in higher education institutions. The White Paper on the Transformation of Higher Education (Department of Education 1997:11) provided institutions of higher education with a policy mandate to 'demonstrate social responsibility […] and their commitment to the common good by making available

expertise and infrastructure for community service programmes'. It further states that one of the goals of higher education institutions is to 'promote and develop social responsibility and awareness among students of the role of higher education in social and economic development through community service programmes' (ibid.:10). This was followed by the National Plan for Higher Education (Department of Education 2001), which pointed to the need for higher education to enhance their responsiveness to national needs through academic programmes, research and community service. The Higher Education Qualification Committee (HEQC) also identified knowledge-based community service as one of the three areas (together with teaching and learning and research) for quality assurance at higher education (HEQC 2006). The HEQC includes, in its publication on Institutional Audits, criteria on both SL and CE (HEQC 2004). These sentiments are reinforced in the recent White Paper on Post School Education and Training (DoHET 2013). CE remains, however, an 'unfunded policy mandate' (ibid.: 39).

It is within this national policy context that the University of KwaZulu Natal has identified Responsible Community Engagement (RCE) as one of its seven strategic goals. Accordingly, RCE seeks to 'contribute through knowledge to the prosperity and sustainability of our province […] committing ourselves to the communities we serve in a manner that adds value' (UKZN 2012:11). More specifically, the goal points to strategies that will be employed to operationalise these commitments:

> 2.1. To 'recognise, promote and reward RCE that adds value' through activities such as 'community human capital development'; to 'educate and train UKZN students outside the university'; to conduct 'research and development'; and to undertake research that 'solves community issues and societal problems'.
> 2.2. 'Develop formal training for human capital development outside UKZN'.
> 2.3. 'Promote and expand training activities' for students outside UKZN.
> 2.4. 'Give effect to strategic partnerships that enhance the relevance' of university activities
> (UKZN 2012:11-12).

CE is also a key element of the academic's job profile. The approved ratio of

the average time that academics are supposed to spend on RCE is ten percent. As yet, however, there is no official university policy on RCE. Research and scholarship around CE within the university is supposed to contribute to RCE policy. However, there are several typical barriers to policy implementation or the operationalisation of organisational goals. Some of these relate to funding limitations, weak management structures, or network coordination capacity, poor implementer incentives and weak political support (Wu *et al*. 2010). A further operational challenge for academics is how to oversee community learning spaces, including how to ensure those spaces are beneficial for all participants.

Learning Spaces and Environments as a Pedagogical Resource

The literature on learning spaces usually refers to the way in which the classroom is organised as a learning space. In this respect, there is currently a focus on making learning interactive, whereby students 'discover knowledge rather than simply be told' (International Council of Societies of Industrial Design 2013:1). A 'rich' learning *environment* is understood concomitantly as a space where learners and their facilitators 'share meaningful experiences that go beyond the one way information flow' (Bickford & Wright 2006:4.3) that is normally associated with formal teaching situations. The rationale for a more engaged learning experience is that learning environments affect all the senses of a learner, impacting on their emotions and in turn on cognitive functioning and behaviour (Graetz 2006). In other words, the person and their environment impact one another. The South African policy context, which advocated for CE as a student experience, implicitly fosters the opportunity for community spaces to impact on student sensibilities. However, this is seldom acknowledged from a pedagocial perspective, where the learning emphasis is traditionally placed on discipline-based knowledge (Graetz 2006).

One of the most popular pedagogical responses to creating interactive learning spaces draws on the philosophy of experiential education that was initially promoted by Dewey, and which has been subsequently elaborated on by Lewin and others (see for example Hatcher & Erasmus 2008), building on the constructivist theory of learning, which asserts that our learning evolves schematically, by building on our previous experiences (Kolb & Kolb 2005). David Kolb in particular (1984) introduced a cyclical model of action

learning whereby learning and understanding is transformed through a facilitated process of 'concrete experience', 'abstract conceptualisation', 'reflective observation' and 'active experimentation' (Kolb & Kolb 2005:194). Kolb and Kolb argue here that individuals need to experience different learning spaces so that they have the opportunity to employ each of the four processes in order to develop the capacity for learning. It is this interplay between action, reflection and reconceptualisation that has captured the pedagogical goals of proponents of CE through SL in higher education (Ash & Clayton 2004; Bender 2008; Erasmus 2005, 2011; Berman & Allen 2012; Maistry & Thakrar 2012; Petersen & Osman 2013, to name but a few). The essence of this approach is that real life experiences contribute to new learning and knowledge production in its broadest sense.

In the context of SL, it can therefore be argued that community members have an opportunity to enhance their own learning through interaction with students, by schematically building on community-based knowledge, while the students can, in turn, build on their own knowledge through interaction with the community. CE through SL traditionally focuses on the student experience of a community-based environment, and the student's critical reflection of their learning from that experience. Less attention is paid to the nature of critical reflection and learning for community participants, or the power dynamics of such learning interactions (see for example, Mahlomaholo & Matobako 2006; Preece 2013).

Service Learning

Much has been written about SL, particularly in the South African context. The focus of this paper is on literature that specifically addresses the role of SL as a learning space, and its contribution to knowledge production as a holistic experience. Some of the key characteristics of SL in university contexts are that it is a collaborative, mutual learning relationship between students, academics and community members. Community members may be practitioners from a variety of community development contexts, ranging from NGOs who adopt a particular social focus, such as providing an advocacy service to people with disabilities, or facilitating national literacy initiatives to grass-roots activities, whereby unemployed residents in a particular location are given skills and training to run locally-managed child care facilities. Many more examples could be cited. Ideally, the SL

relationship is developed over time, where students negotiate with community members an identified need that can be addressed during a specified timeframe, committing themselves to achieving an agreed upon outcome or contribution, after which they are required to reflect on their learning experience in relation to theory, and are assessed on that learning as part of their degree (Howard 2001). Bringle and Hatcher's (1995) definition of SL still forms the basis for many working definitions in South Africa:

> A course-based, credit-bearing educational experience in which students (a) participate in an organised service activity that meets identified community needs and (b) reflect on the service activity in such a way as to gain further understanding of course content, a broader appreciation of the discipline, and an enhanced sense of personal values and civic responsibility (Bringle & Hatcher 1995:1).

The distinctive feature of SL as a pedagogical tool is that it requires a facilitated process of reflection on the CE activity by the student, in order to achieve the learning transformation advocated for by Kolb and others. In other words, the CE experience itself does not necessarily lead to new learning, unless there is a period of facilitated reflection, which enables the constructivist process of transformation to take place (Berman & Allen 2012), particularly in a way that challenges stereotyping attitudes (Ash & Clayton 2004). The experiential learning pedagogy is structured in such a way as to create an enabling environment for this to happen (Erasmus 2005). However, the capturing or facilitating of this period of reflection is rarely extended to community members themselves, in spite of their status as partners (Bender 2008). There is an assumption, therefore, that community members actively contribute to the creation of new knowledge, but that often, the community voice is missing from this loop (Alperstein 2007, Du Plessis & Van Dyk 2013). Also, seldom the practical challenges of creating the SL space seldom receive discussion (Bringle, Clayton & Price 2009; O'brien 2009; Jordaan 2012).

The Service Learning Space

While some writers have discussed different theoretical approaches to the SL pedagogy (for example Hlengwa 2010 in relation to Bernstein's discussion of

vertical and horizontal discourses), others have referred to the SL or the CE environment as a particular kind of learning 'space' (Maistry & Thakrar 2012; Albertyn & Daniels 2009; Gibbons 2006; Erasmus 2007; 2011). Many of these writers refer to Gibbons' (2006:19-29) notion of the 'agora' as a 'public space' wherein a new form of 'socially robust' knowledge is co-constructed through real life interaction. This kind of knowledge, known as 'Mode 2' knowledge, crosses disciplinary boundaries and is embedded in a social context where the environment becomes a 'trading zone' for debate, dialogue, experimentation and construction of new meanings and understandings through transactions between multiple actors. Herein lies the pedagogical resource for academics, students and community alike, namely the environment itself and the social interaction that this entails. This more complex environment is said to reflect the 'super-complexity' realities of our knowledge economy, whereby universities are no longer the sole producers of knowledge (Barnett 2004). Such arguments can be evidenced more easily in large-scale partnership projects, which engage with industry, but it is not so easy to detect their value in small-scale SL projects. Equally, the power differentials between grass roots community members and university members challenge the extent to which knowledge is genuinely co-constructed (Albertyn & Daniels 2009; Bringle *et al*. 2009). Keeping the balance between community and student learning needs is a challenge. Hill *et al*. (2008), in the context of South Africa, and Stewart-Sicking *et al*. (2013:54) in the context of the United States, argue that the students themselves can often be overwhelmed by community environments, proposing that their 'real-life' experiences also need to be carefully managed. Ringstad *et al*. (2012:268) in a Californian context, emphasise the need for vigilance in relation to avoiding 'excessive emphasis on student-centred pedagogical innovation over that of community transformation'. They advocate for models of SL that 'directly engage community members' (ibid.:271), in order to ensure that community solutions to problems are sufficiently valued. Erasmus (2007, 2011), in the context of the University of the Free State in South Africa, discusses the need for sustained CE placement sites, whereby communities can benefit from sustained interventions that, over time, contribute to empowerment of the community voice in contributing to knowledge production. She highlights how, in the impoverished community contexts of a country like South Africa, there is often the need for a triad relationship, whereby NGOs act as mediating

agencies between the community and the university (see also Kaars & Kaars 2014). The SL experience then becomes a shared 'developmental space' (2007:35), which addresses social concerns of empathy and understanding in the co-construction of knowledge. This argument is supported by Kruss (2012), among others, although she highlights that the quality of SL in practice is uneven.

There are now an increasing number of studies which privilege the community voice in CE and service. A rare example on the African continent outside of South Africa is a study on the nature of SL partnerships in Egypt, which focused on community-voiced evidence of learning (Shalabi 2013). However, an empirical discussion of the relationship between power dynamics, co-creation of knowledge and the opportunity for community reflection in small scale community projects is still relatively rare. The project discussed in this paper provides an analysis of how students and communities shared the community learning spaces and environments through an action research process, which included a community feedback loop that demonstrated both the potential and challenges of community learning spaces and environments as pedagogical resources.

Research Design and Methodology
The Project Design

The project, conducted in 2013, was the second phase of an action research project that started in 2012. The aim of the first action research project was to explore how community members and students felt about the process of establishing SL projects, and what benefits or challenges they experienced. One of the key highlighted challenges was that not all participants felt ownership over the planning process (Preece 2013). From these findings the theoretical concept of adaptive leadership emerged (Heifetz 1994), which had been discussed by Stephenson (2011) in the context of CE in the United States. The research design for the second phase applied the concept of adaptive leadership, which emphasises the need to ensure clarification of competing goals and values amongst all layers of an organisation when there is a process of intervention for change. The adaptive leadership process encourages attention to power differentials, and the nurturing of trust and respect, as features of engaging with multiple stakeholders. Adaptive

leadership is therefore an intervention strategy to motivate for change, based on consultation and dialogue and respect for a diversity of views. The facilitative leadership process of clarification and dialogue aims to foster shared ownership over decision making, particularly if the focus is on change. In the context of this second phase of the action research project as the focus of this paper, change would be a long-term aspiration that might not take place until after the SL experience, but might be reflected as changed attitudes or perspectives. The planning process for the SL projects, however, required consultative preparation between the NGOs, their community members, and the student participants, in order to ensure a better understanding of either shared or conflicting expectations for the projects and their outcomes.

The research objective of the second phase was to explore the extent to which those competing goals and values were integrated as a shared endeavour. The issue of the pedagogical contribution of learning spaces emerged as an unplanned outcome of the findings and it is this aspect on which this paper focuses.

This second phase was a partnership between the University of the Free State and University of KwaZulu-Natal. It was funded by the National Research Foundation, with additional funding support from each university. A total of 12 case studies of small scale CE projects across the two universities, involving 78 students and nine organisations, were undertaken. The University of KwaZulu-Natal undertook eight case studies, shared between the School of Social Sciences and School of Education, where 40 students, five courses and six NGOs were involved.

This paper focuses on three case studies and eight students. Codes for the case studies and the interviewed respondents are provided as follows.

Case Study One (CS1) was an NGO working on a film to assess hunger needs in Pietermaritzburg, with a view to changing perceptions of the wider populace about the hunger conditions of urban residents. The NGO recruited two SL students (S1 and S2) from a Politics and Policy Studies course. The learning environment was an urban township, and the community spaces included people's homes as well as the NGO offices based in Pietermaritzburg.

Case Study Two (CS2) involved the non-formal learning spaces of family houses or community buildings with basic amenities in a rural location, approximately an hour's drive from the university in

Pietermaritzburg. The family houses served as locations for rural reading clubs. An NGO requiring assistance with monitoring and evaluating five reading clubs involved two students from a Policy Development Master's course (S3 and S4) working with one SL student (S5) and one Master's student (S6) from an Education and Development programme. The ultimate aim for change would be to improve the quality of the reading clubs.

Finally, Case Study Three (CS3) was a learning space in a resident's garden in a peri-urban township. Two SL students (S7 and S8) from the same Education and Development programme responded to an NGO's request for assistance with facilitating a community based early childhood development programme for pre-school age children, who were too poor to attend the formal nursery. The aim was for both students and community facilitators to learn from each other, with a view to improving the crèche activities, and ultimately encouraging participation by parents.

In each case, the NGOs acted as mediating agencies in the form of a triad relationship, as advocated by Erasmus (2011). Both the reading clubs and the early childhood development project employed community-based volunteers (Reading Club Facilitators (RCFs) and Early Childhood Development Facilitators (ECDFs), respectively). The students working with the film project staff (FP1 and FP2) interviewed isiZulu-speaking residents concerning their experiences of poverty and hunger. All the students were therefore obliged to interact with NGO organisers as well as residents in impoverished communities. The practice-based learning environments and spaces were informal, and located on the 'home turf' of isiZulu-speaking residents, most of whom had received limited formal education.

The students undertook their SL placements by negotiation with the organisers for a few hours once or twice a week over a period of between six and eight weeks. Initial negotiations with NGOs took place through two members of staff from the Schools of Education and Social Sciences. In the case of the reading clubs and early childhood development programme, this was followed up by student meetings with the NGOs and community participants in order to clarify competing expectations (goals and values). The students participating in the film project met with the NGO and film organisers and students subsequently took responsibility for contacting and interacting with community interviewees. Because the reading clubs and early childhood development projects were a substantial distance from the university campus, transport was provided for the students, funded in one

case by the NGO and in the second case by the study's own research funds. Students working on the film project organised their own local transport to a central office, but travelled with the film crew for the interviews.

Research Approach

The study took a case study approach within an action research framework. Day Ashley (2012), among others, explains that case studies provide an opportunity to explore and describe a phenomenon in a bounded way, whereby the parameters of the phenomenon are clearly defined in a particular context. Case studies can be used, amongst other reasons, for the purpose of testing theory. Yin (2009:52) calls this a 'critical' case. In this study, each case was a small-scale CE activity involving SL students and designed to test the theory of adaptive leadership. Although findings of cases may not be representative, they do provide opportunities for replicability, particularly where multiple cases allow for 'cross-case comparison' (Day Ashley 2012:103). This paper analyses the responses of the students and community members across three of the case studies.

The very nature of a practice-based activity such as SL requires a research methodology that can capture experiential learning and reflective enquiry-based process of the Kolb learning cycle. Moreover, the SL and CE process requires a research strategy that enables a triangulation of perspectives and a shared ownership of the findings. The characteristics of action research lend themselves to this process of inquiry. Although there are various orientations and methodologies associated with action research (Zeelen *et al*. 2008), it generally functions as a partnership between the main actors, and follows a cyclical process of action, reflection, analysis and feedback, with a focus on 'dialogue' and 'social learning' (ibid.:3). Action research tends to be participatory in that the researchers and participants reflect together on the practice and its outcomes. Equally, there is a strong focus on ensuring that community voices are heard (Van der Linden & Zeelen 2008). These elements were present in our research approach, where there were two research cycles, and each phase involved open dialogue at the beginning and end of the cycle with research participants (students, academics and community members); action was taken to address the challenges of participatory planning raised in the first phase and, within the

limitations of access and time, voices from the various community layers (NGO, grass roots) were included in the findings (Stringer 2004). In addition, students from the SL courses presented their personal reflections on their learning process in class as part of their academic assessment. The more formal data collection process for the above case studies involved recording initial preparation interviews between students and community members, interim observation notes by a visiting research assistant, and follow-up interviews with key participants on completion of the case study. Interviews with community members were conducted in their first language (usually isiZulu) and translated into English by the research assistant, who had received training in interview methods. The interview questions were concerned with how people felt they had participated in the preparation process, what they felt they had learned or gained from the engagement relationship, and what challenges the engagement projects had raised.

The project proposal received ethical clearance from the University of KwaZulu-Natal prior to commencement, and all participants signed letters of consent that confirmed their anonymity and confidentiality.

The recordings were transcribed verbatim and read several times. They were then thematically coded and analysed for content and patterns of responses (Chilisa & Preece 2005; Arthur *et al.* 2012). This was initially an inductive process, whereby themes emerged from several readings of the data. The deductive phase of applying the adaptive leadership theory as a lens for explaining the responses contributed to the final themes, which are discussed below. The findings that will be discussed here are drawn primarily from the formal interviews and categorised under the headings: learning spaces, knowledge sharing, power differentials and challenges of using community learning spaces.

Findings and Analysis
Learning Spaces
The contribution of the learning spaces and environments to shared learning and knowledge creation was gleaned primarily from the participants' reflections on how they interacted with each other in these community spaces.

The nature of the spaces was discussed only briefly, since this had not been the original focus of the study, but unsolicited comments by students and community members, in relation to the challenges faced, gave an indication of their under-resourced nature. For instance, the reading club site manager asked for assistance with toys and books ('we are lacking in materials' [sic]) and a reading club facilitator asked for assistance with providing a proper educational venue 'because we are using my home for gatherings' (for the children's reading activities). Similarly, the parents of the early child development project asked for additional resources: 'if you could add more toys for us'; supported by requests from the SL students themselves:

> Try to get many more resources because they don't have enough resources like paint brushes, paint [...] they do the same thing all the time [...]; transport as well (CS3, S7).

The film project also revealed the impoverished nature of the environment in which the students were working:

> It hit me hard emotionally, I think that I put my heart too much into it. I learnt that it could be visible to society that a certain household is coping [...] but in that household, things are going wrong that nobody can see. People go days without eating, and yet they still work (CS1, S1).

These were the environmental spaces, then, in which the student and community members learned from and with each other, reflectively analysing, amongst other things, the use and acquisition of new knowledge, the power relationship between university and community, and ways in which they communicated within those relationships.

Knowledge Sharing and Co-creation

Both students and community members highlighted examples of learning from each other. The community participants, for instance, illustrated the way in which they both contributed and applied new knowledge in ways that

would not have been possible in a classroom interaction space:

> If they have an opinion, they would share and I would also do the same when I had an opinion about the children [...] see they [students] are also educated – they came with the shapes and the robots [traffic light colours] [...] but this, one day they finished with shapes, and [I] proposed to teach them about robots. We told them 'no, they shouldn't – these children are still young, they shouldn't learn everything at once in a day' [...] we also learned that whenever you give a child paper, they should write their name and surname on top of the page (CS3, ECDF).

The students confirmed the benefits of learning 'in situ' where they could see that knowledge can also be context specific, and learned through experience. Expertise does not rest in one domain:

> The experts are the people themselves ...as much as I might sit here at UKZN and learn about early childhood development and community work [...] whatever I have learned at [the community location] for example, it is not the same. The real experts of that area, of that programme, are the people that are going through that experience, so [...] whatever I have learned on paper [...] we could say we are the real experts, whereas we get there and introduce something that we think they need, [but] they might probably think that 'no this is not for us' ... (CS3, S1);

> I gained an understanding that children don't learn in the same way as adults and that children learn in [sic] a slow pace and that you need to be patient [...] also kids learn things better if its visual [...] and it must be [...] colourful and bright (CS3, S2).

These sentiments of mutual exchange were echoed across the three projects:

> They [reading club facilitators] also picked up a few lessons from the students [...] working with other people is nice, sharing ideas, you here interacting with us, asking us questions. We love things like this, to be able to learn how we can improve our work (CS2, RCF1).

Even at NGO level, where project ownership was strongest, there were unexpected opportunities for co-learning:

> The students themselves, because they sometimes suffer the same issues [...] they helped to bring also another dimension of understanding of food insecurity [...] they also took part in the discussion, they also said things which was quite interesting [...] and how there is hunger in the [university] hostels [...] it enriched the script, because originally, we weren't going to think about universities (CS1, FP1).

Although not all the research project's eight case studies produced such positive outcomes (Preece *et al*. 2014), there was a sense that the grass roots nature of these three learning spaces created new insights and opportunities. Some of these insights were revealed most poignantly in the context of how the power differential between university and community could be utilised as a learning curve for the students, but also as a motivating resource for the community members.

Reflecting on Power Differentials

In the case of both the reading club and early child development facilitators, grass-roots community workers highlighted that the very presence of the university created a sense of pride in the projects and legitimated their work as worthwhile, which in turn stimulated changes in attitude:

> The reading clubs that have been visited have become more alert and motivated compared to those that the students have not visited [...] also [...] the attendance of the clubs has increased because they know students from the varsity will arrive [...] even the children have changed (CS2, RC Manager);

> I also saw that I am also important [...] the children and parents saw this as a legitimate thing [...] we wish that you people could come back again, because your presence has been noted by the parents [...]

> because some parents thought this was just a game [sic]. Some even refused to allow their children to come [...] now they saw that this thing of teaching from home is serious [sic] (CS3, ECDF).

But the positive impact of this partnership required sensitive management of differentials in status and a recognition that the students' participation had to be on the community's terms. This was their terrain, and it was important that this sense of ownership was not undermined:

> What I learned was the facilitators they take this job very seriously, it is kinda [sic] like it's their baby and if someone else from the outside tries to intrude somewhere [...] you are attacking [sic] them personally so [...] if you want to intervene [...] do it in a way that [...] does not seem as if you are attacking them: in a way that we are here to learn (CS3, S2);

> When they [the students] arrived here they showed us love. They didn't have that attitude of treating us like strangers [...] they showed us love and we united (CS2 RCF2).

Even among the positive element of these projects, there were challenges, however, which reflected the more fluid environmental boundaries of real life terrains, where student-teacher differentials and learning spaces are not clearly drawn. On some occasions, for instance, the early child development students felt uncertain about how best to engage with this new environment:

> We didn't know how to do certain things with her: how do we engage with her in doing something? Because [...] we took the plastics to her and said 'here are the plastics, what should we do?' [sic] [...] and she was like 'eish, I don't know as well' [sic] (CS3, S1).

The solution to this dilemma was articulated concisely by the community coordinator of this project:

> I learned that if you are teaching each other, we have to listen to each other, and accept each other [...] the main thing is to work together

equally and in harmony [...] we worked well together, it was nice (CS3, ECD coordinator).

These community learning environments had to be approached flexibly and with tolerance for different and competing agendas:

We were able to compromise with what we were given by the film makers [...] and actually attend when they wanted us to be there and when we were working together we knew: when it was your turn, you're the one who's calling; now I'm gonna [sic] email… so everything just balanced (CS1, S2).

Perhaps the most insightful observation about the learning environment and the spaces in which community members were working came from one of the students in the early child development project:

The role they [community facilitators] play is [...] a very empowering role [...] even though they know that they have nothing at all in life, but [sic] they see that they can do something with their lives [...] the parents of the children they are teaching trust them [...] even though they know that they are not qualified teachers (CS3, S1).

This latter comment resonates with the analysis of Bickford and Wright (2006), cited at the beginning of this paper, where a 'rich' learning environment is described as a space for exchange of meaningful experiences, and a place which impacts on all senses, not just cognitive or behavioural. The above findings illustrated that the participants' experiences developed knowledge and understanding. There are, however, many challenges in relation to the logistics of planning and maintaining such learning spaces.

Challenges of Using Community Spaces and Environments

The process of negotiating participation by the six NGOs, and placing the 40 participating students across eight case studies, was coordinated by the two research project academic staff members. These negotiations took place over a period of four months prior to the student placements. They entailed efforts

to deal with the competing goals and purposes of the different players over such things as academic coursework requirements, university timetables, the NGO management goals, and community expectations. With the exception of one case study, where the class lecturer took responsibility for preparatory negotiations, each case study required several visits to and from the organisation, involving one or both of the research project academics and NGO staff. Although student research assistants were employed to collect data, the responsibility for addressing any subsequent communication and timetable crises rested with the academics and their NGO contacts. While the three case studies discussed in this paper recorded positive experiences, there were occasional transport challenges and problems with trying to communicate at a distance through unreliable cellphone networks. Furthermore, not all the student learning spaces were seen in advance by the academics.

There were thus risks in placing students into spaces which had fluid boundaries, and which involved unstructured interactions with a wide range of actors. The coordination process was time consuming. In particular, communications which crossed several layers of participation often widened opportunities for miscommunication, and placed a heavy reliance on students to take responsibility for their own time management. This emphasis on student responsibility could sometimes be beneficial for personal growth. As one student from one of the other case studies said: 'if I'm late, for myself [its] OK; but then if I'm late and someone else is waiting for me it's a 'big deal' [sic] and it's not okay'. However, some expressed concern that there had been insufficient opportunity for feedback, noting 'we are not a hundred percent sure about how you viewed our work and we would like feedback on the work we do' (CS2 RCF3). In some of the case studies not discussed in this paper, there was also evidence that interim, formalised feedback sessions between the different members may have helped to avoid misunderstandings or to re-clarify competing goals and purposes (Preece *et al*. 2014).

Finally, the time-limited nature of the service-learning approach to CE posed sustainability issues. A number of people reflected that there was insufficient time for the community to benefit substantially from the relationship:

> The sad part is that this programme is for six weeks only [...] I see it as something that I wish to be constantly there. If a certain

> programme starts, the university must be available (CS2 RC Manager).

> It was a nice experience. It's just that it ended very quick [sic] when we still had a lot of ideas (CS3 S1).

Conclusions

There are three main issues that pertain to the pedgagogical contribution of community spaces and environments. Firstly, the impoverished nature of the learning spaces created a need to focus on human relationships as a learning resource. Secondly, the environments became the pedagogical spaces for different forms of learning, which relied on the adaptive leadership principles of respect and dialogue. Thirdly, the knowledge acquired was not simply new skills or information, but included knowledge about relationships, and the enhancement of self-awareness. There was a realisation among both community and student participants that each had something to both contribute, as well as to learn from working together. Both community members and students – but especially community members – highlighted the contribution of dialogue as a learning resource within their community spaces, thus providing community members in particular with a means of being heard.

There were also indications that this community-based pedagogical relationship did engender change in terms of new attitudes (for example through parents' enhanced attitudes towards the reading clubs and crèche activities), but also among the students in terms of recognising that knowledge is not exclusively embedded in the academic environment.

This study therefore demonstrated that structured CE in community spaces as an 'agora' can provide opportunities for mutual learning that contributed to the co-construction of 'socially robust knowledge' (Gibbons 2006). This form of knowledge construction engages many learning senses. However, although the SL programme requires a formal process of student reflection, in order to maximise the mutual benefits of such learning environments, there is a necessity for a built-in feedback loop, whereby all the participating layers (academic, NGO, grass roots) are invited to reflect and comment. While the action research methodology facilitated such a

process for this study, it is not a standard feature of SL in the university. The larger study (Preece *et al.* 2014) revealed that communication between the different participants is necessary throughout the engagement process, and that without the follow up reflection process, misunderstandings can remain unresolved.

Although community spaces are a rich learning resource, therefore, such open learning environments necessitate careful management, and require the opportunity for structured feedback sessions, both during and after completion of the project placements. Also, for proper preparation of all participants, one of the pedagogic challenges for SL ought to be taking cognisance of the fact that the ownership of knowledge creation is not confined to academia, and opportunities must be built into the CE relationship for shared ownership over the learning that takes place in a public space. It was however evident that if power differentials between grass roots communities and university members are managed sensitively, this can be utilised in the learning space to motivate all participants and to lend credibility at grass roots level. The pedagogic challenge in this latter respect is to ensure that students respect the community space as a site for mutual forms of learning.

Acknowledgement

References

Albertyn, R. & P. Daniels 2009. Research within the Context of Community Engagement. In Bitzer, E. (ed.): *Higher Education in South Africa*. Stellenbosch: SunMedia.

Alperstein, M. 2007. Getting Closer to the Community Voice in Curriculum Development: An Exploration of the Possibilities. *Education as Change* 11,3:59-67.

Arthur, J., M. Waring, R. Coe & L. Hedges 2012. *Research Methods and*

Methodologies in Education. London: Sage.

Ash, S.L. & P.H. Clayton 2004. The Articulated Learning: An Approach to Guided Reflection and Assessment. *Innovative Higher Education* 29,2:137–154.

Barnett, R. 2004. Learning for an Unknown Future. *Higher Education Research and Development* 23,3:247-260.

Bender, C.J.G. 2008. Curriculum Enquiry about Community Engagement at a Research University. *South African Journal of Higher Education* 22,6:1154–1171.

Berman, K. & L. Allen 2012. Deepening Students' Understanding of Democratic Citizenship through Arts-based Approaches to Experiential Service Learning. *South African Review of Sociology* 43,2:76–88.

Bickford, D.J. & D.J. Wright 2006. Community: The Hidden Context for Learning. In Oblinger, D.G. (ed.): *Learning Spaces*. Educause. Available at: http://www.educause.edu/research-and-publications/books/learning-spaces/chapter-4-community-hidden-context-learning. (Accessed on 24 April 2014.)

Bringle, R.G. & J.A. Hatcher 1995. A Service Learning Curriculum for Faculty. *The Michigan Journal of Community Service Learning* 2:112–22.

Bringle, R.G., P.H. Clayton & M.F. Price 2009. Partnerships in Service Learning and Civic Engagement. *Partnerships: A Journal of Service Learning & Civic Engagement* 1,1:1-20.

Chilisa, B. & J. Preece 2005. *Research Methods for Adult Educators in Africa*. Cape Town: Pearson Education.

Day-Ashley, L. 2012. Case Study Research. In Arthur, J., M. Waring, R. Coe & L.V. Hedges (eds.): *Research Methods and Methodologies in Education*. London: Sage.

Department of Education 1997. *Education White Paper 3: A Programme for the Transformation of Higher Education*. Pretoria: DoE.

Department of Education 2001. *National Plan for Higher Education.* Pretoria: DoE.

Department of Higher Education and Training 2013. *White Paper for Post School Education and Training*. Pretoria: DoHET.

Du Plessis, C. & A. van Dyk 2013. Integrating the Community Voice into Service Learning: Engaging with Communities. In Osman, R. & N. Peterson (eds.): *Service Learning in South Africa*. Cape Town: OUP.

Erasmus, M.A. 2005. Introduction: Community Service Learning and the South African Research Agenda. *Acta Academica Supplementum* 3:1-23.

Erasmus, M.A. 2007. Service Learning: Preparing a New Generation of Scientists for a Mode 2 Society. *Journal for New Generation Sciences* 5,2:26-40.

Erasmus, M.A. 2011. A South African Perspective on North American International Service Learning. In Bringle, R., J.A. Hatcher & S.G. Jones (eds.): *International Service Learning: Conceptual Frameworks and Research.* Sterling Virginia: Stylus.

Gibbons, M. 2006. *Engagement as a Core Value in a Mode 2 Society*. Paper presented at the CHE-HEQC/JET-CHESP Conference on Community Engagement in Higher Education, Cape Town, 3-5 September.

Graetz, K.A. 2006. The Psychology of Learning Environments. In Oblinger, D.G. (ed.): *Learning Spaces*. Educause. Available at http://www.educause. edu/research-and-publications/books/learning-spaces/chapter-4-community-hidden-context-learning. (Accessed on 24 April 2014.)

Hatcher J.A. & M.A. Erasmus 2008. Service Learning in the United States and South Africa: A Comparative Analysis Informed by John Dewey and Julius Nyerere. *Michigan Journal of Community Service Learning* Fall:49-61.

Heifetz, R.A. 1994. *Leadership without Easy Answers*. London: Harvard University Press.

Higher Education Quality Committee 2006. *A Good Practice Guide and Self-evaluation Instruments for Managing the Quality of Service-learning*. Pretoria: HEQC.

Higher Education Quality Committee 2004. *Criteria for Institutional Audits*. Pretoria: Council on Higher Education.

Hill, T.R., T. Birch-Thomsen, C.H. Traynor, A. de Neergaard & U. Bob 2008. Problem-based, Interdisciplinary Field-based Courses: Reflections from South African Experiences. *South African Geographical Journal* 90,2:122– 133.

Hlengwa, A. 2010. Infusing Service-learning in Curricula: A Theoretical Exploration of Infusion Possibilities. *Journal of Education* 48:1-14.

Howard, J. (ed.) 2001. Principles of Good Practice for Service-Learning Pedagogy. *Michigan Journal of Community Service Learning: Service-*

Learning Course Design Workbook. University of Michigan: OCSL Press.

International Council of Societies of Industrial Design 2013. How Does Learning Space Influence Learning? Available at http://www.icsid.org/ feature/current/articles1682.html. (Accessed on 25 April 2014.)

Jordaan, M. 2012. Ensuring Sustainability in a Community-based Project Module. *Acta Academica* 44,1:224-246.

Kaars, P. & B. Kaars 2014. Views from Inside a Non-profit Organisation: Facilitating Reciprocal Relations Based on a Shared Value System. In Erasmus, M. & R. Albertyn (eds.): *Knowledge as Enablement. Engagement between Higher Education and the Third Sector in South Africa*. Bloemfontein: SUN Press.

Kolb, D.A. 1984. *Experiential Learning: Experience as the Course of Learning and Development*. Englewood Cliffs: Prentice-Hall.

Kolb, A.Y. & D.A. Kolb 2005. Learning Styles and Learning Spaces: Enhancing Experiential Learning in Higher Education. *Academy of Management Learning & Education* 4,2:193–212.

Kotecha, P. 2011. Engaging Universities in the Regional Integration Project in Southern Africa. Paper presented at the Southern African Conference on Volunteer Action for Development, 17-19 October 2011, Johannesburg, South Africa.

Kruss, G. 2012. Reconceptualising Engagement: A Conceptual Framework for Analyzing University Interaction with External Social Partners. *South African Review of Sociology* 43,2:6-26.

Le Grange, L. 2007. The 'Theoretical Foundations' of Community Service Learning: From Taproots to Rhizomes. *Education as Change* 11,3:3-13.

Maistry, M. & J. Thakrar 2012. Educating Students for Effective Community Engagement: Student Perspectives on Curriculum Imperatives for Universities in South Africa. *South African Review of Sociology* 43,2:58-75.

Mahlomaholo, S. & T. Matobako 2006. Service Learning in South Africa Held Terminally Captive by Legacies of the Past. *Alternation* 31,1: 203-217.

O'Brien, F. 2009. In Pursuit of African Scholarship: Unpacking Engagement. *Higher Education* 58:29–39.

O'Brien, F. 2010. *Grounding Service Learning in South Africa: The Development of a Theoretical Framework. Unpublished Doctoral Thesis.*

Durban: University of KwaZulu-Natal.

Petersen, N. & R. Osman 2013. An Introduction to Service Learning in South Africa. In Osman, R. & N. Petersen (eds.): *Service Learning in South Africa*. Cape Town: Oxford University Press.

Preece, J., P.G. Ntseane, O.M. Modise & M. Osborne 2012. *Community Engagement in African Universities: Prospects and Challenges*. Leicester: NIACE.

Preece, J. 2013. Community Engagement and Service Learning in a South African University: The Challenges of Adaptive Leadership. *South African Journal of Higher Education* 27,4:986–1004.

Preece, J., D. Manicom, C. Tsotetsi & D.J. Hlalele 2014. Adaptive Leadership for Multidisciplinary Community Engagement and Service Learning. Unpublished Research Report February 2014. Pietermaritz-burg: University of KwaZulu-Natal.

Ringstad, R., V.L. Leyva, J. Garcia & K. Jasek-Rysdahl 2012. Creating Space for Marginalized Voices: Re-focusing Service Learning on Community Change and Social Justice. *Journal of Teaching in Social Work* 32:268–283.

Shalabi, N. 2013. Exploring Community Partners' Perspectives of the Nature of Service-learning Partnerships in Egypt. *International Journal of Research on Service-Learning and Community Engagement* 1,1:80-91.

Stephenson Jr., M. 2011. Conceiving Land Grant University Community Engagement as Adaptive Leadership. *Higher Education* 61:95-108.

Stewart-Sicking, J.A., J.L. Snodgrass, R. Pereira, W.W. Mutai & R. Crews 2013. A Grounded Theory Investigation into the Process and Effects of Service-learning in Counselor Education. *International Journal of Research on Service-Learning and Community Engagement* 1,1:47-60.

Stringer, E. 2004. *Action Research in Education*. Columbus Ohio: Pearson/ Merril Prentice Hall.

University of KwaZulu-Natal 2012. *Strategic Plan 2007-2016*. Durban: University of Kwazulu-Natal.

Wu, X., M. Ramesh, M. Howlett & S.A. Fritzen 2010. *The Public Policy Primer: Managing the Policy Process*. New York: Routledge.

Van der Linden, J. & J. Zeelen 2012. Action Research in Africa: Challenges and Perspectives. In Boog, B., J. Preece, M. Slagter & J. Zeelen (eds.): *Towards Quality Improvement of Action Research*. Rotterdam: Sense Publishers.

Zeelen, J., M. Slagter, B. Boog & J. Preece 2012. Introduction: Ethics and Standards in Action Research. In Boog, B., J. Preece, M. Slagter & J. Zeelen (eds.): *Towards Quality Improvement of Action Research*. Rotterdam: Sense Publishers.

Julia Preece
Adult Education
University of KwaZulu Natal
preecej@ukzn.ac.za

Desiree Manicom
Community Engagement in Sociology and
Policy and Development Studies
manicom@ukzn.ac.za

Engaging the Community in Educational and Social Amelioration: Lessons and Prospects

Dipane Hlalele
Cias Tsotetsi

Abstract
A crucial element to ensure the success of a project is the community's engagement in it: in other words, the participation of individuals, community-based organisations and institutions that would be affected by the endeavour is vital to its success. Studies suggest that strong community participation during a programme's development and implementation is more likely to assure its long-term viability. There has been a proliferation of academic programmes that embrace community involvement, service-learning and volunteerism flowing from the understanding that community engagement constitutes one of the core functions in South African higher education. Universities attempt in their own ways to engage students in various projects and programmes to make them aware of the role that a university has to play in the social and economic development of the surrounding community. This paper reports on the lessons and prospects emanating from free attitude interviews (FAI) with five mathematics and science students, members of a non-governmental organisation (Pula) and a number of beneficiaries. Findings indicate that it is essential to craft a common purpose between the university, NGOs and beneficiaries. Youth educators also indicated that they derived a heightened sense of accomplishment when addressing challenges experienced by their peers.

Keywords: Free Attitude Interviews; Community Engagement; Social Capital; Participatory Action Research; Pre-service teachers

Dipane Hlalele & Cias Tsotsi

Introduction

Universities regard community engagement (CE) as an integral, indispensable and pervasive facet of higher education in South Africa. Our universities' role, as set out in the Higher Education White Paper 3 (Council on Higher Education 1997) is that 'we are called on to demonstrate social responsibility and make available expertise and infrastructure for CE programmes and projects in the commitment towards common good'. It is also important to take cognisance of what is set out in the White Paper for Post-School Education and Training (Republic of South Africa (RSA) Department of Higher Education & Training 2014:online): 'a post-school education and training system that is responsive to the needs of individual citizens …'. The paper proposes that higher education has an important role to play in social and economic development through community-service programmes. Given the inclusion of community engagement as a core function in South African higher education and the proliferation of academic programmes that include community engagement, we as academics are committed to engaging our students in various projects and programmes that will prepare them for the important role that they will play in society. Our approach is aimed at empowering and exposing our students to the realities of the social and human dynamics within our communities. One of the benefits that accrue is the enhancement of students' leadership skills. This article presents the lessons and prospects of engaging the community in order to improve educational and social conditions.

What is Community Engagement?

Whenever a group of practitioners gathers to discuss what engagement is, a debate about the diversity of language usually ensues. Depending on the situation in which one is working, 'engagement' can cover consultation, extension, communication, education, public participation, participative democracy or working in partnership (Benjamin 2011). In many instances, 'engagement' is used as a generic, inclusive term to describe the broad range of interactions between people. It can include a variety of approaches, such as one-way communication or information delivery, consultation, involvement and collaboration in decision-making, as well as empowered action in informal groups or in formal partnerships (Servaes 2008). According to

Brown and Schaff (2011), the term 'community' refers to a group of people with certain commonly held interests and attributes that help create a sense of shared identity. It implies a web of affective relationships that are qualitatively different from those that characterise other kinds of human groups. Being part of a community further implies long-term, continuous social interaction that contributes to the formation of personal, social and economic production and reproduction. As a result, members share a sense of belonging, of 'we-ness'. Mothowamodimo (2011: 23) views a sense of community as 'sets of people who may identify themselves with a place in terms of notions of commonality, shared values or solidarity in particular contexts. These values could be informed by the spirit of *botho* which is itself a community value. Other values include, among others, service, charity, respect, togetherness, and hospitality.'

Community engagement is therefore a planned process with the specific purpose of working with identified groups of people (whether they are connected by geographic location, special interest, or affiliation) to identify and address issues affecting their well-being. The linking of the term 'community' to 'engagement' serves to broaden the scope, thereby shifting the focus from the individual to the collective, with the associated implications for inclusiveness to ensure that consideration is taken of the diversity that exists within any community.

Social Capital as a Framework for Understanding Community Engagement

The term 'social capital' was coined by Bourdieu when he extended the notion of capital to include sociological and cultural theory. According to Bourdieu (1986: 249-250), the social world consists of an accumulated history. Thus, social capital is the:

> aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalised relationships of mutual acquaintance and recognition – or in other words, to membership in a group which provides each of its members with the backing of the collectively-owned capital, a credential which entitles them to credit, in the various senses of the word.

For Bourdieu, an individual's position in society is determined by the relative amounts of social, economic, and cultural wealth they accrue. Bourdieu's conceptual framework of social capital (as cited in Portes 2000) addresses the interaction between financial capital, social capital, and cultural capital. Social capital of any significance can seldom be acquired without the investment of some material resources and the possession of some cultural capital (e.g. academic credentials), enabling the individual to establish relations with others. Within Bourdieu's framework, social capital is associated with an individual's networks, including those that he or she explicitly constructs for that purpose, while the effects of acquiring social capital are linked to an array of material and informational benefits (2000). Social capital therefore, in the context of this study, relies on people looking beyond themselves and engaging in supportive or helpful actions, not because they expect a reward or immediate reciprocal help, but because they believe it is a good thing to do (Gauntlett 2011).

Furthermore, Keeley (2007: 102) states that the concept of social capital can be traced to Lyda Hanifan's view which sees it as 'those tangible assets [that] count for most in the daily lives of people: namely goodwill, fellowship, sympathy, and social intercourse among the individuals and families who make up a social unit'. Keeley further avers that originally, social capital was used to describe how neighbours could work together to oversee schools.

Social capital has been used extensively in the relevant literature to explain the power and control that individuals may possess to improve their position within their social space (Flint 2011; Uphoff, Pickett, Cabieses, Small & Wright 2013). Recently developed and somewhat contested, is the practice of using the notion of social capital to explain the influence that certain organisations may wield on the social and economic development of geographical communities, such as towns and cities. Underlying this notion of social capital is the idea that organisations or communities possess social capital (Putnam 1995; Putnam & Feldstein 2003). This idea of organisational social capital is a shift away from Bourdieu's ideas that social capital is reproduced by individuals, primarily through social conditioning and behaviour attributed to class structure, and often facilitated by education (Portes 2000). This research draws on guidance provided by the concepts that construct social capital. Social capital concepts used in this research are described below.

All perspectives on social capital refer to the dense interlocking **networks** of relationships between individuals and groups (Portes 2000; Putnam 1995; Putnam & Feldstein 2003; Woolcock 1998). Individuals engage with others through lateral associations which should be both voluntary and equal, because they represent an expression of 'freely formed mutuality' (Latham, as cited in Onyx & Bullen 2000). This means that individuals acting on their own, and in isolation, cannot generate social capital. In the context of our university's interaction with the community, we aimed at lateral interaction with the community. In other words, in as much as the community could learn from the university, we were of the opinion that the university community could also learn from the community. The process of networking would then be between students, learners, the community and the academics. Social capital depends on the capacity to form new associations and to cooperate within the terms of reference established by the members of the association (Fukuyama 1995). Portes (2000), on the basis of Bourdieu's work, argues that social capital is most firmly associated with an individual's networks. The effects of social capital are linked to an array of material and informational benefits derived from the individual's networks and affiliated institutional frameworks. Contrary to the nature of relationships between individuals, the nature of relationships between individuals and groups is more problematic. Putnam (1993) argues – and Coleman (1988) concurs – that social capital may be an asset of an organisation that benefits the individual members, and that individuals may engage groups through vertical relationships with organisations (Putnam 1995). Some researchers (Lin 2001; Portes 2000) disagree with the application of the concepts to organisations and contend that this form of vertical relationship requires a circular logic; for organisations to possess social capital, individuals should first bring that capital to the organisation. Yet, it is the organisation that facilitates the achievement of collective goals. Nevertheless, Latham (as cited in Onyx & Bullen 2000) observes that, when vertical relationships dominate, citizens forfeit some of their 'rights of participation and choice' to the 'authority and control' of the dominant group. It was not our intention to have a vertical relationship with the community, but a mutual and lateral one.

Reciprocity is the second common theme in the literature on social capital. It may be defined as a 'combination of short-term altruism and long-term self-interest' (Onyx & Bullen 2000: 3). Individuals may provide a service to others or perform acts of kindness with the expectation that this

kindness will be returned in the future when the need for assistance arises. We (the researchers) were engaged in a relationship with an NGO, Pula, which would yield mutual benefits: firstly, our students would learn from the experience of teaching in and interacting with the community; secondly, the grade 10 learners would be assisted in their academic work; thirdly, we, as researchers would benefit from documenting the process; and lastly, the university would benefit from expanding its community-engagement portfolio.

Other goals of CE are to build **trust**, enlist new resources and allies, create better communication, and improve overall outcomes as successful projects evolve into lasting collaborations (Benjamin 2011). According to Kemshall and Wilkinson (2011), trust entails a willingness to take risks in a social context. The risks are based on a sense of confidence that others will respond as expected and will act in mutually supportive ways. Fukuyama (1995) explains trust in terms of commonly shared norms; that is, codes of behaviour embedded in personal values about questions, such as the nature of God or justice. It was out of trust that Pula requested the university to assist their peer educators and grade 10 learners in mathematics and the sciences. We hoped that our positive response to Pula would create a sense of interdependence between us and them. We would expect Pula to create space for our students to grow. On the other hand, students would be interacting with peer educators and the grade 10 learners. Their interaction would result in growth for all parties involved, while also building trust amongst us.

Onyx and Bullen (2000) define **social norms** as informal social control that eliminates the necessity for more formally institutionalised legal sanctions. Furthermore, these authors argue that neighbourhoods with high levels of trust and common expectations for neighbourly (helping) behaviour may have relatively little crime, may require relatively low levels of policing, and may not require written codification of what constitutes socially acceptable behaviour. On the other hand, neighbourhoods with low trust levels and disparate expectations of neighbourly behaviour may require negotiated codified rules for behaviour that should be formally enforced and endorsed. For example, managers of rental housing where residents are transient, typically employ restrictive rules that limit the residents' activities and behaviour. Residents of middle-class neighbourhoods with predominantly owner-occupied housing may expect that caring for property and helping one another will be reciprocated. Our interaction with the

community had a relatively low level of policing. Our common aim of helping the grade 10 learners to pass the examinations, coupled with high levels of trust amongst us, made it unnecessary for us to have a relatively high level of policing. Our part as researchers was to ensure that student teachers received the content to be taught weekly.

One of the principles of CE, as indicated above, concerns itself with **empowerment**. In addition, guided by Bourdieu's theory of social capital, it would be expected that the engagement between the parties would lead to some empowerment. The concept of empowerment includes providing community members with the knowledge, tools, and resources they need to gain more control over their lives. Empowerment takes place at individual, group and community levels. At the individual level, empowerment increases a person's perceived capacity to influence social and political systems and builds his or her skills and knowledge to influence these systems and his or her own behaviour. At the group level, organisations can become empowered by building the capacity and confidence of the group's members. Empowered organisations can influence their community environment. Community level empowerment occurs when individuals and organisations gather critical information and evaluate it in order to reach consensus and make decisions that address problems.

Method and Design

Pula[1] (pseudonym) is an NGO led by a retired lecturer from a college of education. It consists of seven members. In 2012/2013, when the researchers met the directors of Pula, it had already been constituted. The NGO is situated in a former homeland in the Free State province of South Africa, and two secondary schools catering for grades 10 to 12 are in the vicinity. Pula wrote to the University of the Free State requesting assistance regarding methodological approaches to teaching because the University was involved in assisting learners using peer educators. Their two peer educators have

---

[1] Pula is a registered as an NGO. It is an NGO in the Thabo Mofutsanyana District of the Free State province in South Africa. Pula, which is consists of seven members, established a Learner Support Programme involving unemployed matriculants and graduates in a village to assist school learners in grade 10 with their school subjects.

passed grade 12 and obtained post-school qualifications, but they are not qualified teachers. In response to Pula's request, the university invited other NGOs to help pave the way for a larger partnership. During the NGO's stakeholders' meeting, Pula requested the university to assist them in the teaching of grade 10 mathematics and physical science. A number of NGOs responded positively to the invitation. For the sake of this article, only Pula's interaction with the university is discussed.

In instigating this task, the university invited volunteers exclusively from the population of its student teachers. Two students studying mathematics education, as well as three students of physical science education volunteered to coach the peer educators at the NGO in these subjects. Of the five students, three were females while two were males. Initially, the students were expected to offer lessons during school holidays. Towards the end of the second term, Pula requested that the classes be offered on Saturdays. Through a consultative process, both academics and students endorsed the request. Each Saturday, students had two hours in which to teach mathematics and another two-hour session for physical science. In order to maintain and review progress, the university and Pula held fortnightly meetings at the offices of Pula. The meetings and various activities were tape-recorded.

For ethical considerations, we obtained permission to conduct the research from the Faculty of Education at the institution where the study was carried out. Ethical considerations are generally considered to deal with beliefs regarding what is morally good or bad, right or wrong, proper or improper (McMillan & Schumacher 2001; Opie 2004; Van Niekerk 2009; Tsotetsi 2013). All participants involved signed consent forms which had been translated into Sesotho. We made it clear on the consent forms that people were not being coerced to participate. They were all assured of anonymity with regard to the information they would supply and informed that they could withdraw at any stage of the study without giving reasons. Such withdrawal would not have any negative repercussions on them or their children. These steps are supported by Opie (2004) and McMillan and Schumacher (2001), according to whom the researcher should show respect and care when people are involved in the research process.

Our research design was Participatory Action Research (PAR). According to Jordan (2003), PAR originated in countries that were colonised in the early 1960s and was inspired by the anti-colonial struggle when

scholars began to focus on how to change and better people's lives of fighting for survival. The scholars' stance was to value the participants' knowledge. PAR is therefore an approach embedded in the social sciences and was developed as part of a shift away from traditional, positivist science to working towards recognising and addressing complex human and social issues (Eruera 2010). PAR has the potential for research and it addresses wider issues of social justice; in other words, the inclusion and empowerment of the minority and communities that are often marginalised. It links well with the concept of social capital, which advances the agenda for empowerment (Mahlomaholo 2009).

There are three themes which define the PAR approach (Jordan 2003). Firstly, it (PAR) rejects the systematic reproduction of unequal power relations between the researchers and the researched which occurs when conventional research methodologies are used (Netshandama & Mahlomaholo 2010), tending to align itself with a non-positivist approach to research. The PAR process creates a discursive space for critically discussing matters without fear and giving power to all participants, including the marginalised and oppressed (Dentith, Measor & O'Malley 2012; Eruera 2010). Participants are assisted to express their opinions on issues that affect them every day and which are of concern to them. They are an integral part of the whole research process from beginning to end. Secondly, it is openly political (Eruera 2010; Netshandama & Mahlomaholo 2010; Sanginga, Kamugisha & Martin 2010). The researchers work *with* (as opposed to *on*) participants. In this regard, working *with* resonates very well with social capital in that, in the latter, the researcher engages with others through lateral associations which should be both voluntary and equal (Latham, as cited in Onyx & Bullen 2000).The third theme that defines PAR is its alignment with non-positivist paradigms and the adoption of qualitative methodology (Jordan 2003). The three themes indicate that PAR is centred on a democratic, critical, and emancipatory impulse. The success of PAR relies on collective participation and action, the generation of indigenous knowledge, and education. The researcher and the participants assume positions of being co-inquirers who are collectively engaged in and transformed by the enquiry process (Dentith, Measor & O'Malley 2012; Eruera 2010; Mahlomaholo & Netshandama 2010; Sanginga *et al.* 2010).

PAR thus means engaging with the community in a collaborative relationship from the start on issues to which the community is committed to

resolving (Ebersöhn *et al*. 2007; Eruera 2010; Netshandama & Mahlomaholo 2010; Sanginga *et al.* 2010 & Strydom 2002). The community was involved in the initiative from the onset. Through fortnightly discussions, the community and the University were able to apply the principles of PAR. Each of the meetings served to reflect on progress made as well as to plan ahead. In this regard, we perceive PAR as an effective methodology. Moreover, according to Eruera (2010) and Kemmis (2006), PAR enables individuals to take responsibility for their own growth and history.

The free attitude interview (FAI) was used to generate data. Unlike cases in which people respond to questions that have already been formulated, in an FAI people talk as they would in a normal conversation (Buskens 2011). What is more, the researcher and the participants engage with only one question. The advantage is that people may say more than they would in responding to a closed questionnaire. The nature of a normal discussion promotes the free and open engagement of participants. The central research question used in this study was: What are the lessons and prospects derived from engaging as partners in educational and social amelioration?

An FAI may be conducted between two people or in a group (Buskens 2011). Participants are free to intervene and the researcher can respond in a flexible manner. For the purposes of this study, it was conducted in a group. We used an FAI as a person-to-person method of obtaining information from the participants. The interviews were recorded and transcribed. In addition, learners' evaluation forms were also used to generate data about their perceptions of the peer educator's and student teachers' lessons. All learners were given the evaluation forms. Questions in the evaluation forms concerned aspects of the syllabus with which the learners had problems, perception about the initiative as well as suggestions for improvement.

To ensure the trustworthiness of the data generated, we created a tolerant environment in the focus group. This encouraged participants to share their perceptions, points of view, experiences, wishes and concerns, without pressurising them to vote or reach consensus. Integrating theoretical perspectives provided us with multiple views (Bailey 2007) from which we could interpret the lessons and prospects derived from engaging one another as partners in social and educational amelioration. The trustworthiness depended upon numerous readings of the interview transcripts and reflected

our thoughts about the participants in the study and our role in the interview process. In addition, we cleaned the data by reading the transcripts one at a time in an attempt to obtain the underlying meaning. We used member checking and held fortnightly meetings with Pula to ensure the trustworthiness of the collected data.

Furthermore, in order to analyse the data, we used Critical Discourse Analysis (CDA). CDA is a cross-discipline method which comprises the analysis of text and talk in all disciplines of the humanities and the social sciences (Bloor & Bloor 2007; Tsotetsi & Mahlomaholo 2013; Tsotetsi 2013). Van Dijk (1993) asserts that critical discourse analysts look at structures, strategies and other properties of text, talk and communication which tend to reproduce existing unequal power relations. These may be either top-down relationships of power or bottom-up relationships of resistance, compliance and acceptance. According to Van Dijk (1995), the aim with CDA is to enable the voices of the marginalized groups to be heard. In this study, 'marginalised groups' refers to the NGOs, peer educators and learners. We analysed the data, taking into account the two approaches from Van Dijk's work, namely the text and the societal base (context base) (Van Dijk 1995).

