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Title: A “Care-Full” Approach: Insights from the Science T&L Hub

Contribution type: Research

Contribution format: Presentation

Author(s): Adendorff, H; Rewitzky, I; Rootman-Le Grange, I

Keywords: Science, professional development, respectful collaboration

Abstract:

The Teaching and Learning Hub of the Faculty of Science was one of the first to be established at Stellenbosch University. Almost a decade later, Hub activities such as the Teaching Event and SoTL in Science colloquium have become part of the Faculty’s annual calendar. Recent years have also seen an increase in innovative and scholarly activity and output in the area of teaching and learning. Key to the Hub’s work is fostering productive relationships. Herman et al. (2016) showed that lecturers who experience their environments as “care-full” or respectful to them as individuals or scholars are more likely to participate in professional learning. However, what might such a ‘care-full’ environment look like in science?

Winberg et al. (2018) suggest that “respectful collaboration” with science educators needs to start with a willingness of academic developers to understand the “world-view” of science. In this paper, we will consider how the Science T&L Hub tries to achieve such “respectful collaboration”. Our focus will be on the approach followed by the Hub. Central to this approach was a conceptualisation of our role as one of creating productive conversational spaces.

To answer our research question, we will use the 5P version (Wolff, 2015) of the Legitimation Code Theory (LCT) epistemic plane to analyse key elements of the Hub’s strategy. This model focuses on how practices are legitimised by “what they relate to” (the problem) and “how they so relate” (the approach) (Maton, 2014). Knowledge practices can either valorise the problem, the approach, both or neither, leading to four different Insights: People (emphasising neither), Principles (emphasising both), Possibilities (emphasising the problem), and Procedures (emphasising the approach).

We will show that the Science Hub’s strategy has been, and still is, to enter the conversation through the People or Possibilities Insight, followed by moves into the Principles Insight and only thereafter, if necessary, into the Procedures Insight. We will explain why we believe that the Science Hub’s trajectory is the most likely way to create a “care-full” environment characterised by “respectful collaboration”.

We believe that this new approach offers novel insights of value to all professional development work across faculties.

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Title: A Conceptual Framework for Excellence with Purpose in Mathematics

Contribution type: Research

Contribution format: Presentation

Author(s): Rewitzky, I

Keywords: Mathematics, Legitimation Code Theory

Abstract:

In our mathematics modules we challenge students not only to know-that certain concepts and results hold but also to know-why and to know-how to represent and reason mathematically. Our students may convey their individual understanding of mathematics by a picture, an example, or their own reasoning process. Through effective teaching and engagement with the rhetoric of mathematics, these individual representations and intuitive reasoning processes may be shaped into mathematical representations and reasoning (Ernest, 1991). However, not all our students are doing mathematics for the purpose of being mathematicians and may resist such 'shaping' with the question, "Where will I use this mathematics in my studies or in my future career?" This may seem to be about a particular concept, result, or topic in a particular branch of mathematics. For many students it is the level of formalism that raises the question.

Taking inspiration from the book *The Soul of a University: Why excellence is not enough* (Brink, 2018), we are being challenged to achieve "excellence with purpose" and for this "orthogonality is the key idea". With regard to excellence we may ask, "What are we good at?", while with regard to purpose we may ask, "What are we good for?" These two key questions were originally posed for academic work at large, and as a recommended thought experiment for any university.

In the context of this presentation, the two key questions are: "What is a mathematics module/graduate good at?" and "What is a mathematics module/graduate good for?" As an orthogonal framework, we propose the Autonomy plane together with the insights of the Epistemic plane of the Specialization dimension of Legitimation Code Theory (Maton, 2014). The Autonomy plane allows an analysis of the good-at and the good-for of mathematics, while the insights of the Epistemic plane provide a finer analysis of the good-at in terms of know-why and know-how of mathematics. We illustrate that autonomy tours together with insights may empower lecturers and students to achieve excellence with purpose in learning and teaching mathematics. This conceptual framework is of value to other fundamental disciplines challenged to achieve excellence with purpose.

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Title: A Prison-University Educational Partnership: Rehumanising Learning through Collaborative Course Design

Contribution type: Research

Contribution format: Presentation

Author(s): Nel, M

Keywords: Social justice

Abstract:

The study described in this paper is part of the robust evaluation of a new educational initiative, a Stellenbosch University-prison partnership called the Ubuntu Learning Community (ULC) – a first in SA. Its aim is to rehumanise learning by focusing on learning’s social, ubuntu-focused dimensions – collaboration, community building and connectedness.

The research investigates the impact on all participants (SU academics, SU students and prison students) of being involved in designing the interdisciplinary pilot project. Focus group interviews and participant reflections are used as data in a case study aimed at exploring how collaborative course design could contribute to rehumanising learning: specifically, empowerment, transformation and holistic student development (HSD) of participants.

The theoretical lens for this research combines critical pedagogy, social justice pedagogy and transformative learning theory/pedagogy. Transformative learning theory in particular posits that interaction with diverse peers enables students to reflect and engage in dialogue with others about this experience (Mezirow & Taylor, 2009; Quinlan, 2011). It “draw[s] on the strengths of students’ lived experience to create a forum for their analysis of the world around them” (Giroux, 1992; Mack, 2010). Accordingly, transformative pedagogy allows students “to perceive social, political, and economic contradictions, and to take action against the oppressive elements of reality” (Brown, 2004; Freire, 2000). In Boyer’s terms, this is scholarship of application – a practical way in which to narrow the gap between values in the academy and the needs of the larger world (1990:22).