Discussion of Findings
Theme 1: Personal Growth and Learning
Findings from this study showed that the grade 10 learners who were engaged in this project had a better understanding of the subjects than before the intervention. Two of the learners said the following regarding the project:

> I've understood a couple of things that I didn't understand before.
> It helps me a lot because in some cases I was unable to solve problems.

The above comments suggest that the grade 10 learners' understanding of mathematical and scientific concepts might have improved. Indeed they might even have grown. According to the learners, they were now able to solve problems that they had not been able to solve previously. Moreover, it was not only the grade 10 learners who suggested that they might have

grown; the peer educators also indicated that they might have experienced some advancements. The peer educators appreciated the way in which student teachers spoke to the learners and served as role models. In one of the meetings, one of the peer educators and the chairperson of Pula commented as follows:

> Also, on my side I learnt a lot. The way they [the student teachers] speak to learners (Peer educator A).
> I can confirm that the (peer) educators learnt a lot that assists them in their [N5 Engineering and National Diploma: Accounting] studies (chairperson of Pula).

In South African society, children are often expected to obey their parents' commands (Dyer 2007). From the comments received, the peer educator learnt how to address learners by observing student teachers. The fact that he learnt a lot also implies that he learnt more than he could express in words. Through community engagement, the peer educator learnt how to address learners in ways that are different from how children are treated in many sectors of society. The decent and respectful way to speak to learners is the social capital brought by students through community engagement.

The university student teachers also improved their presentation skills. Commenting on Nthabiseng (pseudonym), one of the student teachers, the secretary of Pula said:

> No, we were critical ka Nthabiseng in the last meeting. But now I can safely say she was a team leader. On Saturday, she was very good.

The student-teacher's confidence improved from what it had been the previous week. She presented the lesson very well. Leadership skills were also revealed in how she managed herself; thus, the words 'she was a team-leader'.

Furthermore, in terms of growth, the university students also learnt from the grade 10 learners. While the assumption is that the school community learnt only from the university, the opposite also became possible. The fact that the student teachers also learnt from grade 10 learners is supported by the student-teacher who said:

> Le rona jwale ka ma-student mokgwa ona o re thusitse haholo. Re kgona le ho bona mekgwa e meng ya ho solv-a di-problems. Ka dinako tse ding bana bana ba tla ka di-methods tse sebediswang ke matitjhere a bona which are different from how I would solve them.
> (And as students, we learnt a lot. We learnt other methods of solving problems. Sometimes learners would show different methods that they used from their teachers).

The students' comments above indicate that they learn from social spaces. Both the university student teachers and grade 10 learners learnt from one another. The comments above reveal that learners indicated that they used different methods to solve problems in mathematics and physical science. Consequently, the student teachers progressed. In line with the above discussion, a study by Smith and Lev-Ari (2005) that was also conducted in rural areas demonstrates that, by placing student teachers in such initiatives, they are enabled to grow as they link the theory learnt at university with the realities they encounter.

Theme 2: Networking

Our finding demonstrated that lateral networking was one of the aspects which were achieved through the interaction between the university and the school community. According Delport and Makaye (2009), networking generally operates on an informal and voluntary basis. The primary aim of networking is to exchange ideas and provide mutual support. This implies the use of the existing social capital. In terms of working together for professional development purposes, the two peer educators signified their willingness to network with the university for the betterment of their teaching skills. One of the peer educators said the following:

> … mabapi le ho developuwa ha rona haholo. Nna ho ya ka nna, re tshwanetse re e considere siding la ka because time is running out. Nka thabela hore ke thuswethuswe ho feta mona.

> (In connection with our professional development, according to me,we need to consider it, as we are running out of time. I would be happy if I could be assisted in that regard).

In contrast to the usual expectation that the NGO's leadership would decide on her (the peer educator's) behalf, through community engagement and social capital, she could network with the university for further professional development. The spoken words show the initiative taken by the peer educator in asking for additional assistance. The project therefore had created links between the peer educators and the students and learners. In this regard, the peer educator intended to exchange ideas with the student teachers for their professional development. The links were also created between the university students and the learners.

What is more, learners also pointed out the benefits of linking with the university indirectly. They suggested that the network should extend even further to the grades 11s and 12s. Reading from their evaluation forms, the following sentiments were expressed by one of the learners:

> I suggest them to extend classes for grade 11 and 12; continue to come in September holidays for the exam in September [sic].

This learner's words display a willingness to even sacrifice his or her holiday in order to gain more knowledge. It may be less likely for a grade 10 learner to voluntarily suggest coming to school during a vacation period since most attention is directed at grade 12 learners' education. We were also inspired to hear them suggesting the extension of the additional support classes to grade 11s and 12s.

Shehu (2009) points out the pivotal role played by networking. Through networking, student teachers and learners form friendships. They find individuals with whom they can share problems in their respective subjects, thereby able to support and encourage one another. Other advantages of networking include enhancing schools' general performance as it builds strong communities of teachers, promoting decentralised decision-making as well as fostering relationships between previously isolated individuals and organisations (Muijs 2008; Mokhele 2011; Villegas-Reimers 2003).

Theme 3: Collaboration

When presenting classes and dealing with the activities given to learners, student teachers worked hand-in-hand with peer educators. One student-teacher would present the lesson while others commented on the lesson or constructively criticised him or her where and when necessary. Members of the NGO (Pula) would also be present to get a sense of what was taking place. As soon as the learners were given activities, student teachers and peer educators would jointly assist learners on an individual basis. Pula's secretary commented as follows when referring to the approach:

> Ke method o bitswang team teaching. Because ba ne ba le ba ngata, ba ne ba le four. So they were able to engage all at the same time. Ke hore ha e mong a qetile ho ruta, a ba file exercise, the whole team goes into the group and micro manage. And that works very well. Because ba kgona ho fa ngwana e mong le e mong attention.
>
> (This is the method called team-teaching. Because there were four, they were able to engage everyone at the same time. As soon as one of them had completed presenting the lesson, and gave them an activity, the whole team would regroup. And that works very well. They were able to give individual attention).

The above comments show an appreciation of the approach used by the student teachers and peer educators. The words, 'the whole team would regroup and micromanage. And that works very well' gives a deeper interpretation of how collaboration and working together can be used as social capital to empower the community.

Besides what is mentioned in the preceding paragraph, one of the peer educators showed a willingness to further collaborate with the student teachers and the university as a whole. She made the following comments:

> Ke re o a tseba ha nka thuswa mona … le hore next year ha re qala, ke tsebe hore I have improved from this … to … that?
>
> (Do you know whether I can be assisted here … so that at the beginning of the next year, I will know that I have improved from this … to … that?).

What the peer educator sought to express above is that she experienced some change even though it is neither clearly described nor articulated. We may assume that this represents a feeling of positive social change.

Her comments show that she felt that the collaboration could assist her even further. Instead of waiting for Pula to decide on her behalf, she felt the need to move ahead and to progress from her current status to the next level. The project is deemed to have provided space for her to realise her awakening ability to develop and be nurtured in leadership skills, to sustain commitment and expand her work.

The collaborative approach is recommended by Mokhele (2011) who encourages student teachers and teachers in general, to work collaboratively to achieve greater results. According to Villegas-Reimers (2003), collaboration improves the exchange and sharing of expertise as members learn to solve problems together. Furthermore, collaboration promotes collegiality. In this regard, student teachers and/or peer educators learn from one another and improve their self-confidence, content knowledge and pedagogical practices. Such collaboration filters down to the learners who then understand a particular concept from different perspectives.

Theme 4: Trust

The partnership between the University and Pula created a bond. The participants felt that the 'linkage' could go even further in the years ahead. The chairperson of Pula commented as follows, confirming the trust that had grown amongst participants:

> We are requesting the university to look for other funds so that when the 2-year funding from funders comes to an end, our collaboration still continues.

From the above-mentioned comment, Pula feels satisfied with the link between the university and themselves. Their satisfaction is clarified by the sentiments expressed and the request that the university to look for other sponsors. We feel that this bond has been one of the important benefits of a negotiated partnership where we and Pula were able to clarify our goals. The request for the university to assist with funding endeavours is indicative of

the element of trust that seems to have emerged from the interactions. The gesture may further be interpreted as a situation where communities view themselves as being in a win-win situation with the university. Learners also endorsed their trust in the partnership. One of the learners commented as follows:

> They (university students) are so good than [sic] my teachers at school because they help if I have problem until I can solve that problem.

From the above comment, we deduced that the learners' understanding of mathematical and scientific concepts had improved. The students' ability bred trust from the learners and thus, the above-mentioned learner's words '[t]hey are so good than [sic] my teachers …'. The individual attention by student teachers working together with peer educators helped the learner to feel that the presenters were even better than her teachers at school. The fact that learners held student teachers' knowledge in high regard further attests to the element of trust that emerged. In some cases learners were not impressed with the student teachers simply because, unlike their teachers, they did not have an official qualification.

Although the above views of participants testify to the success with which student teachers presented their lessons, another learner had mixed feelings:

> I think that they are easy to understand and their explanation is not difficult to understand. They mustn't be too strict; they should make some jokes for us to be a little bit relaxed during sessions.

The above words show that the student teachers presented and explained concepts in a way that benefited the learners. In addition, they tried to maintain a firm stance that enabled them to be in control of the class as was expected of them. However, the learner(s) felt that he or she needed interaction that was more relaxed. It is normal in our African society to have differences of opinions if people are not of the same age (intergenerational differences and expectations). According to Saba (2013) the different generations are said to have different values and expectations regarding work which are not easily compatible. Members of a generational cohort

experience particular historical or environmental events within the same timeframe and share a set of values, beliefs and expectations (Leiter, Price & Laschinger, 2010). A lack of awareness of generational differences may lead to conflict in some instances. Student teachers are assuming positions of guardianship – thus, their concern about controlling their classes. Learners, on the other hand, because of their youth, need a fun atmosphere. Peer educators also shared their feelings of satisfaction about how student teachers presented the lessons. One of them commented as follows:

> I was impressed the way the chapter was introduced. Ba entse hore bana ba be more active. Haholo ke ratile yah ore ba be le chance ya hore ba ba thuse individually. Ke yona ntho eo ke e ratileng. E ba open-a di-mind hore ho etswa tjena. A bone ngwana hore o … e tjena … e tjena …
>
> (I was impressed the way the chapter was introduced. They ensured that learners were more active. I liked being given individual attention. That is something I liked the most. It opened our minds to solving problems. The child is able to understand how problems should be tackled). (Peer educator B)

The above remarks show the skilful way in which the lesson chapter was introduced. The peer educator further appreciated the step-by-step method by which grade 10 learners were guided. A step-by-step method is a way of taking the learner by the hand. The student teachers' ability to do so also built trust amongst the participants. This is a good a way of tapping into social capital, which bears trust. Trust is something that a teacher earns through his or her confidence in delivering the content and using suitable pedagogical practices. The interaction and reflection of both teachers and student teachers serve to build trust with the rest of the school community (Murtaza 2010; Shafa, Karim & Alam 2011).

Lessons and Prospects
One important lesson to be learned from this community-engagement exercise is the fact that communities may be acutely aware of the challenges with which they are confronted and can therefore decide what intervention is

needed. In this study the NGO was aware that the need for support was in grade 10, and not in grades 11 and 12; this is the case in most instances. Interaction under such conditions is more likely to create fertile ground for building relationships and attitudes that allow them to work together effectively, irrespective of different points of view. This endeavour may have further sown the seeds for cultivating a sense of community spirit, shared gratification and the need to further support one another. There is also the fact that the NGO, as well as the university, may have made strides in seeing each other as equals; a situation that might have required that the latter descend from its ivory tower. We, the authors of this article, remain puzzled about how and why students, who by their nature as human beings belong to particular communities before they come to university, are seen in a different light when they go back to engage with those communities. In our view, they should not have been in a place of privileged isolation or separation from the practicalities of the real world in the first place.

Furthermore, this community-engagement exercise seems to have broadened the awareness of learning opportunities that are available to learners, student teachers and community members. This is evident in how the university and community (through the NGO) engaged with and sought to improve each other. The quality and depth of future relationships between the two entities may lead to further engagements which have the potential to harness social interaction, social networks and social support, as well as educational and social amelioration.

The study further indicated that it is possible for universities and communities to develop trust, reciprocity and social cohesion between themselves. Through community engagement, participation, social engagement and commitment are encouraged. Since there were clear calls for the community engagement project to continue, we wish to point out that our view of the concept 'project' also changed. We, the authors of this article and instigators of the project, wish to use the concept 'initiative' in future. Using the former may be hamstrung by the fact that it has time limits and may have to adopt a certain form to be prescribed and approved, whilst initiatives provide more scope and flexibility.

Conclusion

The study discussed the findings of one of the university's community enga-

gement projects. Findings revealed the advantages of networking and collaboration, as peer educators were able to network with the university. The team-teaching approach not only benefitted the learners and peer educators, but the student teachers' self-esteem and confidence were also enhanced. Through networking, the university, student teachers and community members are able to communicate and share their ideas (Otieno & Coclclough 2009) and this results in a situation in which all three benefit. Whilst this appears to be an ideal outcome, it may however, not be realised to the satisfaction of all parties. The ideal outcome presupposes that, in engaging the communities, positive social and educational change will accrue to all who were involved. In this study, the benefits affected not only the student teachers but also the community. For example, the peer educators, who are members of the community, were in an improved position as they were introduced to the intricacies of teaching and learning, including the facilitation of learning experiences and assessments. Reciprocity was evident as student teachers further learnt other methods of solving problems from the community members. Lessons learnt include that fact that student teachers and the university were (tacitly) engaged in a problem already identified and conceptualised by the community. It is important to note that the NGO concerned indicated that the need is at grade 10. Therefore, the community may claim to have won with regard to the choice of the focus area where the efforts needed to be made. A very important lesson gained is that communities are aware of the problems with which they are confronted, even though they may not have the means to solve them. Personal growth and learning were clearly demonstrated, as one of the student teachers even emerged as a team leader (meaning that leadership roles can be organic in nature, i.e. they change hands as the project evolves) in the same project. Transitions in leadership roles do, in our view, create space for, amongst other benefits, dynamism and creativity. The project encouraged and boosted the confidence of the learners, peer educators and the leadership of the NGO to take responsibility for their own growth and success. Mokhele and Jita (2010) and Ono and Ferreira (2010) assert that through collaboration between universities and the community at large, a better understanding and solutions to educational and social matters can be reached. We are of the opinion that, if planned and managed in a manner that seeks to recognise the voices of all parties, community engagement has the potential to effect social change for the betterment of communities. The study provides an example of instances

where social capital may be tapped into for educational and social amelioration. This is consistent with the basic tenet of social capital which requires that communities bring about their own betterment by utilising the accrued assets and potential.

References

Bailey, C.L. 2007. *Understanding the Meaning of Community Engagement for Aging in Place within a Social Capital Framework*. Unpublished Ph.D. thesis. Virginia Virginia Polytechnic and State University.

Benjamin, R.M. 2011. The Principles of Community Engagement. In Silberberg, M., J. Cook, C. Drescher, D.J. McCloskey, S. Weaver & L. Ziegahn (eds.): *Principles of Community Engagement: Clinical and Translational Science Awards Consortium Community Engagement Key Function Committee Task Force on the Principles of Community Engagement*. 2nd Edition. USA: Department of Health & Human Sciences.

Bloor, M. & T. Bloor 2007. *Background and Theory. The Practice of Critical Discourse Analysis: An Introduction*. London: Holder Education.

Brown, D.C. & K.A. Schaff 2011. *Rural People and Communities in the 21st Century*. Cambridge: Polity Press.

Bourdieu, P. 1986. The Forms of Capital. In Richardson, J. (ed.): *Handbook of Theory and Research for the Sociology of Education*. New York: Greenwood.

Buskens, I. 2011. The Free Attitude Interview in Context. Research for the Future. Unpublished paper.

Coleman, J.S. 1988. Social Capital in the Creation of Human Capital. *The American Journal of Sociology* 94: 95-120.

Council on Higher Education 1997. Education White Paper 3: A Programme for the Transformation of Higher Education. Available at: www.che.ac.za/media_and _publications. (Accessed on 6 June 2015.)

Delport A. & J. Makaye 2009. Clustering Schools to Improve Teacher Professional Development: Lessons Learnt from a Zimbabwean Case Study. *Africa Education Review,* 6,1: 96-105.

Dentith, A.M., L. Measor & M.P. O'Malley 2012. The Research Imagination Amid Dilemmas of Engaging Young People in Critical Participatory Work. *Qualitative Social Research* 13,1:1-17.

Dyer, S.J. 2007. The Value of Children in African Countries: Insights from Studies on Infertility. *Journal of Psychosomatic Obstetrics & Gynaecology* 28,2: 69–77.

Ebersöhn, L., I. Eloff & R. Ferreira 2007. First Steps in Action Research. In Maree, K. (ed.): *First Steps in Research*. Pretoria: Van Schaik.

Eruera, M. 2010. Ma Te Whanau Te Huarahi Motuhake: Whanau Participatory Action Research Groups. *MAI Review* 3. Available at: http://review.mai.ac.nz. (Accessed on 1 January 2013.)

Flint, N. 2011. *Inspiring Leaders to Improve Children's Lives*. London: National College for Leadership of Schools and Children's Services.

Fukuyama, F. 1995. *Trust: The Social Virtues and the Creation of Prosperity*. New York: Free Press.

Gauntlett, D. 2011. *Making is Connecting. The Social Meaning of Creativity, from DIY and Knitting to YouTube and Web 2.0*. Cambridge: Polity.

Jordan, S. 2003. Who Stole my Methodology? Co-opting PAR [1]. *Globalisation, Societies and Education* 1,2:185-200.

Keeley, B. 2007. *Human Capital: How What you Know Shapes your Life*. Paris: OECD.

Kemmis, S. 2006. Participatory Action Research and the Public Sphere. *Educational Action Research* 14,4:459-476.

Kemshall, H. & B. Wilkinson 2011. *Good Practice in Assessing Risk: Current Knowledge Issues and Approaches*. London: Jessica Kinsley Publishers.

Leiter, M.P., S.L. Price & H.K.S. Laschinger 2010. Generational Differences in Distress, Attitudes and Incivility among Nurses. *Journal of Nursing Management* 17:1-11.

Lin, N. 2001. *Social Capital. A Theory of Social Structure and Action*. Cambridge: Cambridge University Press.

Mahlomaholo, M.G. 2009. Critical Emancipatory Research and Academic Identity. *Africa Education Review* 6,2: 224-237.

Mahlomaholo, M.G. & V. Netshandama 2010. Sustainable Empowering Environments: Conversation with Gramsci's Organic Intellectual. In Basov, N., G.F. Simet, J. van Andel, M.G. Mahlomaholo & V. Netshandama (eds.): *Critical Issues: Imagining Research in Multidimensional Perspective.* United Kingdom: Oxford.

McMillan, J.H. & S. Schumacher 2001. *Research in Education. A Conceptual Introduction.* 5th Edition. New York: Longman.

Mokhele, M.L. 2011. *Teachers' Perspectives on CPD: A Case Study of the Mpumalanga Secondary Science Initiative (MSSI) Project.* Unpublished Ph.D. thesis. Pretoria: University of South Africa.

Mokhele, M.L. & L.C. Jita 2010. South African Teachers' Perspectives on CPD: A Case Study of the Mpumalanga Secondary Science Initiative. *Procedia Social and Behavioral Sciences* 9,10:1762-1766.

Mothowamodimo, W.O. 2011. *Re/claiming the River's Edge.* Unpublished Doctoral Thesis. Pretoria: University of Pretoria.

Muijs, D. 2008. Educational Effectiveness and the Legacy of Bert P.M. Creemers. *School Effectiveness and School Improvement*, 19,4: 463-472

Murtaza, K.F. 2010. Teachers' Professional Development through Whole School Improvement Programme. *International Journal of Business and Social Science* 1,2:213-221.

Netshandama, V. & M.G. Mahlomaholo 2010. The Role of Community Engagement in Higher Education: Focus on the Discourse Relating to Knowledge Development. In Basov, N., G.F. Simet, J. van Andel, M.G. Mahlomaholo & V. Netshandama. *Critical Issues: Imagining Research in Multidimensional Perspective.* United Kingdom: Oxford.

Ono, Y. & J. Ferreira 2010. A Case Study of Continuing Teacher Professional Development through Lesson Study in South Africa. *South African Journal of Education* 30,1:59-74.

Onyx, J. & P. Bullen 2000. Sources of Social Capital. In Winter, I (ed.): *Social Capital and Public Policy in Australia.* Melbourne: Australian Institute of Family Studies.

Opie, L.H. (ed.) 2004. *Heart Physiology: from Cell to Circulation.* 4th Edition. United States of America: Lippincott Williams & Wilkins.

Otieno, W. & C. Coclclough 2009. *Financing Education in Kenya: Expenditure, Outcomes and the Role of International Aid*. Research Consortium and Poverty: University of Cambridge.

Portes, I. 2000. Social Capital: Its Origins and Applications in Modern Sociology. In Lesser, E.L. (ed.): *Knowledge and Social Capital*. Woburn MA: Butterworth-Heinemann.

Putnam, R. 1995. Bowling Alone: America's Declining Social Capital. *Journal of Democracy* 6,1: 65-78.

Putman, R.D. & M.L. Feldstein 2003. *Better Together: Restoring the American Community*. New York: Simon and Schuster.

RSA (Republic of South Africa) Department of Higher Education and Training 2014. *White Paper for Post-School Education and Training*. Pretoria: Republic of South Africa.

Saba, T. 2013. *Understanding Generational Differences in the Workplace: Findings and Conclusions.* Montreal: Queen's University IRC.

Sanginga, P.C., R.N. Kamugisha & A.M. Martin 2010. Strengthening Social Capital for Adaptive Governance of Natural Resources: A Participatory Learning and Action Research for Bylaws Reforms in Uganda. *Society and Natural Resources* 23:695-710.

Servaes, J. 2008. *Communication for Development and Social Change.* London: Sage.

Shafa, M.D., D. Karim & S. Alam 2011. What Works in Education in Pakistan, and Why? The Case of PDCN's Whole School Improvement Program in Gilgit-Baltistan of Pakistan. *International Journal of Business and Social Science* 2,16:132-145.

Shehu, J. 2009. Professional Development Experiences of Physical Education Teachers in Botswana: Epistemological Implications. *Teacher Development: An international Journal of Teachers' Professional Development* 13,3:267-283.

Smith, K. & L. Lev-Ari 2005. The Place of the Practicum in Pre-service Teacher Education: The Voice of the Students. *Asia-Pacific Journal of Teacher Education* 33,3:289–302.

Strydom, H. 2002. Participatory Action Research. In de Vos, A.S. (ed.): *Research at Grass Roots*. 2nd Edition. Pretoria: Van Schaik.

Tsotetsi, C.T. 2013. *The Implementation of Professional Teacher Development Policies: A Continuing Education Perspective.* Unpublished Ph.D. thesis. Bloemfontein: University of the Free State.

Tsotetsi, C.T. & M.G. Mahlomaholo 2013. Teacher Development Programmes: What is Missing? *Journal of Educational Studies* 12,1:89-102.

Uphoff, E.P., K.E. Pickett, B. Cabieses, N. Small & J. Wright 2013. A Systematic Review of the Relationships between Social Capital and Socioeconomic Inequalities in Health: A Contribution to Understanding the Psychosocial Pathway of Health Inequalities. *International Journal for Equity in Health* 12,1:54-66.

van Dijk, T.A. 1993. Principles of Critical Discourse Analysis. *Discourse and Society* 4,2*:* 249-83.

van Dijk, T.A. 1995. Discourse Analysis as Ideology Analysis. In Schaffner, C. & A.L. Wenden (eds.): *Language and Peace*. Dartmouth: Aldershot.

Van Niekerk, M.P. 2009. *Principals' Influences on Teacher Professional Development for the Integration of Information and Communication Technologies in schools*. Unpublished PhD thesis. Pretoria: University of Pretoria.

Villegas-Reimers, E. 2003. *Teacher Professional Development: An International Review of the Literature*. Paris: UNESCO International Institute for Educational Planning.

Woolcock, M. 1998. Social Capital and Economic Development: Toward a Theoretical Synthesis and Policy Framework. *Theory and Society* 27,2: 151-208.

Dipane Hlalele
Psychology of Education
University of the Free State
hlaleledj@ufs.ac.za

Cias Tsotetsi
Philosophy and Policy Studies in Education
University of the Free State
tsotetsict@ufs.ac.za

Pre-service Technology Teachers' Reflections on their Learning during Service-learning: A Promising Marriage for 'Pedagogy'

Asheena Singh-Pillay

Abstract

This article reports on a pilot project in a technology education course which enabled pre-service technology teachers'[1] (PSTTs) to interact with the communities they were assigned to during their project based assessment by engaging in service-learning. The article proposes that adopting the pedagogy of service-learning in technology education can play a critical role in promoting learning about sustainable development, critical citizenship and improving the capacity of people to address environmental and developmental issues. The purpose of this article is to explore what learning occurred when EDTE 220 pre-service technology teachers (PSTTs) engaged in service-learning while embarking on a project based assessment in the plastics section of the module. Education for sustainable development (ESD) was used as a concept to define the content of the plastics section of the EDTE 220 module. A case study design was applied in the plastics section of the module. During data collection PSTTs engaged in participatory action research (PAR) activities in their communities that contributed to communities living more sustainable lives. Pre-service technology teachers maintained a reflective journal and answered a questionnaire on service learning. Qualitative content analysis was used to analyse the data drawn from the respondents. The results indicate that PSTTs valued service learning as it allowed for the application of theory to real life problems, provided a new perspective on environmental issues, made them aware of their social

---

[1] PSTTs are trainee teachers specializing to teach technology education.

responsibility to the community as teachers and agents of change, and promoted the development of social skills.

Keywords: community, learning, reflexive thinking, pedagogy, pre-service technology teachers, service-learning

Context

Technology education involves the application of science concepts to technological systems in areas such as construction, processing, manufacturing, communications, transportation, biotechnology and power and energy. Technology education lies at the heart of the economy in every developed or emerging society and is seen as a vehicle to improve the quality of human life as it is required for the production of innovative products, modern materials, and sustainable energy supplies to meet the needs of people (Pavlova 2009). The technological choices we make have a direct bearing on the environment, natural resources, our economy and political system. As the effects of technological development on the world become more apparent, the concept of sustainability is becoming more prevalent (Gough 2013). People are trying to understand the best ways to protecting the ecological health of the world. It is with regard to the above concerns that 'education for sustainable development' (ESD) has become a buzz phrase in politics across the world and as a result education for social change has gained prominence both globally and locally. Education for sustainable development demands a new vision of education – a vision that seeks to help people better understand the world in which they live and be able to face the future with hope and confidence and to realise that they can play a role in addressing the complex problems that threaten our future such as wasteful consumption, environmental degradation, urban decay and population growth. It is, therefore, imperative for us to consider the effects of technology in our lives and its potentially destructive effects on the natural world and environment.

The preceding issues raise pertinent questions such as: how do we create a more environmentally and socially responsive technology education? Is it enough to just educate PSTTs about the challenges that communities face

without their having to do anything to help address this issue? How can technology teacher educators promote and develop social responsibility and awareness amongst PSTTs in order to empower them to promote ESD in a socially responsible manner in their classrooms and communities? How can PSTTs be assisted to understand their work as central to the future role of schooling for social responsibility, democracy and social justice?

An approach that responds to the above concerns is that of experiential learning, in particular the model located within the framework of service-learning (SL) because it facilitates community engagement, learning and social responsiveness. While planning for the lectures for the EDTE 220 module the researcher infused service-learning in a manner that responded to the desired learning outcomes related to the plastics section of the EDTE 220 module. The plastics section of the EDTE 220 module focuses on the chemistry related to the processing of plastic (the initial building block of plastic is crude oil which is a non-renewable resource), the properties of plastic and its advantages and disadvantages. An ESD lens is used to examine the disposal of plastics and its impact on the environment and human health. For their project based SL PSTTs were expected to identify a 'problem' relating to poor use of resources / waste reduction / management and recycling in the community and with the community jointly address and resolve this identified problem. The outcomes of this module related to the project were to:

1. Engage PSTTs in problem based leaning.
2. Enhance PSTTs' learning by joining theory with experience and thought with action in a community setting.
3. Enable PSTTs to help and enter into caring relationships with others and their community.
4. Increase the civic and citizenship skills of PSTTs.
5. Assist communities to benefit from engagement with PSTTs.
6. Enable PSTTs to engage in reflective practice whilst learning.
7. Increase awareness in PSTTs of the need for sustainable use of resources, waste reduction, management and recycling in communities.

The value of SL for student learning has long been the subject of investigations in the field of teacher education internationally (Anderson, Swick & Yff 2001; Furco & Root 2010). Adopting a SL approach to education engages in a language of transcendence which encourages a capacity to imagine an alternative reality and hope for education and society (Giroux 1988; Greene 1986; Kincheloe 1993). This is the backdrop against which this researcher embarked on this pilot project to employ SL as a heuristic model, in the EDTE 220 plastic section, in order to educate and engage PSTTs with respect to sustainability, social responsibility and critical citizenship. This study addresses the following research question:

What learning occurs when EDTE220 PSTTs engage in service-learning?

Literature Review

In this section the literature surveyed is arranged into 4 sub sections: definitions of SL; use of SL as pedagogy, linking SL to Experiential learning theory and; teachers' beliefs and attitudes to ESD.

Definitions of Service-Learning

A survey of existing literature reveals that SL is a particular form of experiential education that incorporates community service. According to Eyler and Giles (1999: 77), SL is a form of experiential education where learning occurs through a cycle of action and reflection. Students work with others through a process of applying what they are learning to community problems and, at the same time, reflect upon their experience as they seek to achieve real objectives for the community and deeper understanding and skills for themselves. The unique element of SL is that it has powerful learning consequences for the students as well as the community participating in the service provided by the PSTTs. A key feature of SL, according to Bringle and Hatcher (2005), is its overt association with academic course work. According to Bringle and Hatcher (2005: 27), service learning is a powerful pedagogy 'because it brings a civic dimension to teaching academic material, contributes to a civic purpose for institutions of higher education, and fosters a civic dialogue between institutions and their communities'. The

foregoing definition is frequently used in the South African context as it aligns with the framing of service-learning as having the potential to contribute to the call for higher education to place more emphasis on engaging with societal issues and thereby showing a greater social responsiveness (Singh, 2001). Bender (2005) and other scholars in the field of SL (Bender *et al.* 2006; Mitchell, Trotter & Gelmon 2005; Erasmus 2005) define SL as a type of experiential education which forms the basis for teaching and learning (pedagogy) whereby students learn and develop through active participation in thoughtfully organised service that:

- Is integrated into and enhances academic curricular learning;

- Is conducted in and meets the needs of the community (as identified by the community by means of a needs assessment);

- Is co-ordinated with an institution of higher education (and, if possible, community partners);

- Includes structured time and guidelines for students to reflect in written and oral format on the service experience and gain a deeper understanding of the module content;

- Gives a broader appreciation of the discipline; and

- Helps foster social responsibility.

This article embraces Bringle and Hatcher's (2005) definition of SL and includes Bender's (2005) notion on reflection.

From the above definitions it is clear that SL embraces a specific theory of learning, namely experiential learning, which promotes social responsibility and reflexivity. According to Witt and Silver (1994: 330-331), social responsibility is either a natural human tendency or a learnt social behaviour. They posit that if social responsibility is not a natural human tendency it can be learnt behaviour in response to social problems and issues. This means that service learning can be used to conscientise PSTTs about their social responsibility. Therefore SL is not haphazard teaching but rather a structured learning experience with explicit outcomes and assessments that

combines community service with preparation and reflection. Thus, engaging PSTTs in SL contributes to both the development of their discipline concepts as well as their understanding of social issues in the communities where they are placed. Put simply, this means that SL has the advantage of combining theory with practice, classrooms with communities and the cognitive with the affective, and seemingly breaches the disjunction of lofty academics from the lived reality of everyday life (Butin 2005). Accordingly, Gibbons (2005) posits that SL represents a paradigm shift in higher education because it heightens the role that students and communities can both assume as constructors of knowledge.

The Use of SL as Pedagogy

Much of the debate that surrounds SL focuses on its nature (what it is) – is it pedagogy, a philosophy or a form of inquiry (a methodology)? Or does it encompass all of these? The National and Community Service Trust Act of 1993 defines SL as a teaching strategy whereby students learn and develop while actively engaging in a thoughtfully organized service. Castle and Osman (2003) as well as Le Grange (2007) maintain that SL is a philosophy, a form of inquiry, a pedagogy and a methodology. The rationale for considering service learning as a pedagogy, a philosophy and a methodology in an emerging knowledge society and economy is that SL can play a role in building knowledge cultures. It can play a role in creating new knowledge spaces in which knowledge and habits can be transformed. As pedagogy, SL emphasizes *meaningful* student learning through applied, active, project-based learning that draws on multiple knowledge sources (academic, student knowledge and experience and community knowledge) and provides students with ample opportunities for ethical and critical reflection and practice (Nduna 2006; Hund 2006). In other words, 'learning' is not a simple process of knowledge transmission from teacher to students but rather a *multidimensional social practice*. Suffice it to say, engaging PSTTs in SL promotes social responsibility and can transform behaviour, attitudes and values.

Within the South African context, the Joint Education Trust (2006: 4) reinforces these points in its statement that SL is a 'thoughtfully organized and reflective service-oriented pedagogy focused on the development

priorities of communities through the interaction between and application of knowledge, skills and experience in partnership between community, academics, students, and service providers within the community for the benefit of all participants'. Therefore an argument can be made that SL represents a potentially powerful form of pedagogy because it provides a means of linking the academic with the practical. The more abstract and theoretical material of the traditional classroom takes on new meaning as the student 'tries it out', so to speak, in the 'real' world. At the same time, the student benefits from the opportunity to connect the service experience to the intellectual content of the classroom. Service-learning provides PSTTs with a 'community context' to their education, allowing them to connect their academic coursework to their roles as citizens. It is argued that SL helps PSTTs develop 'socially-responsive' intellectual skills which are essential in a 21st century context which requires adaptability, sophisticated knowledge, problem-solving capacities and life-long learning skills.

Pretorius (2007) conducted an inquiry into attitudes and perceptions of students regarding their SL experiences at the Central University of Technology, Free State, in developing a higher-education programme management model for community service learning. This study showed how SL provides opportunity for students to develop three attitudes: 'self-efficacy', 'obligingness' and 'engagement'. Stears and James' (2011) study conducted at UKZN shows how engaging biology pre-service teachers in project based service-learning enhances the development of social/civic skills. Dos Reis (2012) used SL as a tool to mentor pre-service accounting teachers to increase their pedagogical content knowledge in accounting. The above South African based studies confirm the use of SL as pedagogy to improve content knowledge, develop social and civic skills, reflexivity and increase community engagement.

Linking SL to Experiential Learning Theory

According to Wong (2008: 8) 'powerful, experiential learning events associated with service learning can provide pre-service teachers with the opportunity to learn about diversity and challenge their preconceived ideas about various cultural issues'. Wong found that pre-service teachers involved in SL projects mature in terms of these factors: transactional relationships (impersonal), transformational relationships (curiosity about tutees'

backgrounds) and transcendent relationships (acknowledgement of significant personal growth in personal ideas and beliefs and recognition of how institutional and social structures impact on students). Diambra *et al*. (2009) observed that apart from providing an atmosphere that can be therapeutic, focus groups in SL help students clarify their roles and provide opportunities for revealing student anxieties. Much has been written regarding the merits of SL as a pedagogic strategy that contributes to cognitive development (Jones and Abes 2004; Billig and Klute 2003). Jensen (2006: 2) argues that the benefits of engaging students in a SL activity can assist students to retain the course material for longer periods of time because the students begin to see the relevance of their learning as it pertains to everyday life experiences. Studies reveal that students participating in SL courses report a greater understanding of social problems (Astin & Sax 1998), greater knowledge and acceptance of diverse cultures and races (McKenna & Rizzo 1999), a greater ability to get along with people of different backgrounds (Astin & Sax 1998; McKenna and Rizzo 1999), positive attitudes and values and a better understanding of social issues (Stears & James 2011), and increased awareness of their own biases (Eyler *et al*. 2001). While acquiring this important learning, students also provide meaningful outreach to people and organizations in need, a service generally valued by community partners (Driscoll, Holland, Gelmon & Kerrigan 1996; Gray *et al*. 2000). A number of researchers (for example Eyler & Giles 1999; Astin *et al*. 2000; and Eyler *et al*. 2001) have documented that SL improves student learning outcomes and contributes to student personal and social development. Therefore it is envisaged that by engaging PSTTs in SL they will graduate with particular values in that they will not only be technically competent but also disciplined in attitudes, values and behaviours that allow them to participate as critical citizens in our democracy. While developing their knowledge and skills pertaining to technology education, PSTTs will have been able to reflect on their roles as educators in a broader community and as agents of change in that community.

Linking Teachers' Beliefs and Attitudes to ESD

Research by Kriek and Basson (2008), Tobin, Tippins and Gallard (1994) and Pajares (1993) has shown how important teachers' beliefs and attitudes are

when it comes to reforms in education. In this respect it is worth noting Songqwaru's (2012) call for investment in pre-service teacher education programmes which groom pre-service teachers to be proficient in pedagogical content knowledge and experiential learning in order to be able to carry out effective reform of ESD. Songqwaru argues that such skills will allow pre-service teachers to actively participate in shaping today's world and society in a sustainable fashion. In support of this approach, Tuncer et al. (2009) reason that teachers will only produce students who are environmentally literate if they themselves are knowledgeable and have positive attitudes towards the environment. Therefore, a proposition is made that innovative PSTT programmes are an integral part of educating for a sustainable future as pre-service teachers will be at the coalface of community engagement when they qualify and can serve as change agents.

Methodology

As experiential learning theory (ELT) frames this project. A qualitative case study approach was adopted and applied to this pilot project in the plastics section of the EDTE 220 technology module. Written permission was obtained from the university ethics committee and relevant personnel to conduct research within the Technology Education cluster.

Purposive sampling was used to select the study participants. The purpose that informed the selection of participants was they had to be enrolled for the EDTE 220 module in 2014. In purposive sampling participants are selected on the basis that they are most likely to generate useful information (Kumar 2011). The sample consisted of 36 PSTTs enrolled for the EDTE220 in 2014. Participants were provided with a letter of information which explained the research protocol and the voluntary nature of their participation, and signed consent forms. Participants were informed of the project and its goals which was to identify an issue or issues related to litter and poor use of resources pertaining to plastics/sustainable development, discuss the issue identified with the community and jointly come up with a solution to address the issue, thereby building capacity in the community in terms of ESD[2]. The PSTT participants were trained to engage

---

[2] Problems identified included: burning of waste, increasing the carbon footprint; illegal dumping of waste leading to infestation of pests/rodents;

in PAR to be able to embark on the project. In this project PSTTs' voices and experiences are considered as central to their learning. Such an approach acknowledges and validates PSTTs as active contributors to their own learning, and to the process of knowledge production, while rendering a service to their community. Participatory action research was selected as a data generation method as it provides opportunities for PSTTs to develop pedagogical content knowledge, examine their beliefs about teaching, and gain confidence in addressing social issues. Furthermore engaging in PAR ought to encourage them to become more socially conscious, critical, imaginative and argumentative as teacher-researchers. PSTTs were informed how to maintain a reflective diary and record their observations, emotions and thoughts during their community engagement. PSTTs were randomly placed in groups of six to facilitate team work within the groups. With the PSTTs' assistance, six communities around our university campus were identified and conveniently selected on the basis of their proximity to the campus for this project.

PSTTs also answered a questionnaire on SL. For the purpose of this paper the data from the reflective diary only was used. Content analysis was used to analyze the reflective journal narratives. According to Cohen, Manion and Morrison (2013) content analysis is defined as the process of summarizing and reporting written data. Content analysis was conducted in order to establish the problems identified in the community relating to sustainable use of resources, the plan designed to overcome the identified problem, the application of the plan, their experiences of working within the group and community, their learning that occurred and their attitude to and experiences of SL.

Findings and Discussion

This section responds to the research question and reflects on PSTTs' experiences of the learning that occurred during their engagement in service learning. Content analysis of data from the reflective journals confirms that SL does indeed promote learning. PSTTs developed first-hand experience on waste management and ESD, greater consciousness of societal issues as well

---

pollution of stream leading to poor quality drinking water; non-recycling of plastics; excessive harvesting of trees for fire wood.

as a deeper understanding of what it means to be a teacher agent of change. PSTTS have three key experiences regarding the kinds of learning that SL promotes, namely:

- Service learning promotes real world context of learning ESD;

- Service learning promotes social skills; and

- Service learning promotes awareness of their role as agents of change.

In the reporting of the findings and discussion codes for the respondents are represented as R1, R2 and so on.

Service Learning Promotes Real World Context for Learning ESD

It can readily be recognised that all PSTTs developed a positive attitude regarding the infusion of service learning into the EDTE 220 module as can be seen in the excerpts below:

> *We had control over our learning in this project, unlike in a class based project, we identify the problem and arrive at the solution with the community, this project allowed for greater freedom and engagement with the issue, we should get more projects like this where we are involved as problem solvers/researchers* (R1).

> *I was involved and participated in the project directly, I enjoyed this kind of research based project, I wanted to learn and was motivated, I could see the link between the practical done and the impact of plastics on the environment, the impact of landfills on people's health* (R2).

> *Projects like this one should be a part of every course, it's hands on, it allows us to link our theory to the real world, it allows us to talk to our community and address ESD issues that affect us and them*

directly. We (my group) actually helped people recycle plastic by making products they could sell or use in their homes. I didn't expect this, I thought we are university student and we are in the know how but I learnt a lot from the community about weaving plastics (R 3).

I saw the link between the theory of plastics and its harmful impact on the environment. The visual impact of litter / pollution / lack of clean drink water and its impact on the community, their health/welfare was an eye opener – you can just learn about ESD in a classroom and not use the information to transform communities. I come from an advantaged background, I could only imagine what a child headed household was but now I have seen it and the constant struggle. This project has made me realise that I want to teach in a disadvantaged community where I can make a difference and add value (R5).

I will expose my learners to this type of project during TP, the community is the best place to see real examples of poor use of resources, fires, dumping. These contextual problems are better than using a pp or textbooks. It contextualizes learning (R22).

I got a chance to apply the chemistry of plastics, which I could only visualize taking place in a lab or classroom and not in an informal community setting, now this is leaning, in this community many people suffer from asthma and they burn their garbage (mainly plastic). We talked about the ill effects of burning and the impact of the toxic fumes on their health. What's amazing is that this community has asked my group to help them water proof their dwellings they want to know about the using paraffin (R20).

I always wanted to do something to help others in my community and now I feel glad with myself cause I feel like I gave something to my community (R7).

Apart from the positive attitude concerning the involvement in SL, the foregoing excerpts provide evidence that learning is no longer construed as a simple process of knowledge transmission from teacher educator to PSTTs

but is an active process controlled by PSTTs (*'we have control over our learning'*) where they take ownership of learning and discover relationships and solutions for themselves. The above excerpts reflect the paradigm shift that occurred during SL, from PSTTs being recipients of the learning process to being active participant in the learning process *('I was involved and participated directly').* SL provided learning opportunities for PSTTs to be deeply involved and meaningfully engaged in the learning process. This means that the learning was meaningful (*'I gave something to my community*; *I will expose my learners to this'*). It afforded PSTTs the opportunities to practice and utilise skills learnt in lectures *('It's hands on'*). Clearly the above excerpts reveal that by involving the community, SL provided PSTTs with a real world context to apply theory on plastic to ESD problems that were identified by the community where they conducted their project. PSTTs were able to develop the capacity to see and comprehend the linkages and commonalities between the aspects studied in class with the various issues identified in the community. This means SL allowed PSTTs to participate in the production of knowledge that is aimed at addressing the challenges pertaining to ESD in the communities they were working in. Service-learning also allowed PSTTs to gain deeper insight into the ESD issues, waste management and recycling. In other words, engaging in SL ensured continuity of the learning experience (*'link theory to the real world'*), allowed for greater interaction with the community (*'talk to community … this is learning'*) and allowed for reflective activity that leads to learning and awareness of values (*'where I can make a difference and add value'*). In an inconspicuous way SL contributed to the development of social capital for both PSTTs and the community. Service-learning enlightened PSTTs about social issues in the community and enhanced their personal growth in terms of values, attitudes and social responsiveness. Therefore SL served as a vehicle to validate students' experiences and bridge the cultural divide between the university and the community. In this study, service-learning also led to the empowering of the communities the PSTTs worked in concerning ESD issues (*'burning plastics', 'recycling', 'waterproofing dwelling', 'using paraffin'*) that impacted them daily and assisted them having 'safer' dwellings and using materials safely. The above excerpts also reveal the kind of learning PSTTs appreciate, namely, active learning strategies that promote community engagement and reflexive thinking.

Service-learning Promotes Social Skills

An unexpected and interesting finding is that SL promoted the development of social skills amongst PSTTs as reflected in the excerpts below:

> *It is an amazing experience, I had a chance to get to know people from my lecture room, I normally do not speak to them, I learnt to be confident when I talk to my community, I learnt how to be a team player* (R7).

> *I don't like group work, I prefer to work on my own, but in this project I realized you can achieve more if you work in a group. Problem solving becomes easier and solutions are reached faster. I actually enjoyed working in my group* (R15).

> *I have learnt to treat everyone kindly, with respect* (R31).

> *I was judgmental of my group because I never socialize with them on a day to day basis. We are only faces in the same lecture room. During our project I realized they are no different to me. They share the same emotions and fears as I do* (R 1).

> *I always try to be independent and work by myself, I learnt about team work, I depended on Yolisa to help me communicate with the community as my isiZulu is pathetic, I realise that everybody has some strengths and I learnt to admit my limitation. I have a new friend who is teaching me Zulu and I help her with EDTE 121* (R 10).

The above excerpts bring to the fore the reflective space provided during SL. It is this reflective space (*'I realise'*) that helped PSTTs to gain better understanding of themselves (*'I realized you ... achieve more'*) and others (*'They are no different to me'*) as they explored and developed ways to contribute to the communities they were working in (*'solutions are reached faster'*). The reflective space/s which SL provided promoted interpersonal development as PSTTs developed self-confidence (*'I learnt to be confident'*), team building (*'enjoyed working in my group'*), reduced anxieties related to perceived differences between cultures and backgrounds (*'They share the*

same emotions as me') and enhanced commitment to group work. In other words PSTTs' engagement in SL helped them to break down stereotypes, produced positive feelings toward group members and developed collegial relationships. In a way, the reflection processes attached to SL were liberating as they provided PSTTs with the skills needed to successfully manage life tasks such as identifying anxieties, labeling emotions, learning in groups, team work, kindness, forming relationships and overcoming biases. Service-learning allowed PSTTs to modify their preconceived notions about peers/communities through social bonding and interpersonal interactions with the communities they were working in and to develop a sense of self-worth/self-concept. Simply put this means that SL contributed to holistic learning and development of PSTTs. These finding bring to the fore the powerful and transformative nature of SL. The findings elucidate the social and behavioural dimensions of learning afforded by the reflective space SL provided these participants, an aspect that is all too often ignored or taken for granted in normal lecture room learning. In other words SL in this case was shown to have the power to shape PSTTs' attitudes positively toward members of society and contribute to the holistic development of students. The above findings coincide with the findings of Astin and Sax (1998) and McKenna and Rizzo (1999) who report that students show a greater ability to get along with people, greater self-esteem, respect, team work and responsibility as a result of SL.

Service-learning Creates Awareness of their Role as Agents of Change

It is worth noting that SL also promoted PSTTs' awareness of their civic/social responsibility in society other that being mere transmitters/facilitators of knowledge as can be gleaned from the excerpts below:

> *Dr S-P always mentions we are agents of change in her lectures, I never quite understood what she meant, to me teaching is just a job. I'm not trained to bring about change, no module/course on campus does this. Doing this project opened my eyes, I now know what she means. I can make a difference in my community, I can bring about*

change. I together with others in my group used our knowledge of plastic properties and showed the ladies in the community how to make jewelry boxes, handbags, mats, Christmas trees, table decorations, door stoppers from recycled plastics that they could sell and earn an income. They are now collecting plastics to make these items and then sell the products. They told me they use the money to buy food and household items, So I am an agent of change (R12*).*

If it was not for this projects I would have ignored the impact of people's actions on the environment and sustainable use of resources, to me this was something you learn about, teach it and forget about it, bringing change is not my job, my job will be just to teach, now I feel differently, I have changed it's not just about learners in school it's also about my learners in their homes, I have changed because of this project, my thinking about me as a teacher and my role in the community has changed, I can use my teacher voice to change people's lives, improve our society, this is my responsibility, I now care about my community (R 25).

During the project, I really didn't care about the community at all. I felt really just as long as I took care of myself that was it. But just doing the project made me feel that the community is a part of our extended family and we have to take care of our family (R 34).

This project has showed me what an important role I have as a teacher in my community, I can make a difference even if it a small change, it's the difference I make that is important, not how big the change is. As a result of this class and my experiences, I will not be able to turn a blind eye to issues as easily as before (R30).

I know now that change can be little steps we take to improve the quality of life for others in our community, it doesn't have to be grand and fancy. Working on this project let me see that I can contribute to change. Even though this project was on plastics and ESD, I found I could not ignore the lack of clean drinking water, asthma, and took it upon myself to tell the mother the importance of sterilizing the water before drinking. I even demonstrated how to do

> *this using bleach. I felt inspired and would want to do this type of project again. I will engage my learners in this type of project when I start teaching, this is real contextualized learning, you don't need fancy resources for this* (R16).

This data indicates that SL provided opportunities for PSTTs to be agents of change in the communities they worked in; they became aware of their civic responsibility towards the community which allowed them to forge ties with them and bring about change. From the preceding point it is evident that SL promoted inner reflection amongst PSTTs during their community engagement projects. The transformational power of SL comes to the fore as it altered PSTTs' views in terms of transition from ignorance of the social responsibilities attached to teaching *('it not my job)*' to a greater sense of awareness of the need to bring about change, transformation and social justice in the communities they are working in ('*this is my responsibility; I can make a difference'*). It is evident that engaging in SL made PSTTs more aware of their responsibility to address social issues in their placement communities and of the social capital ('*teacher voice'*) that they could contribute to make a difference there. It is the change in consciousness and awareness that PSTTs encountered when engaging in SL ('*that they can make a difference'*), that was significant. The shift in PSTTs' awareness of social issues and their acknowledgement of their awareness made it difficult for them to ignore social issues. The reflective space that SL allows increased PSTTs' awareness of their social/civic growth. This particular finding resonates with Stears and James' study (2011) which highlights that engaging pre-service teachers in SL enhances their civic/social responsibilities. This means that SL can be used as leverage to foster in PSTTs the ability to understand social problems, identify solutions to community issues, reduce their apprehension levels for community engagement and increase their confidence in their ability to make a difference in their placement community. In other words, the experience of SL is able to provide the basic knowledge, skills and positive attitudes needed to be responsible citizens and contributing members of society. The above findings concur with the findings of Astin *et al*. (2000) which reveal that students who engage in SL display a greater understanding of social problems as well as a greater ability to get along with people of different backgrounds. Exposure to service-learning

allows PSTTs to have a clear vision of their civic responsibility as teachers of technology at schools and in the communities they are located in.

Conclusion

The object of the study was to explore the learning processes that occur when PSTTs engaged in project based SL. The findings show that when PSTTs were immersed in an ESD project based SL they had the ability to take ownership of their learning – learning was no longer a passive process. SL forced students to become involved in the application of this knowledge. This means that as pedagogy, SL allowed PSTTs to apply academic, social and personal skills to improve the community; make decisions that have real, not hypothetical results; grow as individuals, gain respect for peers, and increase civic participation; experience success no matter what their ability level; gain a deeper understanding of themselves, their community, and society; and develop as leaders who take initiative, solve problems, work as a team, and demonstrate their abilities while and through helping others. Hence, as a result of SL, the PSTTs developed a deeper understanding of the ESD content, have modified their thoughts about their social responsibility as teachers, acknowledge their responsibility to address social issues / challenges in the communities they teach in and engage in critical reflection. They realise the power they have to bring about change in their communities. PSTTs see the community as an extension of the classroom where learning and change must occur. The value of SL as a pedagogy is related to a shifting understanding about the nature of learning as a social and dialogical process by PSTTs.

The findings support the argument that adopting the pedagogy of SL in technology education plays a critical role in promoting learning on sustainable development, critical citizenship and improving the capacity of the people to address environmental and developmental issues. Our democracy depends on citizens who are civically/socially informed to respond to the needs of their community locally and nationally. Project based SL can be used as a vehicle to steer PSTTs into greater social/civic responsiveness and to ultimately address the social and developmental needs of their community.

Recommendations

As an evolving pedagogy, project-based service-learning interventions afford PSTTs the opportunity to apply their learning in a real world context. It allows them to discover talents and gain meaningful personal insight about who they are, what they are capable of and who they want to become. More importantly it develops leadership skills in students as they learn to work collaboratively with particular community in order to tackle the social and development needs of that community. Based on the above findings of this pilot project it can be reasoned that SL is indeed a promising partner with pedagogy. Hence, a recommendation is made for SL to be integrated into technology modules to allow for community engagement and the development of academic and social responsibility skills in PSTTs.

References

Anderson, J.K., K.J. Swick & J. Yff (eds.) 2001. *Service-learning in Teacher Education: Enhancing the Growth of New Teachers, their Students and Communities*. Washington, DC: AACTE Publications.

Astin, A., L. Vogelgesang, E. Ikeda & J. Yee 2000. *How Service Learning Affects Students.* Los Angeles: University of California, Higher Education Research Institute.

Astin, A. & L. Sax 1998. How Undergraduates are Affected by Service Participation. *Journal of College Student Development* 39,3:251-263.

Bender, G. 2005. Service-learning as Socially Responsive Knowledge Production in South African Higher Education Institutions. Paper presented at Joint Conference of The South African Association for Research and Development in Higher Education and the Productive Learning Cultures Project, 31 Aug–2 Sept, Scandic Hotel, Bergen, Norway.

Bender, G., P. Daniels, J. Lazarus, L. Naude & K. Sattar 2006. *Service-learning in the Curriculum: A Resource for Higher Education Institutions.* Pretoria: Council on Higher Education.

Billig, S. & M. Klute 2003. *The Impact of Service-learning on MEAP: A Large-scale Study of Michigan Learn and Serve Grantees*. Presentation at National Service-Learning Conference. Minneapolis, MN.

Bringle, R. & J. Hatcher 2005. Advancing Civic Engagement through Service Learning. In Langseth, M. & W.M. Plater (eds.): *Public Work and the Academy: An Academic Administrator's Guide to Civic Engagement and Service-learning*. Boston, MA: Anker Press.

Butin, D. 2005. Of What Use is it? Multiple Conceptualizations of Service-learning in Education. *Teachers College Record* 105,9: 1674-1692.

Castle, J. & R. Osman 2003. Service Learning in Teacher Education: An Institutional Model for an Emerging Practice. *South African Journal for Higher Education* 17,1:105-111.

Cohen, L., L. Manion, & K. Morrison 2013. *Research Methods in Education.* 7th Edition. New York: Routledge.

Diambra, J.F., T. McClam, A. Fuss, B. Burton & D.L. Fudge 2009. Using a Focus Group to Analyse Students' Perceptions of a Service-learning Project. *College Student Journal* 43,1:114-122.

Driscoll, A., B. Holland, S. Gelmon & S. Kerrigan 1996. An Assessment Model for Service-learning: Comprehensive Case Studies of Impact on Faculty, Students, Community, and Institution. *Michigan Journal of Community Service Learning* 3: 66-71.

Dos Reis, K. 2012. *Challenges Pre-service Teachers Face while Learning to Teach. Accounting in the Context of Mentoring.* Unpublished DEd thesis. Cape Town: Cape Peninsula University of Technology.

Eyler, J. & D. Giles 1999. *Where's the Learning in Service-learning?* San Francisco: Jossey-Bass Publishers.

Eyler, J., D. Giles, C. Stenson & C. Gray 2001. *At a Glance: What we Know about the Effects of Service-learning on College Students, Faculty, Institutions and Communities, 1993-2000*. 3rd Edition. Nashille, TN: Vanderbilt University.

Erasmus, M. 2005. Community Service Learning and the South African Research Agenda. *Acta Academica. Supplementum* 3:1-23.

Furco, A. & S. Root 2010. Research Demonstrates the Value of Service Learning. *Phi Delta Kappan* 91,5:16-20.

Gibbons, M. 2005. Engagement with the Community: The Emergence of a New Social Contract between Society and Science. Paper presented at the Griffith University Community Engagement workshop, South Bank campus Queensland, Australia, 4 March.

Giroux, H. 1988. *Teachers as Intellectuals: Toward a Critical Pedagogy of Learning.* Westport, CT: Bergin & Garvey.

Gough, N.R. 2013. Mind Games. *Science Signalaling* 6,267: ec65.

Gray, M., E. Ondaatje, R. Fricker & S. Geschwind 2000. Assessing Service-learning: The Benefits of Service-learning for Students. *Change* 3e2,2:30-41.

Greene, M. 1986. In Search of Critical Pedagogy. *Harvard Educational Review* 56,4:427-441.

Hund, C. 2006. *Is Service Learning Effective. A Look at Current Research, Colorado.* In: Shalini, S. (ed.): *Service Learning: Perspectives and Applications.* Punjagutta, India: ICFIA University Press.

Jensen, S.V. 2006. Participation and Learning Relationships: A Service-Learning Case Study. *Journal of Industrial Teacher Education* 43,3:6-28.

Joint Education Trust 2006. *Annual Report 2006.* Braamfontein, South Africa: JET Educational Trust.

Jones, S.R. & E.S. Abes 2004. Enduring Influences on Service Learning on College Students' Identity Development. *Journal of College Student Developmen*t 45,2:149-166.

Kriek, J. & I. Basson 2008. Implementation of the New FET Physical Sciences Curriculum: Teachers' Perspectives. *African Journal of Research in SMT Education* 12:63-76.

Kincheloe, J. 1993. *Toward a Critical Politics of Teacher Training: Mapping the Postmodern.* Westport, CT: Bergin & Garvey.

Kumar, R. 2011. *Research Methodology: A Step-by-step Guide for Beginners.* 3rd Edition. London: Sage.

Le Grange, L. 2007. The 'Theoretical Foundations' of Community Service-learning: From Taproots to Rhizomes. *Education as Change* Special Issue: Community Service Learning 11,3:3-13.

McKenna, M. & E. Rizzo 1999. Student Perceptions of the Benefits of Service Learning. *Journal of Prevention and Intervention in the Community* 18,1-2:111-123.

Mitchell, C., K. Trotter & S. Gelmon 2005. A Case Study of a Higher Education Institutional Assessment on Service-Learning. *Acta Academica Supplementum* 3:151-177.

Nduna, N. 2006. Locating and Managing Service Learning. A Complex Issue in Higher Education. *South African Journal of Higher Education* 20,4:488-502.

Pajares, F. 1993. Preservice Teachers' Beliefs: A Focus for Teacher Education. *Action in Teacher Education* 15:45-45.

Pavlova, M. 2009. Conceptualisation of Technology Education within the Paradigm of Sustainable Development. *International Journal of Design Education* 19,2:109-132.

Pretorius, J.P.H. 2007. *Houdings en Persepsies van Studente Teenoor Samelewingsdiensleer: Implikasies vir Implementering en Bestuur deur Programhoofde.* Ongepubliseerde D.Tech: Besigheidsadministrasie-proefskrif. Sentrale Universiteit vir Tegnologie, Vrystaat.

Republic of South Africa 1993. *National and Community Service Trust Act of 1993. Public Law 101-610, as Amended.* Pretoria: Government Printer.

Singh, M. 2001. Re-inserting the 'public good' into Higher Education Transformation. *Kagisano Higher Education Discussion Series*. Pretoria: Council on Higher Education

Songqwaru, Z. 2012. *Supporting Environment and Sustainability Knowledge in the Grade 10 Life Sciences Curriculum and Assessment Policy Context: A Case Study of the Fundisa for Change Teacher Education and Development Programme Pilot Project.* M.Ed Thesis. Grahamstown: Rhodes University.

Stears, M. & A. James 2011. Towards Socially Responsible Biology: Two Cases in a Teacher Education Programme. *African Journal of Research in Mathematics, Science and Technology Education* 3,15:122-136.

Tobin, K., D. Tippins & A. Gallard 1994. Research on Instructional Strategies for Teaching Science. In Gabel, D.L. (ed.): *Handbook of Research on Science Teaching and Learning*. New York: MacMillan.

Tuncer, G., C. Tekkaya, S. Sungur, J. Cakiroglu, H. Ertepinar & M. Kaplowitz 2009. Assessing Pre-service Teachers' Environmental Literacy in Turkey as a Means to Develop Teacher Education Programs. *International Journal of Educational Development 29*:426-436.

University of Pretoria. 2004. School of Engineering Study Manual. Service Learning ESL 420. 1st draft. <http://eerc.up.ac.za/~subjects/files /ESL420/esl420.pdf> 2000-2004.

School of Architecture and Planning. Undergraduate course descriptions. http://www.wits.ac.za/planning/ undergraduate2.htm#year4

Witt, L.A. & C. Silver 1994. The Effects of Social Responsibility and Satisfaction on Extrarole Behaviours. *Basic and Applied Social Psychology* 75,3: 329-338.

Wong, P. 2008. Transactions, Transformations and Transcendence: Multicultural Service-learning Experience of Pre-service Teachers.

Asheena Singh-Pillay

Multicultural Education 16,2:31-36.

Asheena Singh-Pillay
Technology Education
School of Education
University of KwaZulu-Natal
pillaya5@ukzn.ac.za

Large-scale Structural Change, University Funding and Academia in South Africa

Koye Gerry Bokana

Abstract
South Africa recently marked more than two decades of transition to democracy. The country needs more graduates with the ability to adapt to and function in a knowledge-driven and knowledge-dependent economy. Recent policy documents call for massive growth in headcount enrolment in the public higher education system. This has significant policy implications. State grants, which account for the most income, the system's infrastructure, and the number of instruction staff, have not kept pace with the rapid growth in student enrolments amid projected further growth, exerting pressure to increase fees and third stream income. This study traces university funding since 2007 in light of projected enrolment growth and its impact on universities. The state's capacity to steer the higher education system through the funding mechanisms is also discussed. The study found that enrolment growth and large-scale structural change increase costs, while budget constraints increase shortfalls in state funding. South African universities are taking strain and will continue to do so in the face of insufficient government subsidies in the decade ahead, impacting both academic work and performance indicators. Furthermore, the funding squeeze threatens universities' ability to meet transformation goals and targets.

Keywords: Headcount enrolment growth, higher education, social justice, state funding, sustainable development.

1. Introduction
South Africa's primary macroeconomic objectives are sustaining economic

growth to raise standards of living in the face of a growing population, full employment or a reduction in periods of high unemployment, price stability, reduced inflation, a balance between imports and exports, and socially acceptable distribution of income by fostering mass poverty alleviation and confronting rising income disparities. The end of apartheid and the advent of democracy in 1994 marked the onset of a deliberate process of undoing the effects of the many years of unfair discrimination, institutionalised racism, marginalisation and deprivation. In the year 2000, South Africa made a commitment to realise the Millennium Development Goals (MDGs) by 2015 or earlier through socially inclusive macroeconomic policies (Kearny & Odusola 2011: 5). The World Bank has indicated that higher education is a key instrument to promote sustainable development (World Bank 1999: 30; Obamba 2013: 96). Since the promotion of sustainable development is critical in supporting economic growth and employment creation, these macroeconomic objectives are intertwined and should be seen as a whole. Raising the level of higher education achievement is therefore critical for achieving South Africa's macroeconomic objectives and promoting sustainable development (OECD 1996: 7; Obamba 2013: 95).

September 25, 2015 marked the end point for the achievement of the MDGs. South Africa is battling to revive economic growth and employment creation following a recession whose ripple effects continue to be felt across the full breadth of the economy. Since the advent of democracy in 1994, the country has adopted several development strategies. These include *inter alia* the Reconstruction and Development Programme (RDP) in 1994; the Growth, Employment and Redistribution (GEAR) strategy that covered the period 1996 to 2000; the Accelerated and Shared Growth Initiative for South Africa (AsgiSA) to cover the period from 2006 to 2014; and the New Growth Path (NGP) announced by the Presidency in 2010.

The government also channelled substantial resources into social programmes and services such as access to free basic health care, accelerated housing development, improved water and sanitation, and land reform (Treasury 1996).

The implementation of these major development strategies required substantial resources, complementary policy initiatives and strategies, the provision of social services, and a suitable environment, many of which were not yet in place (Kearny & Odusola 2011:7).

Hoogeveen and Özler (2004) observed that growth targets were not

met to make inroads into the high rates of unemployment and poverty. Gelb (2003) concurred that these strategies failed to bring about increased formal employment and more evenly distributed wealth. After two decades of transition to democracy and with a Gini coefficient estimated as high as 0.685, South Africa has one of the most unequal distributions of income in the world. This Gini coefficient figure shows higher levels of poverty than in Brazil, the Bahamas, Jamaica and 33 other developing countries (Kearny & Odusola 2011: 28). AsgiSA identified six constraints that hinder the achievement of set objectives. These include: (1) the volatility and level of the currency; (2) the cost, efficiency and capacity of the national logistics system; (3) shortages of suitably skilled labour, amplified by the impact of apartheid spatial patterns on the cost of labour; (4) barriers to entry, limits to competition and limited new investment opportunities; (5) the regulatory environment and the burdens carried by small and medium-sized businesses; and (6) deficiencies in state organisation, capacity and leadership (Kearny & Odusola 2011: 8).

The redistributive measures linked to GEAR focused on education as a strategy to promote economic growth, sustainable development and improved income distribution (Kearny & Odusola 2011: 7). Higher education in South Africa is being steered towards raising graduation and throughput rates, thus enhancing the country's human resources capacity. Higher education produces the skills that propel individual labour productivity and a host of social and non-market benefits (Montenegrio & Patrinos 2013). Improved education and training is an essential foundation for a more productive and inclusive, sustainable development path (Gordhan 2013). The government is prioritising investment in education and skills development to boost youth employment (Zuma 2013). As more and more students enter universities in the hopes of increasing their skills and income potential (Ashenfelter & Rouse 1999), it is believed that this will positively impact overall income distribution.

The vision for higher education is defined by the 2012 National Planning Commission's 'National Development Plan: Vision for 2030'. The central premise that underpinned the policy framework for the transformation of higher education in the 1997 White Paper 3: A Programme for the Transformation of Higher Education, was that the higher education system must be planned, governed and funded as a single, national, co-ordinated system (DoE 2005: 3). The 2001 National Plan for Higher Education states

that higher education has immense potential to contribute to the realisation of a socially just society, while the 2014 White Paper for the post-school sector lists the restructuring of an unequal society as the first of its five policy objectives. Therefore, through its production of highly skilled individuals, knowledge production and contribution to research and innovation, the higher education system is a key player in the achievement of the goals and targets of the 2014 Education White Paper for Post-School Education and Training and the 2012 National Planning Commission's 'National Development Plan: Vision for 2030' (NPC 2012). From this perspective, promoting sustainable development is intertwined with the equity agenda as it is expected that a more educated workforce will enable the realisation of both objectives.

Globally, universities operate as businesses, securing long term financial sustainability to survive. In South Africa, the government is driving a higher education and training reform agenda with its regulatory requirements concomitant to a funding framework. The whole purpose of public university funding is to ensure the development of an affordable and sustainable higher education system that is responsive, and contributes to, the national sustainable development agenda (DoE 2005: 13)**.** The main feature of this funding framework is that it is a goal-oriented mechanism for the distribution of government grants to individual higher education institutions in accordance with (1) national planning and policy priorities, (2) the quantum of funds made available in the national higher education budget, and (3) individual higher education institutions' approved enrolment plans (DHET 2014a: 2).

The South African government's funding framework is therefore an important steering mechanism to achieve policy priorities, the most important of which is the overall transformation of the higher education system. More specifically, government subsidies are expected to contribute to the realisation of (1) equitable access, (2) better quality research and teaching, (3) improved student progression and graduation rates, and (4) better responsiveness of the higher education system to economic and social needs (DHET 2014a).

The emphasis on planning is informed by the fact that if the higher education system is to respond to the national sustainable development agenda, the size and shape of the system cannot be left to the vagaries of the market, in particular, uncoordinated institutional decisions on student enrolments and programme offerings (DoE 2005: 3).

Two sets of universities are grouped in three clusters on the basis of research, teaching, staffing and financial performance indicators. The first cluster comprises historically advantaged universities. These institutions aspire to compete globally in research, innovation and rankings and are attracting institutional leaders, high-performing teaching staff and research stars from other universities or from different professions. Clusters 2 and 3 are made up of historically disadvantaged universities that aspire to catch up with those in the first cluster in terms of providing basic teaching and research, and infrastructure. Those universities are reconsidering the balance between full-time permanent, temporary and fixed-term contract/part-time staff in their efforts to improve student: staff ratios. However, the financial needs of individual universities far exceed the subsidies available (DHET 2014a: 47-51).

Universities have experienced tight financial constraints over the years owing to the difference between the actual demand for funding and the allocated state subsidies. Higher education stakeholders have articulated the tension between increased access to higher education and the need to ensure that the sector maintains the capacity to produce the type of high-level knowledge and skills required to take the country forward and compete globally. While the most relevant, updated documents on South African higher education acknowledge that policy formulation that could address this tension has been sought, it remains a key issue in higher education (DHET 2014a; Wolpe *et al.* 1993).

This paper is complemented by a fresh perspective from the author based on his experience and expertise as a faculty member, an executive member of the National Tertiary Union (NTEU) and a member of the Council on Higher Education's Teaching and Learning Task Team that conducted a 20-year review of the state of South African higher education, highlighting the challenges, developments and future prospects. Hence, this paper is a compendium of higher education stakeholders' critical evaluations and conceptions of higher education pre- and post-1994.

The paper is organised into four sections. Section one describes the economic context in which South African universities currently function and the budgetary constraints they face. Section two discusses the methodology employed, while the findings are presented in Section three. Conclusions and policy implications for stakeholders follow in Section four.

2. Methodology

Four core methodological elements informed this study: (1) a review of the literature on higher education; (2) policy analysis; (3) stakeholder consultation; and (4) perceptions from focus group discussions.

To begin with, in order to understand the complexities and multifaceted factors related to large-scale structural change and the contraction in university funding, a review of international and local literature was conducted to uncover similar experiences. This study traces developments affecting university funding since 2007, including both block and earmarked grants. The most recent audited data compiled from the 2015 South African higher education management information system (HEMIS) data run by the Department of Higher Education and Training (DHET) was also sourced. These data provide the statistics required for researchers and other interested stakeholders to monitor and evaluate the higher education system (CHE 2013b: i).

Key policy documents, policy transformation, and initiatives that provided the blueprint for South Africa's higher education sector (OECD 2008) that were reviewed include, *inter alia:*

- The Green and White Papers on Higher Education (1996, 1997, 2004) - the 1997 White Paper on Higher Education and the 1997 Higher Education Act set out 'a framework for transformation of higher education';
- The 2001 National Plan for Higher Education (NPHE);
- The 2005 student enrolment planning in public higher education (DoE 2005);
- The 2012 National Planning Commission's 'National Development Plan: vision for 2030';
- The 2012 Green Paper for Post-school Education and Training (DHET 2012);
- The 2013 draft policy statement on the Management and Utilisation of the Teaching Development Grant in the 2014/15 to 2016/17 Funding Cycle (DHET 2013);
- The 2014 White Paper for Post-school Education and Training (DHET 2014); and

- The 2014 Report of the Ministerial Committee for the Review of the Funding of Universities.

Furthermore, stakeholder consultations were held, mainly with members of the Council on Higher Education's eight Task Teams (academic staffing, community engagement, context, funding, management and governance, regulation, research, and teaching and learning) that conducted a 20-year review of the state of South African higher education, highlighting challenges, developments and future prospects.

Finally, focus groups have become an established component of the range of methodological tools available to social researchers. The European Commission is using focus groups (around 10 individuals per session) to shape the direction of funding under the Horizon 2020; such groups are designed to ensure diversity and an amalgamation of perceptions, and to represent society at large (Greenhalgh 2013).

Two hundred and eighty seven randomly selected higher education stakeholders from the Cape Peninsula University of Technology; Durban University of Technology; Tshwane University of Technology; Nelson Mandela Metropolitan University; Rhodes University; and the Universities of Fort Hare; Johannesburg; KwaZulu-Natal, South Africa, the Witwatersrand and Zululand, community members and representatives of non-governmental organisations (NGOs) participated in different face-to-face focus group sessions. All the participants were informed of the remit and scope of the overall study, the kinds of issues it was interested in discussing, mainly student attrition, high failure rates and the slow progression of students on the graduation path in South African higher education, data transcription and analysis procedures and the dissemination of the findings. They were assured of confidentiality and anonymity and that they were free to use a pseudonym. In terms of methodological issues and the manner in which participants were approached for sampling, recruitment, organisation, facilitation of focus groups and analysis of their perceptions, this study followed Parker and Triller (2006). The salient perceptions from focus groups were reported (Bokana 2010) in three categories: (1) Faculty members: academic and non-academic staff, (2) students, and (3) higher education policymakers and community members.

These four core methodological elements enhanced the analysis and interpretation of this study's findings and its ability to provide practical and

theoretical information, an insightful approach, perspectives, and themes that possess a sufficient degree of generalisation to other comparable contexts.

3. Findings
Projected Growth in Volume of Enrolments
In general, there was strong demand for places in higher education during the transition to democracy in the early 1990s that was supported by the 1997 Higher Education White Paper's commitment to equity of access (DoE 1997). The capacity of the higher education system therefore needed to be expanded since there is a relationship between higher education participation and economic development (DHET 2014a). Audited headcount enrolment increased from 556,667 in 2000 to 744,444 in 2005, and 983,698 in 2013 (DHET 2015). The 2014 White Paper for Post-School Education and Training and the 2012 National Planning Commission's 'National Development Plan: Vision for 2030' both call for massive growth in headcount enrolment in the public higher education system. The participation rate is defined as the total headcount enrolment of all ages divided by the total population in the 20 to 24 age cohort. The government aims to increase the participation rate at universities from the current 19.2% to 25%, from just over 983, 698 students in 2013 to about 1.6 million by 2030, and for at least 5,000 students to graduate with doctoral degrees each year. Increasing the participation rate and graduation rates is the key to reinforcing social mobility for individuals, particularly those from previously economically and socially disadvantaged groups. The shift to a higher volume of enrolments in higher education has significant policy implications, including for funding.

Of major concern is whether such straightforward enrolment growth is possible, given that the South African higher education system is currently losing half its student body before graduation (CHE 2013b; DHET 2014a). Increased enrolments are possible because of high student attrition (assuming that the system is operating at full capacity with creaking infrastructure and that, for example, laboratory spaces are limited, there will simply not be enough or big enough laboratories and lecture theaters to accommodate these students) (Vithal 2013: 3). Apart from the growth in numbers, mass higher education brings with it a large-scale restructuring of the system itself. This includes changes in the types and mixes of institutions as well as changes in assumptions about how the offering of higher education programmes should

be structured and organised (Ensor 2004: 342).

Shifts in the teaching and learning demands of the student body as a result of including a broader spectrum of socio-economic groups have serious financial implications. In the past 20 years, the growth of the student population has not been matched by growth in the academic staffing base (instructional and research). Audited student headcount enrolment in the higher education system increased by 33% from 2005 to 2013, whilst the headcount of the permanent academic staffing base increased by only 18%, increasing the student: staff full-time equivalent (FTE) ratio from 25 in 2005 to 27 in 2013. Only about 41% of academics in the public higher education sector held doctorates in 2013 (DHET 2015). In the private sector, only about 9% of academics have doctorates and approximately 33% have a diploma or less as their highest qualification (CHE 2013b: 44).

Countrywide, a fifth of academics will retire within a decade; 32% of these are professors (Zuma 2013). The system will need more and better-trained academics to meet current needs. A prerequisite for the acceleration of knowledge and research outputs is improving academic staff's qualifications. The target is that 75% of permanent academic staff should have a doctoral degree by 2030 (DHET 2014a).

Comprehensive financial health projections indicate that it would be much more expensive to achieve an increased number of graduates through increased intake. If student numbers are simply increased, millions of Rands of subsidy funding for students who fail, are excluded from the system, or drop out will be wasted (Sheppard 2013). The increase in the number of students and academic staff is expected to raise total costs by 25% to 39.5% (Sheppard 2013: 30). Questions therefore arise as to how well the plan for massive future growth has been conceived and how comprehensively it speaks to the present. Dhunpath (2013: 4) asks whether South African universities are able to produce, develop and retain the required demographically representative generation of academics and raises concerns regarding the luring of talent to the private sector and state opportunities which are thwarting this goal.

University Funding

Government is steering the higher education system to meet national goals and priorities using a combination of instruments, namely, planning, funding

and quality assurance. The allocation of resources in the higher education sector is underpinned by the 2003 funding framework, which is built on the principle of shared costs between (mainly) government and students (DHET 2014b: 22). The Minister of Higher Education and Training is responsible for determining the division of different categories and sub-categories for funding. Universities have three sources of funding. The first is direct public funding which takes the form of a block grant based on a funding formula, together with targeted funding or earmarked grants for specific activities such as the National Student Financial Aid Scheme (NSFAS) to support poor students by providing their upfront fee payments. There is also earmarked funding for infrastructure and output efficiencies, foundation programme provision, and research and teaching development grants (RDGs and TDGs). As Table 1 shows, block grants are a University Council's discretionary funds and earmarked grants are government controlled.

Table 1: Components of the Funding Framework in South Africa

Block Grants
1. Teaching Input
2. Teaching Output
3. Research Output
4. Institutional Factor and/or New Disadvantaged Factor
Earmarked Grants
1. NSFAS
2. Teaching & Research Development (moved from block grants)
3. Infrastructure and Efficiency Funding
4. Establishment and/or Capital Funds for the two New Universities (new capital funds)
5. Foundation Provision
6. Veterinary Sciences
7. Clinical Training Grants for Health Professionals
8. National Institutes in two Provinces
9. Multi-campus Grant (top-sliced from block grants)
10. Interest and Redemption on Loans
11. Institute for Human and Social Sciences
11. African Institute of Mathematical Studies (AIMS)

Source: DHET 2014

The other two sources of funding are tuition fees and third stream income. The current direct public funding framework and its categories were introduced in 2003 and came into effect in the 2004/05 financial year. The new funding framework was phased in over a period of three years during which only a certain percentage of the change in the subsidy allocation of a university was implemented to avoid the impact of sudden drops or increases in a specific financial year. Thus, the current state funding framework was only fully functional from the 2007/08 financial year to the 2011/12 financial year (DHET 2014a).

On average, universities in South Africa received about 43% of their budget for general operations from direct public funding which remains the most important source of income. On average, they received approximately 29% of their budget for general operations from student tuition fees. Third stream income is defined as accessing, securing and generating income from sources other than government subsidies and student tuition fees and represents about 28% of universities' budgets for general operations (Craig & Abrahams 2009). When government subsidies as a percentage of total income drop, the expected responses are raising student tuition fees, or increasing third stream income. In addition, since government subsidies are increasing below the inflation rate, the growth in real Rands of block grant allocations has been declining. While overall funding for universities increased in nominal terms from R24,280.762 billion in the 2012/13 financial year to R30,338.205 billion in 2015/16, government reported that its funding per full-time equivalent (FTE) enrolled student fell by 1.1% per annum in real terms between 2000 and 2010 (DHET 2014a: 8).

About 65% of the block grant budget, which is a 'rolling' three-year budget framework, is allocated to institutions for teaching inputs based on FTE student enrolments, which have been weighted by subject category and by course level (DoE 2005: 6). This is set out in Tables 2a, 2b, and 2c below.

The teaching input units essentially function as a distributive mechanism, which disproportionately increases or decreases the flow of government funding of universities. Some universities experienced a fall in the nominal value of the teaching input unit over this period. Hence, growth in enrolments did not guarantee increases in the Rand values of the grants generated by these teaching inputs. Sharp changes in universities' shares of system-wide funding unit totals are having detrimental impacts on the

finances of those that grow at below average rates or exceed their caps for registered 'non-funded' students.

Table 2a: Ministerially approved teaching input units (or weighted FTE student enrolment) for individual South African traditional universities and the percentage change from the previous financial year

Traditional Universities	Financial year 2011/12 Academic year funded* 2009	Financial year 2012/13 Academic year funded 2010	Financial year 2013/14 Academic year funded 2011	Financial year 2014/15 Academic year funded 2012	Financial year 2015/16 Academic year funded 2013
NWU	57,139	60,774 **(6.36%)**	64,641 **(6.36%)**	68,753 **(6.36%)**	73,126 **(6.36%)**
RU	12,623	13,278 **(5.19%)**	13,967 **(5.19%)**	14,691 **(5.19%)**	15,454 **(5.19%)**
SU	52,011	55,161 **(6.06%)**	58,501 **(6.06%)**	62,043 **(6.06%)**	65,800 **(6.06%)**
UCT	54,003	55,002 **(1.85%)**	56,019 **(1.85%)**	57,056 **(1.85%)**	58,111 **(1.85%)**
UFH	12,619	13,692 **(8.50%)**	14,856 **(8.50%)**	16,119 **(8.50%)**	17,490 **(8.50%)**
UFS	45,841	48,941 **(6.76%)**	52,250 **(6.76%)**	55,784 **(6.76%)**	59,556 **(6.76%)**
UKZN	82,695	81,977 **(-0.87%)**	81,266 **(-0.87%)**	80,561 **(-0.87%)**	79,862 **(-0.87%)**
UL	36,508	39,872 **(9.21%)**	43,546 **(9.21%)**	47,558 **(9.21%)**	51,940 **(9.21%)**
UP	94,639	95,943 **(1.38%)**	97,265 **(1.38%)**	98,606 **(1.38%)**	99,965 **(1.38%)**
UWC	31,565	33,420 **(5.88%)**	35,385 **(5.88%)**	37,465 **(5.88%)**	39,668 **(5.88%)**
Wits	61,745	62,647 **(1.46%)**	63,562 **(1.46%)**	64,491 **(1.46%)**	65,433 **(1.46%)**

*The academic year of a university for which funding is allocated lags two years behind the financial year of the State's budget.
Source: DHET 2014

Table 2b: Ministerially approved teaching input units (or weighted FTE student enrolment) for individual South African comprehensive universities and the percentage change from the previous financial year

Comprehensive Universities	Financial year 2011/12 Academic year funded* 2009	Financial year 2012/13 Academic year funded 2010	Financial year 2013/14 Academic year funded 2011	Financial year 2014/15 Academic year funded 2012	Financial year 2015/16 Academic year funded 2013
NMMU	37,543	38,944 **(3.73%)**	40,398 **(3.73%)**	41,905 **(3.73%)**	43,470 **(3.73%)**
UJ	68,903	71,412 **(3.64%)**	74,012 **(3.64%)**	76,707 **(3.64%)**	79,500 **(3.64%)**
UNISA	97,081	104,131 **(7.26%)**	111,693 **(7.26%)**	119,803 **(7.26%)**	128,503 **(7.26%)**
Univen	15,218	16,814 **(10.49%)**	18,578 **(10.49%)**	20,527 **(10.49%)**	22,680 **(10.49%)**
UZ	17,241	18,490 **(7.24%)**	19,829 **(7.24%)**	21,264 **(7.24%)**	22,804 **(7.24%)**
WSU	34,415	36,383 **(5.72%)**	38,465 **(5.72%)**	40,665 **(5.72%)**	42,992 **(5.72%)**

*The academic year of a university for which funding is allocated lags two years behind the financial year of the State's budget.
Source: DHET 2014

Block grants for a given funding year (n) are generated by a university's performance in year n-2; hence, the affordability and sustainability of its strategic planning are ongoing issues. The issue of how universities' shares of funding unit totals can be stabilised over reasonable periods of time (DoE 2005: 2) is an ongoing concern that needs to be addressed.

Table 2c: Ministerially approved teaching input units (or weighted FTE student enrolment) for individual South African universities of technology and the percentage change from the previous financial year

Universities of Technology	Financial year 2011/12 Academic year funded* 2009	Financial year 2012/13 Academic year funded 2010	Financial year 2013/14 Academic year funded 2011	Financial year 2014/15 Academic year funded 2012	Financial year 2015/16 Academic year funded 2013
CPUT	49,268	51,118 (3.75%)	53,037 (3.75%)	55,028 (3.75%)	57,094 (3.75%)
CUT	16,449	16,882 (2.63%)	17,327 (2.63%)	17,783 (2.63%)	18,251 (2.63%)
DUT	35,558	36,692 (3.19%)	37,861 (3.19%)	39,068 (3.19%)	40,314 (3.19%)
MUT	14,046	14,227 (1.29%)	14,410 (1.29%)	14,595 (1.29%)	14,782 (1.29%)
TUT	74,663	78,768 (5.50%)	83,098 (5.50%)	87,666 (5.50%)	92,485 (5.50%)
VUT	25,555	27,256 (6.66%)	29,070 (6.66%)	31,005 (6.66%)	33,068 (6.66%)
Total	**1,027,326**	**1,071,822 (4.33%)**	**1,119,033 (4.40%)**	**1,169,143 (4.48%)**	**1,222,348 (4.55%)**

*The academic year of a university for which funding is allocated lags two years behind the financial year of the State's budget.
Source: DHET 2014

The state grants, which have the heaviest weight in universities' income, the higher education system's infrastructure, and the provision of instruction staff, have not kept pace with the rapid growth in student enrolments amid projected further growth. There are also perceptions that earmarked grants such as the funds solicited by university foundations, research and teaching development grants, infrastructure and output efficiencies are impermanent and hence unpredictable. While there is no guarantee that they will be

available beyond the funding cycle, it is highly unlikely that these funds will be discontinued.

Shrinking government subsidies have resulted in pressure to increase both student tuition fees and third stream income. To maintain long term financial sustainability, tuition fees per FTE student increased by 2.5% per annum in real terms between 2000 and 2010 (DHET 2014a: 9). However, owing to the public outcry over rising costs, the government has warned universities to limit student tuition fees increases. Unable to raise fees in line with inflation and confronted by rising costs, universities would need to generate more third stream income to maintain their current, already insufficient, income levels.

These budgetary and financial crises are impacting on universities in South Africa in various ways. They are exacerbating pre-existing strains on finances while the prospect of cuts in public spending on universities as a result of an economic downturn is of great concern (Macgregor 2008). Such crises have profound implications for the way universities are planned, delivered, funded and quality assured - quality, standards and regulation. Economists worry that the coming years will witness more examples of financially squeezed states which will curtail state spending, including on universities; all these factors will significantly thwart universities' efficacy.

The Capacity of the State to Steer the Higher Education System through the Funding Mechanisms

Looking back on the path travelled since 1994, changes to higher education policy have not had the desired effect, once again highlighting the theme of increased state steering and tension between institutional autonomy and system governance. Twenty years into democracy, higher education stakeholders are asking questions about the extent to which the system has been responsive to the social justice agenda. This study questions the state's capacity to steer the higher education system to achieve the set goals through funding mechanisms.

The NPHE, which makes the case for increasing the participation rate, emphasises that if the quality and sustainability of the system are not to be compromised, the size and shape of the higher education system must be determined in the context of available resources. Despite these cautionary

remarks, the higher education system has grown more rapidly than the available resources. The resultant funding shortfall has put severe pressure on institutional infrastructure and personnel, compromising institutions' ability to discharge their teaching and research mandate. The DoE (2005) has observed that this cannot continue if the higher education system is to contribute to the national sustainable development agenda by generating, transmitting and applying knowledge to promote overall development, and human resource development in particular. The main concern in the future will be the relationship between enrolment growth and government funding in the new policy framework, more specifically, what effects changes in enrolment growth will have on the distribution of government funds to universities.

Nzimande (2014) acknowledges that South Africa is confronted by financial constraints and backlogs in the expanded higher education sector owing to broader participation in recent years. Local stakeholders acknowledge that, the level at which South African universities are funded is low by international standards and they are consequently experiencing budgetary strain (NPC 2012). It is therefore not surprising that, without exception, all of the country's universities cite inadequate funding as the main cause of the higher education system's failure to measure up to its potential, fully realise the country's transformation agenda, and compete at the global level (DHE 2013a). Universities are undertaking strategic planning to identify possible sources of cost savings, restructuring, and other factors that can be altered in their institutions and in the system to adapt to changing circumstances and bring funding in line with available state resources. Many universities are in a weak financial position that calls for immediate action. Given the massification and large-scale restructuring of the higher education system, the coming decade will be one of austerity for universities in South Africa, impacting on academic work and performance indicators. Locke (2013: 12) reports that, worldwide, when austerity has hit hard, universities have decreased outlay on operations, reduced infrastructure and capital investment, increased market discipline, and restructured the academic workforce, not to mention the other impacts on individual academics set out in Table 3 below.

Table 3: Effects of the state funding squeeze on *academia* and South African universities

Increased	Reduced
• Class sizes; student: staff FTE ratios.	• Benefits; reward packages; default retirement age.
• Differentiation between and within institutions and among staff.	• Capital investment; infrastructure; facilities; labs; LANs.
• Fragmentation; segmentation; disintegration of academic roles.	• Contribution and merit-based pay systems.
• HR function; rationalisation of academic offerings; shared services and outsourcing.	• Funding for operations; funding per student.
• Managerialism; market discipline; new business model.	• Income.
• Performance management and metrics.	• Number of professional and support functions.
• Promotion criteria.	• Overtime arrangements.
• Redundancies; severances.	• Salaries; salary schemes; senior staff pay arrangements.
• Reorganisation; restructuring.	• Staff expectations (especially younger entrants to *academia*).
• Whittling down conditions of service.	• Staffing; academic recruitment; turnover of staff.
• Workload allocation of remaining staff; para-academics.	• Student services; student monitoring and support functions.
	• Technological changes.

Source: Author.

The table shows a composite picture of the grievances reported to trade unions. At many South African universities, a reduced academic staffing base is subjected to a whittling down of conditions of service. Academics that resigned claimed that the rules that currently govern university recruitment lack any appreciation of reality. Senior and competent academics are replaced by junior academics or contract staff that is unlikely to be offered full time employment. Key positions are filled by people that are not best suited for them. Ironically, faculty and support staff members are constantly reminded that they are under-performing. Some have received letters regarding their

'non-performance' or 'poor work performance', warning them of a formal counselling and investigative process. Some faculty members have claimed that universities apply the stick rather than the carrot and that faculty and support staff morale is very low. Sadly, despite their passion for *academia*, they are leaving universities. Amongst other factors, inadequate staffing, the ignorance displayed by some university management and decision makers, and an inflexible approach have removed any doubt that *academia* is not the place for them - unless things were to drastically change. This supports the claim that the consequences of the financial squeeze on *academia* are already visible. The higher education system is hobbling along inefficiently at great cost to *academia* (Vithal 2013).

Since the full implementation of the current higher education funding framework in 2007 and its review in 2013, various stakeholders have identified a number of weaknesses and limitations that call for a further review of this framework. Critics of government's ambitious drive to increase student numbers argue that the quality of offerings and degrees, and the financial sustainability of universities will not be maintained if government does not allocate universities a bigger slice of the education budget (Vithal 2013). The reality is that more funding will not be forthcoming from government and, in the current economic climate, money will also not be available from third stream income; this is of major concern. The funding squeeze therefore threatens *academia*'s ability to meet the transformation goals and targets set by the 2014 White Paper for Post-School Education and Training and the 2012 National Planning Commission's 'National Development Plan: Vision for 2030'.

A 20-year Quest for New Paradigms in Higher Education in South Africa

Universities are dependent on three enabling factors, viz., top academics, commensurate financial resources and accountable governance systems. While it is acknowledged that the funding framework, among various other factors, contributed to improvements with regard to transformational goals, the system remained very incoherent, inefficient and dysfunctional, performing way below most of the transformational goals for higher education envisaged in the Education White Paper 3 and the NPHE (DHET

2014b). Both the 2014 White Paper for Post-school Education and Training and the 2012 'National Development Plan: Vision for 2030', portray the current higher education and training landscape as incoherent and dysfunctional.

South Africa aims to build an expanded, effective, and integrated post-school system. Existing paradigms have failed to achieve national goals and new paradigms continue to be sought; this underlies the ongoing quest for answers to many questions. Key issues flow from the above analysis that impact on *academia* and should be considered in assessing the affordability and sustainability of the higher education system in South Africa (DoE 2005: 3). Universities continue to admit predominantly poor and cognitively weak students. However, the academic staff required to teach these students grew at a lower rate than the increase in student enrolments. The inefficiencies in the system with regard to low levels of student output need to be addressed, in order to deliver the skills required for the promotion of sustainable development (DHET 2014b). It is imperative to match enrolment plans with available resources in order to enable the higher education system to deliver on its mandates (DoE 2005).

4. Conclusion and Policy Implications

The current higher education and training landscape is described as incoherent, inefficient and dysfunctional. While massive growth in headcount enrolment in the public system is important, it is accompanied by opportunities for government and universities as well as a complex conundrum of persistent challenges and seemingly intractable crises. State funding lags behind the increase in enrolments and the chief consequences have been creaking infrastructure, slow growth in the academic staffing base, high student attrition, and low throughput rates. The reduced academic staffing base is subjected to a whittling down of conditions of service. Inadequate state funding has been identified as a factor hindering the development of the next generation of academics. The current levels of funding of higher education in South Africa are of real concern, especially in view of the 2030 National Development Plan targets for participation rates and graduate outputs. A compendium of implications from a survey of international studies carried out in the UK that offers insight into what might happen in South Africa if the financial squeeze continues is presented. It is imperative to guard against rapid enrolment growth in the absence of

additional resources. Furthermore, there is a disjuncture between the academic year at universities (January – December of the same calendar year), over which teaching development activities can be implemented, and the state's financial year (1 April – 31 March of the next calendar year), over which funds become available and the period over which funds need to be managed and monitored.

Government has pointed out that, while adequate funding of higher education is important in itself, this is not sufficient to ensure a well-functioning and quality higher education system. Another major obstacle to improved efficiency and quality of higher education is governance, leadership or managerial capacity to strengthen both accountability and incentives. There is a case to be made for improving the efficacy of the system for the extant intake of students, half of whom leave without a qualification. This is a waste of much needed potential graduates and skills for the South African economy. Moreover, if the attrition affects students from previously disadvantaged population groups, this may contribute to further racial and socioeconomic disparities in future generations.

Hence, a significant review of national educational policy reforms in higher education approaches and concomitant changes in the levels of university funding is required if South Africa is to meet the demand for enrolment growth, particularly if such growth includes all those who are willing and able to attend university. Large-scale restructuring without commensurate investment will be detrimental to the long-term stability and financial sustainability of the higher education system, as well as the quality of offerings and degrees. It was confirmed by the higher education stakeholders that universities and academia are already hobbled by the financial squeeze. The DoE's (2005) view was that the scope for growth in enrolments must be restricted while the DHET (2014) wants to increase participation rates in higher education. Questions therefore arise as to how well the plans for massive future growth and large-scale restructuring have been conceived and how comprehensively they speak to the present.

References

Ashenfelter, O. & C. Rouse 1999. Schooling, Intelligence, and Income in America: Cracks in the Bell Curve. NBER Working paper No. 6902, 1-

43.

Bokana, K.G. 2010. The Attrition Crisis in South African Universities. How to Keep Students on the Graduation Path. *The Journal of Interdisciplinary Economics* 22: 181-201.

Bokana, K.G. & D.D. Tewari 2014. Determinants of Student Success at a South African University: An Econometric Analysis. *Anthropologist* 17,1: 259-277.

Bundy, C. 2006. Global Patterns, Local Options? Changes in Higher Education Internationally and Some Implications for South Africa. *Kagisano* 4, 1.

Craig, A. & N. Abrahams 2009. Exploring Third Stream Income for South African Universities, 18 and 19 March 2009, Kievits Kroon Country Estate, Pretoria, 1-46.

Craig, E. & S. Bird 2013. Assuring Quality while Reducing the Higher Education Regulatory Burden. Edited Extract from Foreword of the Honorable Emerson Craig MP Minister for Tertiary Education, Skills, Science and Research and the Honorable Sharon Bird MP Minister for Higher Education and Skills, Australian Government, May 2013.

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

Council on Higher Education (CHE) 2013b. *VitalStats Public Higher Education 2010*. Pretoria: Council on Higher Education.

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

Department of Education (DoE) 2001. *The National Plan for Higher Education*. Pretoria: Government Printer.

Department of Education (DoE) 2005. *Student Enrolment Planning in Public Higher Education*. Pretoria: Government Printer.

Department of Higher Education and Training (DHET) 2014. *White Paper for Post-School Education and Training*. Pretoria: Department of Education.

Department of Higher Education and Training (DHET) 2014a. *Report of the Ministerial Committee for the Review of the Funding of Universities*. Pretoria: Government Printer.

Department of Higher Education and Training (DHET) 2014b. *Financial Sustainability of Higher Education Institutions: Whose Responsibility is it?* Edited Extract from Presentation to National Tertiary Education Union (NTEU) – UKZN Branch's Colloquium, University of KwaZulu-Natal, 18 June 2014.

Department of Higher Education and Training (DHET) 2015. *Management Information System (HEMIS).* Pretoria: DHET.

Department of Higher Education and Training (DHET) 2013. *Draft Policy Statement on the Management and Utilisation of the Teaching Development Grant in the 2014/15 to 2016/17 Funding Cycle*. Pretoria: Government Printer.

Dhunpath, R. 2013. Re-envisioning African Higher Education: Alternative Paradigms, Emerging Trends and New Directions. 7th Annual Teaching and Learning Higher Education Conference, University of KwaZulu-Natal, Edgewood campus, 25 - 27 September 2013.

Ensor, P. 2004. Contesting Discourses in Higher Education Curriculum Restructuring in South Africa. *Journal of Higher Education* 48: 339-359.

Filmer, D. & N. Schady 2009. *School Enrolment, Selection and Test Scores.* World Bank Policy Research Working Paper No. 4998. Washington, DC.: The World Bank,

Gelb, S. 2003. *Inequality in South Africa: Nature, Causes and Responses, DFID Policy Initiative on Addressing Inequality in Middle-income Countries.* Johannesburg: The EDGE Institute.

Gordhan, P. 2013. Edited Extract from Budget Speech 2013 by the Finance Minister Pravin Gordhan, Parliament, Cape Town, Western Cape, 27 February 2013.

Greenhalgh, L. 2013. Commission Tries New Consultation Approach. The Voice Project. Available at: <http://www.research-africa.net/o/rr/news/europe/horizon-2020/2013/9/commission-tries-new-consultation-approach-.html>. (Accessed on September 6, 2013).

Hoogeveen, J.G. & B. Özler 2004. *Not Separate, Not Equal Poverty and Inequality in Post-apartheid South Africa. World Bank.* Washington DC: 1818 H Street NW, 20433, USA.

Kearny, M. & A. Odusola 2011. *Realizing the Millennium Development Goals through Socially Inclusive Macroeconomic Policies: Assessing Development Strategies to Achieve the MDGs in the Republic of South Africa.* Country Study, United Nations Department for Social and Econo-

mic Affairs, March 2011, 1-83.

Macgregor, K. 2008. South Africa: Universities taking Financial Knocks. *University World News* 2 November 2008, 51.

Montenegro, C.E. & H.A. Patrinos 2013. Returns to Schooling around the World. Background Paper for the World Development Report 2013, 1-28.

Nzimande, B. 2014. Foreword to DHET 2014 Report of the Ministerial Committee for the Review of the Funding of Universities.

Obamba, M.O. 2013. Uncommon Knowledge: World Bank Policy and the Unmaking of the Knowledge Economy in Africa. *Higher Education Policy* 26: 83-108.

Organization for Economic Co-operation and Development (OECD) 1996. *The Knowledge Based Economy.* Paris: OECD Publishing.

Organization for Economic Co-operation and Development (OECD) 2008. *Reviews of National Policies for Education: South Africa.* Paris: OECD Publishing.

Parker, A. and J. Tritter 2006. Focus Group Method and Methodology: Current Practice and Recent Debates. *International Journal of Research and Method in Education* 29,1: 23–37.

Scott, I., N. Yeld & J. Hendry 2007. *Higher Education Monitor: A Case for Improving Teaching and Learning in South African Higher Education*. Pretoria: Council on Higher Education.

Sheppard C. 2013. *Subsidy Implications of Extended Curricula*. Pretoria: Council on Higher Education.

Treasury 1996. Growth, Employment and Redistribution. A Macroeconomic Strategy. Available at: http://www.treasury.gov.za/publications/other/gear/chapters.pdf.

Vithal, R. 2013. Re-envisioning African Higher Education: Alternative Paradigms, Emerging Trends and New Directions. 7th Annual Teaching and Learning Higher Education Conference, University of KwaZulu-Natal, Edgewood campus, 25 - 27 September 2013.

Wolpe, H., S. Badat & Z. Barends 1993. *The Post-secondary Education System: Beyond the Equality vs Development Impasse and Towards Policy Formulation for Equality and Development*. Cape Town: Education Policy Unit, University of the Western Cape.

World Bank 1999. *World Development Report: Knowledge for Development.* New York: Oxford University Press.

Zuma, J.G. 2013. More Young Black Graduates are Needed to fill Academic Posts at Universities. Edited Extract from Address by President Jacob G. Zuma to Gauteng Manifesto Forum, University of Witwatersrand. Available at: http://bit.ly/19qfd1K. (Accessed on 22 October 2013.)

Koye Gerry Bokana
School of Accounting, Economics and Finance
College of Law and Management Studies
University of KwaZulu-Natal
Bokanakg@ukzn.ac.za

Meanings and Concepts Lost: The Use of Conversational Language in Students' Descriptions of Economics and Business Studies Graphical Representations[1]

Thembinkosi Mabila[2]
Caleb Gwaindepi
Mazanai Musara

Abstract

As part of a larger project that sought to investigate the need for an English for Specific Purposes course in a teacher education programme, a preliminary investigation was carried out to establish students' capacity to use subject specific English in writing descriptions of graphical representations of demand and supply. The results of the survey indicated that respondents have a limited ability in the use of subject specific English and tend to rely more on conversational English. The paper therefore purports that South Africa's teacher training programmes need to consider a strong focus on subject specific English courses in their curriculum. This will ensure that such programmes are able to produce teachers who are well prepared as subject specialists.

Keywords: Language proficiency; English for Specific Purposes; Graphical descriptions; Economics; Business studies

Introduction

Second language (L2) learners are known to take longer to develop proficiency in Academic English (AE) than in Conversational English (CE) (Cummins 1994; Haynes 2007; Lucas, Villegas & Freedson-Gonzalez 2008). In relation to this issue, Cummins (2008) stated that L2 learners develop basic interpersonal communication skills (BICS) within 2 years of initial exposure to a language, but they need up to 7 years to develop cognitive academic language proficiency (CALP). In view of Cummins' statement, it is therefore expected that to be successful in the areas of specialisation, L2 students need well-tailored instruction in subject specific AE (also known as English for Specific Purposes and English for the professions). Such instruction would ensure that students have access to input that will support efforts towards the mastery of AE as suggested by Echevarria, Vogtand Short (2004). This would especially be so because subject specific language is considered to be a vehicle for success in mainstream content subjects in the L2 environment (Echevarria, Vogt & Short 2004). Moreover, if the students learning in the medium of a L2 are in a teacher training programme, it becomes essential that their curriculum be tailored to ensure the eventual production of a 'well-grounded subject specialist' (ELRC 2003; NDHET 2011). In other words, this means the production of a teacher who will handle subject matter confidently using appropriate subject specific language.

Scholars such as Nickerson, Gerritsen and Meurs (2005), Zhu, (2004) and Mukattash (2003) enunciate that the use of English in L2 communities can no longer be seen as being separable from other disciplines, but rather has a critical role in orienting students into the academic communities of acquiring not only language proficiency, but also specific genres pertaining to these communities. This implies the importance of ESP in academic communities. For non-English native language speakers who, apart from learning English in general, are expected to learn and apply the English language specific for their field of specialisation, the importance of ESP is even more pronounced (Cummins 2008; Leki 2003). In pursuing the objectives of this study, understanding the concept of ESP as distinct from general English for academic purposes is of great value if meaningful strides are to be made in as far as the development of this discourse is concerned.

In Hashimoto's (1992) view, English for Specific Purposes (ESP) as opposed to general English is not a particular language product but an

approach to language teaching which is directed by specific and apparent reasons for learning. This explains the fact that there are concrete purposes for learning subject/field/discipline specific language. Some of these include, for example, technical, professional, and/or academic reasons. Consequently, the focus of ESP should not be much on content but rather on methodology. For example, Hashimoto (1992), as well as Hutchinson and Waters (1992) used ESP to acculturate respondents into a particular field of study. Similarly, Swales (1992: 300) defined ESP as '…the area of inquiry and practice in the development of language programmes for people who need a language to meet a predictable range of communicative needs'. For example, L2 students in a specialist learning area such as Economics and Business Studies (EBS) may need a well-developed ESP course to ensure their success. This may be true for students located in programmes such as the one described in the section that follows hereafter.

The Location of this Study

The research reported in this article was conducted in the Bachelor of Education (B.Ed.) programme at the University of Limpopo's Turfloop Campus. In its current design, the programme does not offer an English for Academic Purposes (EAP) or ESP course. The only course that could be aligned to EAP is the Communication in Education course which is not subject specific and offered in the first year of study for students registered in content subject specialisation such as the EBS field. According to Ngoepe (2012), the Communication in Education course is to a large extent not fit for the purpose for which it had been devised as it does not meet the language needs of under-prepared students. Furthermore, the university also admits students mainly from rural backgrounds. These students have been described by Mabila, Addo-Bediako, Kazeni, Malatjie, and Mathabatha (2006) as disadvantaged due to their poor schooling experiences, and the lack of access to quality education which was often associated with a low socioeconomic status and living in isolated, remote areas. This may further be compounded by the fact that in most rural schools mother tongue is heavily used in teaching because of low levels of proficiency in English amongst learners (Ler 2012). The notion of disadvantage is accentuated by a number of authors, including Nkuna (2001), Howie, Scherman and Venter (2008),

Ngoepe (2012) and Richards (2015). Nkuna (2001) as well as Ngoepe (2012), in particular, have made calls for South African higher education students to be offered ESP courses in their programmes.

The Need for English for Specific Purposes in the EBS Field

Several studies (Leki 2003; Haynes 2002; Warschauer 2002; Flowerdew & Peacock 2001; Street & Verhoeven 2001; Creese 2000; Jones, Turner & Street 1999; Jordan 1997) confirmed that cross-field pollination and collaborative teaching between the English language course and the discipline specific subject course plays a significant role in students' language acquisition and literacy for a discipline specific purpose. Parks and Maguire (1999) also argued that students need to acquire discipline specific literacy in order to be successful in their fields. Indeed, disciplinary enculturation can be accomplished through a collaborative process of cultivating discipline specific language expression. A case in point is the acquisition of discipline specific language proficiency for students in EBS, since, the EBS field uses discipline specific concepts that allow people in the discipline to communicate logically and eloquently, within the parameters of the field. For example, Hashimoto (1992) revealed that about 3719 words are specific to just the Economics subject without overlaps with other Economic and Management Sciences subjects, such as Accounting, Taxation, and Auditing. The aforementioned implies that the use of general conversational English in EBS writing may distort effective subject communication in the field (Few 2005). Indeed, conversational English may have serious implications for student performance as the texts (both oral and written) that are meant to convey a discipline specific message and meaning may be expressed and interpreted incorrectly by a listener or reader. The problem of incorrectly expressing and misinterpreting subject specific discourse can be compounded when the student is a trainee teacher who in the near future will teach a specific subject and thereby create a cycle of distorted discipline specific language. Harrabi's (2009) view that raising trainee teacher's language proficiency in content subject settings prepares them for successful communication in their future profession is of particular importance for those involved in the preparation of a cadre of competent discipline specialists. It therefore, makes sense for authors such as Hashimoto (1992), Nkuna (2001)

and Ngoepe (2012) to recommend the teaching of ESP to students studying in the EBS and other fields of specialisation.

Additionally, a study by Few (2005) revealed that the bulk of subject specific language challenges are more acute in the interpretation of graphs and charts. Considering the critical and extensive use of graphical representations in EBS teaching and in other related communications such as business news and reports, the need to overcome the challenges of preparing competent subject specialists is of paramount importance.

The Importance of Graphical Representations in EMS

Few (2005) believes that no information is more important in the EBS field than quantitative information. For instance, data and information that measure performance, identify opportunities, and forecast the future are best presented graphically and in charts. This notion may hold true given that the use of graphs, charts, tables and many other forms of illustrations is very frequent in business, financial and economic reports. Few (2005) further expressed the importance of graphical presentation when he argued that a failure to fully understand and interpret graphical information can have deadly implications. For example, misinterpretation can lead to misinformation which can be deleterious in the world of business where a single piece of misinformation can have serious consequences on the wellbeing of the entire economy. Hence, in addition to the acquisition of general academic skills, Bosher (2010) suggests that EBS students should learn how to draw, interpret and communicate information presented in graphical format and more so if the student is expected to teach a subject within this field.

Theoretical Framework

The foregoing discussion needs to be understood in the light of the 'communicative-cognitive' debate espoused by Cummins (1979). A very important distinction in L2 education is that between 'communicative' and 'cognitive' abilities. This distinction was first formalised by Cummins (1979) after investigating an area of failure in an early Canadian immersion programmes. Cummins noticed that students would spend a few years in a

sheltered class, during which they received content lessons in their first language (L1) and language lessons in the L2. When the students were assessed as proficient in the L2, they would then enter mainstream education in which they studied through the medium of the L2. Many of these students performed very poorly after being mainstreamed. This led Cummins (1984) to recognise that the aspect of the second language in which they were assessed as proficient (namely, BICS) is not the same aspect required for successful studies through the medium of a L2 (namely, CALP). According to Cummins' the conceptualisation of language, BICS, which is embedded in a rich linguistic, and paralinguistic context (for example; repetitions and facial expressions), is a useful and necessary part of language in social-communicative situations. However, BICS alone does not represent full proficiency in a language. For more cognitively demanding academic tasks, proficiency in context-reduced CALP (for example; words on a bare page) is required. Without CALP, a student pursuing advanced academic studies through the medium of a L2 is seriously disadvantaged. However, with the emphasis on communicative language teaching, and more readily visible (and hence measurable) nature of BICS, Cummins found that language educators tend to concentrate disproportionately on BICS, and neglect CALP, even though CALP is more important for academic success.

In line with Cummins (1984), this paper is premised on the notion that there is a direct relationship between CALP and educational achievement. Consequently, this study is an investigation to establish trainee teacher's capacity to use subject specific English in writing descriptions of graphical representations of demand and supply.