The study posits that the ULC’s innovative approach, which intentionally creates an educational environment that confronts and deconstructs the notion of “the Other”, is a means of enhancing holistic student learning and development. Although Quinlan does not mention a social ubuntu-focused dimension of learning explicitly in defining HSD (2014; 2011), the data suggest that feeling connected to others, humanised rather than objectified, does indeed contribute to HSD.

The paper concludes that collaborative course design, undertaken with a particularly diverse group where issues of power, marginalisation and inequality are manifested in very real and concrete ways, is an ideal context for exploring how connectedness may foster holistic development, empowerment and transformative learning.

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Title: A Soft-Skill Module in the Applied Sciences to Enhance Learning Engagement

Contribution type: Innovation

Contribution format: Presentation

Author(s): Schmeisser, M

Keywords: Student success, reflexive students, meaningful learning, contextualised learning

Abstract:

Meaningful learning occurs when new knowledge is fully integrated into the prior knowledge construct (deep learning) and this newly acquired knowledge is retrievable on a long-term basis and, more importantly, can be applied to solve new problems (Novak, 2011). Various teaching strategies and tools exist to enhance meaningful learning in the classroom. However, despite many wonderful, well-thought-out teaching innovations, learning is often not meaningful and there is a general lack of engagement by many students, which cannot be ascribed to poor teaching. A question inadequately addressed in educational literature is, “What are the drivers that make students want to learn in the first place?” In other words, “What makes them want to engage meaningfully?” The greater the student engagement, the greater the disposition for learning. The degree of student engagement is considered a suitable predictor of learning (Carini, Kuh & Klein, 2006). In my view, for students to have a desire to engage in the learning opportunities provided (however well designed) there needs to be a sense of purpose for studying or learning in addition to obtaining a degree. They need to see themselves within the context of their chosen discipline and, especially in the applied sciences, see themselves within the context of an industry in which they intend to work and flourish. I designed a first-year module that at its core has the notion of creating a purpose for learning, which should subsequently promote contextualised, meaningful learning. Self-reflection and awareness within the context of a university, as well as industry exposure, were the main strategies used to achieve this. The presentation will focus on how the module was designed to achieve this sense of purpose, give feedback on student uptake so far, and reiterations of the module based on student feedback after the first successful completion in 2018. At the end of the presentation, I would like to open the floor for a discussion on how one can/should proceed with future research to determine the efficacy of this module.

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Title: Affordances of FIRLT Funding for Enhancing SoTL

Contribution type: Research

Contribution format: Presentation

Author(s): McNamee, L; Jacobs, C; van Schalkwyk, S

Keywords: Funding, affordances, professional development, SoTL

Abstract:

Background, rationale and purpose: The Fund for Innovation and Research into Learning and Teaching (FIRLT) was established in 2005 at Stellenbosch University (SU), to support innovative and scholarly academic endeavours, aligned with the Learning and Teaching Policy of SU. Since the inception of the fund, the Faculty of Medicine and Health Sciences (FMHS) has received the highest number of awards and been awarded more funding overall. Dedicated funding is a widely used strategy to enhance teaching and learning, however, there is currently a gap in the literature concerning the qualitative processes by which funding leads to personal and professional development of academics. Insight from the study would potentially inform change management and strategic planning at the FMHS and at SU in relation to the FIRLT funding scheme and any other funding being made available for the professional development of academic staff.

This study explored the affordances (action possibilities) created through FIRLT awards for staff to grow in the Scholarship of Teaching and Learning (SoTL). The research questions addressed the nature of affordances and how funding influenced the personal and professional development of academic staff at the FMHS. Theoretical framing consisted of the tenets of 'Slow Scholarship' that prioritises care-fulness, being relational, an affirmative approach, and a holistic view of the world.

Methodology: A qualitative study within the interpretivist research paradigm, primarily aimed at a better understanding of the way funding enhances SoTL. Data were generated in face-to-face individual interviews with 12 staff members from various disciplines at the FMHS who had received FIRLT funding between 2012 and 2016. The data were audio-recorded, transcribed verbatim and a thematic content analysis was done using manual coding methods.

Results and conclusion: Five broad themes were inductively developed from the data, namely, 'Stimulus potential', 'Recognition and validation', 'Developmental agenda', 'Growth/progression as scholars' and 'Identities as academics'. Participants also reported some challenges not pertaining to the funding scheme, but to personal and contextual issues that had constrained their progress. Overall, the funding was highly valued for the scholarly development enabled in individuals, collaborative teams and the institution.