Materials and Methods
The Approach
The study followed a mixed methods approach as espoused by Creswell, (2010). This method resonates with a number of authors, for example, Tashakkori and Teddie (1998), Johnson, Onwuegbuzie and Turner (2007) as well as Clark and Creswell (2011: 5) in that 'it involves [sound] philosophical assumptions that guide the direction of the collection and analysis of data and the mixture of qualitative and quantitative approaches in many phases in the research process'.

In order to ensure a sound approach to data analysis the study employed the sequential explanatory design of mixed methods where quantitative data was collected and subjected to descriptive analysis. Thereafter, qualitative data was collected and subjected to thematic analysis.

The Context

The study was conducted at the University of Limpopo (Turfloop), a historically black South African university located in the Limpopo Province of South Africa. The institution offers a microcosmic view of the country's larger population group of L2 students. The aim of the study was to investigate the use of subject specific English in descriptions of graphical representations written by EBS students in the Bachelor of Education programme. Hence the population in this study was all students studying in the field of EBS at the university.

Description of the Sample

In the light of the purpose of the study, the sample of respondents was chosen for theoretical salience as advocated by Coyne (1997). Coupled with this, the sample of respondents was also selected under the logic of theoretical sampling (Glaser & Strauss, 2009). This ensured that respondents were selected on the basis of their characteristics and purpose of the study. For example, the main characteristics of the target population in this study were year of study (fourth or final year of study) and the major subject (Economics and Business Studies). They were also mainly characterised as students who had gone through their learning in a second language environment. Hence, from the targeted population, a purposeful sampling technique was used to select the respondents. Further, and subsequent to preceding reasons for the sampling procedure, the sample of respondents were included in this study because they had exposure to EBS content, a precondition for a viable study on their ESP abilities (Cummins, 2008). Thus, according to Kurtz and Wheaton (2010), studies following purposeful sampling are useful as they target specific groups of a population according to certain predefined characteristics.

Data Collection

For data collection, a research instrument which was specifically designed to investigate biographical details (Section A) as well as the respondents' descriptions of graphical representations (Section B) was administered.

Efficacy of the Data Collection Instrument

The efficacy of the data collection instrument was ensured by presenting the questionnaire to subject experts whose feedback was used to improve on the initial questionnaire. It is strongly recommended by researchers such as Rowe and Wright (2001) that expert opinions in forecasting the effectiveness of research instruments are essential. Similarly, Lancaster, Dodd and Williamson (2004) point to the value of pilot studies in increasing the efficacy of data collection instruments. Hence, the instrument for data collection in the study reported in this article was piloted within a group of third year students in the same programme.

Data Analysis

Data collected through the questionnaires were analysed as follows: the quantitative data from the questionnaires were analysed using the IBM SPSS statistics version 23. Frequencies of responses graphs were constructed and cross-tabulations were done to determine the relationships among variables. Hence, the findings of this study are presented using tables, graphs, and charts to enable easy comparison and clear projection of the situation. In addition, qualitative data collected through the students descriptions were analysed through thematic analysis.

Ethical Considerations

Information and explanations about the purpose of the study were given by the first author prior to requesting the 4th year EBS students to participate in the study. Both the EBS lecturers were absent during that data collection. Most importantly, the students were assured that the data collected was solely going to be used for research purposes and nothing else. During the information session, the participants were also informed that both their

Economics and Business Studies lecturers were co-investigators in the project. In view of the power relations that obviously exist between students and their lecturers, this was done in order to ensure that the students consent for their participation in the study was free from any fears. It also ensured that students who agreed to participate and those who opted out were assured of their anonymity throughout the whole process.

Shortcomings of Mixed Method Design

A review of literature related to the design and implementation of mixed method studies reveal several shortcomings that researchers need to be cognisant of prior to their implementation of such studies. Authors such as Creswell (2010), as well as Moghaddam, Walker and Harre (2003) reveal that the limitations of this design amongst others are lengthy time and feasibility of resources to collect and analyse both types of data. To overcome such limitations, the researchers in this study ensured that the data was collected in a once off event through a straight forward process. In addition, the use of experts in the field of EBS as described earlier in the section on the efficacy of the data collection instruments ensured the feasibility of the instruments in the collection of relevant data. In addition, dealing with these shortcomings helped to ensure that the straightforwardness of the mixed method design. It also offered an opportunity for the researchers to explore the results of the inquiry in more detail (Ivankova, Creswell & Stick 2006).

Results

The empirical procedure described in the preceding sections yielded the following results.

All in all, fifty five (55) questionnaires were distributed and forty seven (47) usable questionnaires were returned. This shows that the study achieved an 85% response rate and this was deemed sufficient to conduct data analysis. Large volumes of data were collected and analysed in the study, however for the sake of brevity only a summary of the main findings is presented in the figure which follows:
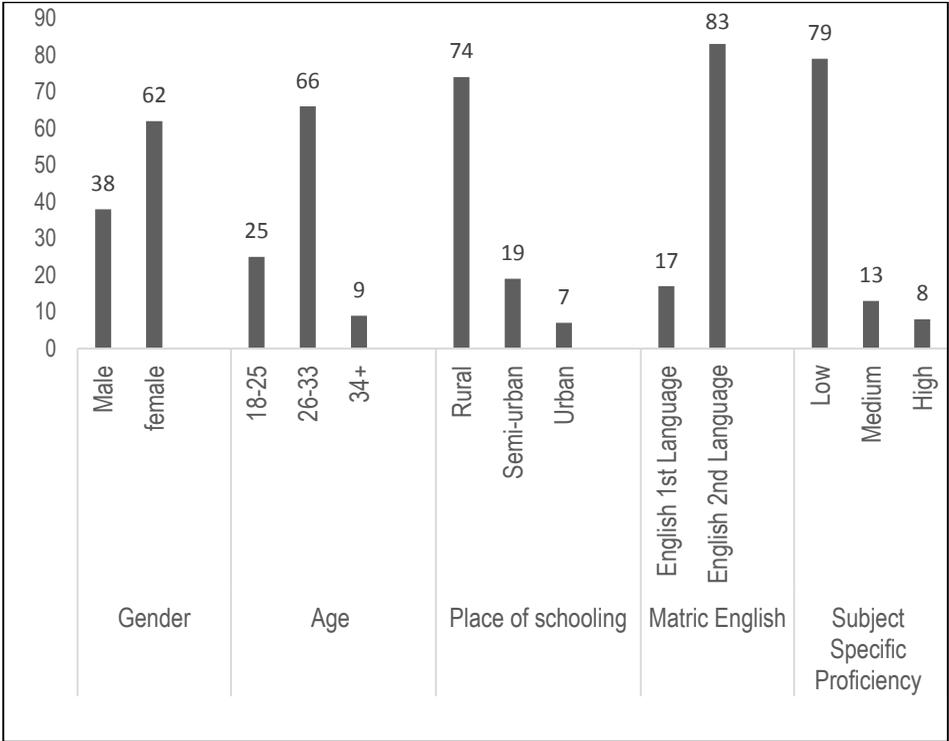
Fig. 1: *Descriptive Statistics of Sample*

Descriptive Analysis

As figure 1 illustrates, 62% of the respondents in this study were female and 38% were male. The majority of the respondents (66%) were between the ages of 26-33, followed by 25% in the 18-25 age range, with only 6% of the respondents above 34 years old. In terms of place of schooling the majority of the respondents (74%) attended rural schools. In terms of the matric English studied, the majority of respondents (83%) studied English as a L2. Seventy-nine percent of the respondents demonstrated a low level of subject specific English proficiency, as measured through their descriptions of graphical representations of basic demand and supply in price determination. Only 8% of the respondent demonstrated a high level of subject specific English proficiency.

Thematic Analysis

The low level of subject specific English proficiency by EBS respondents, particularly in graphical descriptions and interpretation was a cause for concern for the researchers and this necessitated the need for further in-depth qualitative investigation. Each of the thematic areas which emerged is presented and discussed in detail in figure 2, hereunder.
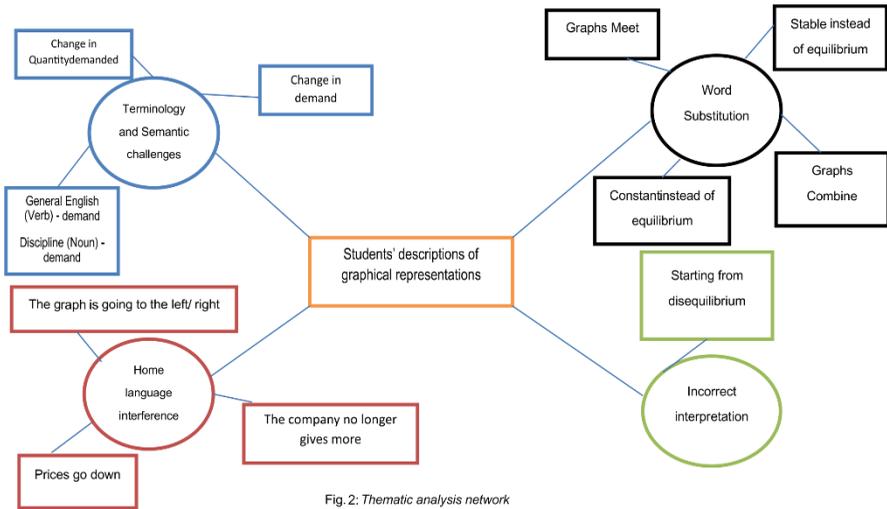

Fig. 2: *Thematic analysis network*

Fig. 2: *Thematic analysis network*

As figure 2 shows, the analysis yielded four themes. These are: terminology and semantic challenges; word substitution; home language interference and incorrect interpretation. These themes were then organized in a thematic analysis network (Attride-Stirling 2001; Braun & Clarke 2006), and illustrated in a diagram of the themes in a coherent manner (See Figure 2).

Terminology and Semantics

The theme of terminology and semantics has to do with misconceptions in the

description of *phenomena.* In this study, the focus was on description of graphical illustrations in Business Studies and Economics using an example of basic demand and supply graphs as illustrated in price determination. These included respondents confusing the meaning in concepts such as 'change in quantity demanded' and 'change in demand'.

In EBS, the concept *change in quantity demanded* generally refers to a movement along the demand curve, whilst a *change in demand* entails a shift of the demand curve. The descriptions by the respondents in this study seem to show a lack of understanding of the difference between the concepts change in quantity demanded and change in demand. Hence, it was observed that in most of the respondents' descriptions of the graphical representations respondents used these concepts interchangeably.

Certain phrases have contextual meaning related to the discipline. For instance, a word in general English can belong to a word class which may be different from the one predominantly found in particularised fields like EBS. This also applies to EBS where the usage of some phrases differs from general English usage. This study revealed the respondents' confusion when using demand and supply in phrases. Whereas in general English, demand and supply are classified as verbs and nouns, they are more commonly used as verbs. Contrarily, in EBS phrases, they are largely used as nouns. An example of one phrase, '*the consumers demand more goods than would be supplied*', which was repeatedly expressed by students, exemplified how the words 'demand and supply' were used as verbs instead of a proper phrase with appropriate use of the words as nouns like '*the demand was higher than supply'*.

Word Substitution
Word substitution in this study deals with displacing key discipline specific words in favour of more general conversational words in the description of graphical representations. For instance, a number of respondents used the word 'meet' instead of the more appropriate 'intersect'. Further, a substantial number of respondents used the word 'combined' when they referred to the lines shown in graphs that intersect. On another issue, the respondents mostly used the words 'constant' and 'stable' when referring to equilibrium. The words 'stable' and 'constant' have a different meaning in the discipline which

is not related to the aspect of equilibrium. Where two curves intersect in EBS, the point is referred as equilibrium, for example where the demand and supply curves intersect. This is the state where economic forces such as supply and demand are balanced and in the absence of external disruptions the values of economic variables will not change. This has a completely different meaning to stability which refers to the behaviour of an equilibrium, whether it is sustainable in the long run as variables return to their steady state values. Constant in EBS normally mean unvarying in nature or not liable to change and is closely related to mathematics definition of a number representing a quantity assumed to have a fixed value in a specified context. Thus the interchangeable use of these words can be misleading and can lead to misinterpretation and misunderstanding of concepts taught in EBS.

Home Language Interference

According to Sanderson (2005), the L2 can be interfered on two levels. One is known as the positive level while the other is regarded as a negative level. L2 production can be interfered positively by L1, when the relevant unit or structure of both languages is the same. In this case, linguistic interference can result in correct language production as aspects of the L2 that are the same in the L1 and will be learnt more easily, because they do not have to be learnt from scratch. Negative interference occurs when speakers and writers transfer items and structures that are not the same in both languages (Sanderson, 2005).

In the case of the study reported in this article, it was observed that the respondents' descriptions of graphical representations were negatively interfered by their home language. For example, respondents' expressions of *upward* or *downward* slopes were constructed as *'the graph is going to the left or right'*. Although this expression suggests a movement within the graph, it is, in our view, unfortunate as the word *'going'* personifies rather than describes the slope of the graph. In explaining and describing the different types of home language interference, Mothoa (2001) and Manganye (2007) categorise this level of interference as 'the use of the progressive tense'. Another set of examples of home language interference includes an observed prevalence of the use of the word *'give(s)'* instead of 'produce(s)' as exemplified in some students expression such as *'the company no longer*

gives more' as well as *'prices go down'*. In this case the example shows a loose association of the concept production with the term 'give'. This usage can directly be associated with the meaning of the equivalents of the word 'give' in the dominant languages of the Limpopo province where the study reported in this article was conducted. For example, in order to say, 'If you want flour to produce more scones, add baking powder', in Sepedi, a person might say:

> *Ge o nyaka gore folouru e go fe dikuku tšedintšhi, tšhela pediša.*

In Xitsonga, one would say:

> *Loko u lava kuri fulawuri yiku nyika magwinya yo tala, chela baking powder.*

Meanwhile, in Tshivenda the statement would be:

> *Musi vhatshitoda fulauri itshivhafha zwikontsi zwinzhi vhashele baking powder*.

In all three instances, the words *e go fe; yikunyika; itshivhafha* literally mean 'to give you' in the dominant African languages of the Limpopo province.

This research is in line with Bhela's (1999) contention that L2 learners appear to accumulate structural entities of the TL, but demonstrate difficulty in organising this knowledge into appropriate, coherent structures as it appears that there is a significant gap between the accumulation and the organisation of knowledge. Although, this is normal in language acquisition, it is problematic when it manifests in and inhibits students' attempts to articulate specific phenomena. This is evident in the examples shown above and in the many expressions used by students during their writing in content subjects such as EBS. It is for this reason that L2 speakers produce structures that have errors as they tend to rely on their L1 structure to produce a response (Bhela 1999). The respondents in the study reported in this article revealed the same notions as that of Bhela (1999), Mothoa (2001) and Manganye (2007).

Incorrect Interpretation

Description and interpretation of graphs in EBS start from a position of equilibrium. Then making use of the 'ceteris paribus' assumption (which in EBS simply means with other conditions remaining the same; other things being equal) an analysis can be done on the changes in one of the variables which leads to disequilibrium. This enables analysis to be made on the factors that lead to deviation from equilibrium position and correction thereof. However, the study found that respondents started their analysis of the graphs given by trying to explain and correct disequilibrium first and concluding by identifying equilibrium. For example, in the demand and supply graphs used in this study, respondents were supposed to first identify the equilibrium position of the two curves, before describing the marked positions of excess supply and excess demand, which are disequilibrium positions.

Discussion

The students' difficulties revealed in the above results and analysis can be better explained in the light of a model devised by Cummins (2008). This is a model whereby in different tasks, students are expected to engage in cognitively undemanding to cognitively demanding tasks along a continuum of context-embedded to context-reduced tasks (See figure 3 below).

A context-embedded task is one in which the student has access to a range of additional visual and oral cues; for example, he or she can look at illustrations of what is being talked about or ask questions to confirm understanding. Hence, the task on graphical representations can be placed within quadrant D of the model, which is both cognitively demanding and context- reduced. According to Cummins (2008) this is the most difficult task for students in L2 education. From the results of this study, Cummins' model provides a vivid explanation for the students' difficulty in using appropriate terminology and semantics. It also explains the heavy reliance on general conversational language, and the observed negative interference of the home language.

Cognitively Undemanding
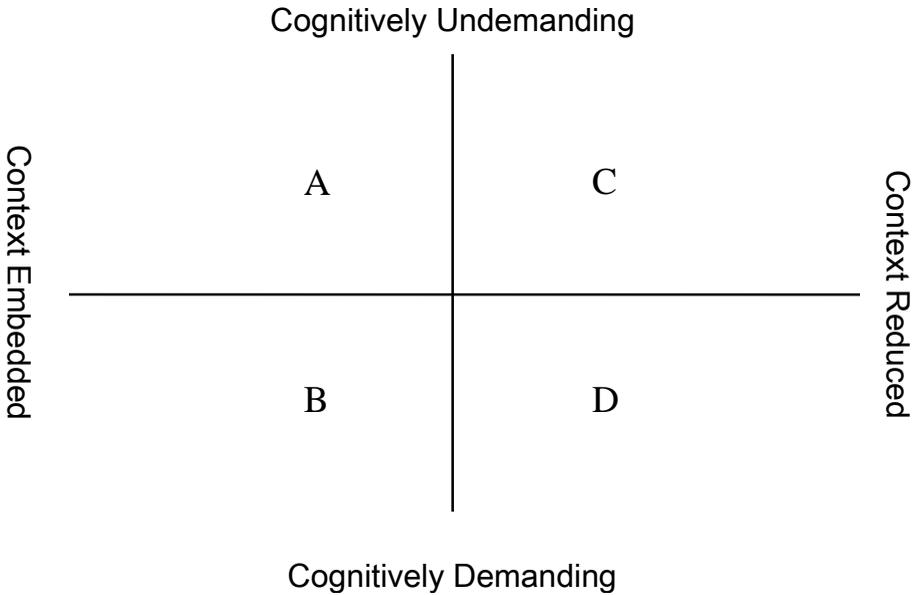
Fig. 3 *Cummins model for evaluating language demand in content activities*

Conclusion

The results of the study reported in this article revealed that the use of conversational language instead of more appropriate subject specific language results in loss of meaning and poor descriptions. In the light of the BICS and CALP distinction made in the section on theoretical framework, it could be concluded that attempts by students in this study are reflective of the prevalence of BICS amongst students coming from a L2 educational background. Furthermore, the findings of the study provided evidence that the use of general conversational English may distort effective communication and clear understanding of field/subject specific concepts and meanings. This conclusion is also echoed in Few (2005) as well as Harrabi (2009) who maintain that statements that are meant to convey discipline specific meaning and message may be expressed and interpreted wrongly if

general English terms are used. The findings presented in this study call for policy makers and all the stakeholders involved in EBS curriculum development to consider integrating subject specific language courses at all levels of study throughout the Bachelor of Education programme. This is even more important in the group of future EBS teachers, as a firm grasp of the subject specific language will enable them to filter down the correct usage of subject specific concepts to their own future students.

References

Attride-Stirling, J. 2001. Thematic Networks: An Analytic Tool for Qualitative Research. *Qualitative Research* 1,3:385-405.

Bhela, B. 1999. Native Language Interference in Learning a Second Language: Exploratory Case Studies of Native Language Interference with Target Language Usage. *International Education Journal* 1,1:22-31.

Bosher, S. 2010. Acquiring Discipline-specific Literacy in a Second Language: A Case Study of an ESL Nursing Student. *Taiwan International ESP Journal* 2,2:17-48.

Braun, V. & V. Clarke 2006. Using Thematic Analysis in Psychology. *Qualitative Research in Psychology* 3:77-101.

Clark, V.L.P. & J.W. Creswell 2011. *Designing and Conducting Mixed Methods Research.* Thousand Oaks: Sage Publications.

Coyne, I.T. 1997. Sampling in Qualitative Research. Purposeful and Theoretical Sampling; Merging or Clear Boundaries? *Journal of Advanced Nursing* 26,3:623-630.

Creese, A. 2000. The Role of the Language Specialist in Disciplinary Teaching: In Search of a Subject? *Journal of Multilingual and Multicultural Development* 21,6:451-470.

Creswell, J. 2010. Understanding Mixed Methods Research. In Creswell, J. & V.P. Clark. *Designing and Conducting Mixed Methods Research.* 2nd Edition. Thousand Oaks: Sage Publications.

Cummins, J. 1979. Cognitive/ Aacademic Language Proficiency, Linguistic Interdependence, the Optimum Age Question and Some Other Matters. *Working Papers on Bilingualism* 19.

Cummins, J. 1984. *Bilingualism and Special Education: Issues in Assessment and Pedagogy.* Volume 6. Clevedon: Multilingual Matters.

Cummins, J. 1994. The Acquisition of English as a Second Language. In Spangenberg-Urbschat, K. & R. Pritchard (eds.): *Reading Instruction for ESL Students.* Delaware: International Reading Association.

Cummins, J. 2008. BICS and CALP: Empirical and Theoretical Status of the Distinction. In *Encyclopedia of Language and Education*. New York: Springer.

Echevarria, J., M. Vogt & D. Short 2004. *Making Content Comprehensible for English Learners: The SIOP Model*. Boston: Allyn and Bacon.

Education Labour Relations Council (ELRC) 2003. *Policy Handbook for Educators.* Pretoria: Universal Print Group.

Few, S. 2005. *Effectively Communicating Numbers: Selecting the Best Means and Manner of Display.* Idaho: Perceptual Edge.

Flowerdew, J. & M. Peacock 2001. Issues in EAP: A Preliminary Perspective. In Flowerdew, J. & M. Peacock (eds.): *Research Perspectives on English for Academic Purposes*. Cambridge: Cambridge University Press.

Glaser, B.G. & A.L. Strauss 2009. *The Discovery of Grounded Theory: Strategies for Qualitative Research*. New Jersey: Transaction Publishers.

Harrabi, A. 2009. Education in English for Specific Purposes in Tunisia: The Case of the Higher Institute of Commerce of Sousse. *English for Specific Purposes World*, 1,27:1-18.

Hashimoto, M. 1992. English for Specific Purposes (ESP) and the Teaching of Financial English. Conference Proceedings of the 57th Annual Convention of the Association for Business Communication held in New Orleans, Louisiana from November 4 to November 7, 1992.

Haynes, C. 2002. *Innovations in Interdisciplinary Teaching*. Connecticut: Oryx Press.

Haynes, J. 2007. *Getting Started with English Language Learners: How Educators can Meet the Challenge*. Alexandria: ASCD.

Howie, S., V. Scherman & E. Venter 2008. The Gap between Advantaged and Disadvantaged Students in Science Achievement in South African Secondary Schools. *Educational Research and Evaluation* 14,1:29-46.

Hutchinson, T. & A. Waters 1992. *English for Specific Purposes: A Learning Centered Approach.* Cambridge: Cambridge University Press.

Ivankova, N.V., J.W. Creswell & S.L. Stick 2006. Using Mixed-methods Sequential Explanatory Design: From Theory to Practice. *Field Methods* 18,1:3-20.

Johnson, R.B., A.J. Onwuegbuzie & L.A. Turner 2007. Toward a Definition of Mixed Methods Research. *Journal of Mixed Methods Research* 1,2:112-133.

Jones, C., J. Turner & B. Street 1999. *Respondents Writing in the University: Cultural and Epistemological Issues.* Philadelphia: John Benjamins Publishing Company.

Jordan, R.R. 1997. *English for Academic Purposes: A Guide and Resource Book for Teachers.* Cambridge: Cambridge University Press.

Kurtz, J. & W. Wheaton 2010. *Joint Needs Assessment Toolkit for Education in Emergencies.* Geneva: Global Education Cluster.

Lancaster, G.A., S. Dodd & P.R. Williamson 2004. Design and Analysis of Pilot Studies: Recommendations for Good Practice. *Journal of Evaluation in Clinical Practice* 10,2:307-312.

Leki, I. 2003. Living through College Literacy Nursing in a Second Language. *Written Communication* 20,1:81-98.

Ler, E.C. 2012. Cultural Factors Affecting English Proficiency in Rural Areas. *Advances in Language and Literary Studies* 3,1:1-23.

Lucas, T., A.M. Villegas & M. Freedson-Gonzalez 2008. Linguistically Responsive Teacher Education Preparing Classroom Teachers to Teach English Language Learners. *Journal of Teacher Education* 59,4:361-373.

Mabila, T.E., S.E. Malatje, A. Addo-Bediako, M.M.M. Kazeni & S.S. Mathabatha 2006. The Role of Foundation Programmes in Science Education: The UNIFY programme at the University of Limpopo, South Africa. *International Journal of Educational Development* 26,3:295-304.

Manganye, T.N. 2007. *Perceptions of Mathematics and Science Students towards Black South African English as an Alternative Medium of Instruction.* Unpublished Master's dissertation, University of Limpopo.

Moghaddam, F.M.*,* B.R. Walker & R. Harre 2003. Cultural Distance, Levels of Abstraction, and the Advantages of Mixed Methods. In Tashakkori, A. & C. Teddlie (eds.): *Handbook of Mixed Methods in Social & Behavioral Research.* Thousand Oaks, CA*:* SAGE.

Mothoa, S. 2001. *Grammatical Features of Black South African English; As Exemplified in the Written Samples of Ndebele and Northern Sotho First-language.* Unpublished Master's Thesis, University of the North.

Mukattash, L. 2003. Towards a New Methodology for Teaching English to Arab Learners (TEAL). *International Journal of Arabic–English Studies* 4:211–234.

NDHET [National Department of Higher Education and Training], Republic of South Africa 2011. *The Minimum Requirements for Teacher Education Qualifications (MRTEQ)*. Pretoria: Government Printer.

Ngoepe, L.J. 2012. To what Extent do Science ESP Learning Materials fit the Purpose for which they have been Devised? An Evaluation in Terms of Cronje's (1993) Criteria. *Journal for Language Teaching* 46,1:60-73.

Nickerson, C., M. Gerritsen & F.V. Meurs 2005. Raising Student Awareness of the Use of English for Specific Business Purposes in the European Context: A Staff–student Project. *English for Specific Purposes* 24,3:333-345.

Nkuna, I.S. 2001. *An English for Academic Purposes Needs Analysis for Grade 12 Learners of English as a Second Language in the Northern Province*. Unpublished Master's Thesis, University of the North.

Parks, S. & M.H. Maguire 1999. Coping with On-the-Job Writing in ESL: A Constructivist-Semiotic Perspective. *Language Learning* 49,1:143-175.

Richards, Z. 2015. Conceptions of Academic Talent: Implications for Talent Identification and Development: Part 2. *South African Journal of Higher Education* 29,1:270-293.

Rowe, G. & G. Wright 2001. Expert Opinions in Forecasting: The Role of the Delphi Technique. In Armstrong, J.S. (ed.): *Principles of Forecasting: A Handbook for Researchers and Practitioners*. New York: Springer.

Sanderson, P. 2005. *Multilingualism: The Role of Language in South Africa*. Study Guide, University of South Africa.

Street, B. & L. Verhoeven (eds.) 2001. *Studies in Written Language and Literacy*. London: Routledge.

Swales, J.M. 1992. Languages for Specific Purposes. In Bright, W. (ed.): *International Encyclopedia of Linguistics*. Volume 2. Oxford: Oxford University Press.

Tashakkori, A. & C. Teddie, C 1998. *Mixed Methodology: Combining Qualitative and Quantitative Approaches.* London: SAGE Publications.

Warschauer, M. 2002. Networking into Academic Discourse. *Journal of English for Academic Purposes* 1,1:45-58.

Zhu, W. 2004. Faculty Views on the Importance of Writing, the Nature of Academic Writing, and Teaching and Responding to Writing in the Disciplines. *Journal of Second Language Writing* 13,1:29-48.

Thembinkosi Mabila
Research Developer
University of Limpopo
tmabila@yahoo.co.uk

Caleb Gwaindepi
Economics
University of Venda
gwaindepi@gmail.com

Mazanai Musara
Business and Economics
Monash South Africa
Johannesburg
jilgram@yahoo.com

Flipping the Classroom Compared to the Lecture Method: Students' and Lecturer's Perceptions

Eunice Ivala
Anton Thiart
Daniela Gachago

Abstract

The current mode of delivery of engineering education at the Cape Peninsula University of Technology (CPUT) is the lecture, which has been shown by research not to be particularly effective for promoting deep learning. We argue that an alternative method of delivering curriculum may be needed in order to improve student learning. Underpinned by a developmental perspective of cooperative learning model, we present students' and their lecturers' perceptions of the benefits and challenges of the inverted classroom method of delivering instruction compared to the lecture method in a third-year hydrology course in civil engineering at CPUT. Quantitative and qualitative approaches were used for understanding the phenomena under investigation. Findings showed that 'inverting' or 'flipping' and moving the lecture to the homework domain, and saving application and one-on-one or group work for the classroom experience, makes the inverted classroom method more productive than the lecture method.

Keywords: Inverted classroom method (ICM), flipped classroom method, self-directed learning, civil engineering

1. Introduction

Most higher education institutions (HEIs) globally continue to rely on the lec-

ture method of delivering instruction (Bates & Galloway 2012; Butt 2014; McLaughlin *et al*. 2014); the main emphasis being on coverage of content (Strayer 2007). Johnson, Johnson and Smith (1991) report on several studies showing lectures to be relatively ineffective at promoting deep learning (see also Bates & Galloway 2012; Butt 2014). In lectures, seemingly, students are introduced to the materials and concepts; they have to process the information, solve problems, and practice with the course concepts and reach conclusions for application outside of the classroom (Talbert 2012).

Nguyen and Toto (2009) and Lord and Camacho (2007) report that in engineering education most classrooms still rely on the lecture mode to deliver course content. While this format has been effective, in practice we find significant problems with the pacing of instruction and that the most difficult tasks, in general, have to be performed by the students outside of class (in their own time), on their own and away from the instructor's help (Nguyen & Toto 2009; Talbert 2012). As elsewhere, this method is used to deliver engineering education at the Cape Peninsula University of Technology (CPUT).

We argue that HEIs need to use pedagogical approaches which have been shown to promote deep student learning and high performance. Such an approach is the 'inverted classroom method' (ICM) (Butt 2014; Gannod, Burge & Helmick 2008; Herreid & Schiller 2013; Lage Platt & Treglia 2000; Pierce & Fox 2012; Mangan 2013). In the schooling sector the ICM is often known as the 'flipped classroom' (White 2011). A lecturer at CPUT decided to pilot the ICM in a hydrology course, since the lecture was scheduled for 13h00 and he had noticed that most students were not concentrating then – there was a need, he surmised, to think of alternative ways of delivering instruction, which would improve student learning.

In this article, we present students' and their lecturers' perceptions of benefits and challenges of the ICM as compared to the lecture method in a third-year hydrology course in the civil engineering field at CPUT. The question that guides and gives focus to this paper is: 'What are students' and the lecturer's perceptions of the benefits and challenges of the ICM of delivering instruction compared to the traditional lecture method?

Quantitative and qualitative approaches were used, with a mixed method for collecting data. An in-depth interview was carried out with the lecturer, and a survey questionnaire was distributed to the 50 enrolled students to elicit their perceptions of the benefits and challenges of using the

ICM as compared to the traditional lecture.

We assume that this study will provide insights on the use of the ICM in an engineering field at a resource-poor university of technology in South Africa. These could be of benefit to other HEIs in South Africa and Africa, as there are limited research and studies on use of the ICM.

We present literature to unpack the ICM and its benefits, a conceptual framework which helped us understand the teaching philosophy used by the lecturer in the implementation of the ICM; the research methodology, results and discussion; and end with a conclusion and recommendations.

2. ICM for Curriculum Delivery

The ICM method uses technology to 'flip' or 'invert' the traditional lecture model (Strayer 2007), moving the lecture outside the classroom via technology and moving homework and practice with concepts inside the classroom via learning activities (Bishop & Verleger 2013; Herreid & Schiller 2013; McLaughlin *et al*. 2014). The defining characteristics of the ICM are online lecture materials (text, audio or video format) that students can access on demand, and a classroom environment conducive to working with peers and the lecturer, problem solving and answering questions (Gannod *et al*. 2008; Lage *et al*. 2000; Nguyen & Toto 2009; Strayer 2007). Outside the classroom, students engage with the online materials in preparation for lecture time, and classroom time is used to process the information and solve problems, and practice and apply concepts via guided learning activities, often done in groups under the guidance of the lecturer and peers.

According to Lage *et al*. (2000) the ICM is not a new idea. For example, in 2000 Baker provided lecture notes on a web page, extended classroom discussions through online threaded discussions and used online quizzes in Graphic Design for Interactive Multimedia and Communication in the Information Age courses. Kaner and Fiedler (2005) and Day and Foley (2006) used video lectures to invert their upper-level software courses, with no active component for students while watching videos; class time was not used for hands-on application of ideas, but for further discussion of concepts. Gannod *et al*. (2008) applied the ICM to offer instruction in a software engineering course through podcasts. Eric Mazur, a physicist at Harvard University, has been using the method for 21 years (Berrett 2012).

In the year 2000, staff members of the Centre for Culture, Communication and Media Studies at the University of Natal, Durban, where one of the authors of this paper studied, employed the flipped classroom method to teach honours and masters level students. Course work honours and masters students were given a course reader which clearly stated the topics to be covered in each of the study and guiding questions. Students were expected to engage with the readings in their own time and to respond to the guiding questions as a group before the lecture. In-class activities included student presentations of their understanding of the content, a class discussion guided by the lecturer on issues arising from the content, with the lecturer ending the session by responding to students' questions and reinforcing the main ideas emanating from the content covered. The abovementioned examples show that there is no one model of ICM; in fact, there are many forms (Sams 2011). According to Gardner (2012: 2) 'the modern version of inverted class, which is characterized by online videos, is already over a decade old' (see Lage *et al*. 2000). However, we argue that the newness of a pedagogical approach is subjective and contextual; for lecturers and institutions who have never engaged with the ICM before it is a new pedagogical approach.

Pedagogical benefits of the ICM are that the out-of-class activities (e.g. students watching online videos introducing course concepts, showing of examples, giving quizzes or exercises and modeling the problem-solving process) supplement and reinforce concepts presented in textbooks (Doering & Mu 2010; Roehl, Reddy & Shannon 2014; Talbert 2012). In this way, students who would have found the pace too slow may quickly work through material they already know, and delve into more interesting and challenging problems (differentiating instruction based on student needs). Students who would have struggled with concepts can access course materials when ready to learn, and are able to rewind and watch segments many times (extended engagement with course content) (Gannod *et al*. 2008; Gardner 2012; Mangan 2013; Strayer 2007). Students can also pause and reflect on lecture materials (Mangan 2013; Talbert 2012). Beyond using the online videos to prepare for class, they are available for later reference. Students who are absent due to illness or extracurricular activities do not miss out on learning (Bergmann & Sams 2012). By watching the videos in their own time, students arrive in class prepared to practice the ideas they have already been exposed to (McLaughlin *et al*. 2014). When an assignment is given on the

course content students work in groups; they are involved in active learning while the lecturer walks around observing their work and offering assistance (Butt 2014; Pierce & Fox 2012).

A primary element of learning is asking questions, and the ICM provides an environment where questioning is a primary classroom activity (Bain 2004). Students focus on internalizing the course materials with the help of their peers and their instructor (Bishop & Verleger 2013; Roehl, Reddy & Shannon 2014). Students who struggle with specific concepts can benefit from the instructor's time, which can be spent on identifying individual sources of a student's confusion, and to promote personalized instruction. Students who learn at a faster pace than their peers may also serve as peer mentors (Gannod *et al*. 2008; Strayer 2007) for other students in class; thus slower students have more help, while the faster learners achieve the deeper understanding that comes from explaining a concept to someone else.

The method has been criticized for assuming that every student has access to technology (computer, smartphone or tablet) and internet connectivity (Gardner 2012), especially in developing countries like South Africa. For the method to work well, most of the students must engage with the online materials before attending lectures, a scenario that is highly unlikely without an enforcement mechanism such as awarding marks for out-of-class activities. Furthermore, developing ICM materials is labour-intensive and time-consuming (Bates & Galloway 2012; Talbert 2012) for lecturers, who are expected to teach as well as to do research. However, the method shows the potential for making university classrooms more interactive, inclusive and effective (Talbert 2012), and, more importantly, it can be applied in many disciplines (Gardner 2012). However, Strayer (2007) reveals that there are few research studies that specifically investigate the ICM, particularly in Africa. This paper presents both student and their lecturer perceptions of the benefits and challenges of the ICM compared to the lecture method in a third-year Hydrology course in the Civil Engineering field at CPUT.

3. Conceptual Framework

The developmental perspective of a cooperative learning model, founded in a constructivist epistemology, was used to understand how the lecturer in this

study piloted the ICM. The hydrology course is a third-year module within Water Engineering and contributes 50% of the marks towards the subject. The Water Engineering module contributes towards attainment of a national diploma in civil engineering, and is a compulsory one-semester course taught in the second half of the year, with two, one-hour lectures per week. The course aims to impart the principles and practices of engineering hydrology through the use of examples and calculations. The lecture method is used to teach course content, supplemented by student interaction with information through homework, lab sessions, projects and discussions that take place out of class. The course was co-taught by two lecturers. The ICM was not implemented in the delivery of the entire course; just for selected topics in the course, namely, introduction to hydrology, meteorological data, evaporation and transpiration, and infiltration and percolation.

The lecturer implemented the ICM by providing students with basic materials related to the course content via online videos (using a shared drive on the institutional intranet for long videos and Dropbox for short videos), short documents on the course website, readings from the prescribed textbook, as well as supplementary notes. Students were continuously encouraged to engage with the materials through a closed Facebook group. They engaged with the above-mentioned materials at home in preparation for the in-class activities. In class, students' understanding of the materials they engaged with at home was tested, followed by small group discussions of the evaluation. Students then assessed each other's responses to the evaluation questions and commented on the answers. They then worked collaboratively in groups on more complex questions, with the lecturer assisting and guiding them as needed.

The in-class activities justified Johnson and Johnson's (1999) assertion that cooperative learning occurs when students work together to accomplish a shared learning goal. The class ended with a briefing on what was expected of the students in the next class, which was summarized in a post placed on the Facebook group. The in-class activities were used to reinforce understanding of the content learnt at home, with the aim of contributing to the course outcome.

Although cooperative learning has its premise in constructivist principles, in implementing it the teacher maintains complete control of the class, even though students work in groups. The cooperative teacher asks questions, provides additional texts or resources for the students to read and

analyze, and then asks the students to work in groups to answer the questions. Groups then present their results to the whole class and discuss their reasoning. In this type of learning the students do the work necessary to address the course content, but the teacher maintains control of the process at each stage. In piloting the ICM in the hydrology course a developmental perspective of cooperative learning which was largely teacher-centered (Lee 1997) (students did not provide input into what the class does and how it does it) seems to have been employed. The lecturer decided to change the method of delivering instruction from lectures to the ICM, but asked students to allow him to test his ideas. He decided on and designed materials to be studied out of class, and chose the platforms for accessing the materials and what students will do in class.

Fundamental assumptions of the developmental perspective on cooperative learning are that interaction among students around appropriate tasks increases their mastery of critical concepts. In Vygotsky's (1978) view, collaborative activity among children promotes growth because those of similar ages are likely to be operating within one another's proximal zones of development[1], and they are more likely to model the more advanced behaviors of the group than of those they would as individuals. The importance of peers operating within one another's proximal zones of development was also established by Kuhn (1972), who found that a small difference in cognitive level between a child and a social model was more conducive to cognitive growth than a larger difference. Furthermore, Piaget (1926) held that language, values, rules, morality and symbol systems can be learnt only in interactions with others. However, according to Slavin, Huerley and Chamberlain (2003), there is almost no research that explicitly links Piaget's conceptual work to classroom learning. The lecturer in this course, nevertheless, implemented ICM with the aim of achieving the fundamental assumptions of the developmental perspective on cooperative learning and to contribute knowledge to the field.

---

[1] The zone of proximal development is 'the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers' (Vygotsky 1978: 86).

4. Methodology

Both quantitative and qualitative approaches were used, to ensure that limitations of one type of data were balanced by the strengths of another, enhancing the significance of the findings (Caracelli & Greene 1997).

4.1 Context and Participants

The main participants in this study were the 50 students enrolled in the course and their lecturer, who implemented the ICM in a hydrology class in 2011 and offered a training workshop on the ICM to 11 lecturers in November 2012. Thus purposive sampling was used to choose the lecturer (Patton 1990); he had rich information gained through practice and was thought to be likely to reflect on the complexity of implementing the ICM as compared to the lecture method. The convenience sampling method was used to select the students for this study.

4.2 Data Collection

A qualitative approach was used for collecting data; data consisted of an in-depth interview with the lecturer, and a workshop facilitated by the lecturer to introduce the ICM to 11 lecturers from various disciplines in the university, an examination of the lecturer's perceptions of benefits and challenges of ICM for delivering instruction. Four, open-ended questions in the students' survey questionnaire elicited their perceptions of ICM's capability to facilitate active learning, group work and the time students took to get used to ICM. Quantitative data were gathered through a survey questionnaire distributed to the 50 students enrolled in this course to elicit their perceptions of the benefits and challenges of using ICM in comparison to the lecture method.

The survey questionnaire included both open- and closed-ended questions. Eight closed questions comparing students' perceptions of the ICM and traditional lecture method in terms of classroom attendance, level of enjoyment, understanding of problems, concentration in class, regular preparation for lectures and in-class activities for the flipped method, active involvement during class, enough time for study, levels of preparation for exams, finding answers to homework during the learning process, and the

mode of delivery students preferred for the rest of the semester. Parallel data gathering was used with the students and sequential data gathering with the lecturer (Caracelli & Greene 1997).

4.3 Data Analysis

Quantitative data were analyzed using a five-point Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree). The means and standard deviations were calculated to determine the central tendency (typical score) and variability (spread) of interval data. A paired sample one-tailed t-test was executed to test for significant differences in the perceptions of the ICM and the lecture method. Because quantitative data do not provide reasons or motives behind rating scores, the reasons given by participants are important to make informed decisions regarding the implementation and effectiveness of ICM. Consequently, qualitative data were analyzed inductively via a constant comparative method to probe the motivation behind the scores. Data from the lecturers' in-depth interview, workshop transcripts and open-ended questions from the students' survey were analyzed. Open coding, 'the process of breaking down, examining, comparing, conceptualizing, and categorizing data' (Strauss & Corbin 1990:61), was used to identify themes and insights emerging from the data, and insights to help understand the problem under investigation.

We acknowledge that the findings of this study are not generalizable, but offer valuable insights which others interested in implementation of ICM for curriculum delivery could draw from. Participant consent to take part in the study was sought, and the purpose of the study was explained to the lecturer and students. The interview and workshop transcripts were made available to the lecturer participant for scrutiny. Anonymity and confidentiality were adhered to as promised to the lecturer and students. Ethical clearance was given by the Fundani Centre for Higher Education and Development Ethics Committee.

5. Results and Discussion

The findings and discussion are presented under the following themes:

- Students' perceptions of the benefits of ICM compared to the lecture method;
- Lecturer's perceptions of the benefits of ICM compared to the lecture method; and
- Challenges encountered in the implementation of ICM and the critical conditions for successful implementation.

5.1 *Students' Perceptions of Benefits of ICM for Curriculum Delivery Compared to the Lecture Method*

Students' mean scores for class attendance and concentration in class were statistically significantly smaller at the 95% confidence level for the lecture method, whereas the mean scores for the level of enjoyment, understanding of problems, regular preparation for lectures, levels of preparation for exams, and finding answers to homework during the learning process were statistically significantly smaller for the ICM (See Table 1).

Thus, students' classroom attendance and concentration in class were better for the lecture method than the ICM. On the other hand, aspects on students' level of enjoyment, understanding of problems, regular preparation for lectures and in-class activities for the flipped method, level of preparation for exams, and finding answers to homework during the learning process were rated more favorably for the ICM than the lecture method. On the aspects of students having enough time for study, active involvement in class and preferred mode of delivery for the rest of the semester, there was no significant difference between the ratings for the two methods. However, aspects on students having enough time for study and active involvement during class were rated nominally better for the ICM than the lecture method. The converse was true for the preferred mode of delivery for the rest of the semester (Table 1).

Table 1: Mean score (± standard deviation) of aspects tested for the ICM and the lecture method

Aspects measured	ICM	Lecture method
Classroom attendance	1.94±1.42	1.6±1.92*
Level of enjoyment	2.12±0.689	2.4±0.901*
Understanding of problems	2.37±0.994	2.76±1.119*

Regular preparation for lectures and in- class activities for the flipped method	1.9±1.233	2.51±1.283*
Concentration in class	3.64±1.191	2.81±1.279*
Active involvement in class	2.44±1.053	2.65±1.159
Enough time for study	2.51±1.21	2.61±1.325
Levels of preparation for exams	2.49±1.12	2.87±0.992*
Finding answers to homework during learning process	1.56±0.884	1.85±0.882*
Mode of delivery students preferred for rest of the semester	2.9±1.358	2.81±1.345

*Asterisk indicates significant difference at p=0.05 (one-tailed t test for paired sample).

The analysis of the qualitative data showed that most students (35/50) liked[2] the ICM more than the traditional lecture method. Students gave varied reasons for liking the methods. A good number indicated that they liked the ICM more than the lecture method because it allowed them to engage with the course content before class as many times as they wished and in their own time.

> **Extract 20**: The advantage of the videos is that I can experience the lecturer over and over again. It is done in my own time at my own leisure. I strongly urge that more of our subjects are carried out in this manner.

The above findings show that the method enabled students to engage more with the subject matter outside the classroom which, according to Kuh

---

[2] The concept 'liked' is used in this study based on student perceptions of the lecture and the flipped methods of curriculum delivery. The perceptions were self-reported in open-ended questions contained in the student survey questionnaires used in this study. Reasons for liking either of the methods are given in the results and discussion section.

(2009), may lead to enhancing the students' understanding of the subject matter and hence, to support deep learning. Furthermore, a few students stated that materials provided to them on short videos allowed them to engage with concepts until they understood them; unlike in the lecture method which only provided one opportunity to grasp concepts. These results are in agreement with findings by Gannod *et al*. (2008), Gardner (2012) and Mangan (2013). These students stated that engaging with the subject matter before class discussions enhanced the retention of knowledge. Some reported that the ICM allowed them to actively participate in classroom activities (unlike the lecture method), which they indicated assisted them in learning and remembering content, as depicted in the following extracts from the student survey questionnaire:

> **Extract3**: The fact that my brain is active in class and understanding what has been taught and rectifying any misunderstanding while in class
> **Extract 4**: It gets the students involved and therefore learning and remembering the content is much easier

Another reason given by a good number of the students for liking the ICM over the lecture method was the fact that it enabled them to take responsibility for their own learning:

> **Extract 29**: You are treated as an adult; you as a student have to take responsibility for getting the information
> **Extract 9**: This method makes the student more interested in the work and eager to figure out what we given by the lecturer, by exploring the sources by yourself, it is intriguing and makes you understand the work.

Based on the aforementioned, it seems students appreciated the ICM because it gave them the power to control their learning (self-directed learning) (Pierce & Fox 2012; Roehl, Reddy & Shannon 2013), which enhanced their interest in, engagement with and understanding of the module content. However, a few students (15/50) disliked the ICM. Some key reasons given for not liking the method were lack of immediate feedback on problems encountered after engaging with course materials at home, the fact that the

method gave students more responsibility for their learning, and love of the lecture method. On the lack of immediate feedback, one student wrote:

> **Extract 40**: If you are unsure about certain contents you are not able to clarify immediately.

Regarding emphasis on self-directed learning, students were unhappy that the ICM shifted the role of learning to the students:

> **Extract 42**: It puts most of the responsibility on the student which in some cases is a bad thing.
> **Extract 44**: You have to teach yourself and sometimes that isn't easy.

These students may have disliked self-directed learning partly because they were used to being taught by the lecture method, where the teacher is the 'sage on the stage' and the students are passive receivers of knowledge (Lehmann & Chamberlin 2009). This method is used in most HEIs (Bates & Galloway 2012). Familiarity with the lecture method was given as a reason for liking it by six of the students. The following illustrate the students' feelings about the lecture method:

> **Extract 18**: It is the same way all the other subjects are taught
> **Extract 19**: It is a method that I am accustomed to and because of that familiarity; it makes it more enjoyable for me.

Immediate interaction with the lecturer in class was put forward as a reason for liking the traditional lecture method by 14 of the students. One had this to say:

> **Extract 45**: In class I can ask if the lecturer talks about something and feel more involved. Also calculations are better to understand when it is handwritten and to participate in the process of the calculation and to get to find answer.

Immediate feedback may also explain why students rated the lecture method statistically, significantly more favorably for class attendance and

concentration in class. However, the traditional lecture method was disliked by 28 of the students taking this course. Some of the reasons given by a substantial number of the students were lack of student involvement in the class, the time-slot of the lecture, lack of concentration, and the fast pace of teaching during the lecture. Students wrote:

> **Extract 7**: It is late in the afternoon, after attending a number of lectures. I find it a bit harder to concentrate for longer.
> **Extract 14**: Up till a certain point, one's concentration is broken by tiredness, due to minimal involvement.

The lack of students' involvement and the fast pace highlight some criticisms of teacher-centered methods of teaching like the lecture method (Butt 2014; Lehmann & Chamberlin 2009; Roehl, Reddy & Shannon 2013), which may lead to low student concentration.

5.2 Lecturer's Perceptions of Benefits of ICM for Curriculum Delivery Compared to the Lecture Method

It is commonsense that many faculty members would adopt a new pedagogical approach when it is perceived to help improve teaching and learning. According to Davis (1989) perceived usefulness is the degree to which a person believes that using a particular system would enhance his/her job. The lecturer in this study believed that the ICM was more beneficial than the lecture method because it facilitated deep learning and enhanced his job, as evidenced in the following quotes:

> … the things I did right was the whole idea of giving the material beforehand, basic material and then coming to class and then carry on with a little bit more advanced examples… questions that require cognitive engagement, when I'm there to prompt them and help them and they help each other obviously. They help each other actually a lot. Sometimes they don't even want the lecturer to give them help ... what happens in normal classrooms is the lecturer stands up and …does basic examples and then he tells students to go back do homework and the homework is then more advanced…

> … it [ICM] enriched my job because I'm unfortunately in the
> situation that I will probably be stuck as a lecturer … till I retire. I
> have to enrich my own life and I have to use new methods. And it
> definitely did … I'm getting some exposure, meeting some new
> people…and I'm making new contacts all the time now…

By adopting the ICM the lecturer enhanced student involvement in the class,
which may have improved students' concentration and addressed the
disadvantage of the time-slot, student engagement with the course content
outside of class, peer learning and student-teacher interactions. Student
involvement (Astin 1984), engagement (Kuh 2009), peer learning and
student- teacher interactions are some characteristics of deep and meaningful
learning (Anderson 2003).

5.3 Challenges Encountered in Implementation of the ICM and Critical Conditions for Ensuring Successful Implementation

Based on some students' reasons for not liking the ICM (familiarity with the
lecture method, lack of immediate feedback, and self-directed learning
method promoted), it can be deduced that it is a challenge to introduce a new
method of teaching and learning in an environment where the lecture method
is the norm. A lot needs to be done by the lecturer before introducing a new
method of teaching and learning. On the issue of students not liking the self-
directed learning promoted by the method, it may have helped to explain to
the students what the ICM and the lecture method entailed, and the kind of
learning both methods support. Raising students' awareness of the two
methods could assist in acceptance of the ICM. Also, exposing students to the
ICM for one semester in selected topics in a course is not enough time for
them to fully appreciate the method. A long period of exposure to ICM and
wide application in different disciplines/subjects may help in acceptance of
the method by students.

The challenge of lack of immediate feedback while engaging with
content materials at home may have been due to the fact that the lecturer
provided such content with no questions for the students to test their
understanding. We argue that provision of short videos or content covering a
concept/s in conjunction with self-assessed or multiple-choice quizzes that

provide for formative assessment would allow for mastery of learning and would complement the optimal attention span of students (Khan 2012; McLaughlin *et al*. 2014). The quizzes promote self-assessment, an important skill for effective and lifelong learning and future professional development (Taras 2010). Furthermore, self-assessment is said to facilitate greater autonomy in learning and is particularly effective in developing self-learning skills (Boud & Falchikov 1989) required for achievement in online learning (Garrison 2003). The cognitive benefits of self-assessment include improved understanding, performance and ability for self-analysis (Gordon 1992). Furthermore, more constant communication between lecturer and students and student-student interaction is crucial to ensure that students engage with course materials outside the classroom, as underscored by the lecturer:

> I believe that this inverted classroom needs to go hand in hand with a good communication tool, because if you want to give students stuff to do outside the classroom there needs to be constant communication … I think a major problem would be just to let the student be and when he comes to class again then he says 'Well I didn't understand what I was supposed to do' or whatever ... I set up Facebook …for the subject and I had all 50 students actually in the group and it was a closed group… we had constant questions from students, posting of things that's happening, go look on the shared drive for this thing and do that. So the instructions didn't only take place in the classroom, the communication went right through the week.

The lecturer stated that the method was not easy to implement because it was labor-intensive and time-consuming to make the online materials, and that one needed to motivate students to ensure they engaged with course materials at home:

> I don't think it's easy because it takes a lot of preparation… you have to prepare new material where you could have just stuck with the old, … it takes time to make little videos and editing it.…to actually shoot the video it takes probably four/five times as long to edit it…

These results are similar to findings by Bates and Galloway (2012), Talbert (2012) and McLaughlin *et al*. (2014). According to the lecturer, a mind shift on how one teaches is needed to embrace the ICM. The lecturer also reported that it was not easy to use the ICM at the university because of contextual and social issues, which Chai *et al*. (2015) call the intrapersonal dimension of context:

> …let's say two lecturers lecture the same subject, we have to agree on the assessment. Now this deeper learning that took place might not be assessed because we're back to the old way of let's say we taught in class and we have to assess those basic things.

> …I don't know about other places but you can come and look at our classrooms. They're terrible …I want to show a little video of something … using a data projector, I don't have sound, then you could hardly see because there's no way I can make the classroom a bit darker. It's very noisy and it's uncomfortable…

> … what is happening is because our facilities are so poor, if I have to go to class and use technology there, I bought myself a trolley. In the trolley I put my laptop, data projector, my two speakers, my extension cord... Now I trolley this to the classroom…tea time I would go 15 minutes before the time …and set up my things. …at lunchtime when we stop I have to take down all this lot again – put it in my trolley and off I go back. Now that in itself is really a big stumbling block for anyone who wants to implement this, because it's really too much hassle.

Co-teaching a course, poor classroom conditions, and lack of technology and technical support in use of technology in teaching and learning are put forward as some of the factors that may hinder lecturers' use of ICM at the university. The provision of good teaching facilities[3] and technical support

---

[3] The lecturer's comment on facilities is included because physical facilities and technological provision influences lecturers' decisions of using the current model or the flipped classroom method. Poor and insufficient

when using technology would make it easier for lecturers to implement ICM. Emerging from the above mentioned is the challenge that most academic staff members in this institution (as elsewhere) are hesitant to embrace new pedagogical practices like the ICM, in part due to lack of teacher/lecturer self-efficacy (Tschannen-Morana & Hoy 2001) and technological self-efficacy (Compeau & Higgins 1995). The lecturer in this study said:

> … although I've studied engineering I also come from a very strong IT background …I did three-year software diploma and I've always been interested in technology. I think I'm not scared of technology. I find it sometimes a stumbling block for lecturers to get because they are a little bit scared of technology...