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Title: An Investigation of the Interaction and Effect of Various Teaching Interventions on Student Performance

Contribution type: Research

Contribution format: Presentation

Author(s): Ontong, J; Bruwer, A; Dreyer, J

Keywords: Academic performance, accounting, lecture attendance, mentoring, tutorials

Abstract:

A strong body of literature exists in that various studies have identified the effect of a variety of teaching interventions on student performance (Steenkamp & Wessels, 2009:117; Van Walbeek, 2004:861; De Jager & Blitzer, 2013:399; Mahlangu & Fraser, 2017:104). The majority of these studies have identified and evaluated a single factor of academic aid intervention, such as class attendance, when analysing the impact on student performance (Schmulian & Coetzee, 2011:178; Papageorgiou, 2019:262). This study investigates the effects of these interventions on student performance in a multiple-intervention environment by developing an attendance construct proxy, as well as an alternative to the class attendance intervention construct proxy. The benefits of these interventions were analysed to determine whether certain interventions have a more significant impact on student performance than others in the context of increasing student performance. Using a survey approach to determine the record of participation in the interventions by the first-year Financial Accounting students, the findings of participation were analysed using the academic records of the students to identify the effect. The results suggest that increased levels of attending classes, which include traditional and additional face-to-face sessions, have a significant positive effect on student performance. When analysing the additional face-to-face sessions, specifically the further class attendance of tutorial classes where students are given the opportunity to work on their own or in groups and only request assistance where needed, the greatest significant positive effect on student performance was observed. The findings further suggest that certain interventions – often seen as alternatives to class attendance, such as attending mentor sessions, external tutoring, and watching videos of beginners' classes – do not necessarily have a positive significant effect on student performance. Interestingly, the perceptions of students are consistent with the findings of the study, with the majority of students not recommending the use of external tutoring services. The findings of the study therefore provide insightful value to the design of modules at higher education institutions, aiding in identifying and responding to which interventions would have a significant impact on student performance.

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Title: An Online Short Programme for Doctoral Supervisors at African Universities

Contribution type: Research

Contribution format: Presentation

Author(s): de Klerk, M; Botha, J

Keywords: Doctoral supervision, online education, short programmes

Abstract:

With the rapid increase in postgraduate enrolments all across Africa and the policy directives and initiatives of African governments to enhance knowledge production in Africa (Beaudry, Mouton, Prozesky, 2018) there is a dire need for doctoral supervisor training at African universities. Can this need be successfully addressed through an online professional development programme?

Two cohorts (with 200 successful candidates, representing 25 African countries) have thus far completed the fully online DIES/CREST Training Course for Supervisors of Doctoral Candidates at African Universities offered by the Centre for Research on Science and Technology (CREST) in collaboration with the Centre for Higher and Adult Education (CHAE) at Stellenbosch University and the Centre for Higher Education Research, Teaching and Learning (CHERTL) at Rhodes University. The course was developed with the support of the German Academic Exchange Service (DAAD). Three further offerings, as well as two Alumni Networking Meetings are planned before the end of 2020.

We examined the participants' online engagement and activities (i.e. the content and frequency of their reflective and discussion posts, along with their capstone assignments) to develop a deeper understanding of the conditions, challenges and opportunities related to doctoral supervision at African universities. In particular, we sought to understand whether our approach to the learning design and the learning experiences of the candidates successfully engage with the contingencies of the context of supervisors at African universities. Our analysis of the participants' anonymous feedback on the benefits and challenges related to their online learning experience allows us to conduct a critical analysis of the instructional design of the course and its alignment with the needs of the participants. Dialogic pedagogy – specifically in the context of virtual learning (Phillipson & Wegerif, 2017; Rule, 2015) – served as the theoretical lens for our study.

The results show that the participants – all of them are lecturers or professors – welcomed the opportunity to engage in self-paced, remote learning. The opportunities for interaction and the extensive continuous feedback from the facilitators and e-tutors enabled rich online discussions. Despite the many challenges associated with virtual learning, our experience proved that this mode of presentation offer exciting new opportunities to strengthen doctoral supervision at African universities and beyond.

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Title: Barriers to Student Success: Improving the Pedagogy of a Military Distance Law Module

Contribution type: Research

Contribution format: Presentation

Author(s): Nel, M

Keywords: Barriers to student success, distance learning, distance learning pedagogy, law

Abstract:

Over the years, the development of new technologies has resulted in distance education becoming more prevalent and accessible. This led to opportunities usually reserved for a selected few officers becoming available to a wider Department of Defence (DOD) audience. The idea was that more DOD members could utilise the opportunities presented for tertiary education, thereby contributing to a more professional force. This ideal, however, did not fully consider the challenges faced by distance education students, the faculty or the organisation in implementing what was labelled a “pilot project” in 2003. Three of the five academic programmes presented by the Faculty of Military Science (FMS) are presented on a distance platform, allowing students to complete their degree over a period of six years in lieu of the three-year residential programme. Students are afforded opportunities for tertiary education irrespective of where they physically find themselves in the world, as long as they met the minimum qualifications set by Stellenbosch University (SU) and it was possible in terms of their career plans. Student success, however, shows a poor track record. In line with grounded theory as the theoretical framework, the researcher will use both qualitative and quantitative data, identifying the main aspects pertaining to the pedagogy of distance learning, the lecturer, the students, as well as the organisation that students experience as barriers influencing their success within the particular subject that shape their distance education experience. In a form of action research, these factors will then be applied to the researcher’s own module (Criminal and Military Law 114) so that the researcher can use the data collected and make the necessary changes to the module in order to better facilitate student success. This module is regarded as being notoriously difficult to pass and covers the basic principles of South African criminal law. It is presented to students studying within the human resource and organisational management environments. The study ultimately aspires to using the results to change the pedagogy used in this module, which does not differ significantly from the residential approach, in order to facilitate student success on the distance-learning platform.