The ICM relies heavily on technology, but most faculty at this university (as elsewhere) have not learnt their subject content with such technologies and hence do not have the essential experience in it; nor have they been prepared to teach their content with these new and emerging technologies (Niess 2011). Proper technical training, exposure and support are needed for faculty to embrace technology in teaching and learning. To embrace new pedagogical approaches like the ICM a mind shift is needed from faculty, which would include looking at their current pedagogical practices and seeking approaches that address students' teaching and learning needs, as evidenced by what the lecturer in this study did:

> … I had a particular problem this year that they gave me …two hour slots after lunch two days, consecutive days. So the students arrived tired, struggled to concentrate… So I thought you know I cannot use normal techniques here, it's not going to work, you know because they'll fall asleep … Now I can get them involved, I can hear them talking and engaging, I feel that's a great way of stimulating conversation and learning more…

Teacher reflection on their practices and continuous professional development is needed because teaching is complex and requires

---

provision may cause new users of the method to regress towards use of the lecture method.

considerable teacher training (which most lecturers in this institution do not possess) and continuous refinement of skills and procedures (Johnson *et al.* 1991).

6. Conclusion and Recommendations

This study found that students rated the use of the ICM in curriculum delivery significantly more favorably than they did traditional lectures in terms of level of enjoyment, understanding of problems, regular preparation for lectures and in-class activities, levels of preparation for exams, and finding answers to homework. Furthermore, students indicated that they liked the ICM since it enabled them to engage with course content as often as they wished and at their own pace before attending class, which enhanced their understanding. The method was perceived to have promoted self-directed learning, as students felt it enabled them to take responsibility for their learning. However, results showed no significant difference between the two methods on aspects of students having enough time for study, active involvement in class, and preferred mode of delivery for the rest of the semester. The lecture method was rated statistically significantly more favorably than the ICM for class attendance and concentration in class. The lecturer liked the ICM because it facilitated deep learning and enhanced his work efficacy.

Results showed that lecturers' self-efficacy and technological self-efficacy were important in implementing the ICM, and will be a challenge if the method is to be up scaled. This method requires lecturers to reflect on their own teaching methods and the context of teaching and how it impacts on students' learning, in order to be able to adopt and implement new pedagogical approaches to suit their contexts and student learning needs.

We recommend that for wider adoption of the ICM, staff training strategies which emphasize technological pedagogical content knowledge (TPACK) (Koehler & Mishra 2008) are implemented in the institution, as development of TPACK among lecturers is critical for effective teaching with technology. TPACK is a complex interaction among three bodies of knowledge: content, pedagogy and technology. Lecturers need content knowledge – knowledge of a discipline and what it means to teach it to learners, given what they require at a specific point of their development.

Lecturers must also possess pedagogic knowledge – general principles of teaching and learning that apply to any discipline. Lecturers need pedagogical content knowledge, including knowing the subject matter, curriculum, pedagogy, learners and schools/universities, and understanding how content fits together and how to present it so that it is meaningful to students. They also need to possess technological content knowledge – understanding of the manner in which technology and content influence and constrain one another. Lecturers need to understand which technologies are best suited to address learning in their domains, and how the content dictates or even changes the technology or vice versa.

Since the lecture method of curriculum delivery is so pervasive in higher education teaching, any lecturer introducing an innovative pedagogical approach must acknowledge that it will not be easy to change the way students are taught, because they have mainly been schooled using that method and most lecturers continue to use it. We suggest that any lecturer implementing the ICM should explain what the method entails and its benefits for students. Expectations of students should be explained. The lecturer should implement the method incrementally using a research-based approach, and the results should be used to improve the practice.

We also suggest that provision of short videos or content for engagement at home in preparation for in-class activities should be used in conjunction with self-assessed or multiple-choice quizzes, as they provide for formative assessment and allow mastery of learning. Short videos match the optimal attention span of students (Khan 2012). To ensure feedback to students during out-of- class activities, we emphasize the importance of communication tools such as Facebook to help students obtain help with problems, assessment or understanding (Darabi *et al*. 2011) from lecturers and peers. Students learn just as much from their interactions with each other as from the course materials (Thomas 2002).

We argue that grounding implementation of the ICM on a more teacher-centered approach to cooperative learning has positive impacts on learning, as shown by this study. However, we believe a more learner-centered approach of cooperative learning will yield even better results if used in implementation of ICM. Further research will need to be carried out to devise a learner-centered approach of cooperative learning for implementation of ICM suitable for CPUT. Research will also have to be undertaken to measure the impact on student performance.

Eunice Ivala, Anton Thiart & Daniela Gachago

7. Acknowledgement

References
Anderson, T. 2003. Getting the Mix Right: An Updated and Theoretical Rationale for Interaction. *IRRODL,* 4, 2. Available at: http://www.irrodl. org/index.php/irrodl/article/view/149. (Accessed on 8 May 2013.)

Astin, A. 1984. Student Involvement: A Developmental Theory for Higher Education. *Journal of College Student Development* 25:297-308.

Bain, K. 2004. *What the Best College Teachers Should Do*. Cambridge, MA: Harvard University Press.

Bates, S. & R. Galloway 2012. The Inverted Classroom in a Large Enrolment Introductory Physics Course: A Case Study. *Higher Education Academy*. Available at: http://www.heacademy.ac.uk/assets/documents/stem-confer ence/PhysicalSciences/Simon_Bates_Ross_Galloway.pdf. (Accessed on 27 April 2013.)

Bergmann, J. & A. Sams 15 April 2012. How the Flipped Classroom is Radically Transforming Learning. *The Daily Riff*. Available at: http:// www.thedailyriff.com/articles/how-the-flipped-classroom-is-radically-transforming-learning-536.php. (Accessed on 8 May 2013.)

Berrett, D. 2012. How 'Flipping' the Classroom can Improve the Traditional Lecture. *The Chronicle of Higher Education*. Available at: http:// chro nicle.com/article/How-Flipping-the-Classroom/130857/. (Accessed on 1 May 2013.)

Bishop, J.L. & M.A. Verleger 2013. The Flipped Classroom: A Survey of the Research. *120th ASEE Annual Conference*, Atlanta, United States of America.

Boud, D. & N. Falchikov 1989. Quantitative Studies of Student Self-assessment in Higher Education: A Critical Analysis of Findings. *Higher Education* 18,5:529-549.

Butt, A. 2014. Student Views of the Use of a Flipped Classroom Approach: Evidence from Australia. *Business Education & Accreditation* 6,4:33-41.

Caracelli, V. & J. Greene 1997. Crafting Mixed-option Evaluation Design. In Greene, J. & V. Caracelli (eds.): *Advances in Mixed-option Evaluation: The Challenges and Benefits of Integrating Diverse Paradigms. New Directions for Program Evaluation* 74. San Francisco, CA: Jossey-Bass.

Chai, C.S., C.P. Lim & C.M. Tan 2015. Introduction: Co-creating Technological Pedagogical Content Knowledge (TPACK) for the Transformation of Nan Chiau Primary School. In Chai, C.S., C.P. Lim & C.M. Tan (eds.): *Future Learning in Primary Schools: A Singapore Perspective*. Springer: Dordrecht.

Compeau, D. & C. Higgins 1995. Computer Self-efficacy: Development of a Measure and Initial Tests. *MIS Quarterly* 19,2:189-211.

Darabi, A., M. Arrastia, D. Nelson, T. Cornille & X. Liang 2011. Cognitive Presence in Asynchronous Online Learning: A Comparison of Four Discussion Strategies. *Journal of Computer Assisted Learning* 27,3:216-227.

Davis, F. 1989. Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly* 13,3:319-340.

Day, J. & J. Foley 2006. Evaluating a Web Lecture Intervention in a Human-computer Interaction Course. *IEEE Transactions on Education* 49,4:420-431.

Doering, E. & X. Mu 2010. CLEO: Circuit Learned by Example Online. Available at: http://www.rose_hulman.edu/cleo. (Accessed on 5 May 2013.)

Gannod, G., J. Burge & M. Helmick 2008. Using the Inverted Classroom to Teach Software Engineering. In *Proceedings of the 30th International Conference on Software Engineering*. Available at: http://doi.acm.org/10.1145/1368088.1368198. (Accessed on 2 May 2013.)

Gardner, J. 2012. The Inverted Agricultural Economics Classroom: A New Way to Teach? A New Way to Learn? Selected paper prepared for presentation at the Agriculture and Applied Economics Association's Annual meeting, Seattle, Washington.

Garrison, D.R. 2003. Cognitive Presence for Effective Asynchronous Online Learning: The Role of Reflective Inquiry, Self-direction and Metacognition. *Elements of Quality Online Learning Education Practice and Direction* 4:47-58.

Gordon, M.J. 1992. Self-assessment Programs and their Implications for Health Professions Training. *Academic Medicine* 67,10:672-679.

Herreid, C.F. & N.A. Schiller 2013. Case Study: Case Studies and the Flipped Classroom. *Journal of College Science Teaching* 42,5:62-66.

Johnson, D., R. Johnson & K. Smith 1991. *Cooperative Learning: Increased College Faculty Instructional Productivity. ASHE-ERIC Higher Education Report No. 4*. Washington, D.C.: The George Washington University, School of Education and Human Development.

Johnson, D. & R. Johnson 1999. Making Cooperative Learning Work. *Theory into Practice* 38,2: 67-73.

Kaner, C. & R. Fiedler 2005. Blended Learning: A Software Testing Course Makeover. 11th Sloan-C International Conference on Asynchronous Learning Networks, Orlando, FL.

Khan, S. 2012. *The Online World Schoolhouse: Education Reimagined*. London: Hodder & Stoughton.

Koehler, M. & P. Mishra 2008. Introducing TPACK. In AACTE Committee on Innovation and Technology (eds.): *Handbook of Technological Pedagogical Content Knowledge (TPACK) for Educators*. New York: Routledge.

Kuh, G. 2009. What Student Affairs Professionals Need to Know about Student Engagement on First-year College Grades and Persistence. *Journal of College Student Development* 50: 83-706.

Kuhn, D. 1972. Mechanism of Change in Development of Cognitive Structures. *Child Development* 43:833-844.

Lage, M., G. Platt & M. Treglia 2000. Inverting Classroom: A Gateway to Creating an Inclusive Learning Environment. *Journal of Economic Education* 31,1:30-43.

Lee, G. 1997. *Internet Communication*. Malaysia: Institute for Distance Education Universiti Pertanian.

Lehmann, K. & L. Chamberlin 2009. *Making the Move to e-Learning: Putting your Course Online*. USA: Rowman & Littlefield Education.

Lord, S.M. & M.M. Camacho 2007. Effective Teaching Practices: Preliminary Analysis of Engineering Teaching Practices. In *Proceedings of the 37th ASEE/IEEE Frontiers in Education Conference,* October, 10-13, Milwaukee, WI.

Mangan, K. 2013. Inside the Flipped Classroom. *Chronicles of Higher Education*, September 30. Available at: http://bama.au.edu/-sprentic/695

%/20Mangan%202013%20flipped%20classroom.html. (Accessed on 10 August 2015.)

McLaughlin, J.E., M.T. Roth, D.M. Glatt, N.D. Gharkholonarehe, C.A. Griffin, L.M. Esserman, A. Denise & R.J. Mumper 2014. The Flipped Classroom: A Course Redesign to Foster Learning and Engagement in a Health Professional School. *Academic Medicine* 89,2: 236-243.

Nguyen, H. & R. Toto 2009. Flipping the Work Design in an Industrial Engineering Course. *39th ASEE/1EEE Frontiers in Education Conference*, San Antonio, TX.

Niess, M.L. 2011. Investigating TPACK: Knowledge Growth in Teaching with Technology. *Journal of Educational Computing Research* 44,3:299-317.

Patton, M.Q. 1990. *Qualitative Evaluation and Research Methods.* 2nd Edition. Newbury Park, California: Sage Publications.

Piaget, J. 1926. *The Language and Thought of the Child*. New York: Harcourt Brace.

Pierce, R. & J. Fox, 2012. Podcasts and Active Learning Exercises in a 'Flipped Classroom' Model of a Renal Pharmacotherapy Module. *American Journal of Pharmaceutical Education* 76,10:196

Roehl, A., S. Reddy & G.J. Shannon 2013. The Flipped Classroom: An Opportunity to Engage Millennial Students through Active Learning Strategies. *Strategies* 105,2:44-49.

Sams, A. 2011, 11 Nov. The Flipped Class: Shedding Light on the Confusion, Critique, and Hyper. *The Daily Riff*. Available at: http://www.thedailyriff.com/articles/the-flipped-class-shedding-light-on-the-confusion-critique-and-hype-801.php. (Accessed on 22 December 2012.)

Slavin, R.E., E.A. Huerley & A. Chamberlain 2003. *Cooperative Learning and Achievement: Theory and Research*. New Jersey: John Wiley & Sons.

Strauss, A. & J. Corbin 1990. *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. Newbury Park, CA: Sage Publications.

Strayer, J. 2007. The Effects of the Classroom Flip on the Learning Environment: A Comparison of Learning Activity in a Traditional Classroom and a Flip Classroom that used an Intelligent Tutoring System. Presented in partial fulfilment of the requirements for the degree of

Doctor of Philosophy in Graduate School of the Ohio State University, USA.

Talbert, R. 2012. Inverted Classroom. *Colleagues* 9,1: Article 7. Available at: http://www.scholarworks.gvsu.edu/colleagues/vol9/issue1/7. (Accessed on 16 January 2013.)

Taras, M. 2010. Student Self-assessment: Processes and Consequences. *Teaching in Higher Education* 15,2:199-209.

Thomas, M.J.W. 2002. Learning with Incoherent Structures: The Space of Online Discussion Forums. *Journal of Computer Assisted Learning* 18,3:351-366.

Tschannen-Morana, M. & A.W. Hoy 2001. Teacher Efficacy: Capturing an Elusive Construct. *Teacher and Teacher Education* 17:783-805.

Vygotsky, L.S. 1978. Mind in Society. In Cole, M., V. John-Steiner, S. Scribner & E. Souberman (eds.): *L.S. Vygotsky, Mind in Society: The Development of Higher Processes*. Cambridge, MA: Harvard University Press.

White, D. 2011. Literature Justification for Blended/ Reverse Instruction. Unpublished Raw Data, Liberty University, Lynchburg, Virginia.

Eunice Ndeto Ivala
Centre for e-Learning
Cape Peninsula University of Technology
ivalae@cput.ac.za

Anton Christiaan Thiart
Department of Civil Engineering and Surveying
Cape Peninsula University of Technology
thiarta@cput.ac.za

Daniela Gachago
Centre for e-Learning
Cape Peninsula University of Technology
gachagod@cput.ac.za

Power, Democracy and Technology: The Potential Dangers of Care for Teachers in Higher Education

Vivienne Bozalek
Kathleen Watters
Daniela Gachago

Abstract

Internationally, there is a growing interest in the potential of care ethics as a useful normative framework to evaluate teaching and learning in higher education. However, to date there has been little engagement with the inherent dangers of care such as those of paternalism and parochialism. This is particularly pertinent in the South African context where there are on-going struggles to find ways of dealing with continuing inequality experienced by students, who may be at the receiving end of paternalism and parochialism. This article focuses on interviews conducted with teaching and learning practitioners collected during a larger national project on the potential of emerging technologies to achieve qualitative learning outcomes in differently placed South African higher education institutions. An analysis of the interviews indicated that while these lecturers were portrayed as innovative educators, using emerging technologies to enhance their pedagogy, issues of paternalism and parochialism inevitably affected teaching as a practice of care. The findings showed that without self-reflexivity and critical engagement with issues of power and control, including choice of technology, there exists danger that teaching could be paternalistic, leading to disempowerment of students and a narrow parochial focusing on the student-teacher dyad. What also emerged from the findings was that interdisciplinary teaching and student-led cross-disciplinary learnng has the potential to mitigate parochialism in the curriculum.

Vivienne Bozalek, Kathleen Watters & Daniela Gachago

Introduction

In recent years, there has been a renewed interest in the political ethics of care as a normative framework. Normative frameworks are generally used to evaluate commonplace assumptions and underlying values underpinning social arrangements and for making complex moral judgements about human flourishing and well-being in various fields and in relation to social issues (Robinson 1999; Sevenhuijsen 2004). The interest in the political ethics of care as a normative framework has now been extended to the field of higher education policies and practices, both globally and locally (see for example Bozalek & Carolissen 2012; Bozalek & Leibowitz 2012, Bozalek *et al.* 2014; Zembylas, Bozalek & Shefer 2014). The political ethics of care can be regarded as a useful normative framework in higher education for a number of reasons. Firstly, it provides an alternative lens to the assumption that the world consists of independent, self-sufficient human beings, recognising that dependency is an inevitable, central and normal condition in human life. Secondly, the political ethics of care is based upon a relational ontology that has as its focus the connections between human beings as well as the connections between human and nonhuman beings, focusing on the interconnectedness of humans and the environment. Thirdly, the political ethics of care foregrounds particularity, embodiedness, vulnerability and the political contestation of needs, as well as otherness and difference as central to human existence (Bozalek 2011). In contrast to the aforementioned, rights-based approaches and traditional social justice theories, as dominant ways of reasoning, have the 'rational economic man' who is disembodied, autonomous and independent as their normative ideal of a citizen. Fourthly, traditional social justice and rights-based approaches tend to favour universal rules, whereas the political and critical ethics of care focus on responsibilities (Donovan & Adams 2007). These considerations of the political and critical ethics of care make it a useful framework to think about social inequalities in the higher education arena globally (Mahon & Robinson 2011), but even more so in our local context, in which severe social inequalities continue to prevail. In considering the usefulness of care as a normative framework, it is important to distinguish between approaches which have as their focus family

or dyadic relationships (see e.g. Gilligan 1982; Noddings 1984; 2005; 2004; and Ruddick 1989), and those which focus on public, policy, institutional and global issues (Bozalek *et al.* 2014a; Robinson 2011; Zembylas *et al.* 2014). It is the latter approaches (i.e. the political ethics of care which focuses on macro issues) within the South African higher education context which will be the focus of this paper.

The contribution that this particular paper makes is its focus on what has been termed by Joan Tronto (1993; 2011; 2013) as the *dangers* or *problems* of care as a normative lens. In particular, we look at the problems of care in relation to teaching and learning in South African higher education institutions. While the ethics of care has been used as a normative lens to analyse professional development in teaching and learning (Bozalek *et al.* 2014a; Engelmann 2009), feminist critical citizenship in higher education (Bozalek & Carolissen 2012), assessment practices (Bozalek *et al.* 2014b) and institutional arrangements (Bozalek & Leibowitz 2012; Tronto 2010), there is a paucity of literature on the *dangers of care*, particularly as it pertains to higher education. Tronto (1993; 2011; 2012) is the prominent author who has identified both *paternalism* and *parochialism* as constituting the dangers of care, and we will mainly be focusing on her work in this article in relation to how caring practices such as teaching and learning in higher education can inadvertently fall into the trap of parochialism and paternalism (Robinson 1999). Consequently, this paper's specific contribution is making explicit the dangers of care pertaining to teaching and learning in higher education that have not been extensively written about.

In order to examine how these dangers of care - viz. parochialism and paternalism - play out in South African higher educators' teaching and learning practices with emerging technologies, this paper uses data from in-depth interviews from a larger national research project. In this project we explored the potential of emerging technologies, which are often, although not always, located outside the institutional realm and hence transfer the locus of control to the learners and the educator, to transform the educator's teaching and learning practices (see for example Bozalek, Ng'ambi & Gachago 2013; Bozalek *et al.* 2013; or Gachago *et al.* 2013). Here we investigate in more depth the relationship between the choice of technology and its locus of control, level of expert knowledge, and interdisciplinary teaching within a political ethics of care framework. In particular we show how interdisciplinary teaching and learning creates spaces of vulnerability,

both for lecturers and learners (Leibowitz *et al.* 2010; Leibowitz *et al.* 2011; Mackenzie, Rogers & Dodds 2014) and can offer a democratic and empowering approach – potentially mitigating *parochialism*. The paper also demonstrates that while academics set out with the best intentions regarding how their educational practices impact on students, this may not be enough to achieve human flourishing and qualitative educational outcomes. As a practice of care, teaching involves more than good intentions. According to Tronto (1993: 136), 'It requires a deep and thoughtful knowledge of the situation and of all the actors' situations, needs and competencies'. Thus self-reflexivity is a crucial practice to diminish *paternalistic* tendencies in teaching and learning.

The paper is structured in the following way: we first provide an explication of the theoretical framework we use in this article and then briefly discuss the research methodology that was used. Thereafter, we present the findings, and explain the model we developed from analysing the findings, using the political ethics of care as an analytical lens. We then discuss the findings and develop some conclusions from the findings.

Care as a Practice and Disposition

Tronto (1999; 2013) sees care as both a *practice* and a *disposition,* which is different from the way Gilligan (1982), Noddings (1984) and Ruddick (1989) have viewed care. Tronto and Berenice Fisher describe care in the following way:

> At the most general level, care consists of everything we do to continue, maintain, and repair our world so that we may live in it as well as possible. That world includes our bodies, ourselves, and our environment, all of which we seek to interweave in a complex, life-sustaining web. (Fisher & Tronto 1990 in Tronto 1993: 103)

We see university teaching with technology as a practice of care, which can either be done well or badly, depending on how the moral elements of care described by Tronto (1993) are integrated into teaching with technology. Tronto is unique in her identification of four phases of care with their associated moral elements in her earlier work, and has more latterly added a fifth phase of care (Tronto 2013). The phases of care and their associated mo-

ral elements are the following:

1. <u>Caring about</u> - this is where the need for care is identified. The associated moral element of this first phase is *attentiveness.*
2. <u>Caring for</u> - once a need is recognised, it should be acted upon - the associated moral element with this second phase is *responsibility.*
3. <u>Caregiving</u> - the actual hands-on process of giving care - the associated moral element is *competence.*
4. <u>Care receiving</u> - the ways in which the recipient of care responds to the care received - the corresponding moral element is *responsiveness.*
5. <u>Caring with</u> - the reiterative process of care which is the fifth phase recently added by Tronto (2013). The moral qualities of *trust* and *solidarity* are developed through the reliance of others on care and the caring of relational beings with each other.

For a political ethics of care, all of the abovementioned phases and their moral elements would need to be present and the integration of these phases in teaching approaches would also need to be present.

Paternalism and Parochialism: The Dangers of Care
Paternalism

Tronto (1993) cautions against the dangers of care which includes paternalism and parochialism. She sees paternalism as stemming from the powerful position that a caregiver holds in relation to a care receiver in meeting the latter's needs. The caregiver may thus have an overdeveloped sense of his or her own importance in solving problems leading to the caregiver assuming that he or she is all knowing about the needs of the recipient of care. Ultimately, the recipient of care (the student in our case) becomes infantilised in the relationship. As Tronto (1993: 170) puts it, 'especially when the care-givers' sense of importance, duty, career, etc., are tied to their caring role, we can well imagine the development of relationships of profound inequality'. From our perspective in this article, this would mean that if a teacher in higher education as a caregiver is overconfident in 'knowing' or deciphering the students' needs, students may in the process become infantilised and relationships of inequality may be an

inevitable result of such a situation.

In addition to considerations of paternalism from a political ethics of care perspective, paternalism has also been considered by bioethicist Tom Beauchamp (2010) and economist Esther Duflo (2012). Beauchamp is concerned that paternalism in health care intentionally limits the autonomy of individuals without their consent, by taking decisions on their behalf, and overriding their preferences for 'their own good'. Duflo (2012), in her Tanner lecture on 'Paternalism vs Freedom?', refers to paternalism as providing for people's basic needs without consulting them about what their needs are, overriding people's freedom on the understanding that those in power know better. Yet Duflo (2012) shows that for the poor, having the state take basic decisions on their behalf makes them more rather than less free, in that they are less exploited and more protected by the state in terms of their basic needs. She provided the example of water, noting that those who are deprived of such a basic necessity in life do not need to be consulted about whether they want it or not.

Michael Slote (2007) in his discussion on paternalism in care ethics observes that in some cases, such as insisting on riding a motorcycle with a helmet, paternalism may be acceptable in a person's best interests to prevent damage to him or herself. One could argue similarly in the field of teaching and learning in higher education that in some cases, the educator may *through the connectivity of his/her relationship with the student*, be able to intervene in a student's best interests regarding his/her educational trajectory in an empathetic manner.

The decision-making processes in education - who is involved and who is excluded - are important to consider with regards to paternalism (Tronto 2011). With paternalism, decisions are taken by the caregiver or those in power (teachers, managers) on behalf of the care-receivers (students). In this paper, we define democracy as students' ability to be part of the decision-making process regarding their learning, and their ability to participate on an equal footing in this regard. Students' participation in their own learning would alter power relations between lecturers, students and their institutional contexts.

In the South African context where many students do not have access to basic resources, paternalism regarding provision of resources to meet the aforementioned needs may be necessary. For example, many students find it difficult to study because they do not have access to transport or food, and

institutional provision of such resources should be regarded as a basic necessity. However, once basic needs are met students should participate in democratic decision-making processes regarding their learning needs.

Parochialism

With regard to parochialism, Robinson (1999; 2011) sees the danger of care being relegated to the private or intimate sphere of life. It is for this reason that political care ethicists such as Tronto (1993) and Slote (2007) are critical of authors such as Nel Noddings and Sara Ruddick, who base their notions of care exclusively on dyadic mother to child relationships. Additionally, Noddings' exclusion of distant others in her conception of care (Slote 2007) is troubling, as higher education teaching can involve more than two people and can also traverse geographical contexts and disciplines.

The parochial and partial nature of care, which focuses only on those close to us rather than distant others or little known strangers, makes human rights-based critics of care sceptical about its usefulness as a normative framework. These critiques are addressed by political care ethicists (Tronto 1993; 2011; 2013; Robinson 1999; 2011; Sevenhuijsen 2004; Slote 2007) who conceptualise care beyond private/public binaries and see it as concerning human flourishing more generally, as can be seen, for example in Fisher and Tronto's (1993) definition of care. To care only for those near to one, would in Tronto's (2013) consideration, be a form of *privileged irresponsibility*, in that it would exclude a concern for more distant others. Iris Young's (2011) notion of a socially connected responsibility also encourages a morality which links responsibility for issues of social justice across distances to institutional and structural relations which are socially connected and affect all, thus breaking free of a parochial form of care and social justice.

Parochialism can also be seen as a narrow focus on disciplinary and geographic contexts, in contrast to what Bob Lingard and Amanda Keddie (2013) call *deparochialised* pedagogies. A deparochialised pedagogy would be one which has the global citizen in mind and which assumes a cosmopolitan and transcultural teacher, who is able to go beyond the local and national, while keeping a connection to it, and to traverse the local and global.

Interdisciplinarity and peer and team teaching can create spaces to

address the narrowness of disciplinary boundaries and of dyadic teacher-student relationships. This would serve to broaden perspectives and worldviews, and allow participants to question taken for granted assumptions, and recognise their vulnerabilities.

Paternalism and Parochialism in the Phases of Care

The integrity of care assumes that each phase of care and each associated element is done well – caring about (attentiveness), caring for (responsibility), care-giving (competence), care receiving (responsiveness) and caring with (trust and solidarity). If *responsibility* is foregrounded above the other elements then there may be a tendency for the pedagogical (caring) practice to be patronising, as the caregiver (teacher) assumes too much responsibility for the caregiving (teaching), leaving little responsibility and diminished agency for the care-receiver (student).

In terms of the phases of care, the problems of paternalism and parochialism can be understood as distortions of the kinds of responsibilities that people should appropriately assume (Tronto 2011). For paternalists, the problem is that they claim too much authority in the allocation of *responsibility* for themselves. In these instances, the integrity of care is compromised as the phases are out of kilter and the educator is assuming responsibility in problematic ways. In addition to this, the caregiver does not pay *attention* to what the care receiver is expressing regarding their needs, but assumes that they know better as an expert what the care-receiver's needs are. In the case of parochialism, the lecturer sees only him or herself as being responsible, or views the relationship as dyadic rather than including other experts and other students in the process of learning. Thus the phases and moral elements of care are out of sync in instances of paternalism and parochialism.

Methodology

This study follows a qualitative research paradigm. It draws data collected as part of a larger study that was funded by the South African National Research Fund (NRF) to investigate how emerging technologies can be used to improve teaching and learning in the higher education sector. During the

months of August and September of the year 2011, a survey was sent to all public higher education institutions (HEIs) in South Africa to establish the use of emerging technologies by academics and support staff to improve teaching. There were 262 responses with representation from twenty-two public HEIs in South Africa.

A subset of the twenty responses submitted was selected for in-depth face-to-face interviews. The semi-structured interviews were conducted by five members of the NRF project team, three of whom are authors of this paper. The interviews focused on the rationale, design, impact, and challenges of the individual teaching intervention(s) using emerging technologies and lecturers' underlying teaching and learning beliefs.

The interviews were transcribed and were analysed using Tronto's phases of care and their associated five elements – viz. caring about (attentiveness), caring for (responsibility), care-giving (competence), care-receiving (responsiveness) and caring with (trust). The integrity of care – how well each phase is done and how well they are done together– as well as a focus on power and vulnerability provided useful markers to judge the pedagogical practices (see for example Bozalek *et al.* 2014a). To foreground the lecturer's voice in our findings, lengthy quotes are included. Based on a political and critical ethics of care analysis we created a framework based on two dimensions (paternalism vs democratic teaching and parochialism vs peer-to-peer learning and inter-disciplinary teaching). Seven of the interviews were selected to exemplify these elements and excerpts will be presented in the findings.

Ethical approval was sought and granted through the appropriate institutional channels and participants gave informed consent to participate in the study. To guarantee anonymity, participants' names were changed where necessary.

Use of Emerging Technologies in Teaching and Learning in Higher Education

The seven cases that formed part of this study were drawn from a larger project in which higher educators reflected on their use of emerging technologies in higher education, as we have indicated in the methodology section. In this project we used Veletsianos' (2010) definition of emerging

technologies, which emphasises contextuality - useful in our own context characterised by differently positioned institutions in terms of human and financial resources. It is important to note, that emerging includes both technologies and practices that are deemed 'emerging' or innovative in a specific context. Those technologies which are ubiquitously used by students in their everyday lives such as social media or instant messaging provide better opportunities to democratise learning. This has the effect of providing tools which are outside institutional and the educators' control (Bozalek, Ng'ambi & Gachago 2013). We argue that the loss of control and openness on the part of the teachers in higher education can work against paternalism and parochialism.

These seven cases employ emerging technologies/practices in the following way:

1. A blended learning course for MPhil health science students in a research-intensive historically advantaged HEI where face-to-face sessions are combined with online learning. During the online learning phase students keep their own blog for weekly reflections. The course facilitators take the conscious decision to use web-based tools that are openly available, to allow students to participate in an authentic context. The course facilitator keeps a course blog, to model reflective writing (BPJ).

2. A first year undergraduate social work course in a comprehensive HEI where the blog tool of the Learning Management System was used for e-journals through which students reflected on both personal issues and challenges encountered in their studies as well as issues discussed in teaching. These e-journals are accessible only to the individual student and the lecturer who reads these blogs and gives feedback (BVA).

3. An online Education PHD reading group on a Learning Management System at a research intensive historically advantaged HEI which is used to share and discuss readings (KMS).

4. The use of Google Drive in a second year Physiotherapy course at a historically disadvantaged HEI, to facilitate the co-construction of collaborative lecture notes by students (RM).

5. The use of blogs to document and reflect the adaptive management of a fish tank with first year Natural Science students at a historically

      disadvantaged HEI (KR).

6. A non-credit bearing module for medical students in a research-intensive historically advantaged HEI where the students reflect through the use of multimedia on their first often traumatic experiences in the maternity ward, with a particular focus on human rights abuse (MV).

7. Use of closed Facebook groups to connect social work students from a historically disadvantaged HEI with students from an institution of higher learning based in the US to allow for formal and social communication, discussion and collaboration (RJ).

For a more in-depth description of these emerging practices and tools see for example Bozalek *et al*. (2013) or Brown and Gachago (2013).

Findings

In this section we discuss the themes that emerged when analysing the interviews using a framework derived from a political ethics of care.

Democratisation vs Paternalism

Examining our data, we found differences in power relations between lecturers and students. Where there were more equitable power relations between a student and an expert lecturer, the student was able to maintain his/her agency and his/her status as a full human being rather than being infantilised, as is the case in paternalistic relationships. One of the interviewees for example reported seeing his students as vibrant participants with some element of choice regarding their educational practices, thus an example of democratic practice. He explained how, in his adaptive management fish project in a first year Natural Science course, students are able to select their own groups and given the space to find their own solutions to unexpected circumstances. Furthermore, students become invested enough in the learning process by taking responsibility for their own learning as shown below:

      They are active participants in the process; it's no longer a passive

> *exercise. They self-select [their groups], I don't like to impose those things (KR).*

> *One of the other things is that we also tried to build in the idea of responsibility so that if they're given a fish it now becomes their responsibility. And in many cases we don't tell them to do it, but if the fish has died in every case they found a replacement. We give them so much food, in every case, every single case the students have found, sourced other food (KR).*

The following quotes by two lecturers, on the other hand, are examples of assumptions about students which may lead to a reduction in democratic processes, diminishing student agency. Here, lecturers are inclined to project their own assumptions onto students of what they perceive students' needs and expectations to be. The first quote below shows a lecturer's generalised labelling of students as poor and rural and the second a lecturer's assumptions of the sorts of expectations that a student has and who has travelled from far. While not necessarily misinterpreting students' learning needs, these educators do assume that they know what is best for the students involved:

> *Many of our students come from very poor home backgrounds and also do not have the best educational backgrounds in terms of their formative schooling. And so my teaching philosophy is a very developmental one[1] (RJ).*

> *I think it's also the sort of sense that people are taking a week out of busy lives, they are paying , flying to [campus], driving to [campus], paying for their accommodation – I want to make sure that they don't feel like that was a waste of time. So it's a bit of a balancing act between recognising that they're PhD scholars and that they actually need to drive it, and recognising that this whole academic writing doesn't come naturally (KMS).*

The examples above reflect the complexity of paternalism - as Duflo (2012)

---

[1] By developmental the respondent is referring to a social change and social justice perspective.

indicates paternalism is in some instances essential for providing for basic needs - in this case for a conducive learning environment. While these lecturers appeared to go out of their way to sensitise themselves to the students' needs, in other cases lecturer attitudes could be regarded as problematic in that they may be experienced as putting everyone in the same category, and as pre-emptive and limiting in terms of agency and choice, as shown in the following quote. Here the lecturer regards the sharing of resources from State financial assistance to family members as problematic.

> *Many of our students take their Wizard card[2] that they get, which is supposed to be used for buying food and books and they buy stuff and they sell it and send the money home (BVA).*

Unequal Power Relationships and the Importance of Dialogue

To avoid such pre-emptive positions, dialoguing with students about what their needs actually are would be necessary. Teaching, as any caring practice, is defined by power dynamics, and generally it is the caregiver who is in a powerful position, with the care receiver being a supplicant in the process. This is why a political ethics of care as developed by Tronto, Sevenhuijsen, Robinson etc. emphasises the necessity for *dialogue* between these parties. The following quotes refer to the importance of dialogue between students and lecturer, but also among students themselves in creating an enabling learning environment.

> *....what we're finding what's fantastic about the module is we've designed it to be agile, adaptable. And we get a lot of feedback from students and staff and we make changes all the time; every case we've run has been run slightly differently – because we want the students to feel like they have some ownership of the module, that their input matters – so we do try and make changes based on their feedback. But we don't only take what they say because a lot of the things that they ask for we specifically designed to not do it that way (RM).*

---

[2] Card issued for those receiving financial assistance from the Department of Higher Education and Training.

Vivienne Bozalek, Kathleen Watters & Daniela Gachago

Protectionism and Expert Knowledge vs Student-led Learning

Protection or the need to protect someone perceived as more vulnerable than others or self is part of paternalism and is another way in which good care may be compromised. Teachers may feel that they need to protect students by being prescriptive about technologies they can use, by keeping their work out of the public domain, by prescribing texts rather than allowing students to discover their own sources of knowledge, by controlling the assessment process, by encouraging compliance and by being the central or pivotal person for any potential questions and uncertainties.

In the example below the lecturer provides the reading as well as the analysis of the reading using Power Point, leaving little space for students to develop their own voice or to feel comfortable to contribute new interpretations of the readings:

> *...that's what I've done for my meetings as well as I have prepared Power Points. So we'll do a reading beforehand and then at a certain time whoever wants to can come into the discussion forum to discuss that reading. And then I'll have prepared a PowerPoint of key point bullets or questions for reading. And then I sort of think maybe I manage it too much; maybe I should just shut-up more (KMS).*

> *.... think maybe I'm posting too many things so my voice is too dominant. But I've asked and people say no; and interestingly when I don't post for a few days because I'm away, I'll get an email saying: Oh, you didn't post anything and there were such good articles in the Mail & Guardian, I thought you were going to post some of them (KMS).*

The above quote is interesting as it shows that just as in a face-to-face classroom where a teacher dominates the discussion, it is also possible that this happens with social media and other forms of technology. Despite conscious desires to avoid paternalism, the asymmetrical relationship (Caze 2008, Young 1997) of the caregiver and care-receiver (teacher and student) can mitigate the power asymmetry (Beasley & Bacchi 2007). Often the hierarchical relationship in care and the ways in which care and power undermine egalitarian relationships is not sufficiently acknowledged (Beasley

& Bacchi 2007). The above quote shows that this lecturer is aware that her approach may provide too much structure, by being too dominant, and that this may have the effect of silencing students' voices. This highlights the importance of continuous self-reflexivity and the difficulty of breaking out of established patterns of practice and power relationships. The following quote shows an alternative more democratic approach to sourcing readings for a course, in this case:

> *We do have core readings ... so there are readings to help them along. But the model is definitely exploratory and discovery. One definite part of the reflection is just to get them going they must find at least one scholarly article that's interesting to them around ... and they must talk about it on their blog and reflect on it in an academic way (BPJ).*

The presumption that teachers possess all of the expert knowledge is a problematic one according to Tronto (2012). Transparency is necessary for student agency in the learning process. This transparency relates to the acquisition of knowledge and to the evaluation of knowledge acquisition and teaching. Transparency can lead to a more democratic teaching and learning context. This involves peer teaching and moving away from seeing the lecturer as the only source of knowledge. We can be both givers and receivers of care – in other words, as lecturers we can learn and as students we can teach.

This lecturer, for example, allows students to participate in the teaching process:

> *I totally let the so-called knowledgeable students assist – I mean, they do, they just jump in. They would sometimes be working later at night than I am – so there would be a question and Frans would just jump in and the next morning I would see, [laughter in voice] okay, good, great, that's way better than I could ever say it. So that really is my style (BPJ).*

In the following examples, the first lecturer encourages students to create and find their own knowledge although he is an expert in the area being researched. The second example shows how a lecturer uses student-generated

notes in his teaching, rather than providing lecture notes. It also shows the importance of modelling and guidance – referred to earlier as transparency in knowledge acquisition.

> *Too often what I see in courses is we [the lecturers] will design, tell you how to do a poster, but they [students] are not working with their own information. What we're trying to do is that students have their own personal information which they turn into knowledge and they're learning to share the knowledge through blogs (KR).*

> *What we try to do is the students or in their groups they collaboratively construct their own notes. And so we expect them to provide citation; and then the facilitators actually go to those sources and give the students input on whether or not they think that it's a relevant source, if not why not. So we try and help guide the students but some of the feedback that we get from the students is that it's actually incredibly challenging to go and do that (RM).*

Recognition of Vulnerability and Interdependence

It is also important to acknowledge the interdependence of lecturers and students. This would mean that lecturers themselves should be conscious of their own vulnerability and bring this into their pedagogical practice, rather than seeing themselves as expert and independent and concentrating only on the vulnerability of the students.

We have found in the analysis of the interviews that teaching in a different discipline from one's own, which we define as cross-disciplinary, tends to make educators more aware of their own assumptions and certainties about their knowledge sets. The reflexive stance makes them more aware of their own limitations and vulnerability and thus better able to respond to the learners' needs. This may serve to present teachers in higher education as less intimidating and more approachable for care-receivers, in this case the students. We have seen in our examples of cases that those who are experts, even though they do not promote themselves as such, often unwittingly inhibit responses from care-receivers (students) in that students may defer to superior knowledge and feel afraid to initiate conversations. The first two

quotes refer to a lecturer's experience of vulnerability, one where she did not know about her student recording and posting a confidential role play enacted in a workshop on YouTube, being unaware of the consequences thereof, and her openness to learn from the student's unintentional breach of confidentiality to provide future learning for the students. The second quote shows her reflecting about how technology has assisted her to gain access to knowledge and at the same time increased her sensitivity towards others, which can be seen in her responsiveness towards students' needs in the interview. This is also an example of how teaching and learning with certain technologies such as social media may make the process more risky and lecturer more vulnerable. This lecturer was teaching outside of her field of expertise as an associated health professional to obstetrics and gynaecology medical students:

> *One of our first abuse workshops, one of the students was taking photos and I didn't realise that he was actually taking a video that he subsequently posted on YouTube and I only found out eight months later that this was on YouTube. Fortunately he's a very responsible student, there was no indication of the university, there were no names provided, but it's there on YouTube. And so I actually now use that YouTube clip for presentation, and it's been an interesting process for me as a teacher how I felt first when I heard about it and then knowing that my classroom experience was posted on YouTube without my permission and I found that quite unsettling and I think maybe that's why I got interested in talking about professionalism in social media – I gave my first workshop to first year students a couple of weeks ago about their online digital identity and what that means (MV).*

> *I have a little impairment and so technology has changed my life for me because material that wasn't accessible to me is now accessible, so it's just lifted me to a whole new space and put me on an even footing with other people, where before I would want to explore something and just couldn't because even just finding books in the library was always difficult because I couldn't see what was on other shelves and reading (MV).*

Parochialism/ Dyadic vs Peer-to-peer Learning/ Team Teaching

Another danger that Tronto (1993) identifies is parochialism, a narrow vision of patronising care for one's own near at hand relatives, which is often a critique which those who support justice or human rights perspectives level against the ethics of care, as care tends to concentrate on a concern for those who are close to the caregiver. This is why Tronto and other care ethicists, such as Kittay, Robinson, and Sevenhuijsen, insist upon the ethics of care being integrated with politics, democracy and the integrity of care. Politics extends care beyond the dyadic and private mother and child relationships, to the public domain, to look at policies, institutions and social practices which are beyond the individual. Some of the consequences of using a *political* ethics of care is that we should not assume that as teachers in higher education we need to have dyadic relationships with students, and that we are the only ones who can participate in the educative process - students as peers can also assist each other and students too have the capacity to look for relevant knowledge and to assess themselves in this process, as shown in the next set of quotes.

> *We have about eight facilitators in the classroom at any one time… one of the biggest challenges we find is that there's contradiction in consistency where one group will be told this is very important and another group is told, no, that's not all that important. And instead of saying this is a huge problem, we're saying to the students, well, this is what the real world is like; you can have clinicians who will disagree on appropriate management strategies for patients, and how do you negotiate kind of a compromise between what you think is right and what someone thinks is right. So we do try and model that and what we'll often do is students will ask me a question and I'll say, 'Well, this is what I think, but let me just grab this other person who I know has a different view,' and we'll pull that facilitator into the conversation and then we discuss the difference in the viewpoint and model to the students that oftentimes there is no right answer (RM).*
>
> *So it will be a group and they probably wouldn't identify themselves*

> *as the leaders because it's just a group of people all doing their PhDs in our programme and they need to talk, but I can sort of see that these women are being hugely helpful. And the one woman in Johannesburg has set up a system of critical readers for each other (KMS).*

These examples show boundary-crossing, peer-to-peer learning and inter-disciplinary teaching facilitated through the use of emerging technologies, which allow for online communication collaboration beyond disciplinary and institutional boundaries. In the following quotes, the lecturer gives examples of how peers support each other, often in a more efficient, authentic way than a lecturer does, and in this case, positioned as non-experts. The course referred to in this example is in the medical health sciences and the educator is a technology expert, rather than someone from medical health sciences:

> *Interviewer: Do you find that that support happens within disciplines or is it geographically based for example?*
>
> *BPJ: No, not at all; it's across disciplines. Where it's in discipline it's usually sort of stronger because it's more obvious – it's around how do we teach measuring for wheelchair alignment, because that was one specific module one was developing. So I can't really comment. I can comment on the technologies but the other one will say, 'Listen, this is actually very good and it's needed.' And the others would say, 'Oh, that's interesting, we don't do that but we have this thing and we can also use it in this way'.*

The aforementioned quote is a good example of how a technology expert who was teaching a module in medical health sciences managed to use the expertise of peers in his group to interact with important content to do with medical health issues, as he felt as a facilitator he could not contribute to the discussion. Thus the role of the non-expert as facilitator can encourage more participation and ownership of the learning process among participants.

Conclusion

This study looked at higher education practitioners' responses to student

needs through a political ethics of care lens. After analysing seven of the in-depth interviews gathered in a national project on the use of emerging technologies for teaching and learning from a political ethics of care perspective, we were struck by the different approaches to care that these higher education practitioners took. To understand the impact of lecturer assumptions and practices on the learning experience, it is important to pay attention to the problems or dangers of care viz. paternalism and parochialism. These concepts can be used to identify how paternalism can be addressed through participatory parity, and how in some instances, regarding basic needs and through a connectedness with students' learning needs, a paternalistic approach may be justified. A cognisance of one's own vulnerability as an educator seems necessary to avoid regarding the students from a deficit perspective.

The findings helped us recognise the importance of self-reflexivity when engaging in practices of care when teaching. Like any other practices of care, teaching is inevitably in danger of succumbing to the problematic sides of care – parochialism and paternalism. To be cognisant of these dangers of care, teachers in higher education may need to constantly re-evaluate their assumptions about teaching as a practice and the constituents of 'good care'. We are not arguing against care as such, as we regard teaching as a practice of care. However, the use of the moral elements of care – attentiveness, responsibility, competence, responsiveness and trust, and the integrity of these elements – can help to guard against the inequalities of the teaching situation. This may help to send warning signals regarding for example, taking too much responsibility for the caring process (teaching). Good care which is informed by the ethics of care may even, from a politicised perspective, seem counter-intuitive. To be overly responsible for one's students, for example, or to engage only in dyadic relationships may fall into the traps of paternalism and parochialism. Based on our findings, the dangers of care may be lessened when the teaching process involves cross-disciplinary and multiple participants. Furthermore, being a non-member of a discipline as a teacher and facilitator makes one more vulnerable and perhaps better able to respond to the learners' needs. It also makes one less intimidating and more approachable for care-receivers, in this case the students. The choice of technology and the affordances of tools could also impact on providing a democratic and empowering way of teaching. While some technologies support a teacher-centred expert-driven interaction

between teacher and students, others are far more democratic and allow learners to take control and ownership of their own learning. These are all dimensions which temper the inequalities inherent in current higher education learning spaces.

Further research from a student's perspective is needed to understand the learning experiences of students from not only the personal, but also the social and political dimensions using a political ethics of care lens.

References

Beasley, C. & C. Bacchi 2007. Envisaging a New Politics for an Ethical Future: Beyond Trust, Care and Generosity – Towards an Ethic of 'social flesh'. *Feminist Theory* 8, 3: 279–298.

Beauchamp, T. 2010. *Standing on Principles: Collected Essays.* Oxford: Oxford University Press.

Bozalek, V. 2011. Judging Children's Participatory Parity from Social Justice and the Political Ethics of Care Perspectives. *Perspectives in Education* 29,1:55-64.

Bozalek, V. & R. Carolissen 2012. The Potential of Critical Feminist Citizenship Frameworks for Citizenship and Social Justice in Higher Education. *Perspectives in Education* 30,4:9-18.

Bozalek, V. & B. Leibowitz 2012. An Evaluative Framework for a Socially Just Institution. In Leibowitz, B. (ed.): *Higher Education for the Public Good: Views from the Sout*h. Trentham Books and Stellenbosch: SUN Media.

Bozalek, V., D. Gachago, L. Alexander, K. Watters, D. Wood, E. Ivala & J. Herrington 2013. The Use of Emerging Technologies for Authentic Learning: A South African Study in Higher Education. *British Journal of Educational Technology* 44,4:629–638.

Bozalek, V., D. Ng'ambi & D. Gachago 2013. Transforming Teaching with Emerging Technologies: Implications for Higher Education Institutions. *South African Journal of Higher Education* 27,2:419–436.

Bozalek, V., W. McMillan, D. Marshall, M. November, A. Daniels & T. Sylvester 2014a. Analysing the Professional Development of Teaching and Learning at UWC from a Political Ethics of Care Perspective. *Teaching in Higher Education* 19, 5: 447-458.

Bozalek, V., V. Mitchell, A. Dison & M.M. Alperstein 2014b. Using Google Drive for Dialogical Feedback: An Ethics of Care Perspective. *Professional Matters: Materialities and Virtualities of Professional Learning.* Propel Conference 2014. 25-27 June, University of Stirling, Scotland.

Brown, C. & D. Gachago 2013. Emerging Technologies in Higher Education - A Guide for South African Higher Education Practitioners. Cape Town: University of Western Cape. Available at: http://emergingicts.blogspot. com/p/guide.html. (Accessed on 1 February 2016.)

Caze, M. 2008. Seeing Oneself through the Eyes of the Other: Asymmetrical Reciprocity and Self-respect. *Hypatia 23*,3: 118–135.

Donovan J. & C.J. Adams 2007. Introduction. In Donovan, J. & C.J. Adams (eds.): *The Feminist Care Tradition in Animal Ethics.* New York: Columbia University Press.

Duflo, E. 2012. Human Values and the Design of the Fight against Poverty. Tanner Lecture 1. 2 May 2012, Harvard University. Available at: http://mahindrahumanities.fas.harvard.edu/content/lecture-1-esther-duflo -human-values-and-design-fight-against-overty#sthash.PntMPYD9.dpuf. (Accessed on 1 February 2016.)

Engelmann, D. 2009. Another Look at a Feminist Ethics of Teaching. *Atlantis* 33 2: 62–71.

Gachago, D., E. Ivala, J. Backhouse, J.P. Bosman & V. Bozalek 2013. Towards a Shared Understanding of Emerging Technologies: Experiences in a Collaborative Research Project in South Africa. *The African Journal of Information Systems* 5,3:94-105.

Gilligan, C. 1982. *In a Different Voice: Psychological Theory and Women's Development*. Cambridge: Harvard University Press.

Leibowitz, B., V. Bozalek, R. Carolissen, L. Nicholls, P. Rohleder & L. Swartz 2010. Bringing the Social into Pedagogy: Unsafe Learning in an Uncertain World. *Teaching in Higher* Education15,2:123-133.

Leibowitz, B., V. Bozalek, R. Carolissen, L. Nicholls, P. Rohleder, T. Smolders & L. Swartz 2011. Learning Together: Lessons from a Collaborative Curriculum Design Project. [Special issue on Content and Language Integrated Learning] *Across the Disciplines* 8,3. Available at: http://wac.colostate.edu/atd/clil/leibowitzetal.cfm. (Accessed on 12 September 2011.)

Lingard, B. & A. Keddie 2013. Redistribution, Recognition and

Representation: Working against Pedagogies of Indifference. *Pedagogy, Culture & Society* 21,3:427-447.

Mackenzie, C., W. Rogers & S. Dodds (eds.) 2014. *Vulnerability: New Essays in Ethics and Feminist Philosophy*. Oxford: Oxford University Press.

Mahon, R. & F. Robinson 2011. Introduction. In Mahon, R. & F. Robinson (eds.): *Feminist Ethics and Social Policy: Towards a New Global Political Economy of Care.* Vancouver: UBC Press.

Noddings, N. 1984. *Caring: A Feminine Approach to Ethics and Moral Education*. Berkeley: University of California Press.

Noddings, N. 2002. *Educating Moral People: A Caring Alternative to Character Education*. New York: Teachers College Press.

Noddings, N. 2005. *The Challenge to Care in Schools: An Alternative Approach to Education.* 2nd Edition. New York: Teachers College Press.

Robinson, F. 1999. *Globalizing Care: Ethics, Feminist Theory and International Relations.* Oxford: Westview Books.

Robinson, F. 2011. *The Ethics of Care: A Feminist Approach to Human Security.* Philadelphia. Temple University Press.

Ruddick, S. 1989. *Maternal Thinking: Towards a Politics of Peace.* New York: Ballantine.

Sevenhuijsen, S. 2004. Trace: A Method for Normative Policy Analysis from the Ethic of Care. In Sevenhiujsen, S. & A. Svab (eds.): *The Heart of the Matter: The Contribution of the Ethic of Care to Social Policy in Some New EU Member States*. Ljubljana: Peace Institute.

Slote, M. 2007. *The Ethics of Care and Empathy.* London and New York: Routledge.

Tronto, J. 2010. Creating Caring Institutions: Politics, Plurality, and Purpose. *Ethics and Social Welfare* 4,2:158–71.

Tronto, J. 2011. A Feminist Democratic Ethics of Care and Global Care Workers: Citizenship and Responsibility. In Mahon, R. & F. Robinson (eds.): *Feminist Ethics and Social Policy: Towards a New Global Political Economy of Care.* Vancouver: UBC Press.

Tronto, J. 2013. *Caring Democracy: Markets, Equality and Justice*. New York: New York University Press.

Young, I.M. 1997. Asymmetrical Reciprocity: On Moral Respect, Wonder, and Enlarged Thought. *Constellations* 3,3:340–363.

Young, I.M. 2011. *Responsibility for Justice*. Oxford: Oxford University

Press.

Zembylas, M., V. Bozalek & T. Shefer 2014. Tronto's Notion of Privileged Irresponsibility and the Reconceptualisation of Care: Implications for Critical Pedagogies of Emotion. *Gender and Education* DOI:10.1080/09540253.2014.901718.

Vivienne Bozalek
Social Work and Director of Teaching and Learning
University of the Western Cape
vbozalek@uwc.ac.za

Kathleen Watters
Research Associate
University of the Western Cape
watterslife@gmail.com

Daniela Gachago
Centre for e-Learning
Cape Peninsula University of Technology
gachagod@cput.ac.za

Using Instrumental Variables to Determine the Efficacy of Two Bridging Programs that Operate at the University of KwaZulu-Natal

Michael Murray

Abstract

The vast majority of black African students enrolling at higher education institutions come from township schools where a lack of resources and teacher training create environments of rote learning which give students only a superficial understanding of some of the linguistic and numeracy concepts needed to successfully complete a university degree. To address this problem universities have put in place additional teaching programmes designed to bridge this gap. This paper examines the efficacy of two programmes that operate in the Faculty of Science at the University of KwaZulu-Natal. The one programme `sacrifices' a year of credit-bearing study towards a particular degree by offering a broad range of courses aimed at preparing students for normal entry into the faculty in their following year of study. The other allows the student to take an extra year to complete their first year of study with additional teaching support being given to help them cope with their studies. Using regression adjustment techniques and a Heckman treatment selection model to control for a possible selection bias that can occur with observational studies, it was found that both of these bridging programmes actually help to increase the throughput rate of students in this faculty with a stronger effect being reported for the foundation programme based students.

Keywords: treatment effect, regression adjustment, Heckman treatment selection model

Introduction

South Africa has a highly polarised education system. On the one hand we

have a cohort of privileged students who are able to attend private or Model C schools. For the vast majority of mainly black African students, however, education takes place in vastly under-resourced township schools where a lack of teacher training often leads to superficial engagement with texts, and , rote learning designed to deliver correct `answers' rather than give students an understanding of the thought processes behind the derivation of the answer, is the norm. As a consequence Scott, *et al.* (2013) found, only 18% of all school leavers manage to qualify for entry into a higher education institution (HEI). Amongst those who manage to qualify for entry into a HEI, one third drop out in their first year of study and only 45% eventually manage to complete their studies. In order to address this problem, academic development (AD) programmes have been established with the aim of improving the academic performance of students from under-resourced backgrounds. One of the primary objectives of this paper is to determine how successful two University of KwaZulu-Natal (UKZN) based academic development programmes are in helping to bridge the articulation gap that exists between what is being taught at a township school and what is required to successfully complete degree at UKZN. In particular, one needs to be sure that whatever treatment effects are being observed, that these effects (in our case the two bridging programmes) are not confounded by the presence of other variables that may also be causing students to perform better than they would have if they had not been bridged.