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Title: Becoming a Community (Educational) Psychologist: Enablers and Constraints of Participatory Parity in Student Educational Journeys

Contribution type: Research

Contribution format: Presentation

Author(s): Carolissen, R

Keywords: Participatory parity; redistribution, recognition, representation, educational psychology, community psychology

Abstract:

South African Higher Education (HE) policy indelibly imprints inclusion, citizenship and social justice on education policy (Department of Education and Training [DET] White Paper, 1997; DET Report on Social Cohesion and Discrimination, 2008). The field of community psychology too, focuses on ethical values such as social justice and attention to difference in Psychology (Nel, Daniels & Lazarus, 2010). This paper integrates Nancy Fraser's concept of participatory parity (Fraser, 2003; 2005; 2009; 2015) and Lingard's (2005) socially just pedagogies to explore how teaching and learning arrangements can be transformative. The research, located in Educational Psychology, and which forms part of a large multi-institutional, multi-disciplinary research project, posed the question, "How can socially just pedagogical practices (Lingard, 2005) be used to enable students to participate as equals and what are students' understandings of enablers and constraints for participatory parity in a postgraduate community psychology module?" Data were generated from participatory action learning techniques and online discussions among 17 master's students during a two-year period between 2014 and 2017 in a Community Psychology module that aimed to engage students on social justice, one of the concepts in community psychology. Data were analysed using thematic theoretical analyses. Results are discussed in terms of redistribution, recognition and representation, the core pillars of Nancy Fraser's social justice theory. Maldistribution occurred in terms of excessive demands on students' time to do the programme and gain access to the programme. Misrecognition was evident in terms of misrecognition of multiple (gendered) roles that students have and misframing, as reflected in the professional discourse about psychology. Students viewed constraints as personal and interpersonal, seldom structural. This research demonstrate, firstly, theoretical innovation by bringing together participatory parity and socially just pedagogical literature to create a framework for analysing student needs and experiences in a teaching and learning context. The empirical data, secondly, demonstrate how significant curriculum design is in developing an understanding of student needs, while simultaneously creating platforms where students may participate as equals in the classroom, thus furthering social justice values in HE and society.

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Title: Blended, Interactive Learning and The Ratio Table

Contribution type: Innovation

Contribution format: Presentation

Author(s): Southey, P

Keywords: Concept questions, peer instruction, blended learning, physics education

Abstract:

Physics education researcher, Arnold Arons, described an inadequate understanding of ratios as “one of the most serious impediments to the study of science” (Arons, 1983). Yet, ample maths and physics education research demonstrates that university students in the fields of science, technology, engineering and mathematics (STEM) have not mastered this threshold concept (Boudreaux, Kanim & Brahmia, 2015). This presentation has two parts: (1) pre-/post-test data will be presented, showing that a simple technique called ‘The Ratio Table’, can help students in understanding ratios; (2) a blended, interactive mode of delivery of this technique will be suggested. This blended mode of delivery involves 15 minutes of video content that can be used to facilitate a 45-minute interactive lecture. Decades of STEM education research has shown that a traditional lecture format is inefficient in facilitating deep understanding, and many alternative, interactive methods of delivery have proven to be more beneficial (Hake, 1998). One such method is concept questions with peer instruction (Mazur & Somers, 1999). I will present and demonstrate a free app, developed in-house, to facilitate this type of interactive engagement. I will further demonstrate how this app could be used in conjunction with video content to structure an interactive lecture. The aim of this blended mode of delivery is to enable a sharing of expertise and to facilitate cohesion among staff lecturing on the same programme. For example, ratios are ubiquitous throughout the BSc curriculum. However, students are rarely given a formalised introduction to a particular method (or methods) for using ratios. To construct a quality lecture on a threshold concept such as ratios is time consuming, as one needs to have mastered the topic-specific pedagogical content knowledge (Mavhunga & Rollnick, 2016); ensuring that the content and the questions are scaffolded optimally, accounting for most common student misconceptions, etc. If various lecturers focus their time and effort on a particular topic, and create interactive video content for that topic, this expertise could be shared among staff and optimise teaching and learning on a particular course.

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Title: Bridging the Gap – Reconfiguration of Online Learning to Advance Greater Academic Success of Part-Time Military Students

Contribution type: Research

Contribution format: Presentation

Author(s): van Diemel, R

Keywords: Online learning, military science, configurations, resilience, throughput

Abstract:

The purpose of this case study is to identify certain gaps in the praxis of online learning in the Faculty of Military Science at Stellenbosch University (SU). Online learning, introduced back in 2003 failed to deliver the same number of graduates than the full-time (face-to-face or residential) courses. The throughput rate of full-time military students is 37% (percentage of students who graduate in relation to the number who initially enrolled in first year), whilst that of online learning students is less than 10%. This figure is lower than the national throughput rate of 15%.

The low throughput rate, coupled with the high rate of termination of studies among part-time military students, warrants a study into the determinants of successful integration of online learning in teaching and learning at the Faculty.

Research aim: What, if any, are the pedagogical interventions and EduTech reconfiguration needed in online learning to advance greater academic success of part-time military students?

Research subquestions:

1. What are some of the major weaknesses and gaps identified with online learning praxis in the Faculty?
2. Which factors constrain the optimal integration of information and communications technology (ICT) into Teaching and Learning Scholarship in the Faculty?
3. What adjustments are needed to par online learning praxis at the Faculty with the online learning model of SU (so-called Mode 2)?

Research design: An Interactive Qualitative Analysis (IQA) is regarded as a suitable choice for this study. Developed by Northcutt and McCoy (2004), IQA follows a structured approach; have clear protocols; and involves insistence on using the voice of the participants (targeted population). More importantly, IQA minimises bias. Individual interviews were conducted with staff and students.

Target population and sampling: Convenience sampling (Neuman, 2006) governs this research methodology. Babbie and Mouton point out that it is impossible to sample everyone relevant to the topic being studied. Four staff members and four students were chosen for the individual interviews.

Hypothesis: The main hypothesis governing this study is that identifying and addressing the weaknesses and gaps in online learning praxis will advance greater academic success of part-time military students.

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Title: Bridging the Gap Between Information and Knowledge: Visual Processing (Reading Speed) and Cognitive Development (Comprehension)

Contribution type: Innovation

Contribution format: Presentation

Author(s): Rademeyer, JC; Coetzee, M

Keywords: Visual processing, reading skills, cognitive development, comprehension

Abstract:

Governments across the world are spending billions on improving curricula and creating cutting-edge environments to improve academic achievement. In recent years, researchers have been increasingly interested in the visual processing of knowledge owing to the increasing gap between learners and the information they have to master. Additionally, according to the Progress in International Reading Literacy Study (2016), 78% of South African Grade 4 learners cannot read for meaning. A significant amount of research has focused on primary schools in South Africa, but so far little research has been conducted on students in tertiary institutions. It is, therefore, of importance to examine reading skills and comprehension in higher education. This study aims to explore the relationship between visual processing factors (VPF) (measured in words per minute) and cognitive development factors (CDF) (measured in comprehension) of first-year students in the Extended Degree Programme (EDP) at Stellenbosch University. This study presents data on the improvement of VPF and CDP by completing a 10-week (20 lessons) online program called LAB-on-line. LAB-on-line makes engagement possible through augmenting the science of neural wiring to bridge the gap between information and knowledge by training and optimising neural pathways in each student's brain. The program incorporates a virtual reading laboratory and eye-brain gymnasium. The results indicate that this method is effective in increasing students' reading speed and comprehension, which can contribute to academic success. The results from the program could also be used to identify students that may need additional academic support.

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Title: Clinical IPECP: Do We Even Know What We are doing?

Contribution type: Innovation

Contribution format: Presentation

Author(s): Muller, J

Keywords: Interprofessional, distributed, clinical training, education, health

Abstract:

Although interprofessional education and collaborative practice (IPECP) is seen as a corner stone of undergraduate health science student's competency development, there is scant literature supporting models of clinical IPECP in existing working environments. The Ukwanda Centre for Rural Health offers a community based experiential IPECP project in Worcester, which for seven years has not been credit bearing, where health science students and community health workers conduct interprofessional home visits for patients and their families. Although research shows that this project successfully merges clinical IPE with collaborative practice, the exact reason for this is yet to be determined. As a result, IPECP are still add-ons to and not part of existing clinical or curricular activities.

Focus: This presentation considers the development of a proposal to identify students' IPECP opportunities during their 'normal' discipline-specific clinical training to determine which activities promote IPECP without creating add-on modules to already overloaded programmes or depending on an IPECP 'champion' at each site.

Work done: Workshops aimed at identifying appropriate methodology to explore what every day clinical practice experiences promoted IPECP were held with Faculty management, which guided further workshops around developing specific aims and objectives of IPECP on the Ukwanda platform prior to using Worcester as a pilot site in 2020.

Links to similar work: There is a growing body of South African publications concerning IPECP competency development during specific interprofessional activities. However, internationally there are only a few studies regarding health services-based clinical activities that inherently promote IPECP.

Implications: Identifying and understanding how existing clinical opportunities at distributed sites meet IPECP-related outcomes and how to assess this is important with the evolution of training along the distributed platform and may help with identifying optimal training sites in the future.

Value to fellow practitioners: Distributed training depends predominantly on local clinicians to facilitate student learning. This may be time consuming in terms of clinical practice and/or may be expensive for the University. Choosing appropriate clinical sites is important to optimise IPECP during clinical placements, which can be done only if we understand the results of this learning in South Africa.

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Title: Clinical Teaching on an Expanding Training Platform: Designing a Fit-For-Purpose Faculty Development Framework for Emerging Clinical Teachers

Contribution type: Research

Contribution format: Presentation

Author(s): Blitz, J; de Villiers, M; van Schalkwyk, S

Keywords: Faculty development, clinical teachers, situated learning, affordance, agency

Abstract:

Increasingly, medical schools are expanding clinical training platforms beyond traditional academic teaching hospitals, creating the obligation to maintain the quality of teaching in these new clinical contexts. Clinicians play a crucial role in training medical students. Faculty development offers a means to strengthen and support this role, requiring us to consider appropriate faculty development offerings for these emerging clinical teachers. How might clinicians, asked to take on the role of clinical teacher, be assisted on this journey?