The Importance of a Student's First Year of Study

Studies conducted by Pantages and Creedan (1978), Seymour (1993), and Pascarella and Chapman (1983) have all found that students who obtain good grades during their first semester of study are far more likely to persist to graduation than those who do not. The 'memory of a critical moment or event' it would seem 'clusters more heavily' in the first few weeks of one's tertiary learning experience (Light 2001: 204). Instead of waiting for students to `find their own feet', the above evidence would support the need to be proactive and provide students with as much upfront support as possible to exploit the 'window of opportunity' and assist student learning.

Approaching this question from a different angle, research also indicates that the cognitive skills and behavioural patterns needed for the

successful completion of a degree need to be entrenched during the first year of study. In a use-of-time based study conducted by Schilling (2001), first-year students were each given a beeper. At various points in time throughout their academic career the beeper was activated and they were asked to record what they were doing. Results from this study showed that the amount of time students spend on their studies during their first year is a strong predictor for the amount of time that they would spend on their studies during their senior years. Bridging programmes therefore need to be implemented as soon as a student enters university. In this paper I compare the performance of two bridging programmes; one that `sacrifices' a year of credit-bearing study towards a particular degree by offering a broad range of courses aimed at preparing students for normal entry into the faculty in their following year of study, and another which allows the student to take an extra year to complete their first year of study with support teaching. Because the government funds these two programmes differently it is useful to know which of the two models works best, and whether student in either of these programmes would actually perform better (or worse) than if they had no access to support. Associating access to a bridging programme with a particular form of treatment, one of the primary objectives of this paper is to determine what the outcome would have been for a treated individual had they not received the treatment. In other words, would a student who has been bridged have performed better (or worse) had one allowed them to enrol as normal entry students in the faculty?

Bridging Programs: A Brief History

Developmental Summer Bridging Programs (DSBP) form the bulk of academic development programmes in the United States. Ramirez (1997), Weismann, Bulakowski and Jumisko (1997), Boylan and Saxon (1999), and Ackerman (1990) all indicate that DSBPs have the potential to help students succeed with their college based studies. Most of these studies however are not able to follow the progress of students towards the actual completion of a degree. Instead their conclusions are drawn from a questionnaire completed by students who attend bridging programmes (Santa Rita & Bacote 1997; Rollnick *et al*. 2008; and Maggio *et al*. 2005).

In the United Kingdom, academic development programmes have

focused primarily on bridging the gap that exists between the British 13-year based schooling system and a 12-year system that is common in most other countries in the world. Students are given basic catch-up courses in a particular field of study with no credits actually accrued towards the completion of a particular degree. In these so-called international foundation programmes (IFP), the emphasis is therefore on equipping students for normal entry into mainstream programmes of study rather than the providing supplemental teaching in a course that earns credits towards a particular degree at a particular university.

Academic development (AD) programmes in South Africa have their origin in the relaxation of apartheid policies in the early 1980s when historically white universities began to admit small numbers of black students. Because the apartheid government attempted to control the number of black students which universities could admit, these AD programs focused primarily on achieving academic equality rather than bridging the gaps that exists between township school education and universities. Following the IFP model, students were required to pass a series of non-credit bearing courses which 'prepared' them for tertiary study. At no stage were they allowed to accrue credits towards the completion of a particular degree. Students in these foundation programs however increasingly began to feel that they were being marginalised as second-class citizens in the university environment. To help overcome this stigma, AD programmes with a focus on augmentation began to emerge which allowed students to take two years to complete what for others would be a normal first year of credit-bearing study. Additional classes and remedial support were given to help them cope with their studies (Gee 1990; Bourdieu 2002; Vygotsky 1978; Mabila, *et al*. 2006).

Are these Programmes Effective?

Most South African studies address academic support at selected courses rather than degree levels. For example, Curtis and De Villiers (1992) assessed courses offered in economics, mathematics, and chemistry at the University of the Witwatersrand. Smith and Edwards (2007), Smith (2012), and Smith (2013) focused on courses at the University of Cape Town offered in economics, mathematics, and chemistry. They all found that the AD courses had a significantly positive impact on the academic performance of AD

students when compared with that of their peers in a comparable mainstream course. Wood and Lithauer (2005) found that students entering a foundation programme at the Nelson Mandela Metropolitan University Foundation Programme (UFP) performed better in their later degree studies than directly admitted students with similar academic profiles. Onsongo (2006) reported similar findings for students enrolling in a first year Engineering course at The University of Witwatersrand. Hay and Marais (2004) also reported similar results for students enrolling in a career preparation programme at the University of Free State.

In possibly the most comprehensive nation-wide study of all, Scott, *et al*. (2013) found that AD programmes are successful not only in 'widening access' but also in 'improving student performance' in most of the universities in South Africa. In particular, they compared the performance (during the first year of study) of all students in a bridging programme with normal entry students in all the universities in South Africa. The results that are given in Table 1 relate to a cohort of students who entered university for the first time in 2011.

Table 1: Success rates during first year of study by broad subject area: 2011

	Bridging students	Normal entry students
Commerce	69%	68%
Humanities	70%	76%
Science, Engineering and Technology(SET)	66%	72%

Source: Scott, *et al*. 2013.

The discrepancy of 6% between the success rates of the bridging and normal entry students in the SET sector would suggest that the bridging programmes in this sector are possibly not helping students to successfully complete a degree in this field of study. Such a naïve comparison, however, suffers from a serious drawback in that it does not adjust the result for a possible selection bias that may arise because I am comparing students who enter a bridging programme with a completely different cohort of students who have gained

normal entry into the faculties. This observed effect needs to be adjusted for other socio-economic background factors that may also distinguish a bridged student from a normal entry student. Once this has been done using for example the regression adjustment method which will be outlined in the next section, a judgement call can then be made regarding the efficacy of the bridging programme. If one is not able to observe enough confounding variables to achieve this objective, then a Heckman selection model can be used to determine an appropriate treatment effect for the bridging programme.

Many South African studies that focus on this area have chosen to ignore the above selection bias problem (Grayson 1996; Hay & Marais 2004; Wood & Lithauer 2005; Onsongo 2006; and Downs 2010). A notable exception is a study conducted by Smith (2009) on first-year academic development courses at the University of Cape Town where graduation was used as an output variable for the study. Similar studies conducted in other countries have also chosen to ignore the sample-selection effect that may arise when comparing the performance of students in bridging programmes with those in normal entry programmes (Schoenecker, *et al*. 1998; Zeegers & Martin 2001; Bowen & Bok 1998; Etter, *et al*. 200;, Berkner, *et al*. 2002; Jenkins & Boswell 2002; and Bahr 2008).

Statistical Methodology

Let T_i denote a treatment indicator variable which I will set equal to one if student *i* is allowed to enrol for a bridging programme and set equal to 0 otherwise. Let Y_i denote a response variable for this paper. It now becomes important to make a clear distinction between the outcome Y_i that one is actually able to observe and two potential outcomes that one would like to be able to observe; namely the response variable $Y_i(0)$ that would be recorded if student *i* were not bridged and the response variable $Y_i(1)$ that would be recorded if the <u>same</u> student were to be bridged. Being able to observe both potential outcomes would allow a treatment effect for student *i* to be estimated using

$$\Delta_i = Y_i(1) - Y_i(0)$$

Because I can only observe one of these potential outcomes one can at best hope to estimate, at a population based level,

$$\text{ATE} \equiv E\{Y_i\,(1)\text{-}\,Y_i(0)\}$$

which represents an <u>average</u> treatment effect for an individual who is being randomly drawn from this overall population. One can also estimate, at a population based level,

$$\text{ATT} \equiv E\{Y_i\,(1)\text{-}\,Y_i(0)|T_i{=}1\} \quad (1)$$

which represents an average treatment effect for an individual who is randomly drawn from the <u>treated</u> section of our population. Because I am interested in determining whether (or not) a bridging programme is successful, it is the estimated value of ATT which will be more relevant for our study. If ATT turns out to be significantly positive in value then students in the bridging programme are recording outcomes for Y_i that are on average higher in value than those they would have recorded had they not been bridged.

Regression Adjustment Based Methods

If students are randomly assigned to a bridging course, then simply subtracting the average response of bridged students for Y_i from those that have not been bridged will produce an unbiased estimate for the treatment effects ATE and ATT that I want to determine. Applying ordinary least squares methods to the following regression model

$$Y_i = \beta_0 + T_i\delta + e_i \quad (2)$$

the parameter estimate that one obtains for δ will also provide one with an unbiased estimate for both ATT and ATE.

Assignment to a bridging programme however is not being done on a random basis. Students have to satisfy certain criteria before they become eligible for entry into a bridging programme. Consequently students in the bridged and non-bridged groups may differ not only with respect to the `type'

of treatment that they receive but also with respect to other socio-economic and educational based background variables which determine the type of entry that is required from them for entry into the faculty. From an estimation point of view, these background variables X_i may be causing the error term e_i in (2) to become correlated with the treatment indicator variable T_i. Known as an omitted variable bias problem, the estimate that one wants to derive for δ in (2) may become biased and inconsistent.

A regression adjustment method attempts to overcome this problem by including enough variables X_i in the following model

$$Y_i = \beta_0 + T_i\delta + X_i\beta_1 + e_i \quad (3)$$

so that the treatment indicator variable T_i eventually becomes uncorrelated with the error e_i in (3). Ordinary least squares estimation can then be applied to (3), to produce an unbiased estimate for δ and thus for ATE.

Heckman's Treatment Selection Model

If one cannot find enough variables X_i to include in (3) so as to overcome the omitted variable bias problem that is referred to above, then an instrumental variable will have to be used to help derive a consistent estimator for δ (Angrist, *et al*. 2001). A variable Z_i is said to form an instrumental variable for our problem if it is correlated with the treatment assignment variable T_i but uncorrelated with the error term e_i that has been given in (3). Finding such a variable (or collection of variables) is often a very difficult process primarily because I do not actually observe e_i and therefore cannot empirically test for any correlation between Z_i and e_i. Instead, its use often has to be justified on theoretical grounds (Sovey and Green 2011).

To overcome this problem, Heckman (1979) developed another modelling approach that first corrects for a possible sample selection bias in one's treatment effect by fitting a probit model to one's treatment assignment variable T_i. More specifically, with u_i denoting a N(0, σ^2) error term, a probit model sets $T_i=1$ if

$$X_i\gamma + Z_i\theta + u_i > 0 \quad (4)$$

and $T_i=0$ otherwise. The estimated value that one obtains for T_i can then be substituted as an instrument in the following model

$$Y_i = X_i\beta + \delta T_i + e_i \quad (5)$$

with ordinary least squares then employed to derive a consistent estimate for δ. To allow for a possible correlation structure between the treatment assignment variable T_i and Y_i, the error terms u_i and e_i that appear in (4) and (5) are assumed to have a bivariate normal distribution with

$$\binom{e_i}{u_i} \mid T_i, X_i, Z_i \sim N(\binom{0}{0}, \begin{pmatrix} \sigma^2 & \rho\sigma \\ \rho\sigma & 1 \end{pmatrix}) \quad (6)$$

Details of this two-stage least squares fitting procedure can be found in Briggs (2004) and Wooldridge (2002). Because of issues associated with identification, one needs to make sure that at least one variable Z_i can be found that affects the treatment assignment process (4) but not the outcome equation (5).

Our Dataset

This study followed the progress of 5014 students wanting to enrol for a BSc degree in the Faculty of Science at the University of KwaZulu-Natal (UKZN) over the period 2007 to 2012. Prior to 2009, entry into the faculty was restricted to students who achieved a total matric point score of at least 34 points for their school leaving subjects. In 2004, a Centre for Science Access (CSA) was created to help students who narrowly missed gaining direct entry into the faculty to enrol for one of two possible bridging programmes depending on the type of results they achieved in their school leaving exams. Those who managed to obtain a total of at least 28 Matric points were allowed to enrol for a 4-year augmented programme which allowed them to take an extra year to complete what for normal entry students would be their first year of study. Parallel classes, additional tuition material, and an academic literacy module were run to help them cope with the mainstream courses that they would be taking together with the normal entry students.

Michael Murray

Weaker students who come from township schools and had not managed to obtain at least 28 matric points for their school leaving examinations were allowed to enrol in a 4-year foundation programme in which the first year was dedicated to basic catch-up courses in science, mathematics, and academic literacy with no actual credit being accrued towards the completion of a particular degree. Because this foundation programme focuses on `fixing ' the problem before formal study in the faculty begins, it became interesting to find out, in this study, if this approach is more successful than the augmented approach which focuses on `lending a helping-hand' during the first year of formal study in the faculty.

TABLE 1: Student enrolment according to year of entry in the Science faculty.

Year of first entry	2007	2008	2009	2010	2011	2012	Total
Non-bridging	336	331	537	490	446	362	2502
BSc Foundation	203	205	195	254	232	277	1366
BSc Augmented	195	180	163	186	194	228	1146

The figures that appear in Table 1 show how the proportion of students enrolling in a bridging programme have increased steadily over the period 2007 to 2012. A breakdown according to race, gender, and other important background variables is given in Table 2. Because one needs to include as many potentially confounding variables as one can in the analysis, the binary variables that I have used for Residence and Financial Aid indicate whether a student has been given some form of residence-based accommodation or financial help during their university studies. Studies conducted by Agar (1990), Barnsley and Liebenberg (2000), and Rollnick, *et al*. (2008) all seem to indicate that these variables may have an important effect on future performance in higher education.

TABLE 2: Student demographics based on enrolment figures in the Faculty of Science over the period 2007 to 2012.

Baseline covariates	Foundation	Augmented	Non-bridged
Male =1/Male=0	735/631	709/437	1266/1236
African=1/African=0	1332/34	1138/8	1291/1211
Residence=1/Residence=0	723/643	810/336	691/1811
Financial Aid=1/Financial Aid=0	753/613	764/382	894/1608
OBE =1/OBE=0	1163/203	951/195	2166/336

Prior to 2008, students writing their final school leaving subjects were able to do so at a higher, standard, or lower grade level. From 2008 onwards, a National Senior Certificate was introduced and the previously graded levels for each subject collapsed into a single level paper. To capture this effect in our analysis, the variable that I have called OBE (Outcomes Based Education) in Table 2 represents a binary 0/1 variable that I have set equal to one if the student matriculated post 2008. With the phasing out of the senior certificate in 2008, the requirement for entry into the augmented 4-year programme was changed to a total matric point score of at least 22 points (excluding the Life Orientation course) for the school leaving examinations. Entry into the Foundation programme was restricted to learners who had managed to obtain a total matric point score of at least 16 points (excluding the Life Orientation course) for these examinations.

Total Matric Point Score

Entry into a university is usually restricted to students who are able to achieve a particular point score for all their matric leaving exams. Generally speaking, a total of seven subjects have to be written with the following method of scoring being used for each subject.

Point Score	Subject Mark (%)
7	80-100

6	70-79
5	60-69
4	50-59
3	40-49
2	30-39
1	0-29

Many studies indicate that matric point score may be an unreliable indicator of future success in higher education. (Dawes, Yeld & Smith 1999; Grussendorff, Liebenberg & Houston 2004; Miller & Bradbury 1999). Nevertheless it is important that one control for such a variable because it serves as a proxy for a set of unobservable variables that may be confounding the treatment effect which I want to measure in this study. Table 3 contains a summary of the matric point scores recorded by the foundation, augmented, and normal entry students in our collected dataset.

TABLE 3: Matric point score summaries.

Program	Number	Mean	Standard deviation
Foundation	1366	26.74	3.25
Augmented	1146	28.30	3.12
Normal entry	2502	34.63	4.75

School Quintile
Schools in South Africa have been grouped into quintiles based on socio-economic background with a Quintile 1 school classified as the most disadvantaged and a Quintile 5 school the most privileged in terms of resources and teaching opportunities. To capture this effect I have used a binary variable quint5 to distinguish a student who has been able to attend a privileged school (quint5=1) from someone who has not (quint5=0). Table 4 shows to what extent students from a poorer school background are being enrolled in a science based bridging programme at UKZN.

TABLE 4: Proportion of students that come from a Quintile 5 school.

Program	Proportion	Total
Foundation	0.08	1366
Augmented	0.05	1146
Normal entry	0.51	2502

Our Response Variable

One could consider using the total number of courses that have been failed for the first time as a response variable for this paper. A reviewer of this paper has however correctly pointed out that some sort of correction will need to be made for the number of years that a student has spent studying for a particular degree. One could consider successful graduation as being a desirable response variable for this study but one would be throwing away a large number of observations from one's dataset; namely all the students who have dropped out from their studies or who were still busy with their studies when the data collection process ended. For this reason

$$Y = \frac{Total\ number\ of\ credit\ bearing\ courses\ passed - Total\ number\ of\ credit\ bearing\ courses}{Total\ number\ of\ years\ spent\ at\ university}$$

$$(7)$$

has been used as a response variable for this paper. Essentially *Y* represents a per annum based `rate of progress' with positive valued outcomes for this response variable indicating better performers. For example, a student wanting to finish a 3 year degree typically has to complete a total number of 48 courses. If this student wants to complete their degree in the minimum prescribed period of time (and with no other course failures) then they must record) an outcome

$$Y = \frac{48-0}{3} = 16$$

for this response variable.
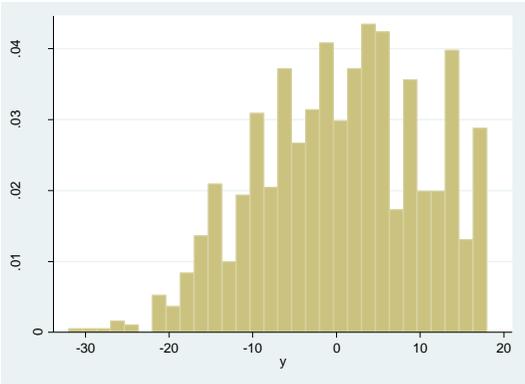
FIGURE 1a: Recorded outcomes for Y : Augmented students only.
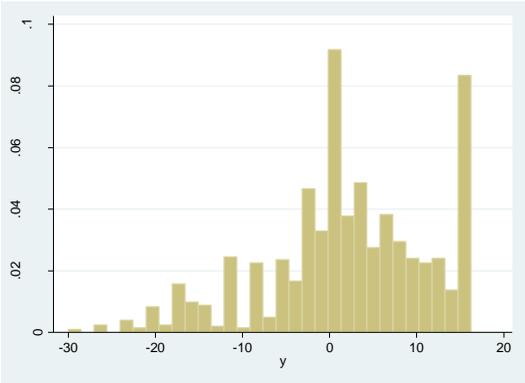
FIGURE 1b: Recorded outcomes for Y: Foundation students only
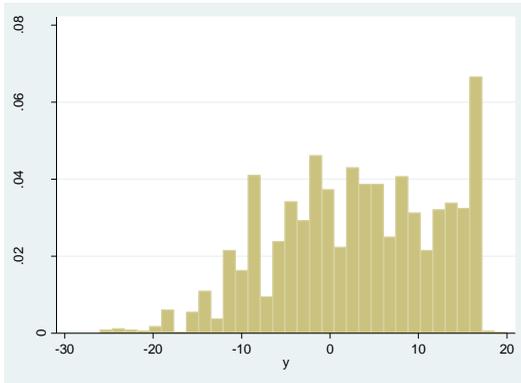
FIGURE 1c: Recorded outcomes for Y: Normal entry students only

The outcomes that have been recorded by the augmented, foundation, and normal entry students are given in Figures 1a-c respectively. In view of what has just been said, the spikes that appear around the recorded outcome of Y=16 represent students who have graduated (or are on track to graduate) in the minimum prescribed period of time.

Results

I begin by comparing the efficacy of a bridging programme with that of a normal entry programme. No distinction is made between a student who is being bridged in a foundation or in an augmented programme. After some conclusions are drawn, a separate analysis is be done for foundation versus normal entry students and augmented versus normal entry students.

Bridging versus Normal Entry Programmes

Table 5 indicates that students who are <u>not</u> being bridged on average perform better (in terms of our chosen response variable Y) than students who are being bridged. If the assignment to a bridging programme was actually done on a completely randomised basis then one could conclude that neither of the bridging programmes are actually helping students to perform better than would be the case if they had not been put into a bridging program.

Interestingly enough, the foundation students appear to do better than their augmented counterparts. The stigma associated with being a foundation student does not seem to affect their performance when compared with those of the augmented students who are doing credit bearing courses (in their first year of study) alongside the normal entry students.

Assignment to treatment in our context however is clearly not being done on a randomised basis. Students who are assigned to a bridging programme simply do not have enough matric points to gain normal entry into the faculty. They also differ significantly from normal entry students with respect to the school environments from which they come plus other background variables which may bias the results that I have observed in Table 5. Before a final judgement call can be made regarding the efficacy of a bridging programme, an appropriate adjustment or control for the other confounding variables needs to be made using the methods that have been outlined earlier. Once this adjustment is made, the estimate that I have obtained for ATT provides an appropriate measure for the effect of a particular type of bridging programme on the treated subpopulation.

TABLE 5: Descriptive statistics relating to our chosen response variable.

	Number	Mean(Y)	Standard Deviation(Y)
Foundation students	1366	2.011	9.539
Augmented students	1146	0.601	9.910
Non-bridged students	2502	3.051	9.098

Fitting the regression adjustment model that has been given in (3) to all the covariates that have been listed in the first column of Table 6 produced the parameter estimates that appear in the second column of the table. Having a higher total matric point count, receiving some form of financial aid, and matriculating under the new post-2008 single grade schooling system (OBE=1), point towards a better performance amongst all students in the sample. The result that has been observed for OBE is interesting because it allows one to argue that whereas before 2008, students with potential may

have been forced (in township schools) to do mathematics and science at a standard or lower grade level which would have then prevented them from gaining access to a university based institution, the introduction of a single grading system now allows students with potential to gain entry into a university where they are performing better than their pre-2008 counterparts.

TABLE 6: Parameter estimates obtained from the fitting of the regression model that has been given in equation (3).

Covariates	Parameter estimate	95% confidence interval
Bridged	2.377*	[1.689, 3.064]
OBE	1.292*	[0.627, 1.957]
Male	-0.293	[-0.795, 0.209]
African	-0.979*	[-1.738, -0.219]
Residence	-0.142	[-0.785, 0.501]
Financial aid	3.030*	[2.472,3.589]
Matric Points	0.592*	[0.529, 0.655]
intercept	-18.970*	[-21.518, -16.422]

* denotes significant at 5% level

Focusing now on the average treatment effect for bridging on students who are being treated, the ATT estimate in Table 7 suggests that students in both bridging programmes actually perform better than they would have had they not been placed in a bridging program. Quadratic and interaction effects were also added to the model with a similar set of results. The ATE estimate in the table refers to an average effect on a student who has been randomly selected from the entire population of all students and not just those who have been put on a bridging programme.

TABLE 7: Treatment effect estimates.

Treatment effect	Estimate	Robust standard error	95% Confidence Interval
ATE	1.236	0.429	[0.395, 2.077]
ATT	2.639	0.391	[1.872,3.406]

Foundation versus Augmented Programme Performance

Because the emphasis of bridging in the augmented programme is placed on supplemental teaching whereas the foundation program chooses to `sacrifice' the first year of teaching to fill in the gaps that arise from the students' secondary education, a comparison of respective performances with that of normal entry students would also be of interest in this study.

Figure 2a shows how the outcome recorded for our chosen response variable Y improves as the total matric point count of a student who is on the augmented programme increases in value. This is to be expected because a student's total matric point score should in some way reflect their underlying level of academic ability. When looking at the performance of the foundation students, however, Y does not necessarily increase with the total matric point count of these foundation based students. Either the total matric point count does not serve as a reliable indicator for future performance, or the single year being spent bridging the gap is actually helping foundation based students with a lower matric point count to perform as well as their colleagues who have a higher matric point count.
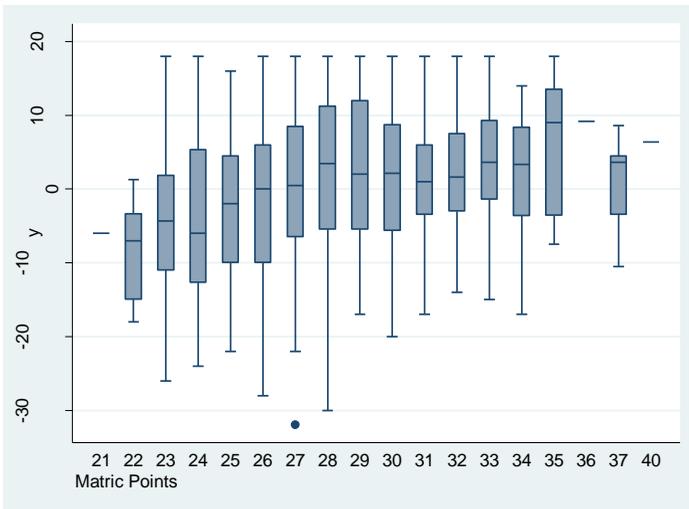
FIGURE 2a: A Box- whiskers plot for students in the augmented programme.
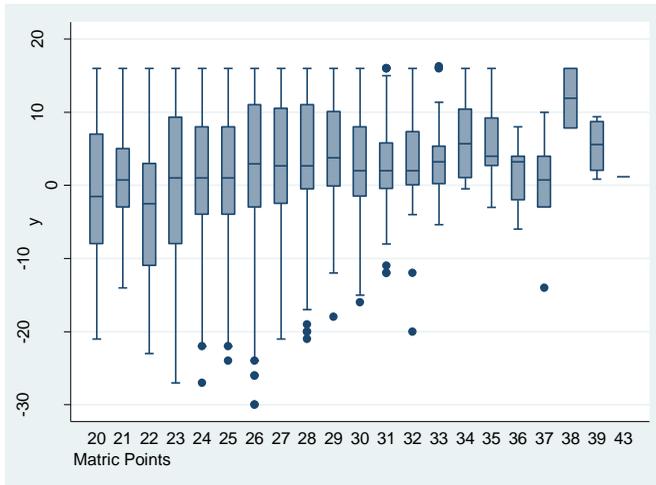
FIGURE 2b: A Box- whiskers plot for students in the foundation programme.

Because some of the confounding variables affecting the estimation of a possible treatment effect may be unobservable to us, Heckman's model structure as outlined in equations 4-6 has been applied to two different problems; one where I want to compare the performance of foundation students with normal entry students and the other where I want to compare the performance of augmented with those of normal entry students.

Foundation versus Normal Entry Students

Table 8a contains the parameter estimates that result from fitting equation (5) to a dataset comprising the foundation programme students (the so-called treated group) and the normal entry students. Stata 14 was used to generate the results that appear in the table. Only gender and residence appear to be statistically <u>insignificant</u> predictors for our response variable Y. Furthermore, the Wald test being highly significant indicates that a good model fit has been achieved.

Table 8b contains the parameter estimates for equation (4) that determine the assignment to treatment probability for this model structure.

The negative value that I have obtained for matric point count supports a selection effect that I know is true for foundation students, namely that the probability of assignment to the foundation programme increases if you have a lower (rather than higher) matric point count. The variable quint5 that appears in the table is a 0/1 indicator variable that I have set equal to 1 if the student was able to attend a more privileged quintile 5 school. Matquint represents an interaction term between the matric point count of the student and quint5. Both of these effects are not significant in the assignment to treatment process once one has accounted for a total matric point count in one's analysis.

The estimate for ρ that appears in Table 8a, being significantly negative in value, indicates that any unobservable confounding variables that increase the probability associated with being assigned to a foundation programme, will also tend to decrease the value of our response variable Y.

Table 8a also contains an estimate for ATT. Being significantly positive in value indicates that students in the foundation programme will record (on average) a value for Y that is 5.175 points higher than would be the case if these <u>same</u> students were admitted as normal entry students into the faculty. Therefore, the foundation programme is clearly having a beneficial effect on the students who are admitted into that programme.

TABLE 8a: Parameter estimates obtained from fitting model (5).

Covariates	Parameter estimate	95% confidence interval
Bridged	2.377*	[1.689, 3.064]
OBE	1.075*	[0.322, 1.828]
Male	0.087	[-0.464, 0.638]
African	-1.126*	[-1.921, -0.331]
Residence	-0.052	[-0.783, 0.678]
Financial aid	3.097*	[2.464,3.729]
Matric Points	0.708*	[0.609, 0.808]
intercept	-23.367*	[-27.232, -19.503]
ρ	-0.167	[-0.276, 0.053]
ATT	5.175*	[3.433,6.916]

Wald statistic: 597.84; p-value=0.001

TABLE 8b: Parameter estimates obtained from fitting model (4).

Covariates	Parameter estimate	95% confidence interval
Matric Points	-0.258*	[-0.278, -0.237]
Quint5	0.629	[-1.197, 2.456]
Matquint	-0.054	[-0.116, 0.008]

Augmented versus Normal Entry Students

Table 9a contains a set of parameter estimates that result from fitting model (5) to a dataset comprising the augmented programme students (the so-called treated group) and the normal entry students. Only gender and residence appear to be statistically <u>insignificant</u> predictors for our response variable Y. Furthermore, the Wald test being highly significant indicates that a good model fit has been achieved.

The estimate I obtained for ρ is not significantly different from zero implying that I have no unmeasured confounding variables in our model structure. The positive effect that I observed for ATT indicates that the augmented programme is also helping students to perform better than they would have had they been given normal entry into the faculty. Comparing this effect (ATT=1.945) with the larger effect that I obtained for the foundation students (ATT=5.175) suggests however that the foundation programme is benefitting students more than the augmented programme.

TABLE 9a: Parameter estimates obtained from fitting model (5).

Covariates	Parameter estimate	95% confidence interval
Bridged	2.144*	[0.669, 3.613]
OBE	0.649	[-0.136,1.435]
Male	-0.446	[-1.027, 0.135]
African	-1.121*	[-1.979, -0.263]
Residence	0.391	[-0.414, 1.197]
Financial aid	2.759*	[2.097, 3.422]
Matric Points	0.677*	[0.591, 0.763]
intercept	-21.667*	[-25.123, -18.211]
ρ	-0.059	[-0.153, 0.035]
ATT	1.945*	[0.524,3.365]

Wald statistic: 726.84; p-value=0.001

TABLE 9b: Parameter estimates obtained from fitting model (4).

Covariates	Parameter estimate	95% confidence interval
Matric Points	-0.220*	[-0.238, -0.202]
Quint5	0.028	[-1.867, 1.925]
Matquint	-0.044	[-0.107, 0.018]

Concluding Remarks

My main purpose in this paper was to determine whether the two bridging programmes that are being run in the Faculty of Science at the University of KwaZulu-Natal are effective in helping students who come from disadvantaged school backgrounds to adjust and eventually succeed in the completion of their studies at this institution. Using the per annum based rate of progress variable that appears in (7) as a response variable, other background variables (besides the assignment to a bridging programme) may be confounding the treatment effect which one observes. The estimates that I obtained for ATT suggests that both the foundation and augmented programmes are helping students to perform better than they would had they been allowed normal entry into the faculty - with the effect being far stronger for the foundation based students. For students wanting to enrol in a science-based bridging programme at UKZN, the above results suggest that it is far better to run a bridging program that sacrifices an initial year of study to bridge the gap caused by township school education, than it would be to run an augmented programme which allows the students to spend their first two years of study doing what for others would be a normal first year of study but with support teaching and additional learning materials.

References

Ackermann, S.P. 1991. The Benefits of Summer Bridge Programs for Underrepresented and Low-income Students. *College and University* 66,4: 201-208.

Agar, D. 1990. Non-traditional Students: Perceptions of Problems which Influence Academic Success. *Higher Education* 19: 435-54.

Angrist, J.D. & A.B. Krueger 2001. Instrumental Variables and the Search for Identification: From Supply and Demand to Natural Experiments. *The Journal of Economic Perspectives* 15,4: 69-85.

Bahr, P.R. 2008. Does Mathematics Remediation Work: A Comparative Analysis of Academic Attainment Among Community College Students. *Research in Higher Education* 49,5: 420–450.

Barnsley, S.A. & M. Liebenberg 2000. The Identification of Factors that Place Students in a Science Foundation Programme at Risk for Academic Failure and Some Suggestions for Appropriate Psychological Intervention. Conference Proceeding of the Society for Student Counselling in Southern Africa (SSCSA), October 2000, University of Natal, Durban.

Berkner, L.S. & E.F. Gataldi 2002. *Descriptive Summary of 1995–96 Beginning Postsecondary Students: Six Years Later.* Washington DC, USA: U.S. Department of Education.

Bourdieu, P. 2002. Forms of Capital. In Biggart, N. (ed.): *Readings in Economic Sociology.* Malden, Mass: Blackwell.

Bowen, W.G. & D. Bok 1998. *The Shape of the River: Long-term Consequences of Considering Race in College and University Admissions*. Princeton, New Jersey, USA: Princeton University Press.

Boylan, H.R. & D.P. Saxon 2010. What are We Going to do About It? *Journal of Developmental Education* 34,2: 36-37.

Briggs, D.C. 2004. Causal Inference and the Heckman Model. *Journal of Educational and Behavioral Statistics* 29,4: 397–420.

Curtis, P.J.D. & J. de Villiers 1992. The Academic Effectiveness of a Bridging Year for Commerce Undergraduates. *Development Southern Africa* 9, November: 457–470

Dawes, P., N. Yeld & M.J. Smith 1999. Access, Selection and Admission to Higher Education: Maximizing the Use of the School-leaving Examination. *South African Journal of Higher Education* 13: 97-104.

Downs, C.T. 2010. Increasing Equity and Compensating Historically Academically Disadvantaged Students at a Tertiary Level: Benefits of a Science Foundation Programme as a Way of Access. *Teaching in Higher Education* 15,1: 97-107.

Etter, E.R., S.L. Burmeister & R.J. Elder 2001. Improving Student Performance and Retention via Supplemental Instruction. *Journal of Accounting Education* 18,4: 355–368.

Grayson, D.J. 1996. A Holistic Approach to Preparing Disadvantaged Students to Succeed in Tertiary Science Studies. Part 1: Design of the Science Foundation Programme (SFP). *International Journal of Science Education* 18: 993-1013.

Grussendorff, S., M. Liebenberg & J. Houston 2004. Selection for the Science Foundation Programme (University of Natal): The Development of a Selection Instrument. *South African Journal of Higher Education* 18: 265-72.

Gee, J. 1990. *Social Linguistics and Literacies: Ideology in Discourse.* Basingstoke: Falmer.

Hay, H.R. & F. Marais 2004. Bridging Programmes: Gain, Pain or All in Vain. *South African Journal of Higher Education* 18,2: 59–75.

Heckman, J.J. 1979. Sample Selection Bias as a Specification Error. *Econometrica* 47,January: 153–161.

Jenkins, D. & K. Boswell 2002. *State Policies on Community College Remedial Education: Findings from a National Survey.* Education Commission of the States, Denver, Colorado, USA.

Light, R.J. 2001. *Making the Most of College: Students Speak their Minds.* Cambridge, Mass.: Harvard University Press.

Mabila, T.E., S.E. Malatje, A. Addo-Bediako, M.M.M. Kazeni & S.S. Mathabatha 2006. The Role of Foundation Programmes in Science Education: The UNIFY Programme at the University of Limpopo, South Africa. *International Journal of Educational Development* 26: 295-304.

Maggio, J., J.G. White, S. Molstad, & N. Kher 2005. Prefreshman Summer Programs' Impact on Student Achievement and Retention. *Journal of Developmental Education* 29,2: 2-33.

Miller, R. & J. Bradbury 1999. Academic Performance of English First and Second Language Students: Selection Criteria. *South African Journal of Science* 95: 30-4.

Onsongo, W.M. 2006. Assessing the Impact of Academic Support: University of the Witwatersrand First-year Engineering. *South African Journal of Higher Education* 20,2: 273–287.

Pantages, T.J. & C.F. Creedan 1978. Studies of College Attrition: 1950-1975. *Review of Educational Research* 48: 49-101.

Pascarella, E.T. & D.W. Chapman 1983. Validation of a Theoretical Model of College Withdrawal: Interaction Effects in a Multi-institutional Sample. *Research in Higher Education* 19: 25-48.

Ramirez, G.M. 1997. Supplemental Instruction: The Long-term Impact. *Journal of Developmental Education* 21,1: 2-28.

Rollnick, M., B. Davidowitz, M. Keane, A. Bapoo & L. Magadla 2008. Students' Learning-Approach Profiles in Relation to their University Experience and Success. *Teaching in Higher Education* 13,1: 29-42.

Rollnick, M. 2006. Successes in Science Access Internationally: A Survey of Programmes. Proceedings of the 14th Annual SAARMSTE Conference, Pretoria, University of Pretoria, South Africa.

Santa Rita, E. & J.B. Bacote 1997. The Benefits of College Discovery Prefreshman Summer Program for Minority and Low-income Students. *College Student Journal* 31,2: 161–173.

Schilling, K. 2001. Plenary Address. Presented at The Summer Institute on First-Year Assessment, Asheville, North Carolina.

Schoenecker, C., L. Bollman & J. Evans 1998. Developmental Education Outcomes at Minnesota Community Colleges. *AIR Professional File* 68: 1–16.

Scott, I., N. Ndebele, N. Badsha, B. Figaji, W. Gevas & B. Pityana 2013. *A Proposal for Undergraduate Curriculum Reform in South Africa: The Case for a Flexible Curriculum Structure.* Report of the Task Team on Undergraduate Curriculum Structure Discussion Document Council on Higher Education, Pretoria.

Seymour, D. 1993. Quality on Campus: Three Institutions, Three Beginnings. *Change* 25,3: 14-27.

Sovey, A.J. & D.P. Green 2011. Instrumental Variables Estimation in Political Science: A Readers' Guide. *American Journal of Political Science* 55,1: 188–200.

Smith, L.C. 2009. Measuring the Success of an Academic Development Programme: A Statistical Analysis. *South African Journal of Higher Education* 23,5: 1009-1025.

Smith, L.C. 2012. *The Effect of Selected Academic Development Programmes on the Academic Performance of Academic Development Students at a South African University: An Empirical Analysis.* PhD thesis, University of Cape Town.

Smith, L.C. 2013. Measuring the Impact of Academic Development Courses in First- and Second-year Chemistry. *South African Journal of Chemistry* 66,1: 189–199.

Smith, L.C. & L. Edwards 2007. A Multivariate Evaluation of Mainstream

and Academic Development Courses in First-year Microeconomics. *South African Journal of Economics* 75,1: 99–117.

Vygotsky, L.S. 1982. *Thought and Language.* Cambridge, Mass.: MIT Press.

Weissman, J., C. Bulakowski & M. Jumisko 1997. Using Research to Evaluate Developmental Education Programs and Policies. *New Directions for Community Colleges* 100, 73-80. doi:10.1002/cc.10007.

Wood, L.A. & P. Lithauer 2005. The 'Added Value' of a Foundation Programme. *South African Journal of Higher Education* 19,5: 1002–1019.

Wooldridge, J.M. 2002. *Econometric Analysis of Cross Section and Panel Data*. Cambridge: MIT Press.

Zeegers, P. & L. Martin 2001. A Learning-to-learn Program in a First-year Chemistry Class. *Higher Education Research & Development* 20,1: 35–52.

Michael Murray
Statistics in Higher Education
University of KwaZulu-Natal
murraym@ukzn.ac.za

Chemistry Academic Support: The Profile and Rationale of Attending Students

Vino Paideya

Abstract

This paper explores the profile of students who attend chemistry academic support in the form of Supplemental Instruction (SI). The SI programme was introduced at an institution of higher education in 2008 to improve retention and through-put rates. Data was collected from the first year students in 2013 using questionnaires (n =117) and three focus group interviews to determine the profiles of the students attending the chemistry SI sessions. The data was analysed using an interpretive methodology. Several categories emerged from the data with respect to the effects of gender, prior academic achievement, place of residence, year of study and home language on regular SI attendance. The findings may be used to identify and proactively target students at risk of poor academic performance and of dropping out of university.

Keywords: Supplemental Instruction, Retention, Through-put, First-year Chemistry, Academic Support

Introduction

According to the Council of Higher Education (CHE 2011) the higher education system has grown by more than 80% since 1994 to an enrolment number of over 900,000 students. The implementation of policies to improve access to higher education and the increase in university enrolments have resulted in changes to the student population in higher education. For example, female students now constitute around 58% of the student

population, out numbering their male counterparts in both full and part-time study (CHE 2013).

A troubling aspect of increased access and enrolment has been a concomitant increase of non-completion rates. A recent CHE study notes that 'only about one in four students in contact institutions…graduate in regulation time; only 35% of the total intake, and 48% of contact students, graduate within five years' and, 'it is estimated that some 55% of the intake will never graduate' (CHE 2013: 15). Students who drop out of the courses taken usually do so in the first year of study, which significantly contributes to the overall statistics for non-progression (Scott, Yeld & Hendry 2007). There are several reasons for students to dropout of university which have been established by Terenzini *et al*. (1996); Letseka (2007) and Scott, Yeld and Hendry (2007). Firstly, some students may leave for reasons that are beyond institutional control, such as the lack of finances, changing academic or career paths or to unrelated personal circumstances. Secondly, many more students leave because they are unable to adapt to the educational environment of the institution. Thirdly, the students' inability to manage normal course workload or to integrate within the student population could discourage some students from returning.

The supplemental instruction (SI) programme has been in existence since 1973 when it was introduced by Dr Deana Martin and set up as a centre at the University of Missouri-Kansas City. This centre continues to provide training to promote SI as an academic development initiative globally (UKMC, 2015). Within South Africa, there are numerous university faculties running SI programmes, with the Nelson Mandela Metropolitan University (NMMU) being the national office. At the study site, SI is a voluntary support programme making use of trained and mentored SI leaders to conduct the SI sessions. SI leaders are trained with respect to SI principles and facilitation techniques. The SI approach, the literature indicates, is designed to assist students to master course concepts, simultaneously increasing student competency in reading, reasoning and study skills (Blanc, De Buhr & Martin 1983).

By contrast, Tinto (2005: 3) viewed SI as 'an important condition for [students'] continuation in the university', hence as a strategy that can enhance retention. Bowles, McCoy and Bates (2008: 856) who suggested that SI can enhance the development of 'micro and macro-behaviours related to successful long-term educational outcomes', provided another layer of

support for the idea of preventing student dropout rates. The positive values imputed to SI form the point of departure for the exploration of the profiles of students who regularly attend chemistry SI sessions in an attempt to improve academic support policy and practice with a vision to address student retention and throughput. Whilst considerable attention has been directed towards researching factors associated with first year student dropout phenomenon (Letseka 2007; Scott, Yeld & Hendry 2007) less attention has been dedicated to the factors that contribute to academic failure.

At the study site, SI sessions were usually conducted by third year or post-graduate students who were referred to as SI leaders. SI leaders reportedly were recruited by the SI supervisor and academic staff based on their interpersonal skills and course competency. SI leaders were not employed as tutors; their role purportedly was not to introduce new content or to 're-teach' lecture material (Dawson; Lockyer & Ferry 2007). Instead, they were expected to facilitate the learning process with the aim of developing chemistry students' competency in reading, reasoning and study skills, that is, lecture note-taking, text book reading, memory enhancement and time management (Paideya 2011).

The SI sessions were adapted for the South African context and were usually held for 45 minutes twice a week. The SI sessions integrated facilitative measures to encourage an atmosphere of engagement that emphasised that 'no question is a dumb question' (Webster & Hooper 1998) and more importantly, to encourage the students to ask 'why' questions. The environment was designed to facilitate small group discussions, and reflection through discussion which was used to encourage collaborative learning during the SI sessions (Paideya 2011).

Furthermore, the SI leaders were required to attend course lectures to keep abreast with content covered by lecturers. The SI leader also served as a source of feedback for the course lecturer through discussion with respect to the concerns and difficulties which students may have been experiencing with the course material.

The SI learning context was deliberately designed to include a social dimension on the assumption that students do not acquire scientific concepts in isolation. In fact, students ability to grasp concepts is increased because of the SI group's assistance, and which, I argue, they could not achieve independently (Paideya 2011). Session activities varied throughout the semester, influenced by both the SI attendees and the leaders' needs.

The Effect of Academic Support Services on Student Retention and Throughput.

According to Cuseo (2010) success at university is influenced by both the individual and the individual's environment. In a comprehensive review of over 2500 research studies, the following conclusion was reached, 'The impact of college is not simply the result of what a college does for or to a student. Rather, the impact is a result of the extent to which an individual student exploits the people, programs, facilities, opportunities, and experiences that the college makes available' (Pascarella & Terenzini 2009: 610-611).

Studies showed that students who become actively involved with academic support services outside the classroom, such as a learning center or academic support center, are more likely to attain higher college grades and complete their college degree, particularly if they began their involvement with these support services during the first year of college (Tinto 1993; Cuseo, Fecas & Thompson 2007). It was also found that students who sought and received assistance from academic-support services showed significant improvement in academic self-efficacy, that is, they developed a greater sense of personal control over their academic performance and developed higher self-expectations for future academic success (Cuseo 2010).

Despite the multiple advantages of being involved with academic support services outside the classroom, these services are typically under-utilized by college students, especially by those students who could gain the most from using them (Cuseo 2010). There could be several reasons for students to under-utilize academic support programmes based on beliefs that seeking academic assistance is an admission that they are not 'smart' and that they cannot succeed on their own.

Terenzini & Reason (2005) hypothesized that students come to college with a variety of personal, academic, and social background characteristics and experiences that both prepare and predispose them to varying degrees to engage with the formal and informal learning opportunities. These precollege characteristics shape students' subsequent college experiences through their interactions with institutional and peer environments, as well as the major socialisation agents (for example, peers and faculty members).

Guided by Terenzini & Reason's (2005) conceptual framework of

student persistence and retention, this study explored the effects of attendees' gender, prior academic achievement, the place of residence, home language spoken and the year of academic study to determine the profile of regular SI attendees.

Researching the Profiles SI Attendees'

A pilot study was initially undertaken to assess the profile of the 2013 cohort of first year chemistry students. The results of the pilot study revealed that there were 744 female students and 522 male students in the first year chemistry cohort. The majority (96%) of the students were in their first year of study. The analysis of the students' residential arrangements while attending university indicated that 35 % of the first year cohort resided at a student residence while 65 % commuted to and from university on a daily basis. Further, it was found that 791 (63%) out of a cohort of 1266 students' home language was isiZulu. Students' university entry points[1] revealed that 939 (74%) of students achieved matric points that ranged between 30-39 points. This is consistent with the College of Science and Agriculture entry points of between 28-48 points. The purpose of the pilot study was to measure the validity and reliability of the results obtained from the profile of the SI academic support programme against the pilot study.

The data for this paper was derived from a case study of the 2013 cohort of first year Chemistry students who attended the SI sessions. In order to establish the profile of the participants, a survey and three focus group interviews were conducted. The purpose of the questionnaire was to gain information regarding the SI attendees' biographical data to create a generalized profile of the students who attended the SI sessions. The students participating in three or more chemistry SI sessions per semester (a period of approximately 10 to 12 weeks) were selected to complete surveys. One hundred and seventeen SI attendees responded to the questionnaire which

---

[1] Academic Performance Score (APS) are obtained in the South African National Senior Certificate (NSC) examinations. University entrance requires a minimum of seven subjects with at least four subjects (passed at level 4 i.e. between 50-59%). Further each college and school has their own minimum entry points. Points are calculated according to an 8 point rating scale e.g. 60-69% = 5 points, 70-79% = 6, etc.

constituted 9.24% of the total cohort of first year chemistry students in 2013. However, it should be noted that SI is a voluntary academic support programme and not all participants in the SI programme completed a survey.

To clarify aspects of the profile of regular SI attendees gained from the questionnaires (24 students who attended more than 5 SI sessions per semester), were asked to attend focus group interviews. Further, focus group interviews sought to establish the rationale for students' regular or irregular attendance at the SI sessions.

Results

The analysis of the data from student questionnaires and focus group interviews revealed the following results with respect to profiles of the students who attend SI sessions and the student rationale for attending the sessions. The results were further thematically analysed according to emerging categories of description. Five categories of description with respect to profiling of SI attendees were analysed.

1. Gender Profile of Students who Attend SI Sessions

The category of gender was assessed against SI attendance to determine if the profiles were gendered with respect to academic support attendance.

Fig. 1 Gender and SI attendance
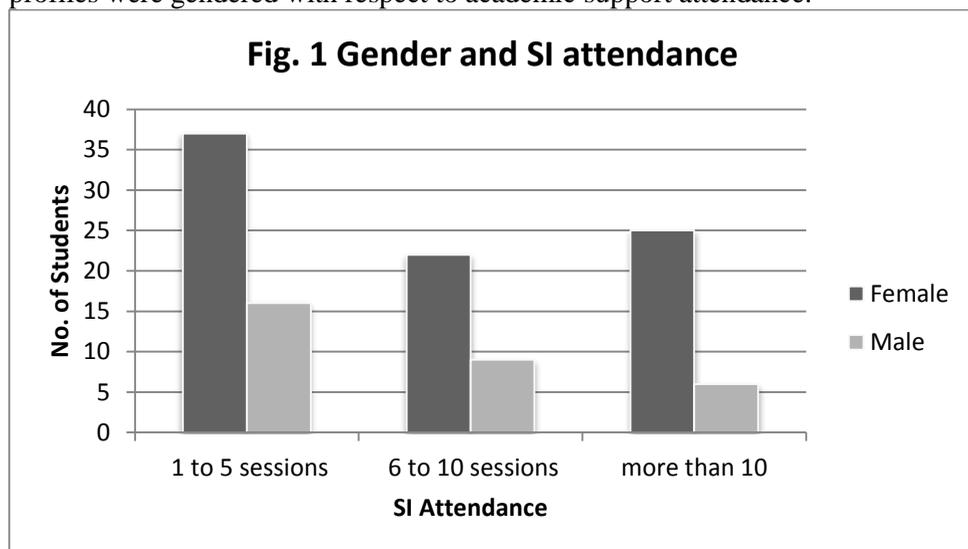
From the graph (Fig. 1) it can be interpreted that there are three different categories of SI attendees: students who have attended from 1 to 5, 6 to 10 and more than 10 SI sessions for the semester. It is evident that in all three categories the number of female students attending SI sessions is greater than the number of male students. In the overall sample analysed it was found that females represented 72% of the SI attendees whereas the male student attendance was 28%. There could be several reasons for the trend, however, the most apparent seems to be the population of female students enrolled for the first year course is larger than the male student enrolment which was evident in the pilot study.

Female students appear to be more conscientious, less likely to miss lectures or any other academic programme, and are more likely to believe that their marks reflect their ability than do their male peers (Mlambo 2011). This is evident from the following comment received from one of the regular female SI attendees:

> *I attend SI regularly because I am determined to pass chemistry with good grades*

According to Borman and Rachuba (2001) females are also more likely to seek and receive support from academic staff. By contrast, male students have a greater tendency to be absent from classes due to other commitments and a general tendency not to seek assistance (support) in any form. Some male students also believe that playing sport is an important part of university life, which is evident by the following comment:

> *I attend SI sessions when I have free time and I don't have other commitments like attending a soccer match or studying for a test.*

It can therefore be concluded that the present generation of female students are more focused on academic success and are determined to take on opportunities for success unlike their male counterparts, who instead have other competing interests that seem to distract them from attending the SI sessions. When it comes to gender, student interest appears to be the most likely explanation for the dominance of female attendees.

2. *Profiles of Students Attending SI Sessions by Year of Study*

The next category assessed was the profiles of students' by year of study, in terms of whether they were first timers or repeating the module in the subsequent years of study at university. The graph below (Fig.2) reveals SI attendance in relation to the student profile in different years of study.

Fig. 2 Profile of students by year of study and SI attendance
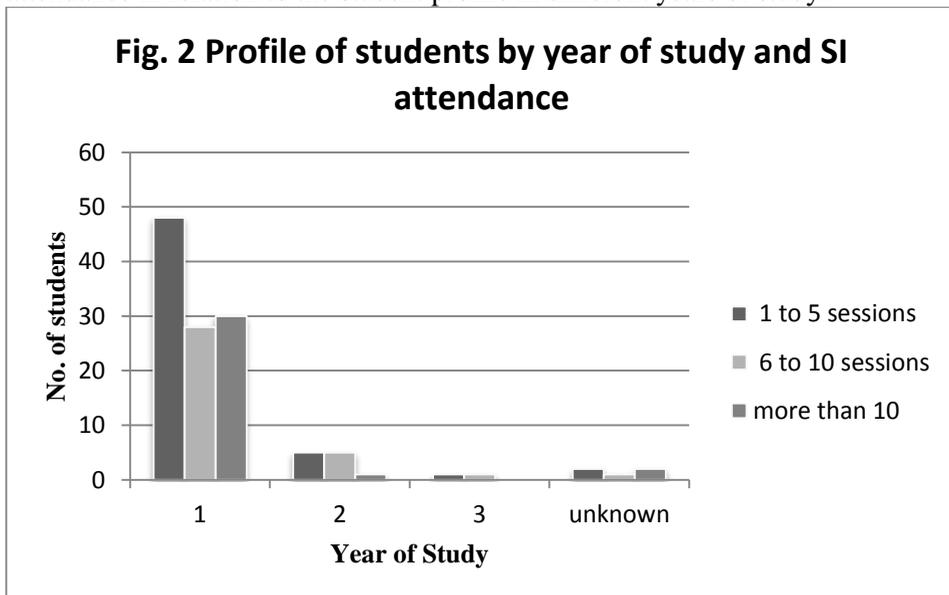
It is evident that the majority of SI attendees are from the first year of study, followed by those in the second year of study. It would seem that the longer the students take to pass the first year module the less interested they are in attending support programmes. Furthermore, those students who were in the 3rd year of study at university seem to only attend SI sessions to prepare for a test and were, therefore, not regular attendees at the SI sessions.

The focus group interviews with students revealed an over confidence of their competencies in chemistry:

> *I attempted this course last year so I don't attend SI sessions regularly. I only attend before a test because I did all of this stuff last year and I need to focus on courses that I am studying for the first time.*

Research indicated that younger students generally perform better than older students (Jansen 2004; Van den Berg and Hofman 2005). In particular, Omigbodun and Omigbodun (2003) identified a direct correlation between increasing age and decreasing performance in students taking a psychiatry examination. Nevertheless, the age-performance relationship often differs between men and women or over various disciplines (Richardson and Woodley 2003). By contrast, a study by Newman-Ford *et al* (2009) reported that on average the relationship between age and attainment was not statistically significant (r=-0.10, p>0.05) and did not vary by gender. Despite attaining on average lower results with respect to other age categories, older students achieved a higher proportion of 'good' marks. In essence, the quality of older students' performance was better than younger age categories. This could be attributed to developing a sense of maturity with respect to academic attainment. However, the data about age and attendance suggests that the marketing of the academic support programme needs to be targeted at dynamic ways of luring the older, over confident students into the system to attend the SI programme.

3. *Profile of SI Students in Relation to Place of Rresidence*

The category place of residence was sub-categorised into two: students' who lived on campus residences and students who resided at home with respect to SI attendance.