This study was informed by Lave and Wenger's situated learning theory (1991), particularly the way in which this interplays with Bandura's social cognitive theory (2006) in the context of workplace (Billett, 2001) and experience-based (Dornan, 2007) learning. In this interpretivist qualitative study, senior medical students, clinical teachers and staff responsible for faculty development were interviewed and clinical teaching episodes were recorded, to identify the targeted needs of emerging clinical teachers (Kern, 1998). A synthesis of the four data sets informed a fit-for-purpose faculty development framework for emerging clinical teachers. While education for the health professions embraces learning in the workplace, it also needs to attend to its counterpart, i.e. teaching in the workplace, by addressing how best to optimise both the clinician's teaching and their students' learning. In this study, the focus shifts from a more established form of faculty development to one that responds to students' learning experiences through establishing reciprocal, generative relationships between those responsible for faculty development and clinical teachers. Research focusing on this new cohort of clinical teachers is limited, particularly in resource-constrained environments. As such, the study offers important insights into how best to support faculty development in situ.

This study proposes a framework that is based on four constituent elements: that faculty development is situated within the network of clinical practice; that clinical teaching is seen as supervision which offers affordances for learning; that clinical learning is emphasised as student engagement, with an essential interplay between the offering of affordances, and the development and exercising of student's agency for engagement; and that students' evaluations of clinical teaching effectiveness is used to inform and tailor-make the faculty development offerings suggested in the first element.

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Title: Cognitive Science, and Teaching and Learning

Contribution type: Research

Contribution format: Presentation

Author(s): Southey, P

Keywords: Embodied cognition, working memory, dual process theory

Abstract:

“Education is what is left when what was learned has been forgotten” – anonymous origin. This talk will give a conceptual overview of three topics within cognitive science, namely (i) embodied cognition, (ii) working memory, and (iii) dual process theory, and how they might inform teaching and learning. With the massification of education, assessment is often necessarily orientated toward producing “the right answer”. This is obviously not the aim of education. Rather, it is the underlying, structured process of thought that is at the heart of the teaching and learning project. Therefore, one of the aims of teaching and learning research is the modelling of student cognition; if we have a good model of the building blocks and processes of cognition, we can better facilitate the establishment of productive structures and habits of thought. The three topics mentioned above provide a foundation for understanding the basic structure and processes of thought. (i) Embodied cognition advances the thesis that all thought, including abstract thought, is ultimately grounded in recurrent patterns of our embodied experience in the world. The most well-known and widely applied instantiation of this overarching thesis is Conceptual Metaphor Theory (Lakoff & Johnson, 1980), which has been used in a variety of educational contexts (Brookes & Etkina, 2007). (ii) Working memory can be defined as the limited capacity one has for holding information in mind, at any one time (Baddeley, 2007). Importantly, the amount of space something takes up in working memory is dependent on familiarity and expertise. The notion of working memory therefore allows us to model the differences between novices and experts. (iii) Finally, dual process theory argues that there are distinct processes of thinking (Paivio, 1990), the most well-known example being Kahneman’s (2011) distinction between a fast, automatic thinking process, and a slow, effortful thinking process. I shall also link this to theories that distinguish between faster linguistic processing and the slower cognitive process of simulation (Barsalou, Santos, Simmons & Wilson, 2008). This conceptual overview should provide teachers with important perspectives that could inform their development of teaching material.

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Title: Communities' Views on Medical Practitioners' Empathic Communication and Language Proficiency

Contribution type: Research

Contribution format: Presentation

Author(s): Meyer, I; Archer, E

Keywords: Empathy, language proficiency, curriculum development, graduate attributes, needs assessment

Abstract:

Background: Medical school curricula need to be responsive to the needs of society and at the same time deliver competent, patient-centred graduates. Communication skills training is often guided by frameworks that originate from a Western context and while we think they are appropriate, we have not researched this from patients' perspectives. Our graduates work in a multi-cultural context with many possible communication challenges. This study was conducted with the aim to understand what patients view as an empathic doctor, as well as what level of communication skills isiXhosa or Afrikaans first language speaking adults expect from their doctor.

Research question: What are the expectations of patients with regard to medical practitioners' caring attitudes and language proficiency during consultations?

Literature review: An important aspect of patient-centred care is effective, empathic communication (Hegazi & Wilson, 2013) as it improves relationships among healthcare providers and their patients, health outcomes and reduces costs (Mead, Bower & Hann, 2002). Patient-centred care involves a paradigm shift from a disease to a holistic focus, where the doctor no longer controls, but collaborates with the patient regarding the relationship and decision-making process (Stewart, 2003).

Methods: An equal, random sample of 120 (n=60 isiXhosa; n=60 Afrikaans) first-language speaking adults in communities near Tygerberg Hospital completed questionnaires which explored communication skills and empathy. Convenience sampling of individuals (n=40) who participated in four focus groups followed, where the aspects highlighted in the questionnaires were discussed in more depth.