Fig. 3 Place of Residence in relation to SI attendance
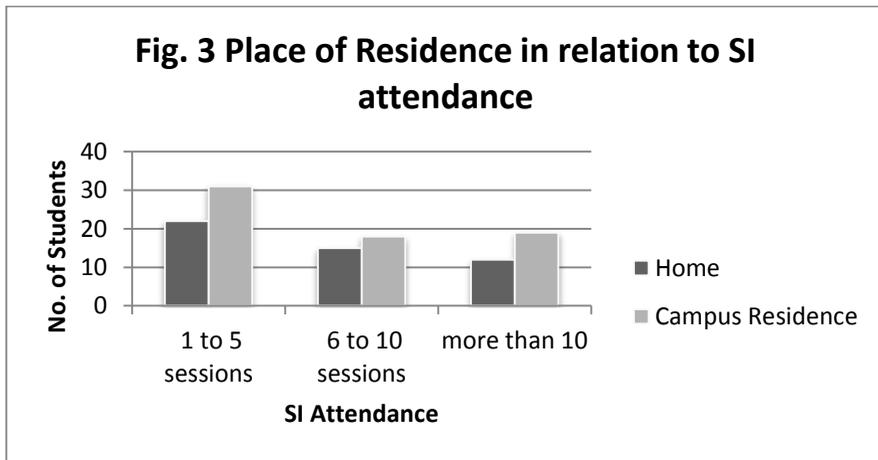
It can be interpreted from the graph (Fig. 3) above that there are two categories of students who attended SI sessions viz. those who reside at home and those who live on campus residences. It would seem that in all three SI attendance categories (attendance from 1 to 5 sessions, 6 to10 sessions and more than 10 sessions for the semester), students who lived on campus residence were more likely to attend as evidenced in the focus group interview:

> *When we live on campus residence we most often study with our friends doing the same course. So attending SI is no different except here we have someone who has already passed the course and is able to show us different learning skills to pass the course.*

Students who reside at home while attending university also find SI sessions useful, which is evident in the response that follows:

> *I find studying chemistry more effective when I attend SI sessions than me trying to figure stuff out on my own. I learn easier methods of understanding chemistry and I learn a lot more at SI than I do on my own at home.*

Blimling (1999) conducted a literature review and found little difference between the academic attainments of students living in university residences and those residing at home. However, research conducted by (Cutrona *et al.* 1994) suggests that remaining within the family home can be advantageous. Although support from friends and peers is significantly associated with achievement (Wall & MacIntyre 1999) parental support had a more positive impact on academic attainment (Cutrona *et al.* 1994) than other forms of support. By contrast, Reynolds (2012) showed that students living in university residences tended to perform better academically than those living off-campus. In the study at hand, only 35% of the first year student cohort resided at a university residence.

Arya and Smith (2005) found that students who live at home throughout their studies do not have the same relationship with, nor access to the university structures and events as those who live away from home. Holdsworth (2006) reported that students who remain in the family home have less freedom to socialise and generally are not accustomed to engage in

peer learning activities. They also experience additional problems related to travel time and fatigue which might impact negatively on academic performance.

Further, a more recent study by Newman-Ford *et al.* (2009) reported that students living in student or private houses or residence halls performed better on average than those residing in the family home. 'Home' students attained a mean of 44.3% in assessments, compared with 49.7% by the 'away' group. Differences in attainment between the groups were found to be statistically significant. It can, therefore, be concluded that students who reside in student residences away from home are more accustomed to peer learning and are more likely to attend SI sessions more frequently.

4. *Profile of SI Students' with Respect to Language Spoken at Home*

The category language spoken at home was analysed against two subcategories of students' viz. students whose first language was English and those who were English second language students. Fig. 4 &5 that follow represent the results obtained from profiles of SI attendees' home language.

Fig.4 Home language in relation to SI attendance
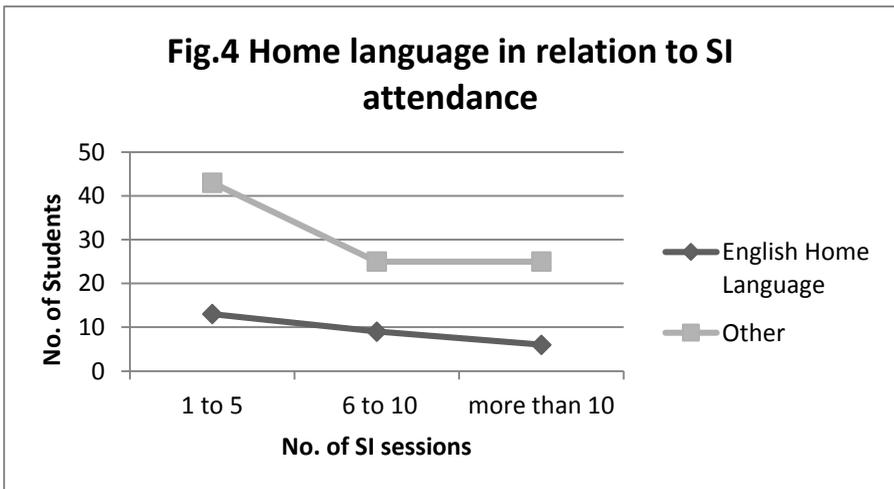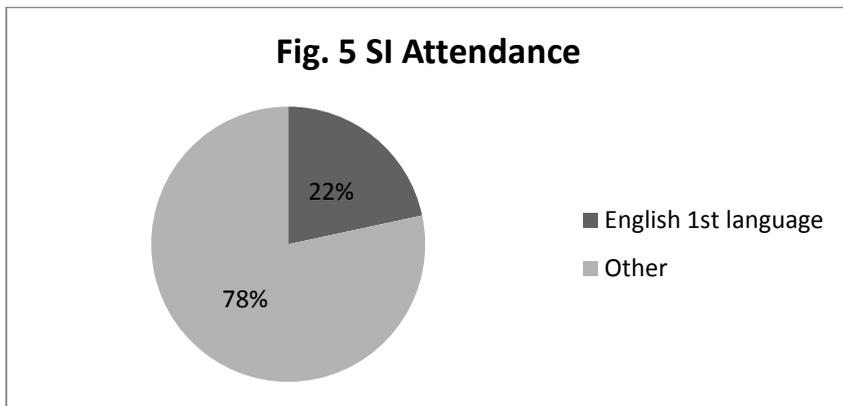
The graphs above suggest that English second language students in all three categories seem to be the majority (78%) of those attending SI sessions. Focus group interviews revealed that English second language students felt more confident about the chemistry content when collaborating with their peers in the SI sessions.

According to students responses, unlike the chemistry lectures, which limited the opportunities for engagement and discussion, SI sessions allowed students to engage with the chemistry concepts through activities such as discussion, problem solving and reflection on task:

> *I've developed the skills of working with other people in small groups which makes me understand my work much better. We get to discuss the questions together in isiZulu before we attempt them on our own.*
>
> *I also get to ask questions to improve my understanding of chemistry by asking my colleagues to explain to me in isiZulu.*

It was apparent from the data that English second language students valued the peer learning opportunities offered by SI sessions the most, since these sessions offered small group learning opportunities as well

as prospects for reflective learning and engagement with chemistry concepts in isiZulu.

5. *The Profile of SI Attendees with Respect to Prior Academic Achievement*

The category prior academic achievement was analysed against the matric points acquired by students in their final year at high school and SI attendance.

Fig. 6 Matric points in relation to SI attendance
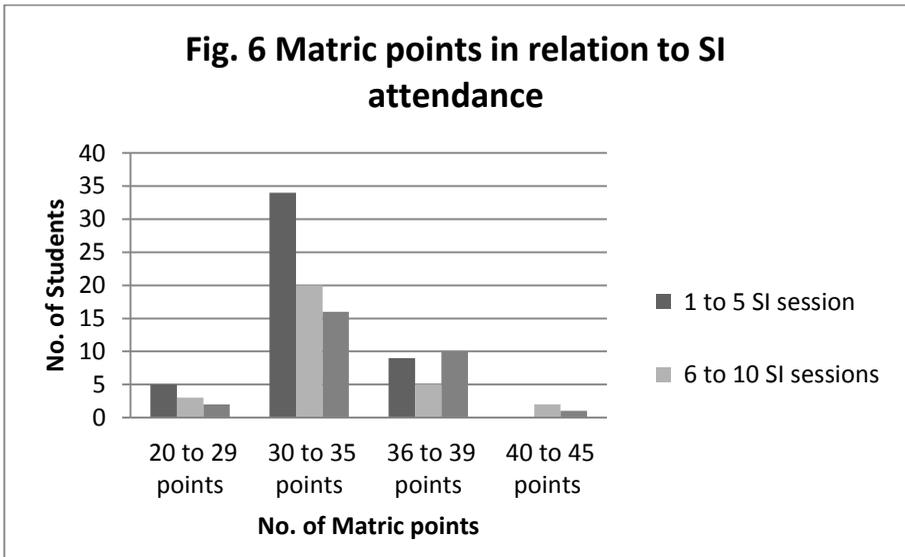
From the results in Fig. 6 it can be interpreted that students with matric points from 30 to 35 attended SI sessions more regularly followed by those with matric points from 36 to 39. It is evident that those in range of 40 to 45 either attended SI sessions to maintain their results or that the majority of students within this category felt that they did not need the support. The students with a matric point range of 20 to 29 showed below 5% attendance of SI sessions which is an interesting phenomenon for further investigation in an attempt to understand why this category of students do not make use of the academic support programme. The correlation between low matric scores and low

attendance is surprising because one would assume that students within this range would access SI sessions more frequently considering their low matric scores and the possibility of developing an 'at risk' status and of possibly failing the semester or being excluded from the academic programme.

Focus group interviews revealed the following responses:

I attend chemistry SI to ensure that I get good grades. I was an 'A' candidate in school but I did not do too well in my first test so I decided to join SI. I have done much better in Test 2 since I have been attending SI sessions.

A number of studies have examined the relationship between students' A-level points on entry and their final degree classification to determine how previous educational attainment can be used to predict undergraduate performance and progression. The results from these studies have implications not only for admissions policies, but also for the costs of widening participation in higher education.

McCarey *et al.* (2006) demonstrated that students with high entry qualifications attained consistently better grades than those with lower level entry qualifications. Indeed, evidence suggests that students who perform well in secondary education usually continue in this vein throughout their student life (McKenzie & Schweitzer 2001; Jansen 2004). Of course, on the other hand, students with strong prior attainment tend to enroll in particular sorts of universities where there may be cultural factors which impact on their performance or their behaviour. Conversely, Chapman (1996) found a significant positive correlation between entry qualifications and degree results for eight disciplines over a 21year period. However, the strength of the relationship varied, depending on whether the subjects were at an institutional or departmental level, with some displaying consistently counter-intuitive combinations of above-average entry qualifications and below-average attainment (and vice versa). A decade later, Gbore (2006) confirmed that the general background knowledge in the same subject matter area did facilitate learning of new material and in a similar academic tasks in the future, but examinations did not always consistently measure present achievement or accurately predict future performance because performance is not static but changes as interest and attitudes change over time and the emergence of new abilities.

Nevertheless, one still expects that the students with the lowest matric entry level scores would access the SI support programme the most which is certainly not the case as indicated by the data. The data about the cohort of students who access the SI support programme the least, is alarming considering that these students might be the target population for such academic support programmes. It is apparent from the data that a lack of knowledge and awareness of university support programmes by students could be one of the root causes for poor performance at university.

Conclusion

The results that have evolved from the questionnaire that were given to first year chemistry students in semester one of their studies reveals several key issues which are vital in planning, supporting and assessing the SI academic support programme. The questionnaire revealed vital information with respect to who is seeking academic support and the focus group interviews revealed why students seek this type of support. In particular, the profile of the chemistry SI attendee is most likely to be a female student in their first year of study who resides in the university campus residence, is an English 2nd language student with a National Senior Certificate matric with points ranging from 30-35. This information may be beneficial to the academic planners, teachers and administrators of chemistry SI courses in higher education, as it could be utilized to increase SI attendance of students who are most at risk of dropping out.

It is also evident that the greater the number of SI sessions and academic support programmes students attend the less likely they are to fail and the greater the chance of achieving high grades (Fraser & Killen 2003). However, correlation is not causality and attendance alone does not ensure that a student is learning. Research has shown that for a few students despite consistently attending lectures and academic support programmes, they have attained poor assessment results (Newman-Ford *et al* 2009). The focus group interviews have revealed students' feeling of belonging and a sense of confidence in their abilities after regular attendance at SI which is encouraging when considering that academic success is more likely by students with high positive motivation and persistence.

The data seems to be in the direction of a positive correlation be-

tween attendance and prior attainment with respect to points obtained in the matric examination and SI attendance, which needs to be validated by a correlation study. This would suggest that a number of undergraduates had already established good work ethics which contributed to their previous success. Therefore, one may conclude, that regular attendance at both lectures and academic support programmes should result in persistence and retention. It is alarming though that the students with the lowest matric scores access the academic support programme the least. These findings could initiate mechanisms to ensure that the academic support programme is marketed more effectively to ensure that all students benefit from the programme.

Furthermore, it has been noted that students who reside away from home while at university achieved significantly better grades than those living at home, and that they also attended significantly more SI sessions than the peers who lived at home. Poor attendance patterns of the academic support programme appears to be a particularly good indicator of educational disengagement, reinforcing the importance of reliable attendance monitoring systems for the quick identification of persistent absentees and to increase attendance. It can be concluded that students' gender and year of study appear to have little impact on educational achievement during the first year of study. In contrast, the place of residence, prior attainment, language barriers and attendance had more significant effects on academic achievement and retention.

Finally, it is important for more research to be carried to refine the profile of the students attending the Chemistry SI sessions and to fathom the reasons for attendance or non-attendance. Deepening our collective understanding about those who attend higher education support programmes means that we can design programmes that aligned to the students who are most likely to benefit from support structures, as well as to attract those who are most likely not to attend. University education is expensive and every effort to address student retention and throughput has benefits for a wider society.

References

Arya, R. & R. Smith 2005. Living at Home – An Investigation into the Degree to Which University Facilities and Access/ Utilization Policies

are Appropriate for the Range of Students' Living Arrangements Currently Experienced at Aston University. Available at: http://www. aston.ac.uk/prospective-students/wp/research.jsp. (Accessed on 25 November 2008.)

Blanc, R.A., L.E. DeBuhr & D.C. Martin 1983. Breaking the Attrition Cycle: The Effects of Supplemental Instruction on Undergraduate Performance and Attrition. *Journal of Higher Education* 54,1:80-90.

Blimling, G.S. 1999. A Meta-analysis of the Influence of College Residence Halls on Academic Performance. *Journal of College Student Developpment* 40:551-561.

Borman, G.D. & L.T. Rachuba 2001. Academic Success among Poor and Minority Students: An Analysis of Competing Models of School Effects. Available at: http://www.csos.jhu.edu/crespar/techreports/report52.pdf. (Accessed in November 2014.)

Bowles, T.J., A.C. McCoy & S. Bates 2008. The Effect of Supplemental Instruction on Timely Graduation. *College Student Journal* 42,30:853-859.

Chapman, K. 1996. Entry Qualifications, Degree Results and Value-added in UK Universities. *Oxford Review of Education* 22,3:251-264.

Council on Higher Education 2011. *VitalStats: Public Higher Education 2011*. Pretoria: Council on Higher Education.

Council on Higher Education 2013. *Higher Education Participation 2011*. Pretoria: Council on Higher Education. Available at: http://www.che.ac. za/sites/default/files/publications/Higher%20Education%20Participation %202011.pdf.

Cuseo, J. 2010. *What all first-Year students Should Know: The Most Potent, Research-based Principles of College Success. Research-based Strategies for Academic Success & Personal Development*. Dubuque, IA: Kendall/ Hunt.

Cuseo, J., V.S. Fecas & A. Thompson 2007. *Thriving in College & Beyond: Research-Based Strategies for Academic Success & Personal Development*. Dubuque, IA: Kendall/Hunt.

Cutrona, C.E., V. Cole, N. Colangelo, S.G. Assouline & D. Russell 1994. Perceived Parental Social Support and Academic Achievement: An Attachment Theory Perspective. *Journal of Personality and Social Psychology* 66:369-378.

Dawson, P., L. Lockyer & B. Ferry 2007. Supporting First Year Supporters:

An online Mentoring Model for Supplemental Instruction Leaders, 1-10. University of Wollangong. Available at: http://www.fyhe.com.au/past_papers/papers07/final_papers/pdfs/7e.pdf.

Fraser, W.J. & R. Killen 2003. Factors Influencing Academic Success or Failure of First Year and Senior University Students: Do Education Students and Lecturers Perceive Things Differently? *South African Journal of Education* 23,4:254-260.

Gbore, L.O. 2006. *Cognitive Entry Characteristics, Study Habits and Self-concept as Predictors of Academic Performance of University Undergraduates in South West Nigeria.* Unpublished Ph.D Thesis, University of Ado-Ekiti, Ado-Ekiti.

Holdsworth, C. 2006. 'Don't you Think you're Missing Out, Living at Home?' Student Experiences and Residential Transitions. *The Sociological Review* 54:495-519.

Jansen, E.P.W.A. 2004. The Influence of the Curriculum Organization on Study Progress in Higher Education. *Higher Education* 47:411–435.

Letseka, M. 2007. Why Students Leave: The Problem of High University Dropout Rates *HSRC Review* 5,3:8-9.

McCarey, M., T. Barr & J. Rattray 2006. Predictors of Academic Performance in a Cohort of Pre-registration Nursing Students. *Nurse Education Today* 27,4:357–364.

McKenzie, K. & R. Schweitzer 2001. Who Succeeds at University? Factors Predicting Academic Performance in First Year Australian University Students. *Higher Education Research and Development* 20,1:21–33.

Mlambo, V. 2011. An Analysis of Some Factors Affecting Student Academic Performance in an Introductory Biochemistry Course at the University of the West Indies. *Caribbean Teaching Scholar* 1,2:79–92.

Newman-Ford, L., S. Lloyd & S. Thomas 2009. An Investigation into the Effects of Gender, Prior Academic Achievement, Place of Residence, Age and Attendance on First-year Undergraduate Attainment. *Journal of Applied Research in Higher Education* 1,1:13-28.

Omigbodun, O.O. & A.O. Omigbodun 2003. Influence of Gender on Undergraduate Performance in Psychiatry at Ibadan, Nigeria. *Medical Education* 37:1-3.

Paideya, V. 2011. *The Phenomenon of Learning: First Year Engineering Students' Engagement with Chemistry Supplemental Instruction.* Unpublished dissertation. University of KwaZulu Natal, Durban.

Pascarella, E.T. 1985. College Environmental Influences on Learning and Cognitive Development: A Critical Review and Synthesis. In Smart J. (ed.): *Higher Education: Handbook of Theory and Research 1.* New York: Agathon.

Pascarella, E.T. & P.T. Terenzini 2009. The Supplemental Instruction Program University of South Carolina. University of South Carolina, National Resource Center for the First-Year Experience & Students in Transition. Available at: http://sc.edu/fye/resources/fyr/pdf/SouthCarolina_SI.pdf.

Reynolds, C.L. 2012. Estimating the Causal Effects of Dormitory Residence During College on Student Outcomes. Available at: http://www. Person al.kent.edu/~creynol9/Oncampus083112.pdf.

Richardson, J. & A. Woodley 2003. Another Look at the Role of Age, Gender and Subject as Predictors of Academic Attainment in Higher Education. *Studies in Higher Education* 28,4:475-491.

Scott, I., N. Yeld & J. Hendry 2007. A Case for Improving Teaching and Learning in South African Higher Education: *Higher Education Monitor* No. 6. Pretoria: Council on Higher Education.

Terenzini, P., L. Springer, P. Yaeger, E. Pascarella & A. Nora 1996. First-generation College Students: Characteristics, Experiences, and Cognitive Development. *Research in Higher Education* 37:1–22.

Terenzini, P.T. & R.D. Reason 2005. Passing the First Year of College: Rethinking the Effects of College on Students. Paper Presented at the Annual Conference of the Association for the Study of Higher Education, Philadelphia, PA.

Tinto, V. 1993. Leaving College: Rethinking the Causes and Cures of Student Attrition. 2nd Edition. Chicago: University of Chicago Press.

Tinto, V. 2005. Taking Student Success Seriously: Rethinking the First Year of College. Syracuse University. Available at: http://fdc.fullerton.edu/ events/archives/2005/05.

Van den Berg, M.N. & W.H.A. Hofman 2005. Student Success in University Education: A Multi-measurement Study of the Impact of Student and Faculty Factors on Study Progress. *Higher Education* 50:413–446.

Wall, J., K. Covell & P.D. MacIntyre 1999. Implications of Social Supports for Adolescents' Education and Career Aspirations. *Canadian Journal of Behavioral Science* 31:63-71.

Webster, T.J. & L. Hooper 1998. Supplemental Instruction for Introductory

Vino Paideya

Chemistry Courses. *Journal of Chemical Education* 75,3:328-331.

Vinodhani Paideya
School of Chemistry & Physics
University of KwaZulu Natal
paideya@ukzn.ac.za

Experimenting with Nomadic Posthumanism: Conceptualising Education and Rural Learning Ecologies Differently

Frans Kruger

Abstract
This exploratory article is a thought experiment in thinking differently about education and rural learning ecologies. The wording of the concept rural learning ecologies suggests culture-nature interplay. Underlying this interplay is a logic of thought that posits the human opposite of that which it is not – nature. In this relationship the power to direct and dissect is always skewed towards (human) culture because of the humanist position from which learning ecologies are conceptualised, observed, made sense of and enacted. Drawing on the works of Gilles Deleuze and Felix Guattari I experiment with an alternative understanding of the culture-nature relationship in order to explore the 'lines of escape' this offers to conceptualise education differently. I do this through engaging with nomadic posthumanism which treats subjectivity as a continuous process of becoming that is produced in 'assemblages' (agencement). Reclaiming the materiality of relations through such an understanding of the subject makes possible the creation of different forms of education and collective (educational) practices.

Keywords: assemblages, becoming, difference, nomadic subjectivity, posthumanism, rural learning ecologies.

Introduction
This exploratory paper is a thought experiment to consider alternative approaches to conceptualising education and rural learning ecologies.

Following Colebrook's (2002: 21) understanding that problems are 'a way [of] creating a future', one should perhaps not ask what education should be, but rather how education might become. I do this by problematising humanism and exploring nomadic posthumanism and the implications it holds for conceptualising education and rural learning environments.

To read education and rural learning ecologies through the lens of posthumanism, I need to make some underlying assumptions clear. The first is that I understand this article to be an experiment with what Deleuze and Guattari (1987) call minoritarianism. The minoritarian has nothing to do with quantity but are 'masses of escape' (Conley 2010: 167) inherent in normative forms of enunciation. It offers a way for the normative to be exposed to 'lines of fluctuation that open up a gap and separate it from the axiom constituting a redundant majority' (Conley 2010: 167). Put differently, the minoritarian is 'movements of flow that subvert the dominant' and which 'implies a subversion of the domination of the majority by a creation that explodes it from within' (May 2003: 149). In understanding this article as a minoritarian philosophy of education, I attempt to side-step what Deleuze called an *image of thought* (in Deleuze & Parnet 1987:13). According to an *image of thought*, thinking is an unproblematic and natural activity, and truth can be discovered through rational means. However, for Deleuze (1994), thinking should not be considered as unproblematic. Instead, thinking must entail a violent confrontation with the real[1] that aims to rupture accepted categories and ways of making sense of our experiences. Thinking then is not about establishing truth but about attaining a *thought without image*. That is, thinking should be about recognising problems and not discovering truths. Spangenberg (2009: 93) explains that Deleuzean thinking 'is the activity that takes place when the mind is provoked by an encounter with the unexpected, the unfamiliar or the unknown'. In drawing on Nietzsche, Deleuze (1983: 101) argues for philosophical thinking not to be concerned with that which is true or false but rather with the interesting, remarkable or important; only then would thinking 'mean discovering, inventing, new possibilities of life'. This is the first assumption that underlies this paper and which I use as a point of departure.

---

[1] I employ the concept 'real' not in a Lacanian sense. Rather, I draw on Deleuze's distinction between virtuality and actuality to associate 'the real' with 'processes that constitute the givenness of objects rather than with the constituted, identifiable objects and categories themselves' (Bell 2011: 4).

The second point of departure flows indirectly from attempting to engage with a minoritarian philosophy of education. Through problematising a foundational Sameness of pre-determined categories and essences, avenues are opened to explore the Deleuzean concept of difference and how it may be taken up in conceptualising education and rural learning ecologies.

Secular Humanism and Education

Humanism is not homogeneous and as such, it is important to make clear which form of humanism I refer to in relation to nomadic posthumanism. Taking my lead from Braidotti (2013), I refer to Da Vinci's Vitruvian Man as the starting point to define secular humanism. Braidotti (2013: 13) notes that the Vitruvian Man upholds what is 'human about humanity' and that it 'combines the biological, discursive and moral expansion of human capabilities into an idea of teleologically ordained, rational progress'. The Vitruvian Man (the fact that it is a man being referred to, is no coincidence), represents the idea that humans have the ability to pursue, through deliberative reasoning, not only individual but also collective perfectibility. This human subject stands at the centre of his world which *he* is able to manipulate to 'accord with his own wishes; and (who) is a historically independent agent whose thought and action produce history' (Seaman 2007: 246). But we should not understand the human of humanism to be an ideal type or statistical average; rather, we should recognise that it makes possible a 'systemized standard of recognisability – of Sameness – by which all others can be assessed, regulated and allotted to a designated social location' (Braidotti 2013: 26). This Sameness is not inherently negative but because it is highly regulatory it is 'instrumental to practices of exclusion and discrimination' (Braidotti 2013: 26).

Arguably, it is what Husserl (1970) refers to as the European universal powers of reason, which led to the great tragedies of imperialism and colonialism. Braidotti (2013: 15) argues that underlying these universal powers of reason is 'the dialectics of self and other, and the binary logic of identity and otherness as respectively the motor for and cultural logic of universal Humanism' and that central to this idea of humanism is the 'notion of difference as pejoration'. The consequence of this is that 'subjectivity is equated with consciousness, universal rationality, and self-regulating

behaviour, whereas Otherness is defined as its negative and specular counterpart' (Braidotti 2013: 15). A related aspect of secular humanism - the imperial gaze - has been critiqued by post-colonial theorists such as Said (2004) and Davies (1997). What is of concern is that most formal education models are founded on the humanist ideals of Enlightenment philosophies. Education projects are concerned with 'cultivating certain cognitive, social and moral abilities' (Pederson 2010: 237) in order for people to become-more-human towards what McKay (2005) refers to as compulsory humanity. In the humanist formal education setting, the human subject is 'both the instrument and the end product of education' (Pederson 2010: 241). This needs to be taken very seriously in the light of the claim that:

> All Humanisms, until now, have been imperial. They speak of the human in the accents and the interest of a class, a sex, a race, a genome. Their embrace suffocates those whom it does not ignore. ... It is almost impossible to think of a crime that has not been committed in the name of humanity (Davies 1997: 141).

Although secular humanism has been problematised for over a hundred years (see Nietzsche 1982), the problematising of the ontological and epistemological foundations of an essentialised human nature has become more sustained in recent years. Furthermore, it has been shown that not everyone who is human has been or is counted as such within the humanist tradition (Agamben 1998; Seaman 2007). The very boundary between what it means to be human and nonhuman has become permeable and elastic (Pederson 2010). It is these aspects of secular humanism that necessitates one to consider different theoretical positions when thinking about education and rural learning ecologies.

Nomadic Posthumanism

Posthumanism does not reflect a 'chronological progression or historical moment' that signifies the end of humanism, but should rather be understood as problematising the ontological and epistemological positions that make possible the conception of a human in essentialist terms (Pedersen 2010: 242). A posthumanist position argues that the stability of humanism is

supplanted by 'mutation, variation, and becoming' (Seaman 2007: 247). Instead of the stable subject (individual) of secular humanism, a subject that is relational, complex and ruptures categories is proposed (Braidotti 2013). Posthumanism takes on various forms. In this article I draw on critical posthumanism that develops from philosophical antihumanism[2]. Specifically, it is a posthumanism that pursues alternative visions of education through a call for an 'affirmative politics [that] combines critique with creativity' (Braidotti, 2013: 54). It is the concepts of Deleuze and Guattari (1987) that inform this understanding of posthumanism and to which I now turn my attention. In exploring how we became posthuman, I draw specifically on the concepts of difference, becoming[3] and assemblage (*agencement*) which were proposed by Deleuze (1994) and Deleuze and Guattari (1987). For Deleuze and Guattari (1994: 23) concepts are 'centres of vibrations, each in itself and everyone in relation to all the others'. If concepts are understood in this manner, Irwin and Springgay (2008: 107) aver that 'meaning and understanding are no longer revealed or thought to emanate from one point of origin rather they are *complicated* as relational, rhizomatic, and singular'. Concepts are 'intensive: they do not gather together an already existing set of things (extension); they allow for movements and connection.' (Colebrook 2010: 1). The aforementioned understanding guides the employment of the concepts difference, becoming and assemblage to explore new possibilities through which to conceptualise education and rural learning ecologies. I

---

[2] I do not draw on the posthumanism developed by Nussbaum (2010) that emerges from liberal individualism and moral philosophy and which seeks a neo-humanist ethics to cope with the interconnectedness brought about by globalisation and the global market economy. I also do not refer to the cybernetic orientation of analytical posthumanism prevalent in science and technology studies that interrogate the intimate relationship between humans and technology (Hayles 1999; Verbeek 2011).

[3] Deleuze develops the concept of becoming in his earlier works, *Difference and Repetition* (1994) and *The Logic of Sense* (1990). Although the manner in which the concept is employed in these works cannot be separated from how it is used in his collaborations with Guattari, I will mainly draw on the latter use thereof. For an exposition on the development of the concept of becoming by Deleuze see May (2003).

attempt to decentre an essentialised human in order to reconsider the human-nature relationship and the implications for education.

At the heart of Deleuze's (1994) and Deleuze and Guattari's (1987) theoretical project is the ontology of difference. When considering difference it is usually thought of 'either as 'difference from the same' or difference of the same over time' (Stagoll 2010: 75). The consequence of such reasoning is that 'difference becomes merely a relative measure of sameness' (Stagoll 2010: 75). Such an understanding of difference forms the basis of grouping like with like and then drawing distinctions between these groups. Thus, difference is understood to emerge from identity. But Deleuze (1990, 1994) problematises the notion of identity as foundational through inverting the relationship between difference and identity. Instead Deleuze argues that identity is something that is produced by a prior relationship between differentials (Smith & Protevi 2013). Furthermore, the reasoning that underlies the emergence of difference from identity distracts from the specificity of each experience. Instead he calls for the 'particularity or 'singularity' of each individual thing, moment, perception or conception' (Stagoll 2010: 75). On a phenomenological level we label things as belonging to the same kind because we conceive of things in terms of shared attributes. A phenomenological description of something yields this by systematically dispensing with superfluities via the *epoché* and the different reductions; this is how, for Husserl, the eidetic structure of the 'phenomenon' emerges, which is what makes other things recognizable as having the 'same' phenomenological 'essence'. Yet, by privileging the differences between them we fail to 'realise the uniqueness of each moment or thing' (Stagoll 2010: 76) and the interconnectedness between each instance of singularity. Ignoring the dimension of uniqueness in difference led May (2005: 21) to argue that:

> What can be identified is only a single manifestation, a single actualization, of what there is. What there is, is difference: a difference that is not simply the distinction between two identities (which would subordinate difference to identity) or the negation of one of them (which would think of difference only negatively). What there is, is a difference in itself; a pure difference that forms the soil for all identities, all distinctions, and all negations.

But if we remove the foundational grounding of identity and sameness, how can we conceive of things? To answer this, I briefly explore the concepts of becoming and assemblage as developed by Deleuze (1994) and Deleuze and Guattari (1987).

For Deleuze (1983: 23) 'there is no being beyond becoming'. There is no transcendent reality, only immanent becomings. But what is becoming? Becoming is how difference unfolds in time (May 2003: 147). This is because difference produces movement and transformations. These transformations are not predetermined or modelled on things that already exist but are 'a state of the movement of pure difference' (Roy 2003:77). Becoming is thus not the transformation of A $\rightarrow$ B, but could rather be understood through the equation …+y+z+a… (Massumi 1987). This view of becoming posits it as the perpetual movement of the in-between along lines of escape. The movements that produce becomings are described by Deleuze and Guattari (1987) as de/re/territorialisation. The concept of assemblage coined by Deleuze and Guattari (1987) is another important idea to consider in relation to posthumanism and education. Assemblages are complex arrangements 'of objects, bodies, expressions, qualities, and territories that come together for varying periods of time to ideally create new ways of functioning' (Livesy 2010: 18). They are a multiplicity formed through the organisation 'of heterogeneous elements into a productive (or machinic) entity…' (Livesy 2010: 18) that produces both affect and effect. In explaining the concept of productive or machinic assemblage, Colebrook (2002) refers to a bicycle. A bicycle in itself does not have a particular function nor does it work if it is not placed in relation to other machines. Yet, when it is placed in relation to a human body it becomes a mode of transport and in a gallery it becomes an artwork. Klein (in Malins 2004: 85) uses the image of a cigarette to explain machinic assemblages: 'When smoked it becomes a drug, when held seductively at the end of ones fingertips it becomes an object of beauty; when shown in a film it becomes a plot device'. Assemblages then are always in flux, being formed and reformed through the movements of transformation. It is these movements of de/re/territorialisation that produce becoming.

To illustrate the concepts of becoming and assemblage and how things are not only always in-between but also always bounded up with one another in multiplicities, I refer to the image of the orchid and the wasp as described in *A Thousand Plateaus*. Deleuze and Guattari base their

description on an occurrence in which Drakaea orchids are pollinated by Thynnid wasps. The Drakaea orchids imitate the flightless female wasps and produce pheromones similar to that which the female wasps produce in order to attract the male wasps. In utilising this phenomenon to illustrate becoming through the processes of de/re/territorialisation, the abovementioned authors write:

> The orchid deterritorializes by forming an image, a tracing of a wasp; but the wasp reterritorializes on that image. The wasp is nevertheless deterritorialized, becoming a piece in the orchid's reproductive apparatus. But it reterritorializes the orchid by transporting its pollen. Wasp and orchid, as heterogeneous elements, form a rhizome. (Deleuze & Guattari 1987: 10)

In this illustration, the orchid and the wasp are never only an orchid or a wasp; they are always in-between, in the process of becoming. But their becoming does not follow separate trajectories. In this productive assemblage their becoming is inextricably linked with each other; they are a multiplicity. In an earlier book, *Nietzsche and philosophy,* Deleuze (1983: 24) expresses this interconnectedness succinctly by stating that 'Multiplicity is the affirmation of unity; becoming is the affirmation of being'. Nancy's (2000) concept of 'being-singular-plural' finds resonance in the Deleuzoguattarian concept of becoming. According to Nancy's 'being-singular-plural', anybody is brought into being through encounters with other bodies. It is in this encounter that a shared existence is created. Relationality is thus dependent on singularity (Irwin & Springgay 2008). An important implication of the concept of singularity as it emerges from the works of Deleuze and Guattari (1987, 1994) in thinking about posthumanism and education is that binary logic does not hold. The posthuman self and the nonhuman other cannot exist without the presence of the other just like the orchid becomes-wasp and the wasp becomes-orchid. It is in relationality that becoming is produced. The importance of the concepts difference, becoming, and assemblage for education is that it seeks to destabilise stable identities and fixed ideas in order to consider alternative possibilities. This notion is further developed by Braidotti (2006, 2013). In drawing on Deleuze and Guattari (1987, 1994), she

develops the concept of a nomadic subjectivity[4] as a subject of multiple belongings. The nomadic subject is 'constituted in and by multiplicity' but is still grounded and accountable because it is 'based on a strong sense of collectivity, relationality and hence community building' (Braidotti 2013: 49). But this interconnectedness and multiple belongings are not only confined to the human subject. Instead, by removing the centrality of individualism, the non-unitary subject of nomadic posthumanism extends this interconnection between the self and others to also include the nonhuman. This interconnectedness 'suspends the boundaries between that portion of life – both organic and discursive – that has traditionally been reserved for *anthropos*, that is to say *bios*, and the wider scope of animal and non-human life, also known as *zoe*' (Braidotti 2013: 60). It is towards such an understanding that education must turn to remain relevant. Especially in a time when the foundations of liberal individualism and its economic expression of advanced capitalism is increasingly being challenged due to a growing recognition of the havoc it has and is still causing, in terms of inter-human relations and human relations with the nonhuman. Ethically, we (as humans) have no choice but to experiment with different forms of becoming in the world.

In this section I introduce how I take up posthumanism in this article. I do this with particular reference to Deleuze (1994) and Deleuze and Guattari's (1987; 1994) concepts of difference, becoming and assemblage, and Braidotti's (2013) nomadic subjectivity. What I hope to illustrate is that in contrast to certain forms of humanisms (such as philosophical or secular humanism) which are informed by teleological rationality and self-centred individualism, the new materialism that informs my understanding of nomadic posthumanism posits a non-unitary subject that is based on collectivity and relationality. Furthermore, this position 'abandons the idea of matter as inert and subject to predictable forces, instead positing matter as indeterminate, constantly forming and reforming in unexpected ways' (Springgay & Rotas 2014: 1). The embodied, affective and relational are

---

[4] The concept of the nomad is developed by Deleuze and Guattari (1987) in *A Thousand Plateaus*. The nomad is characterised by movement and change. It exists and operates outside of any form of organisational state. The nomad is always in the middle of things because the 'life of the nomad is the intermezzo' (Deleuze & Guattari 1987:380).

central in an ontology that 'recognizes the interconnections of all phenomena' (Springgay & Rotas 2014: 1), both the human and the nonhuman. The dualism inherent in secular humanism is dismantled to be replaced by difference, affective intensities and becoming (Van der Tuin & Dolphijn 2011). Having sketched what nomadic posthumanism entails, I wish to reflect on what this may mean, not only for education in general, but also for how we conceive of rural learning ecologies.

Nomadic Posthumanism, Education and Rural Learning Ecologies

I attempt to contribute to the notion of rural learning ecologies by writing materiality into the concept. Within the concept rural learning ecologies, ecology is understood to be 'an environment that fosters and supports the creation of communities' and as 'an open system, dynamic and interdependent, diverse, partially self-organizing, adaptive, and fragile' (Looi in Hlalele 2014: 103). In extending this concept to include learning, Hlalele (2013: 564) proposes that learning ecologies are 'a collection of overlapping communities of interests; cross pollinating with each other; constantly evolving; and largely self-organizing'. Characteristically, he avers, these communities 'come into being, evolve, die, regenerate and transform' (Hlalele 2013: 564). In coming together in learning ecologies, these communities collectively co-create their preferred vision of present and future life, as well as which forms of learning will achieve this. Hlalele (2013: 565) also observes that we can 'assume that learning generates and builds upon complex and diverse networks/webs of *human* existence' (my emphasis) and in relating it to Ubuntu, points out that it entails 'a conscious, deliberate, internalized, and pervasive focus on the self in the environment, and the self in the community…' and in so doing creates an awareness of 'self-as-part-of-environment'. The notion of rural learning ecologies is closely associated with social justice; a project that is becoming increasingly important in addressing the perpetuation and deepening of structural and social inequalities in the globalised commodification of the economy. The experience of these deepening injustices, also as it pertains to the availability of quality education, has been shown to be pronounced in rural contexts. When compared to urban areas, injustices in rural contexts include a lack of

provision of services and infrastructure and lower school attendance due to socio-economic vulnerabilities such as poverty and child labour (Hlalele 2014). I am not suggesting that the focus of posthumanist projects should be exclusively on education in rural contexts; it applies to urban contexts too as the social injustices that accompany neoliberal capitalism are arguably just as pronounced there.

I argue, however, that the current notion of rural learning ecologies and its aim of creating a more socially just society is still firmly rooted in secular humanism, with its promise of societal perfectibility through a commitment to human rationality. Ever present then is the danger of falling into the abyss of a world in which humans are able to manipulate and 'whose thought and action produce history' (Seaman 2007: 246); a history in which not everyone is considered human, or entitled to the same privileges. The failure of humanism to address the values of pluralism, tolerance and equality have been laid bare by posthumanism, just as the 'limitations in addressing whatever may emerge from the multiple interfaces between the organic and inorganic; material and virtual, cultural and natural worlds' (Pedersen 2010: 242) have been made evident. When thinking about ecologies (human and nonhuman), nomadic posthumanism offers us a different way to conceptualise the relationship between humans and the environment. The rejection of humanist individualism (the self-in-nature) through the introduction of a non-unitary subject and a more inclusive sense of the inter-connectedness with nonhumans and 'earth' others carry implications for how we think about education and rural learning ecologies. In place of 'complex and diverse networks/webs of *human* existence' and an understanding of the 'self in the environment, and the self in the community' nomadic posthumanism proposes a nature-culture continuum in constant process of becoming. Subjects (human and nonhuman) within the continuum are relational entities that are connected to multiple others in assemblages. Yet, relations are only ever in process and are the sum of everything in the assemblage. If this is the case then all relations are transient, which means we need to continuously invest in them. But investment itself is not enough; we need to seek to recognise productive assemblages in educational contexts that affirm life, not with the aim of reproducing them – which can never be done if difference-in-itself is taken seriously – but in order to explore ways in which education might become. This is because productive assemblages are 'a new means of expression, a new territorial/spatial organisation, a new

institution, a new behaviour, or a new realisation…' that are 'destined to produce a new reality, by making numerous, often unexpected, connections' (Livesy 2010: 79). Thus, education should be understood in terms of experimental and experiential processes that create different, but not necessarily better, possibilities of life.

In thinking about education my position intersects with Kumashiro's (2000: 46) appeal that we should not seek to hold onto a utopian vision that 'would simply be a different and foretold way to be, and thus a different way to be stuck in a refined sameness' but rather seek 'to constantly become, … [to] want difference, change, newness'. But such a becoming can only occur if we recognise the interconnectedness of all phenomena, human and nonhuman, and not 'close off the space-between' (Kumashiro 2000: 46). In relating Kumashiro's appeal to educational practices, Biesta (1998, 2006) warns against an instrumentalist pedagogy that seeks to achieve specified predetermined outcomes because inherent in educational encounters is an impossibility and unpredictability that flows from 'ontological and epistemological insecurity' (Pedersen 2010: 246-247). The impossibility and unpredictability inherent in education mirrors, to some extent, flux and flows of becoming, for how becoming is affected and effected can never be foreseen. If this is the case, what can we hope to achieve through education? Education should provide the conceptual and practical possibilities to develop forms of activism that are geared towards 're-appropriating the immediate spaces of existence by simultaneously transforming them through everyday actions' (Papadopoulus 2010: 75). We should equip ourselves to identify productive education assemblages and seek ways to perpetuate these. It is through the reclamation of material spaces and vital relations that we will be able to develop alternative social and material realities (Papadopoulus 2010). What is in question then is how we change matter, in this case assemblages that produce and are produced by education, through collective practices, in order to create new forms thereof. I have argued that it is through destabilising and replacing stable categories with becoming that we open up lines of escape. This becoming is, however, not confined to humans, but is expanded to include not only the realm of *bios* but also the realm of *zoe*.

Lines of Escape

All becoming is minoritarian, as all becomings are a return to difference. This

is, I believe, how education should unfold. Education should become-minoritarian through spontaneous and creative acts of activism that build on political singularities. Such an experimental and experiential approach offers a way 'to changing our collective modes of relation to the environment, social and other, our cultural norms and values, our social imagery, our bodies, (and) ourselves' (Braidotti 2012: 269) through a confrontation with the real. By foregrounding becoming, the importance of relationality is made pervasive. Such a focus on relationality opens up alternative ways of considering how education may contribute to creating a different, and perhaps, more socially just world. This understanding of a socially just world is, however, not rooted in a teleological vision, but occurs when 'we step without reserve to the other' (Richardson & St. Pierre 2005: 972), whether this other be human or nonhuman. It is in stepping towards that difference unfolds as the 'possibility of becoming other than the present self' (Semetsky 2004: 320) and a renewed belief in the world to come (Deleuze 1995: 176). In thinking about rural learning ecologies such a position becomes of utmost importance as we grapple with increasing complex contexts in a world where the flow of both material and social resources are moving progressively along evermore rigid and hierarchical lines. Writing materialism, which informs my understanding of posthumanism, into rural learning ecologies may offer one line of escape; an escape that is grounded in 'new forms of collective practices' (Papadopoulus 2010: 75) through an enlarged sense of the interconnectedness between *bios* and *zoe*.

　　In returning to one of the underlying assumptions that has guided this article - thinking as problematic - I need to reiterate what I aimed to achieve. I did not set out to discover a truth or to get 'the right take on things' (May 2003: 140); instead, it was to make a contribution to how we perceive living, in particular living as it relates to the education project. I endeavoured to move beyond description and explanation in order to highlight that 'philosophy [of education] does not consist in knowing and it is not inspired by truth. Rather, it is categories, such as Interesting, Remarkable, or Important that determine its success or failure' (Deleuze & Guattari 1994: 82). In attempting to do this, I return to the second assumption – all there is, is difference. If the categories of Interesting, Remarkable, or Important are pervasively significant to philosophy of education, then it should seek to not only problematise the Sameness of fixed identities and categories where they occur, but also to 'recognize and create novelty and difference' (May 2003:

Frans Kruger

140). And in thinking differently it may lead to alternative, if not more preferable ways of living in the world.

References
Agamben, G. 1998. *Homo Sacer: Sovereign Power and Bare Life*. Redwood City: Stanford University Press.
Bell, J. 2011. Between Realism and Anti-realism: Deleuze and the Spinozist Tradition in Philosophy. *Deleuze Studies* 5,1:1-17.
Biesta, G.J.J. 1998. Say you Want a Revolution …. Suggestions for the Impossible Future of Critical Pedagogy. *Educational Theory* 48:499-510.
Biesta, G.J.J. 2006. *Beyond Learning: Democratic Education for a Human Future*. Boulder: Paradigm.
Braidotti, R. 2006. Affirming the Affirmative: On Nomadic Affectivity. *Rhizomes: Cultural Studies in Emerging Knowledge* 11/12. http://www.rhizomes.net/issue11/braidotti. Html. (Accessed on 5 August 2014.)
Braidotti, R. 2012. *Nomadic Theory: The Portable Rosi Braidotti*. New York: Columbia University Press.
Braidotti, R. 2013. *The Posthuman*. Cambridge: Polity Press.
Colebrook, C. 2002. *Gilles Deleuze*. New York: Routledge.
Colebrook, C. 2010. Introduction. In Parr, A. (ed.): *The Deleuze Dictionary Revised Edition*. Edinburgh: Edinburgh University Press.
Conley, V. 2010. Minoritarian. In Parr, A. (ed.): *The Deleuze Dictionary Revised Edition*. Edinburgh: Edinburgh University Press.
Davies, T. 1997. *Humanism*. London: Routledge.
Deleuze, G. 1983. *Nietzsche and Philosophy.* Tomlinson, H. (trans.). New York: Columbia University Press.
Deleuze, G. 1990. *The Logic of Sense.* Lester, M. & C. Stivale (trans.). New York: Columbia University Press.
Deleuze, G. 1994. *Difference and Repetition.* Patton, P. (trans.). New York: Columbia University Press.
Deleuze, G. 1995 *Negotiations: 1972–1990.* Joughin, M. (trans.). New York: Columbia University Press.
Deleuze, G. & F. Guattari 1987. *A Thousand Plateaus: Capitalism and Schizophrenia.* Massumi, B. (trans.). Minneapolis: University of Minnesota Press.

Deleuze, G. & F. Guattari 1994. *What is Philosophy?* Tomlinson, H. & G. Burchell (trans.). New York: Columbia University Press.

Deleuze, G. & C. Parnet 1987. *Dialogues.* Tomlinson, H. & B. Habberjam (trans.). London: Athlone Press.

Hayles, N.K. 1999. *How we Became Posthuman. Virtual Bodies in Cybernetics, Literature, and Informatics.* Chicago: The University of Chicago Press.

Hlalele, D. 2013. Sustainable Rural Learning Ecologies - A Prolegomenon Traversing Transcendence of Discursive Notions of Sustainability, Social Justice, Development and Food Sovereignty. *TD: The Journal for Transdisciplinary Research in Southern Africa* 9,3:561-580.

Hlalele, D. 2014. Creating Sustainable Rural Learning Ecologies in South Africa: Realities, Lessons and Prospects. *Journal of Human Ecology* 45,2:101-110.

Husserl, E. 1970. *Logical Investigation*. New York: Humanities Press.

Irwin, R.L. & S. Springgay 2008. A/r/tography as Practice-based Research. In Cahnmann-Taylor, M. & R. Siegesmund (eds.): *Arts-Based Research in Education: Foundations for Practice*. New York: Routledge.

Kumashiro, K.K. 2000. Toward a Theory of Anti-Oppressive Education. *Review of Educational Research* 70,1:25-53.

Livesy, G. 2010. Assemblage. In Parr, A. (ed.): *The Deleuze Dictionary Revised Edition*. Edinburgh: Edinburgh University Press.

Malins, P. 2004. Machinic Assemblages: Deleuze, Guattari and the Ethico-Aesthetics of Drug Use. *Janus Head* 7,1:84-104.

Massumi, B. 1987. Translator's Foreword: Pleasures of Philosophy. In Deleuze, G. & F. Guattari: *A Thousand Plateaus: Capitalism and Schizophrenia*. Minneapolis: University of Minnesota Press.

May, T. 2003. When is a Deleuzian Becoming. *Continental Philosophy Review* 36:139-153.

May, T. 2005. *Gilles Deleuze: An Introduction*. New York: Cambridge University Press.

McKay, R. 2005. 'Identifying with the Animals': Language, Subjectivity, and the Animal Politics of Margaret Atwood's 'Surfacing'. In Pollock, M.S. & C. Rainwater (eds.): *Figuring Animals: Essays on Animal Images in Art, Literature, Philosophy and Popular Culture*. New York: Palgrave Macmillan.

Nancy, J-L. 2000. *Being Singular Plural*. Stanford: Stanford University.

Nietzsche, F. 1982. '*The Antichrist': The Portable Nietzsche*. Kaufmann, W. (trans.). New York: Penguin books.

Nussbaum, M. 2010. *Not for Profit: Why Democracy Needs the Humanities*. Princeton: Princeton University Press.

Roy, K. 2003. *Teachers in Nomadic Spaces: Deleuze and Curriculum*. New York: Peter Lang Publishing.

Papadopoulos, D. 2010 Activist Materialism. *Deleuze Studies* 4:64–83.

Pedersen, H. 2010. Is 'the Posthuman' Educable? On the Convergence of Educational Philosophy, Animal Studies, and Posthumanist Theory. *Discourse: Studies in the Cultural Politics of Education* 31,2:237-250.

Richardson, L. & E.A. St. Pierre 2005. Writing: A Method of Inquiry. In Denzin, N.K. & Y. Lincoln (eds.): *The Sage Handbook of Qualitative Research*. 3rd Edition. Thousand Oaks: Sage.

Said, E. 2004. Orientalism Once More. *Development and Change* 35,5:869-879

Seaman, M.J. 2007. Becoming More (than) Human: Affective Posthumanisms, Past and Future. *Journal of Narrative Theory* 37,2:246-275.

Semetsky, I. 2004. Becoming-Language/Becoming-Other: Whence Ethics? *Educational Philosophy and Theory* 36, 3:313-325.

Smith, D. & J. Protevi 2013. Gilles Deleuze. In Zalta, E. (ed.): *The Stanford Encyclopaedia of Philosophy (Spring 2013 Edition)*. Available at: http://plato.stanford.edu/archives/spr2013/ entries/deleuze. (Accessed on 29 June 2015.)

Spangenberg, Y. 2009. 'Thought Without an Image': Deleuzian Philosophy as an Ethics of the Event. *Phronimon* 10,1:89-100.

Springgay, S. & N. Rotas 2014. How do you Make a Classroom Operate Like a Work of Art? Deleuzeguattarian Methodologies of Research-creation. *International Journal of Qualitative Studies in Education*. DOI: 10.1080/09518398.2014.933913.

Stagoll, C. 2010. Difference. In Parr, A. (ed.): *The Deleuze Dictionary Revised Edition*. Edinburgh: Edinburgh University Press.

Van der Tuin, I. & R. Dolphijn 2011. Pushing Dualism to an Extreme: On the Philosophical Impetus of a New Materialism. *Continental Philosophy Review* 44:383–400.

Verbeek, P. 2011. *Moralizing Technology*: *Understanding and Designing the Morality of Things*. Chicago: Chicago University Press.

Experimenting with Nomadic Posthumanism

Frans Kruger
Philosophy of Education
Faculty of Education
University of the Free State
krugerf@ufs.ac.za

The Tacit Influences on one's Ways of Teaching and Doing Research

Bert Olivier

Abstract

This paper is an exploration of the mostly tacit, or unconscious, motives or influences driving and guiding one's way of teaching and doing research in the social sciences (although it would be valid for teaching and research in the natural sciences too). With the notions of discursive exclusion and hierarchical authority as points of departure, the argument moves to Habermas's distinction between two kinds of 'action', namely, strategic action and communicative action (which are really two ways of communicating, with ethical import), uncovering the teaching and research styles that correspond to these. This leads to Habermas's distinction of three groups of sciences and what he calls their corresponding 'interests' – the empirical-analytical sciences guided by the interest of technical control, the historical-hermeneutic sciences guided by the practical interest in mutual understanding, and the critical social sciences guided by the interest in emancipation. These different kinds of sciences and their corresponding interests point towards different ways of teaching and doing research. The more fundamental question, however, is why different people are attracted to different 'interests'. To answer this, Lacan's theory of the four discourses is invoked – those of the master, the university, the hysteric and the analyst – because they help one understand the different power-relations involved in each discursive position, to which different individuals are attracted. Lacan's theory is further refined and elucidated by means of Derrida's paradoxical distinction between the engineer and the *bricoleur*, as well as Rancière's distinction among three regimes of art, before the paper concludes with a consideration of Heidegger's 'fourfold' as a touchstone for orienting one's research ethically. Methodologically speaking, the different theoretical lenses

used in this paper are justified by the poststructuralist (specifically Lacanian) distinction between the 'symbolic' and the 'real', where the first register, under which theory is subsumed, can always only approach the latter asymptotically, without ever coinciding with it.

Keywords: teaching and research, communication, communicative action, Habermas, Lacan

Introduction

During a discussion at a staff seminar at the university where I teach, one of the participants, who teaches public administration, was explaining to the rest of us that in his research on, broadly speaking, the communication between government officials (including ministers) and ordinary citizens comprising various constituencies, he constantly comes across communicational gaps — between the documents released by officials, pertaining to specific constituencies or communities (such as audit reports) and the constituencies concerned, between the officials or ministers themselves and the communities involved when they occasionally meet face to face, and between the members of the constituencies and the officials, when the former try to 'get through' to officials or ministers. Our discussion explored various reasons for this, some of which centred on the concept of discourses or 'language games', which are very different where reports, governed by technical, bureaucratic rules of reporting, and ordinary language attempts to understand these, come up against each other. This points to one reason why communicational gaps exist: terminological exclusion through specialised discourse.

There is no reason why officials or ministers, assisted by someone who is linguistically adept in the language of the constituency concerned, could not approach the latter and use every available avenue to make technical reports or 'white papers' accessible to them. One should immediately be reminded, here, of Jacques Rancière, who believes that all people are 'equal' (Rancière 2010: Ten theses on politics, Thesis 5; Tanke 2011: 35-40) in an overdetermined sense of 'equal', including the sense of being capable of making sense of something when given the opportunity, no matter what class or educational differences separate them, so there is no conclusive reason for state officials to refuse communication with citizens on

exclusivist grounds. One of our members pointed out that what many individuals — and not only state officials or ministers — are not willing to do, is to go out of their way to make certain information accessible to others, because it would remove a (discursive) barrier behind which they feel protected, and which enables them to wield power over others. This is what Habermas (Brand 1990: 15-16) calls 'strategic action', namely that mode of communication where one's 'validity claims' are not openly advanced, in order to exercise power over one's interlocutors. In other words, it is disingenuous (or pseudo-) communication, which is not really communication at all. True communication is instantiated in what Habermas calls 'communicative action', where one's validity claims are openly shared with your interlocutors (as best one can; unconscious motives may subvert one's best efforts at sincerity and openness, of course, as psychoanalysis has taught us).

Does the scenario sketched above sound familiar? How many of us have been exposed to lecturers and teachers who have hidden behind a palisade of technical jargon to protect themselves from the possibility of being questioned with too much understanding on the part of students, or of members of a community who have a stake in the smooth running of a government department? In other words, the phenomenon of individuals throwing up a smokescreen for protection when they do not feel entirely confident in themselves regarding the field of their accountability, is not at all foreign to us.