Implications: The information gathered is a way of understanding some of the community's needs and expectations when consulting a doctor. This can assist curriculum developers to provide students with the required learning opportunities in order for them to acquire the appropriate communication skills.

Significance of research: This study is a first step in designing an appropriate communication skills curriculum at the FHMS that is informed by the community's needs.

Conclusions: Data from the questionnaires revealed various contradictions in participants' perceptions and expectations. An overall need expressed by all the participants was that doctors should respect them and make them feel comfortable. [\[Back to Index \]](#)

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Title: Craig Who? Developing Students' Scientific Discourse through Collaborative Pedagogy

Contribution type: Research

Contribution format: Presentation

Author(s): Mouton, M; Rootman-Le Grange, I

Keywords: Scientific discourse, collaborative pedagogy, semantics

Abstract:

Scientific discourse is a specialised language with complex meaning that is practically foreign to novices in the field (Ambitious Science Teaching 2015). In addition, it is characterised by a unique style, using concise language and passive voice to formulate clear, objective arguments to elucidate experimental results. However, in science classrooms, the skill of scientific argumentation is rarely modelled or developed. Yet, we expect students to engage with complex disciplinary texts ('high stakes reading') and then demonstrate their mastery of the subject matter using appropriate scientific discourse ('high stakes writing') (Maton, 2013). Many studies have highlighted that students find this extremely challenging, which is why Marshall and Case (2013) argue that "in not allowing space for a critical engagement with these values and ways of thinking, many students are implicitly excluded from successful engagement with the subject". Hence, they argue for making explicit the academic literacy practices of the discipline to advance learning for all students.

The aim of our study was to investigate how lecturers can make science practices explicit, in order to support the development of first-year biology students' scientific discourse skills and help them navigate the gap between 'high stakes reading' and 'high stakes writing'. We drew on the Semantics dimension of Legitimation Code Theory, and specifically the concept of semantic density (complexity of meaning), for both project design and data analysis.

We designed and implemented a project, using collaborative pedagogy (Jacobs, 2007), to make aspects of Biology discourse explicit to the students. We then analysed excerpts of writing, relating to the project topic, from randomly selected students' summative assessments. Results showed profound variation in the proficiency and discourse of the students with regard to scientific vocabulary and language functions. It further showed that some students need more time and space to develop this critical skill. It is evident that science curricula, therefore, need to provide opportunities for students to develop scientific skills such as argumentation and writing. Subsequently, students may be able to successfully engage with the complex written forms of disciplinary knowledge and then demonstrate their mastery of the subject matter using proficient scientific discourse.

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Title: Decolonisation and Science Education – How do We Move Forward?

Contribution type: Research

Contribution format: Presentation

Author(s): Blackie, M; Adendorff, H

Keywords: Decolonisation, science education, Lonergan, powerful knowledge

Abstract:

What does decolonisation look like in the context of a science curriculum? We argue that decolonisation has a slightly different focus in the natural sciences than in the humanities. Where historically the humanities have tended towards knowledge blindness, the sciences have tended towards knower blindness. In the humanities, this may require a wholly reimaged curriculum. In the sciences, this will more likely require academics to pay attention to the images and models used to illustrate concepts. At a deeper level, this requires an examination of ontology – what is the impact of my way of being in the world and how I show up in the lecture theatre or laboratory. The mythical image of the objective scientist fails to distinguish between the objectivity and reproducibility of science and the inherent complexity of the scientist as a human person. Herein we argue for a model of science education that can accommodate the rigour and powerful knowledge necessary for a science curriculum, linked with attention to particularity of the person who enters higher education and the development of the capacity to critique one's own knowledge.

We use the epistemic plane from Legitimation Code Theory to show why this is a legitimate and necessary part of any scientific education project. The epistemic plane allows us to differentiate between what is learned and how that is enacted. For the most part science education focuses well on the first, but very poorly on the second. In addition, what is learned varies in complexity from basic procedures to underlying principles. Powerful knowledge in science comes from grasping the underlying principle, but most of our current forms of assessment simply require the student to show that they can perform the procedure.

Turning to the work of Lonergan on understanding understanding, we can begin to scaffold the necessary reflection into our teaching such that students can begin to distinguish between mastering a procedure and grasping a principle. The desire is to create a robust, scientifically rigorous offering that also attends to human development.

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Title: Decomposing Processes Involved within Intuition

Contribution type: Innovation

Contribution format: Presentation

Author(s): Marques, S

Keywords: Intuition, empathy, students, creativity, researchers, psychology, history

Abstract:

When teaching, we tend to become overfamiliar with the material we share. For instance, how often do we step back and ask ourselves, What do I mean by a number, a fraction, etc? The material we teach becomes an unquestionable part of our knowledge. Teaching becomes almost intuitive, to the extent that we may fail to understand the difficulties students experience in grasping the content.