Reinforcing this evasive behaviour born of lack of confidence there is the further scourge of hierarchical thinking — the appeal to (often unfounded) 'authority' — which functions as an almost insurmountable obstacle to, among other things, productive communication, or research, when senior researchers or people in research development adopt a condescending attitude to junior staff members or — in the case of postgraduate student-supervisors — to students. Prescriptive behaviour usually accompanies this hierarchical approach, which never frees postgraduate students to find their own way in their field. Even the most adequate supervision, understood as guidance of less experienced people, cannot afford to keep the 'apprentice' on a string forever.

To be able to 'free' students for discovering their own angle of incidence into a discipline, one has to have confidence and the willingness to learn from someone else, albeit a student, that your own approach is not the

only possible one. Again, anyone who lacks confidence in their own ability to confront the new, and to assimilate it into one's own frame of reference — or better, to modify and amplify your own frame of comprehension — would resist such openness and hide behind established edifices of supposed 'knowledge'. I say 'supposed' because it is not really knowledge unless it is put to the test in the face of something novel, which could easily come from students (something I have experienced on many occasions). Needless to say, one's approach to student guidance or to teaching is intimately related to one's own way of doing research — your own 'style' or approach to gaining insight into the disciplines that interest you.

A Methodological Consideration

On a methodological note, because many scholars or academics have not taken the poststructuralist 'turn', and insist on some kind of 'methodological purity', let me state at the outset that no one should be that innocent after Lacan, Derrida, Foucault, Deleuze and Guattari, Kristeva and other thinkers, who have introduced what one might call a both/and (alternatively: neither/nor) logic in the place of the traditional either/or logic inherited from Aristotle. This can be demonstrated from the work of any of these figures, but here it is particularly Lacan's work that may show what I mean in the most succinct manner. I am thinking of Lacan's distinction between three registers of meaning, or alternatively ontological registers from the complex intertwinement of which human subjectivity (or 'being' for that matter) can be understood – the 'real', the imaginary and the symbolic. The 'real' surpasses symbolisation, and must be presupposed by the subject's entry, first, into the imaginary sphere through the recognition of her or his own specular image (Lacan 1977a), followed by the acquisition of language or discourse (the symbolic). Once the subject has entered the symbolic, they cannot return to the 'real' (to which they were confined before entering the other two registers), but it nevertheless always 'overlaps' them so that the subject can experience what Lacan (1981: 52-64) calls a 'missed encounter' with the real (as in the case of a traumatic experience) – 'missed', because one knows that you have been subjected to 'something', but no amount of talking or attempts at retrospectively grasping what it was that happened to you can really capture it fully.

It is not only in trauma that one is confronted by the 'real', however. Poets, artists and scientists also respond to their awareness of its ineffable 'appeal' to them when they confront something that eludes direct description or evocation, and they have to resort to depicting, evoking, saying or articulating as best they can (hence the need for innovativeness on their part) what it is that 'calls' for expression or 'being named'. In the sciences this typically happens when scientists reach the 'border' between existing theory, or knowledge, and that towards which the science is 'moving' (Fink 1997: 133-134). The theory concerned is symbolically structured, but the attempt to articulate it more and more 'accurately' is driven by the knowledge that there is always something 'more accurate' to be said or delineated about the phenomenon in question. One might say that the symbolic always approaches the 'real' asymptotically, that is, it strives to reach it, but never quite does. My use of different theoretical 'lenses' in this paper should be understood in the light of this realisation – no matter how 'consistently' one might follow one theoretical path (Habermas's, for instance), one will always reach the point where a different theoretical lens will allow one to get a better 'feel' for what it is one is attempting to bring under symbolic scrutiny, even if one accepts that no such 'lens' will quite allow one to come face to face with the 'real'. Hence my switching from one such theory to another when the argument requires a different symbolic approach or 'lens'.

Habermas, Strategic and Communicative Action

As already intimated above, Jürgen Habermas — the philosopher of communication — sheds light on this with his distinction between two types of communication, or what he calls 'strategic action' as opposed to 'communicative action', both of which have unmistakable ethical implications (Habermas 1987: 121, 113-157; Brand 1990: 15-16). To elaborate, the first kind covers, from a discourse-theoretical perspective, informational actions and exchanges which are disingenuous, in other words, which covertly advance the interests embedded in the discourse, or those of the speaker-subject of this discourse, at the cost of the receiver(s) or listener(s) in question. Where such 'strategic action' is concerned, there is therefore a tension, if not a contradiction, between what is stated at the overt level, and what is covered up by this — for example, when a company's

management informs employees that they are given the opportunity to be paid out for a certain category of leave that they have accumulated, which, if accepted, entails losing the leave in question, but receiving a corresponding amount in cash. On the face of it, it is the employees that benefit, but closer inspection reveals that it is a clever accounting move to save the company money in future, when retiring employees would have had to be paid out much more than at the time of the offer. In everyday relations between people, 'strategic action' happens all the time, of course: when a husband tells his wife and children that there is no money for a holiday this year, it may be the case, but unbeknown to them, the (withheld) reason may be that he is saving up the holiday money for that luxury sedan he wants, to be seen as successfully competing with his colleagues at work, or his wealthier brother.

In contrast to 'strategic action', its counterpart, 'communicative action', is all about being as sincere and open in acts of communication as one can possibly be. As briefly indicated earlier, Habermas characterizes it by saying that in such acts of 'communicative action', one puts all one's 'validity claims' on the table. This means that you should attempt, as best one can, to provide the reasons for adopting a specific position in one's communicational exchanges, with nothing intentionally hidden. For instance, when two lovers quarrel, instead of hiding the reasons for their dissatisfaction, lest the other take umbrage at these motives, ALL the motives for one's stance or actions should be revealed, in stark contrast with 'strategic action', where they are deliberately withheld.

Needless to say, it is not easy to practice 'communicative action' — firstly because most of us are subject to the unconscious desire to advance or secure our own interests most of the time, and therefore we tend to practice a species of 'strategic action' more often than not. And besides, in my judgement, Habermas underestimates the extent to which unconscious motives trip up even our best intentions to communicate openly and sincerely (Lacan 1977: 58). But 'communicative action' remains the normative ideal to be emulated, although it is a moot question whether complete openness and sincerity would actually be possible in a world which thrives on hidden agendas in most relations between people, as shown by what the WikiLeaks revelations have uncovered about inter-governmental communications (Olivier 2010). The governments that have expressed their displeasure in the face of these leaks have indicated as much: although they don't admit it

openly, their implicit belief is that the relations between countries would be far better ('managed') if the normal 'strategic action' would be left to occur unhindered.

Make no mistake, therefore. What this brief reflection on the difference between two types of 'communication' shows, not only pertains to the WikiLeaks phenomenon that has lifted the veil normally covering the 'true' face of diplomatic exchanges. The same tension that obtains between the 'strategic action' by which such diplomatic exchanges are usually governed, and the principle of 'communicative action' which governs those rare instances where individuals, parties, governments or partners of various stripes put all their 'validity claims' on the table (to the extent that it is possible), also exists in the everyday 'communications' between people.

This is the case between enemies, acquaintances, friends, lovers, husbands and wives — with hardly (if) any exceptions. More often than not the exchanges between people fall into the 'strategic action' category, not because people are irrevocably evil, but simply because, in our informational and communicational exchanges we are, first and foremost — under pressure of what Freud called 'survival instincts', no doubt — intent on serving our own best interests. Recall that Habermas characterises 'strategic action' as being disingenuous, that is, as advancing a hidden agenda: what is overtly said or otherwise indicated, should never be taken at face value. 'Strategic action' always advances the interests, and serves the purpose of increasing the power of, the one employing it[1].

---

[1] From this perspective the phenomenon of gossip is interesting: gossip has the structure of WikiLeaks leaks, but hides its own, redoubled, covering up or 'strategic action': in gossip, the putative 'truth' about the actions, intentions or plans of others (usually supposed 'friends' into the bargain) is revealed to usually eager fellow gossips — information or opinions that would never feature in exchanges between the gossip (person) in question and the subjects of the gossip. But although the manner in which the information or opinion is phrased is usually such that it has the appearance of 'communicative action', it is nothing of the sort. Even if the information shared may be shown to be accurate, the intention or motivation behind it places it in the 'strategic action' category, namely as being motivated by the hidden agenda of promoting the interests of the gossiping person (for example in an attempt to

From this one may hypothesize that, assuming that there is a tendency to advance one's own interests, rather than those of others whose interests are not shared by yourself (there being another group of 'others' some of whose interests are indeed shared by yourself, like your family members), 'strategic action' comprises a large part, if not most, of one's communicational activity. It is highly unusual for a person to put the interests of others before her or his own as a matter of course – economic relations and activity being paradigmatic in this regard, as Adam Smith accurately indicated in *The wealth of nations* of 1776 (Baumer 1977: 178-179), which was the founding document of liberal economics, and the pessimistic anthropology of which is validated by the hegemony of neoliberal economics in the present era. Besides, even communicative action may be motivated by one's own interests, or, for that matter, one's own *as well as* the other's interests, as in communication between lovers where there is equality and mutuality, with no domination of one by the other (French 1986: 576).

Even teaching and research are not exempted from these modes of communication – it easily happens that, while both are supposedly predicated on the requirements for communicative action (such as sincerity and openness), a strong dose of strategic action underpins one's teaching and research. Think of the difference between a teacher (or researcher) whose 'style' of teaching (or conducting research) is accompanied by a certain humility, or an acceptance that she or he is not always 'right', but is just as subject to making mistakes as anyone else (no matter how hard one tries to consider every angle), on the one hand, and a teacher/researcher, on the other, whose style is dogmatic and authoritarian. It should be clear that the latter style corresponds to strategic action, and the former to communicative action.

Habermas on the Interests Guiding the Sciences

This does not mean that there are only these two kinds of discursive styles or 'interests' accompanying or guiding communication – 'strategic' and 'communicative'. It is probably the case that the most pervasive interests (including these) are not conscious at all, but before discussing those – as uncovered by psychoanalytical theorist, Jacques Lacan – some attention

---

ingratiate him/herself with the listeners). Ironically, when found out, the interests of the gossip (person) are usually undermined.

should be given to another aspect of Habermas's (earlier) work, given its suggestiveness regarding one's guiding (sometimes unconscious) interests, this time less in an inter-personal than in a didactic and research context. As far as I can tell, research at most South African universities – and I would even include overseas universities in this – is conducted in such a way that it is guided principally by individual researchers' scientific or discipline-oriented interests, and/or these interests in so far as they overlap or dovetail with those of other researchers under the aegis of a common research theme – in other words, team-research.[2] In addition, universities are guided by what they envisage as 'focus areas' of research – those that are deemed especially important for the broadly 'developmental' needs of the country's economy, and are therefore promoted by universities (and by industries). However, if the inescapable interests underpinning on-going, actual research, as well as the way that disciplines are taught at university, were to be lost sight of, whatever the nationally identified 'focus areas' might be, any overarching research project would run out of its sustaining energy.*

A variety of starting points are available, and possible, for uncovering these interests, such as Foucault's (1972: 215-237) marvellously intricate grid of societal 'mechanisms' for the configuration and 'control' of discourse, which could be mapped on to particular teachers' and researchers' specific approaches to their work. For present purposes, however, I shall briefly focus on the methodological theoretical framework outlined by Jürgen Habermas (1971: 196-310; see also Bernstein 1976: 191-200) early in his career, where he articulates his theory of the 'three cognitive interests', corresponding to different groups of sciences, each of which is grounded in a particular area of social life. This comprises a theory within which researchers could situate their own work, and at the same time come to

---

[2] Both of these kinds of research – individual and team-research – are usually encouraged, although the emphasis in South Africa has been more on the latter type lately, partly to encourage experienced researchers to impart their knowledge to younger researchers who have to step into the breach when they finally retire – 'finally', in light of Minister Dr Blade Nzimande's recent remark, that academics' retirement age should be lifted to the age of 80, instead of 60, where it currently stands in most cases. This was good sense on the part of the minister.

understand the differences as well as the interconnectedness between different kinds of science.

In more detail (but briefly), Habermas's early theory amounts to this. It articulates the correlation between what Habermas regards as three 'cognitive interests' (values) which guide and drive certain groups of sciences, and are rooted in three distinct fields of human existence. The three cognitive interests and the corresponding groups of sciences are as follows, keeping in mind that although these are predominantly methodological and epistemological considerations, they point towards a social theory that would accommodate and explain the need for such sciences to exist, and which Habermas was working towards at the time of publishing *Knowledge and human interests*.

First there is the *technical interest in control*, which underpins the *empirical-analytical sciences* (including engineering, physics, chemistry, computer science, accounting, but also sciences like psychology, in so far as they are practised with a view to exercising control through, for instance, psychometrics). Then there is the *practical* (i.e. ethical) *interest* in *mutual understanding*, underlying the historical-hermeneutic sciences (such as history, literary studies, linguistics, philosophy, anthropology, art theory, the classics, philology, communication studies, and so on). Thirdly, the *emancipatory interest* supports and drives the *critical social sciences* (like sociology, social and critical psychology, political science, psychoanalysis, critical economics and philosophy; it will be noted that philosophy straddles the second and third group of sciences, because it incorporates both kinds of interests).

Less well known is Habermas's contention that each of these interests (and therefore each of the groups of sciences), is rooted or grounded in a distinct aspect of human social existence: the technical interest is grounded on *labour*[3] (necessary for survival), the practical interest on

---

[3] It is interesting to note that Hannah Arendt (1958 :79-96), contrary to the majority of theorists, distinguishes between *labour* (which is engaged in for the sake of survival through consumption) and *work* (which, in contrast to labour, produces durable cultural objects such as artefacts). She further reminds one that the ancient world valued *labour* (and to some extent *work*, as associated with craftspeople or artisans) negatively – which partly explains

communicative interaction, and the emancipatory interest on *power* (from *and* to) as an inalienable aspect of human existence. One could put this the other way around as well, this time in developmental terms, by saying that the work or labour that has always been necessary for the reproduction of social life through the exercise of a measure of (broadly) technical control over one's environment, has given rise to those experiential sciences which lay the cognitive basis for securing social life in all its ramifications. Parallel to, and interwoven with this, the social practice of communicative interaction that has, from time immemorial, been required as a 'praxis' (ethical practice) for societies to exist, has led to the emergence of sciences of a broadly historical and hermeneutic (that is, interpretive) nature. Lastly, the ubiquitous existence of asymmetrical power relations (from within families to between economic, social and political groupings) has called into being the need for emancipation, or liberation, which, as a distinct interest or value, has resulted in the establishment of the critical social sciences.

The important thing to notice here is that each distinguishable group of sciences, while being rooted in the social practice concerned (labour, communicative interaction and the exercise of power), and being driven and directed by the values or interests concerned (technical, practical and emancipatory) has the important reciprocal function of serving to strengthen these social practices by reinforcing the different interests. And even more importantly, Habermas intimates that, just as work or labour is necessary for social or cultural communicative interaction to flourish, both of these are prerequisites for social and political emancipation to become a reality. Similarly, the corresponding empirical-analytical sciences and historical-hermeneutic sciences point towards, and in a sense promote the possibility of the critical social sciences, because 'freedom from' oppression, and 'freedom to' actualise one's potential in society is the highest value or interest of them all. Against this backdrop it should be clear why Habermas's theory ultimately leads to, or implies, an encompassing social theory.

Lacan's Four Discourses

The more fundamental question is, of course, why some people adopt hier-

---

slavery, which freed citizens for *speech* and (political) *action* – while the modern world values it highly, as in Marx's labour theory.

archical positions towards others — in diverse contexts, from business to education to civil service — and others seem entirely at ease with a situation, even a very informal one, where they treat others as equals (regardless of whether such others are as 'knowledgeable' as they are in a discipline). The answer has to do, firstly, with confidence (as argued earlier), but secondly also with what the German philosopher Fichte once remarked, namely: 'The kind of philosophy one chooses depends on the kind of person you are.'

There are many theories of personality articulated by people such as Freud, Jung, and others, which is not what I want to go into here, given their terminological differences. 'What kind of person one is' nevertheless plays a decisive role in one's approach to virtually everything in life, and not only the situations referred to above. Jacques Lacan's (2007; see also Olivier 2012) theory of the 'four discourses' affords one a useful and insight-promoting heuristic as far as the connection between 'the kind of person you are' and the way one teaches and does research is concerned. Every one of the four discourses — the discourse of the master, of the university, of the hysteric and of the analyst — denotes a specific subject position. To put it simply: every discourse is a particular way of approaching the world, society, or other individuals. And different people behave under the sway or dominance of a different discourse, mostly, although one can also switch discursive positions (deliberately, or involuntarily) in different situations.

Individuals who tend to be hierarchical or authoritarian in their approach to teaching and research (whether one is at the giving or the receiving end) are invariably in thrall to the *master's discourse* in one of its embodiments, of which there are many. (Every one of the four discourses is a TYPE of discourse). Patriarchy is a widespread master's discourse — the discourse of the 'rule of the father' — which functions in government, in education, in business and in the churches (the Roman Catholic Church being an exemplar of a patriarchal, hierarchical organisation, although not the only one). Arguably, the discourse of neoliberal capitalism is *the* master's discourse of the present era (although it disguises itself as an instance of the hysteric's discourse; see Lacan 1978; Olivier 2012). Needless to say, individuals interpellated by the discourse of the master, would find evidence of it in the readiness with which they submit to 'authority' in their own lives, including in research.

The *discourse of the university* is the discourse of knowledge — ironically not of a critical, questioning conception of knowledge, but the kind

that supports the *status quo*, for example standard theories of economics that maintain present economic power relations. This discourse is predicated on a conception of knowledge as systematically unified, and in principle capable of being 'completed'. Those individuals who approach teaching and research in such a manner that they betray a belief in closed systems of knowledge, are indebted to this discourse. Needless to say, the university discourse is not compatible with the nature of science, or philosophy, for that matter. Science and philosophy are open systems of knowledge, which means that because they are not situated in a timeless vacuum, they are in principle self-critical and open or susceptible to historically new discoveries, theories and insights, which means that they are, like all human knowledge, revisable. This accords with what Jacques Derrida (1997: 16-24) calls the 'messianic structure of experience', which alludes to the unpredictability of future social experience, to the paradoxical idea of 'expecting the unexpected', of always being ready for the advent of a 'messianic' event which may happen when you expect it least. (Derrida is not here talking in terms of the religious idea of a Messiah, although the idea of a historically unspecified 'advent' is borrowed, metaphorically, from that discourse.)

The true representative of critical, questioning science is the *discourse of the hysteric*, and one can recognise oneself as acting under its aegis when one's style of communicating (including teaching) or of doing research is a *questioning* one. Moreover, it presupposes a conception of knowledge as being structurally indeterminate, meaning that knowledge is not simply empirically incomplete at any given stage, but is in principle subject to uncertainty, or the indeterminacy of what Lacan calls the unsymbolizable 'real'. This can be seen in Heisenberg's famous indeterminacy principle, according to which one cannot measure the speed and the location of an electron *at the same time* (Fink 1997**:** 133-134). The *discourse of the analyst* is recognisable in the actions of those who are not satisfied with either blind subjection to the master's discourse, or the incessant questioning (of the master's and the university discourses) by the hysteric, but find that a questioning alternation between different master's discourses (which are therefore relativised) yields the best communicational or research results and the most beneficial human or social relations. This means that it is a way of negotiating between what are referred to in philosophy as being (stability, permanence) and becoming (change, flux).

Poststructuralist theory is an example of such 'thinking together' of being and becoming, or of following the logic of both/and, instead of either/or.

Self-knowledge as far as one's own 'discursive dominant' is concerned can therefore be very productive. Whatever the case may be, knowing the weakness and the strengths of a discursive position can assist towards modifying one's communicational behaviour as well as one's teaching and research in the case of academics. It may be difficult to adapt from a personal tendency to lecture and engage in research in an authoritarian manner – either from such a perspective, as the mouthpiece of the master's discourse, or as the one who (as Adorno once put it regarding what he called 'the authoritarian personality') 'needs a master'. However, a sustained attempt to enter the discursive space of the hysteric's questioning discourse in relation to that of the mediating analyst, in this way producing successive, relativized master's signifiers, may yield rewarding results. The reason for this is simply that the latter negotiation accords with the open-ended, but unavoidably theory-oriented character of science, as well as with a justifiably humble, yet confident, approach to teaching – one not blindly committed to the systematic, supposed unity of the university discourse (which secretly serves that of the 'absolute' master, anyway).

It is not difficult to map Jacques Derrida's (1978) distinction between the *engineer* and the *bricoleur*, deconstructively borrowed from Lévi-Strauss, on to Lacan's four discourses, further clarifying the different inclinations and motives underlying teaching and research. The figure of the *engineer* suggests someone who is motivated by the thought of constructing artefacts, or cultural domains, with the aid of the most reliable and precise instruments, in this way putatively guaranteeing exactitude and durability to an optimal degree, by warding off the erosion of things that comes with time. The paradigmatic *engineer*, like those governed by Lacan's university discourse, therefore dreams of perfect systematicity, completeness and coherence, whether this is in (teaching or research pertaining to) the sciences of construction or in the human sciences. The *bricoleur*, on the other hand, represents the paradigm of a tinkerer or handyman/-woman, who approaches the task of constructing and fixing artefacts (or scientific disciplines) by means of any instrument that may be readily at hand, knowing that, whatever instruments are used, the products of her or his work are unavoidably subject to historical relativization or attrition. As a paradigm for teaching and research, the *bricoleur* may seem to correspond roughly with the hysteric's

discourse, in so far as 'questioning' the master (or the university) as overriding attribute is concerned, but taken together, the models of the *bricoleur* and the engineer tell us something important.

Although one's inclination as teacher or researcher would probably be to emulate the one or the other, Derrida reminds his readers that one is not in a position to choose between the engineer and the *bricoleur*, and that there is no reason *not* to try one's very best at being an 'engineer' in practice (that is, being as precise and thorough in one's pursuit of knowledge as is humanly possible), with the realization, though, that even one's best attempts are, in the end, subject to historical ruin, reconstituting them as *bricolage*. This is related to the mediation of the hysteric's discourse and that of a (new) master's discourse by the discourse of the analyst, with Derrida in the role of the latter. Put differently, therefore, he counsels one to accept that adopting new master's (engineer's) signifiers is unavoidable for constructive cultural endeavours (such as teaching and research), as long as these operate in a creative tension with those of the hysteric or the *bricoleur*, whose distinctive way of operating 'questions' that of the engineer or master. In practice, teachers and researchers could learn from Derrida that setting one's sights on 'results' that are comparatively stable is commendable, but that one should not be deluded into believing that these 'results' are unassailable or impervious to becoming. A model student could disappoint at a later stage, and one's research results could be falsified under different historical circumstances.

Rancière, Art and Equality

There are many other grids or models for understanding oneself, specifically in the context of teaching and research, of course. I shall focus on only two more, the first of which is articulated by a highly original thinker, Jacques Rancière, whose name is associated, above all, with the notions of 'dissensus' and the (discursive) 'partitioning of the sensible'. In addition to this, and although it is primarily meant to make the history and changing theories of the arts perspicuous, his theory of the three regimes of art serves just as well to promote self-understanding. These three 'regimes' are the *ethical regime of images*, the *representative regime of art*, and the *aesthetic regime of art* (Tanke 2011: 77-82). A 'regime' is similar to a Foucaultian *episteme*, which

refers to a tacit, mostly unconscious set of assumptions regarding the nature of reality and of knowledge that underpins the cultural practices, including science and art, of a distinct era (Tanke 2011: 76). In the case of a regime, however, it is not restricted to a certain era, and even if its dominance is apparent during a specific historical period, only to wane later, it may still exercise its influence later throughout history by intersecting with other regimes.

So, for example, the *ethical regime of images* originated from Plato's suspicion towards the arts, given their powerful capacity to generate seductive fictions – fictions that could undermine the 'good (but hierarchical) order' of the polis that Plato hoped to establish through his account of such a society in the *Republic*. The *representative regime of art* derives from Aristotle's insistence – against Plato – that not all art is subversive of the social order; in tragedy, by means of the cathartic identification of the audience with the tragic hero(ine), its members are ethically 'purged' through 'pity and fear', in this way reinforcing the ethically 'good' social order (which turns out to be just as hierarchical as Plato's). It is only with the advent of the *aesthetic regime of art* that art is liberated from hierarchy of any kind, in the sense that (in contrast to the other two regimes) any and all objects or events are legitimate material for art, and artists are free to interpret these as they see fit. Art belonging to the representative regime continues to exist alongside of the aesthetic kind, of course – recall the exhortation on the part of church leader, Koot Vorster (during apartheid), for the artists of the 'volk' to produce 'patriotic art' which would no doubt have configured social space along the lines of a hierarchical racial oligarchy. Nevertheless, art of the aesthetic regime is recognizable by its disruption of the hierarchical space of mainstream society, held in place by discourses of exclusion and gender as well as racial subordination.

How does this work? Degas's painting, *Interior*, in the Philadelphia Art Museum, illustrates well what Rancière means by the 'aesthetic regime of art'. It shows a man leaning against the wall of a lamplit bedroom and a woman sitting on a chair in what seems like a state of either despair or shock, or perhaps melancholy; and it speaks eloquently, albeit non-specifically, about what has occurred between these two people without losing the enigmatic dimension of art's multivocality, which here enters the domain of the sublime, or 'presenting the unpresentable' (Lyotard 1984: 80-81). The maudlin atmosphere created by the Victorian wallpaper in the room, echoed

by the lampshade, an open (suit)case of some kind – suggesting the man may be a doctor (although the expression of intransigence on his face seems to belie this possibility) – his coat on the bed, the vulnerability that emanates from the woman's rosy arms and neck, together with her hunched shoulders, suggests a lover's quarrel, or perhaps something more serious, like an unwanted pregnancy, or the presence of the Victorian counterpart of our era's 'disease of love' (as Foucault called AIDS), namely syphilis. The interpretive possibilities – responsible ones, however, responding to the presented image-configuration – are endless, hence the intimation of the sublime. After all, what is represented here is intelligible, but in the fullness of its possible meanings not adequately presentable. What transports the spectator into the domain of the sublime is its suggestion of the dimension of a complex human relationship which has suffered something not unlike trauma: it is there, almost tangibly, trailing its apparent, but opaque history like a comet's tail, refusing the spectator's attempt to grasp or decipher it once and for all.

But apart from the 'modern' sublime, which (according to Lyotard; 1984: 80-81) alludes to the unpresentable sublime by the omission of certain contents (as in this painting), the painting also enacts what Rancière (Tanke 2011: 74-75) calls the 'distribution of the sensible'. As in the case of all art, painting contributes to this 'distribution' in a complex discursive manner – although Rancière is careful to specify that it is in the space of reciprocity between theoretical works that articulate the conditions of possibility of a certain kind of art, on the one hand, and artworks (or texts), on the other, that such 'distribution' (or re-distribution) becomes possible. What does this mean? Recall that, for Rancière, art of the aesthetic regime contributes to this process through the disruptive insertion of a moment of 'dissensus' into the hierarchical conventional fabric of society, simultaneously subverting the hierarchical structuring of society by the art of the representative regime. The latter (deriving from Aristotle), is predicated on the normative distinction between genres of art according to the kind of objects that they represent – tragedy representing 'nobler' actions (as objects) than comedy, for instance, and paintings of kings occupying a higher position than those of commoners. Simultaneously, however, the latter kind of art perpetuates a certain social stratification through normative representation. Art of the aesthetic regime upsets the applecart, in so far as it takes anything and everything that human experience is privy to, as its legitimate object(s).

Hence Degas's *Interior*, referred to above, does not belong to the re-

presentative regime – not so much because the characters and furnishings comprising its social space clearly do not belong to the aristocracy, but because its '(re-)partitioning of the sensible' is carried out in such a way that it constitutes the relationship between the two characters (a man and a woman who do not display the characteristics or appearance of royalty or nobility) as being sufficiently significant to warrant the attention of an artist, even if the presence of patriarchal subordination still lingers in its aesthetic space. In other words, the painting disrupts the socially stratified terrain of classes endowed with different degrees of importance and hence, power, through its 'dissenting' act, introducing the percept of a radical human and social 'equality' into this space, in this way sowing the seeds of feminine revolt against patriarchy into the bargain. After all, artists of the aesthetic regime achieve two things at once. They enact a redistribution of the sensible which posits the fundamental axiological equality of every human being, but also of everything visible (and by implication sayable) in the world, and in so doing, they have inaugurated an eco-political art in the widest sense, which is visible in their works, even if they may not have intended it. (Not that this is surprising – all signifiers are multivocal, harbouring more meanings than anyone who uses them can ever intend.) And this articulation of the realm of the 'sensible' – the world of sense, and what makes sense – has discursive effects in social reality. The upshot of Rancière's notion of the aesthetic regime of art is nothing short of revolutionary, in so far as the freedom to select any subject matter, and to treat it in any possible (non-hierarchical) stylistic manner – visually, literarily, musically, cinematically – intimates a temporality that is open to an indeterminate future. This is a future where the possibility of a different society and a different natural domain beckons – where everything comprising the multicoloured spectrum of earth's inhabitants is endowed with equal value.

The significance of Rancière's novel philosophy of art for teaching and doing research should not be difficult to discern – it entails a radically *democratic* approach in these related practices, implying a receptivity for the *diversity* and axiological *equality* of those who teach and those who are taught, with one another. Following Rancière in this respect, one might speak of an 'aesthetic regime of teaching and research', which is predicated on the equal value of all individual students and all disciplines that contribute to knowledge of the variegated spectrum of social and natural reality. There is a *caveat* here, however, which pertains to the valorization of diversity: the

limits of diversity come into view there, where difference or the diverse assumes the terrifying guise of destructiveness regarding the community of fellow humans. Think of serial killers Ted Bundy and Jeffrey Dahmer – should their particular site of *jouissance* (serial murder) be tolerated in the name of diversity? In a postmodern era where difference, alterity and diversity are glorified, one should guard against throwing the baby of the ethical out with the bathwater of universalization.

Heidegger's *Fourfold* as Axiological Touchstone for Teaching and Research

The last set of conceptual markers I would like to consider here as a 'guide for the perplexed' with regard to their own teaching and research-orientation, is Heidegger's (1975) highly suggestive notion of the 'fourfold' – earth, sky, mortals, and divinities – in 'Building dwelling thinking'. This one comes with a difference, however, which is why I have alluded to it as a 'guide for the perplexed'. Instead of displaying different positions for the subject to identify with, whether singly, or in a specific configuration – like Habermas's three research interests, or Lacan's four discourses – Heidegger's 'fourfold' constitutes a touchstone for evaluating the interests or discourses which appeal to one most. In the process one is likely to learn a lot about one's own predispositions, and not necessarily in a reassuring manner.

As a first way of approaching Heidegger's 'fourfold' it is instructive to recall an earlier, comparable version of a 'fourfold' of sorts. I am thinking of Aristotle's well-known conception of causality (which may well be what Heidegger had in mind as a model). Aristotle's account (Melchert 1991: 154-156) of four different kinds of causes, namely the formal, the material, the efficient and final cause(s), respectively, affords one the means of orienting oneself in the cosmos (or cosmic order), which, for the ancient Greeks, was the antithesis of chaos. According to Aristotle every existing thing, as well as every relation, can be understood in terms of the combined functioning of this fourfold causality. In the case of a shrub, for example, the formal cause is the 'shrubness' of the shrub, that is, its botanical classifiability or its differentiating specificity in comparison with other, equally specific entities. Its material cause is the particular materiality without which it could not be individuated as a particular shrub, growing at this geographical location, at

this moment. The shrub's efficient cause is that within it which 'works' in order to make it grow and bear seeds, and its final cause is the 'telos' or end towards which its working (efficient) cause causes it to develop. It is not difficult to see how this fourfold causality applies to a person – one's 'humanness', which differentiates conceptually between one's species and others, is the formal cause, one's body is the particularizing material cause, one's capacity to change and develop constitutes the efficient cause, and that in one which impels one, or beckons one to work towards certain conceivable ends is one's final cause. In the case of non-living things – cell phones, buildings, motor cars and shoes – the difference is that the efficient cause is not internal to the thing, but external to it, in the shape of a tailor or cobbler, for example. As may readily be grasped, Aristotle's model serves to explain *how* both living and inanimate things function in the world, and, especially through the final cause, *why*. In fact, the final cause is also helpful to determine where one stands regarding one's teaching and research. Viktor Frankl's contention (1959), that anyone with a *why* to live, will find a *how* – which resonates with Aristotle's thinking – is a powerful reminder that when we teach, or do research, it is our own, distinctive 'final cause' (the ultimate goal or sense of our individual lives) which informs and guides or directs *how* we teach and *what* we ultimately teach, enlisting our own formal, material and efficient causes in order to do so. In this respect it anticipates Heidegger's even more powerfully orienting version of the 'fourfold'.

The 'fourfold' represents an elaboration on what Heidegger earlier proposed in 'The origin of the work of art' (1975a), that an artwork is always ineluctably characterized by a life-giving 'struggle' between two aspects inalienably bound up with all art, namely 'world' and 'earth'. There 'world' stood for what are broadly the conditions of interpretability of the artwork, or what Heidegger thought of as the realm of openness which gave viewers, readers or listeners access to the framework or horizon of meanings preserved in the work, and within which one's interpretation gains a foothold. Heidegger's analysis of Van Gogh's painting of a pair of peasant shoes is a fine instance of interpreting an artwork phenomenologically, with a view to drawing from it what is already there, preserved in the inter-relations between various aspects of its constitutive images. What the interpretation yields in this case is the 'world' of the peasant – a world of hardship and of working under difficult conditions to eke out a livelihood, all of which is etched into the artwork's constitutive set of image-relations. 'Earth', by contrast, indexes

'world's' inseparable counterpart, where (instead of the openness of 'world') *withdrawal* from view, from intellectual access, from all kinds of attempts to pry into the artwork's final 'meaning' happens. (As such it resonates with what Lacan [1981: 52-64] thinks of as the unsymbolizable, ineffable 'real' – referred to earlier – as distinct from the registers of the 'imaginary' and the 'symbolic', an amalgam of which comprises the human world.) In the case of the Van Gogh painting, the sheer, impenetrable 'givenness' of the colour pigmentation – the brute fact that 'it is', and nothing more – represents what Heidegger calls 'earth'. The extent to which the colours contribute to the painting's meaning is a function of 'world', but the colours (pigments), in their intransigent 'thereness', belong to 'earth'.

In the later work Heidegger expands these two concepts into four – earth, sky, mortals and divinities[4] – in the process implying that, if one (or more) of them is absent as orienting compass coordinates to determine one's position or 'place' in the world, you have reason to believe that you are not living a truly human life. This explains why Heidegger claims that the four together comprise 'a simple oneness'. 'Earth' as member of the 'fourfold' retains the meaning it has in the earlier *Origin of the work of art*, but Heidegger enriches and amplifies it further. Here, apart from resisting humans' attempts to make it completely transparent and controllable through technology, it is the inscrutable condition of the possibility of all (earthly) life. In his words it is the (Heidegger 1975: 149): 'serving bearer, blossoming and fruiting, spreading out in rock and water, rising up into plant and animal'. 'Sky' denotes the matrix or 'vault' whence the beneficial gifts of the seasons come, but it also constitutes the 'limit' marking human finitude – a limit that nevertheless challenges humans to surpass it, inspiring cultural innovations in science, art and technology. 'Mortals' represents human beings in so far as their nature makes them 'capable of death' (Heidegger 1975: 151), and 'divinities' refers to the 'messengers of the godhead' whose advent is anticipated in hope by mortals, regardless of whether they reveal themselves or withdraw (1975: 150).

In what sense does this constellation of concepts, representing what can be understood as primordial values (Heidegger's 'fourfold') function as a touchstone for evaluating one's way of teaching and doing research? Recall

---

[4] The American philosopher, Karsten Harries (1997:159-162), provides an insightful interpretation of Heidegger's 'fourfold'.

that, for Heidegger, the fourfold's unity is an indication that their togetherness cannot or should not be violated in human cultural practices, and if it is, it would detract from the humanity of such practices. In other words, they would alienate one from one's own humanity. For instance, architecture that does not embody the intertwined unity of earth, sky, mortals and divinities, would be a kind of inhuman architecture, such as when the materials used in a building are chosen deliberately for their qualities of resisting signs of time as ephemeral, as passing, which would remind onlookers of their own mortality. Stainless steel panels on buildings, combined with plate glass, tend to have the effect of negating time or historicity, while red brick, or painted surfaces which periodically, by showing signs of wear and tear, call for new coats of paint, project an affirmation of finitude and mortality by visibly displaying their groundedness in the earth. Similarly, the cultural practice or techno-science of robotics displays all the signs of being aimed at surpassing being-human, in so far as it is predicated on the development of a being which, while humanoid in appearance, would be 'immortal' (not subject to time's erosion), and not subject to the earth-bound desires of human beings. Instead, it would represent the attempt to transcend 'sky' as limit to human endeavour, fastening instead on its flip-side, by rising to the challenge of surpassing the limit. Raymond Kurzweil's notion of 'the singularity' instantiates one such meaning of sky: according to Kurzweil (Grossman 2011), within a few decades from now, artificial intelligence research will produce a level of intelligence that will surpass human intelligence to such an extent that a 'singular' new relationship between humans and 'robots' will be established – an event that holds the promise of humans merging with machines to attain a kind of immortality. Needless to stress, this does not accord with the axiological implications of the fourfold; in fact, it negates all of them, with the possible exception of the fourth one, namely 'divinities', to the extent that these anticipated beings may be seen as instantiating a 'messianism' (Derrida 1997) of sorts.

Teaching and doing research are also cultural practices that are subject to the axiological 'aura' of Heidegger's fourfold. Whether one teaches in a manner exemplifying Lacan's authoritative master's discourse, or the questioning discourse of the hysteric, unless it is done in accordance with the fourfold, it lacks credibility in human terms. Teaching and research that affirm the fourfold acknowledge the earth as sphere of human provenance, in

which our desires are rooted, sky as limit (which beckons us beyond it, without losing our earth-oriented bearings), our own mortality (including finitude and fallibility) and allude to 'divinities' as the multivocal source of meaning in human life (not necessarily in a conventional religious sense; even atheists have to 'live from' a source of some kind that imparts meaning to their lives). In this way Heidegger's 'fourfold' instantiates an axiological compass of sorts – one that helps one orient oneself in the world when engaging in the risky activities of teaching and research.

*Appendix: *On an Indirectly Related Topic: The Need for a Social Theory for Research-orientation*

The desired research project referred to here is always 'on-going', because knowledge is never final – any claim to finality is patently ideological. Instead, as the history of the sciences shows, it is always revisable, and a social theory within which an understanding of research and teaching directions or 'styles' is accommodated, is no exception. But why a social theory for the orientation of research and teaching? Simply because, unless one has a non-ideological, social-scientifically informed grasp of society, one is unable to assess, always in a provisional, revisable manner, how the wide variety of sciences and disciplines are related to one another in terms of supplementarity, contrast or imbrication – something that is indispensable for responsible, and holistically informed research and teaching. One could therefore work towards something, which, as far as I can tell, is sadly lacking in South Africa, namely the on-going project of formulating an encompassing social theory to orientate research and teaching, and/or the tacit, mostly unconscious interests that direct or guide one's way ('style') of doing research and teaching.

In other words, one needs a 'map' of sorts, of the social structures and dynamics that comprise society as a whole, both 'internally' (regarding social relations between and among individuals and groups of all kinds), and 'externally' (in relation to the natural environment, organic as well as inorganic). In the absence of such a social-scientific map – one reciprocally and systematically informed by the knowledge embodied in ALL the sciences, lest any detractor of the social sciences should see in this proposal an attempt to lord it over the natural sciences – one is unable to see the

proverbial wood for the trees: already such specialised knowledge of a large number of 'trees' exists, but where does one look for an encompassing map of the forest that would show its various regions and what one may encounter there?

An obvious objection to the attempt to formulate a social theory to orient research (and teaching) would be that I am clearly suffering from historical amnesia, and that I should remind myself that the era of encompassing (metaphysical) systems – of the kind that flourished from the 17th to the 19th centuries in the work of among others Descartes, Leibniz, Spinoza and especially Hegel – is long gone. And besides, as the Hegel scholar W.T. Stace once observed about Hegel's all-encompassing philosophy of Spirit, it resembles a medieval castle – beautiful from the outside, with its moat, portcullis, turrets and battlements, but uninhabited. Would a social theory to orientate the sciences in their differences as well as their interrelationships not be similarly alien to extant 'reality'? It could easily degenerate into such a vacuous construction, but it need not, if scientists were to contribute to its construction and regular revision.

References

Arendt, H. 1958. *The Human Condition*. Chicago: The University of Chicago Press.

Baumer, F.L. 1977. *Modern European Thought*. New York: Macmillan.

Bernstein, R.J. 1976. *The Restructuring of Social and Political Theory*. Oxford: Basil Blackwell.

Brand, A. 1990. *The Force of Reason. An Introduction to Habermas's Theory of Communicative Action.* London: Allen & Unwin.

Derrida, J. 1997. The Villanova Roundtable: A Conversation with Jacques Derrida. In Caputo, J.D. *Deconstruction in a Nutshell: A Conversation with Jacques Derrida*. New York: Fordham University Press.

Derrida, J. 1978. Structure, Sign and Play in the Discourse of the Human Sciences. In *Writing and Difference*. Bass, A. (trans.). Chicago: The University of Chicago Press.

Foucault, M. 1972. The Discourse on Language. In *The Archaeology of Knowledge & The Discourse on Language*. Smith, A.M.S. (trans.). New York: Pantheon Books.

Fink, B. 1997. *The Lacanian Subject. Between Language and Jouissance*. Princeton: Princeton University Press.

Frankl, V. 1959. *Man's Search for Meaning. An Introduction to Logotherapy*. Lasch, I. (trans.). Boston: Beacon Press.

French, M. 1986. *Beyond Power: On Women, Men and Morals*. London: Abacus.

Grossman, L. 2011. Singularity. *TIME* February 21: 21-27.

Habermas, J. 1971. *Knowledge and Human Interests*. Shapiro, J.J. (trans.). Boston: Beacon Press.

Habermas, J. 1987. *The Theory of Communicative Action*, *Volume 2*. McCarthy, T. (trans.). Boston: Beacon Press.

Harries, K. 1997. *The Ethical Function of Architecture*. Cambridge, Mass.: The MIT Press.

Heidegger, M. 1975. Building Dwelling Thinking. In *Poetry Language Thought*. Hofstadter, A. (trans.). New York: Harper Colophon Books.

Heidegger, M. 1975a. The Origin of the Work of Art. In *Poetry Language Thought*. Hofstadter, A. (trans.). New York: Harper Colophon Books.

Lacan, J. 1977. The Function and Field of Speech and Language in Psychoanalysis. In *Écrits: A Selection.* Sheridan, A. (trans.). New York: W.W. Norton.

Lacan, J. 1977a. The Mirror Stage as Formative of the Function of the I as Revealed in Psychoanalytic Experience. In *Écrits: A Selection.* Sheridan, A. (trans.). New York: W.W. Norton.

Lacan, J. 1978. On Psychoanalytic Discourse. Stone, J.W. (trans.). Available online at: http://web.missouri.edu/~stonej/Milan_ Discourse2. pdf. (Accessed on 9 May 2008.)

Lacan, J. 1981. *The Four Fundamental Concepts of Psycho-analysis*. Seminar XI. Sheridan, A. (trans.). New York: W.W. Norton.

Lacan, J. 2007. *The Other Side of Psychoanalysis; 1969-1970 The Seminar of Jacques Lacan, Book 17*. Grigg, R. (trans.). New York: W.W. Norton & Co.

Lyotard, J-F. 1984. Answering the Question: What is Postmodernism? Durand, R. (trans.). In *The Postmodern Condition: A Report on Knowledge*. Bennington, G. & B. Massumi (trans.). Manchester: Manchester University Press.

Melchert, N. 1991. *The Great Conversation*. London: Mayfield Publishing Company.

Olivier, B. 2010. What the Wikileaks Affair Tells us about Communication. Posted on the *Mail & Guardian* Online 'Thought Leader' site www.thoughtleader.co.za, 25 December.

Olivier, B. 2012. Lacan on the Discourse of Capitalism: Critical Prospects. In *Intersecting Philosophical Planes – Philosophical Essays*. Frankfurt: Peter Lang Publishers.

Rancière, J. 2010. *Dissensus: On Politics and Aesthetics*. Corcoran, S. (trans.). New York: Continuum.

Tanke, J.J. 2011. *Jacques Rancière: An Introduction*. New York: Continuum.

Bert Olivier
Senior Research Fellow in Philosophy
University of the Free State
And
School of Education
University of KwaZulu-Natal
OlivierG1@ufs.ac.za

✌ Contributors ✍

Koye Gerry Bokana is a Lecturer in the School of Accounting, Economics and Finance, College of Law and Management Studies, University of KwaZulu-Natal. He is currently the economics coordinator for both the Access Initiative (referred to as the BCom4 Extended Curriculum) and Enriched Management Studies where he coordinates tutors and develops high quality and innovative tutorial materials for the introductory and intermediate economics courses. Gerry's PhD research was in the area of the economics of education. Contact details: Bokanakg@ukzn.ac.za

Vivienne Bozalek is a professor of Social Work and the Director of Teaching and Learning at the University of the Western Cape (UWC), South Africa. Her research interests are in social justice and the ethics of care, participatory methods, posthumanism and innovative higher education practices. She has co-edited three books with other authors –*Community, Self and Identity: Educating South African Students for Citizenship* (2013), *Discerning Hope in Educational Practices* (2014) and *Activity Theory, Authentic Learning and Emerging Technologies: Towards a Transformative Higher Education Pedagogy* (2015). Contact details: vbozalek@uwc.ac.za

Rubby Dhunpath is the current Director of Teaching & Learning at UKZN, providing leadership in various teaching and learning support initiatives aimed at promoting the scholarship of teaching and learning and institutional research. He holds a PhD in Education from the University of Durban-Westville as well a TESOL qualification from Cambridge University. A Spencer Fellow and Rockefeller Scholar, Rubby has researched published in education policy, language policy, life-history research organizational ethnographies and Doctoral Education. His current focus is on the Scholarship of Teaching & Learning. Contact details: dhunpath@ukzn.ac.za

Daniela Gachago is a senior lecturer in the Educational Technology Unit at the Center for Higher Education Development at the Cape Peninsula University of Technology. Her research interests lie in the potential of emerging technologies to improve teaching and learning in higher education, with a particular focus on using social media and digital storytelling for social change. She is a PhD candidate at the UCT School of Education where she explores the role of emotions in transforming students' engagement across difference. Contact details: gachagod@cput.ac.za

Caleb Gwaindepi works at the University of Venda where he teaches Econometrics. He has been a Lecturer at the University of Limpopo in the School of Education where he taught Economics and Methodology in the Bachelor of Education programme. Contact details: gwaindepi@gmail.com

Dipane Hlalele is a Senior Lecturer in Psychology of Education and currently an Assistant Dean in the Faculty of Education at the University of the Free State. His research interests include rural learning ecologies, community engagement as well as social inclusion. Contact details: hlaleledj@ufs.ac.za

Eunice Ndeto Ivala is an Associate Professor and Coordinator of the Educational Technology Unit, Fundani Centre for Higher Education and Development, at the Cape Peninsula University of Technology (CPUT). Her Research interest is in ICT –mediated teaching and learning in developing contexts. Currently, she is a team member in an international digital storytelling project dealing with foreign youth and employability, which is supported by the European Union; and was a team leader of the ICT curriculum appraisal of the National Senior Certificate for Adults (NASCA). Contact details: ivalae@cput.ac.za

Rita Kizito earned her Ph.D. in Curriculum Studies from Stellenbosch University in 2012, an MEd (Didactics) from the University of South Africa (Unisa) and a BSc (Physics) from Makerere University, Uganda. Prior to joining NMMU, she worked as a Teaching & Learning Specialist, Science faculty, University of the Western Cape, and as a curriculum developer at Unisa. In her learning facilitation activities and research, she explores the factors inhibiting or reinforcing transformational learning in technology-rich

and technology-constrained African higher education contexts. Contact details: Rita.Kizito@nmmu.ac.za

Frans Kruger is a lecturer in Philosophy of Education in the Faculty of Education at the University of the Free State. He teaches courses in decoloniality and Afrocentric approaches to education, democracy and human rights, and educational theory. His research interests include critical posthumanism, post-qualitative and arts-based research methodologies, peace and nonviolence theory and pedagogy. Contact details: krugerf@ufs.ac.za

Thembinkosi Mabila works as a Research Developer at the University of Limpopo. He previously worked as a Senior lecturer in English Language Education and has taught ESP courses in Business, Science and Law. Contact details: tmabila@yahoo.co.uk

Desiree Manicom is a Senior Lecturer and Academic Leader for Community Engagement in Sociology and Policy and Development Studies. Her research interests are civil society and policy, gender and policy, monitoring and evaluation and policy, community engagement, service learning and tertiary education. Contact details: manicom@ukzn.ac.za

Nomakhaya Mashiyi is a Teaching-Learning Specialist in the Faculty of Economic and Management Sciences at the University of the Western Cape. She has extensive experience in pre-service teacher education and teaching and learning in higher education. Her current research interests are in teaching and learning and language-in-education policy implementation in higher education. Contact details: nmashiyi@uwc.ac.za

Emmanuel Matsebatlela is currently the Head of the International Electives and Education Office in the Faculty of Health Sciences at the University of Pretoria. His research interests lie mainly in quality assurance and assessment in higher education. He was previously the Manager: Institutional Audits at the Council on Higher Education and Head of Quality and Academic Planning at Wits University. He recently completed a PhD in Education, focusing on assessment and quality assurance at the University of Pretoria. Contact details: Emmanuel.matsebatlela@up.ac.za

Michael Murray graduated with a BSc, BSc (Hons), MSc and PhD respectively all from UND. His main focus area involves the application of Statistics to Higher Education related problems. These include problems related with predicting the throughput rate of students both in their undergraduate and postgraduate degrees and the identification of factors that affect this throughput rate. Other interests include longitudinal data analysis and econometric related problems. Contact details: murraym@ukzn.ac.za

Mazanai Musara is a lecturer in Business Management, Entrepreneurship and Organisational Change at Monash South Africa in Johannesburg. He has previously been involved in teacher training where he taught Business studies and Teaching methods. Contact details: jilgram@yahoo.com

Bert Olivier works as Senior Research Fellow in Philosophy at the University of the Free State, South Africa, and is an adjunct professor in the School of Education, of the University of KwaZulu-Natal. He has published academic articles and books across a wide variety of disciplines such as philosophy, architecture, literature, psychoanalysis, cinema and social theory. He was awarded the Stals Prize for Philosophy by the South African *Akademie vir Kuns en Wetenskap* in 2004, and a Distinguished Professorship by the Nelson Mandela Metropolitan University, South Africa, in 2012. Contact details: OlivierG1@ufs.ac.za

Vinodhani Paideya is a lecturer in the School of Chemistry & Physics at the University of KwaZulu Natal. Her research interests are first year Chemistry, Academic Monitoring and Support (specifically Supplemental Instruction as academic support programme in Chemistry) and online learning programmes such as Mastering Chemistry. Vinodhani has attained a PhD in Chemistry Education (UKZN) and BSc (Chem) (UDW). Contact details: paideya@ukzn.ac.za

Julia Preece is Professor of Adult Education at the University of KwaZulu Natal. Her main areas of research interest are in adult education, lifelong learning and community engagement. Recent book publications include a co-edited book called *African Universities and Community Engagement: Perspectives, Prospects and Challenges* (published by NIACE) and an

authored book *Lifelong Learning and Development: A Southern Perspective* (published by Continuum). Contact details: preecej@ukzn.ac.za

Randhir Rawatlal is Professor and Academic Leader for Chemical Engineering at the University of KwaZulu-Natal. His interests in both teaching and research involve mathematical modelling of reaction systems, with special focus on unsteady state systems. New areas of interest include Artificial Intelligence and Big Data. Contact details: rawatlalr@ukzn.ac.za

Dr Asheena Singh-Pillay was appointed in 2013 as a lecturer in Technology education, in the Science and Technology cluster, at the School of Education, University of KwaZulu-Natal. Her research interests include sustainable development, renewable technologies, indigenous knowledge systems/technologies, curriculum and gender. Contact details: pillaya5@ukzn.ac.za

Cias Tsotetsi is a Lecturer in Philosophy and Policy Studies in Education at the University of the Free State. His research interests include community engagement, policy implementation and quality assurance. Contact details: tsotetsict@ufs.ac.za

Zilungile Sosibo is an Associate Professor in the Faculty of Education at CPUT. She is currently serving as HOD: Research. She teaches Introduction to Research to PGCE students. Her areas of research interest in which she has published include Curriculum assessment and evaluation, Quality in higher education, Diversity and transformation and Student support. Contact details: sosibol@cput.ac.za

Anton Christiaan Thiart is a lecturer in the department of Civil Engineering and Surveying at the Cape Peninsula University of Technology (CPUT). He has 20 years teaching experience in the fields of Water-, Structural engineering and management. For the last 3 years he has been actively implementing the flipped classroom approach in many of his classes. Contact details: thiarta@cput.ac.za

Kathleen Watters is a research associate at the University of the Western Cape (UWC). Her research interests include analysing innovative higher

education practices, lifelong learning and adult literacies. Contact details: kwatters@uwc.ac.za

*Alter*nation
Guidelines for Contributors

Manuscripts must be submitted in English (UK). If quotations from other languages appear in the manuscript, place the original in a footnote and a dynamic-equivalent translation in the body of the text or both in the text.

Contributors must submit *one computer-generated and three double-spaced printed copies* of the manuscript. Up to 10 original off-print copies of the article will be returned to the author after publication.

Manuscripts should range between 5000-8000 and book reviews between 500-1000 words. However, longer articles may be considered for publication.

Attach a cover page to one manuscript containing the following information: Author's full name, address, e-mail address, position, department, university/ institution, telephone/ fax numbers as well as a list of previous publications. Authors must also submit a brief academic biographical sketch of about sixty words, indicating institutional affiliation, main scholarly focus, books published, significant articles, and/ or academic journals regularly contributing too.

Maps, *diagrams* and *posters* must be presented in print-ready form. Clear black and white photos (postcard size) may also be submitted.

Use footnotes sparingly. In order to enhance the value of the interaction between notes and text, we use footnotes and not endnotes.

Authors may use their own numbering systems in the manuscript.

Except for bibliographical references, abbreviations must include fullstops. The abbreviations (e.a.) = 'emphasis added'; (e.i.o.) = 'emphasis in original'; (i.a.) or [...] = 'insertion added' may be used.

The full bibliographical details of sources are provided only once at the end of the manuscript under References. References in the body of the manuscript should follow the following convention: Dlodlo (1994:14) argues .... or at the end of a reference/ quotation: ... (Dlodlo 1994:14).

The full name or initials of authors as it appears in the source must be used in the References section.

Review articles and book reviews must include a title as well as the following information concerning the book reviewed: title, author, place of publication, publisher, date of publication, number of pages and the ISBN number.

The format for the references section is as follows:
Head, B. 1974. *A Question of Power.* Oxford: Heinemann Educational Publishers.
Mhlophe, G. 1990. Nokulunga's Wedding. In Van Niekerk, A. (ed.): *Raising the Blinds. A Century of South African Women's Stories.* Parklands: Ad Donker.
Mngadi, S. 1994. 'Popular Memory' and Social Change in South African Historical Drama of the Seventies in English: The Case of Credo Mutwa's *Unosimela. Alter*nation 1,1:37-41.
Fanon, F. 1986. *Black Skin, White Masks.* Markmann, C.L. (trans.). London: Pluto Press.

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

ARTICLES