The idea behind the Abelia initiative, which started in December, was to get researchers in abstract mathematics to reflect on the number system. I wished to push them to unravel and rediscover the fundamental unconscious processes that made them comfortable to say they knew what the number system was. It was also a place where their unbreakable perceptiveness was confronted with others. The challenge was constantly to try to unpack the concrete experiences that created the understanding of abstract notions such as numbers from their mathematician mind. (This links up with the idea in *Where Mathematics Comes From* by George Lakoff and Rafael E. Núñez.) My way of thinking was changed in the process. I soon realised it was impossible to answer to the simplest question, “What is one?” without entering into imprecise philosophies.

Along with this project, I learned about the history of numbers trying to tie it together with my mathematical rope. History, to me, provided the best statistical data I could find. A documentary that assisted with this process was the BBC’s *Story of Maths* on the discovery of the number one. Through that long journey of discovery into history, I realised that even evaluating the understanding of the learning of counting at an early age could already be confused by a parent or a teacher. Numbers are the first layer we teach in mathematics. As complexity grows exponentially, I discovered a different sensibility to my teaching.

I share this work also in the hope of having a fruitful conversation with the audience. I trust that others will leave the talk questioning their own understanding of everything. This could create even more sensibility and empathy toward our students, and encourage us to stay humble and realistic about our own knowledge.

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Title: Designing for Belonging – Creating Awe Experiences for First-Years during Welcoming

Contribution type: Innovation

Contribution format: Presentation

Author(s): Petersen, J; Kloppers, P

Keywords: Welcoming Programme, first-years' experiences, awe moments

Abstract:

The annual first-years' Welcoming Questionnaire has transformed from a tool used to investigate unwelcoming practices into a measurement of students' social connectedness and integration. Using the change management principles of Heath and Heath (2010), the Centre for Student Communities has embarked on a campus-wide training and development approach in the student communities with the aim of implementing activities and practices that would produce peak experiences for the new entrants to university. This study focused on these experiences as articulated by the students.

The Welcoming Programme consists of a series of intentional curricular and co-curricular activities aimed at orientating new students in their new environment and creating a sense of belonging. This year, the programme included a dream walk and dream launch. This was a campus-wide collaboration between rectorate, faculties, student communities, Matiesport and alumni. To assess whether this particular event was successful in creating an experience of AWE for the students as intended, we posed two questions to the students in the Welcoming Questionnaire:

1. Was there a moment in the Welcoming Programme where you felt you were part of something bigger?
2. When you hung your dream on the tree, you experienced... (complete)

The rationale for using awe can be attributed to awe being described variously as complex, emotionally evocative and a deeply meaningful experience (Bonner & Freidman, 2011). Keltner and Haidt's (2003) prototypical framework introduced two features that form the heart of awe, namely accommodation and vastness. An article by Yaden et al. (2019) includes the facets of self-diminishment and connectedness, and they generated an AWE-Experience Scale (AWE-S) based on these aspects. Using the students' descriptive responses to the above questions we analysed their experiences using the AWE-S and dispositional positive emotion scale (D-PES) (Shoita et al., 2003). The tentative findings of this qualitative data analysis indicate a stronger correlation to D-PES traits.

The study addresses the need to design effective orientation and transition strategies, as suggested by Lizzio's (2006) Five Senses of Success Model, specifically creating a sense of connectedness with peers, faculty and institution. Staging all-inclusive awe experiences creates feelings of affiliation and affirmation.

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Title: Developing Engineering Gazes in a Community of Practice

Contribution type: Research

Contribution format: Presentation

Author(s): Wolff, K; Blaine, D; Basson, A; Tucker, M

Keywords: Engineering education, communities of practice, Legitimation Code Theory

Abstract:

The South African Society for Engineering Education (SASEE) established in 2011 aims to build a national engineering education (EE) Community of Practice (COP) (Wenger, 2013). Given the well-reported global challenges in EE, SASEE members meet annually at conferences and workshops to address collective EE concerns. The SASEE COP has produced 180 full papers and extended abstracts across four conferences, from 2011 to 2017. As part of a larger Stellenbosch University Engineering Faculty research project, a review of all SASEE contributions has been conducted using a mixed-methods approach. Drawing on Legitimation Code Theory (LCT) Specialisation Codes (Maton, 2014), the reviewers analysed the conference proceedings to determine how the focus of the COP has shifted between knowledge underpinning EE, knowers in EE contexts, both or neither (Wolff et al., 2019).

Extending work presented at SOTL 2018, where Auret and Basson presented an analysis of the kinds of 'knowers' in the EE relationship using the LCT Social Plane, this paper presents an analysis of how SASEE authors conceptualise knowers and their 'gazes' (orientations to a field). Differentiating between the gazes of the student, demi, lecturer and professional engineer, this paper presents approaches to practices that offer insights into ways of inducting students into professional fields.

The analysis demonstrates a predominant focus on the student as novice (trained gaze), with persistent deficit characterisations. A few notable contributions, however, begin to reveal attention to the role of lecturers in enabling the development of a 'cultivated' gaze. There are very few references to social and born gazes – in other words, professional and expert knowers who might play a role in enabling access to opportunities through which to develop professional identity.

The authors suggest that the LCT tools and accompanying literature review offer a useful lens for the broader academic community on diverse ways of enabling professional 'becoming'. They also note that the EE academic community cannot shoulder the burden of inducting students into their professional identity, and that critical professional stakeholders could be called upon to support engineering educators.

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Title: Drumming For Student Mental Health

Contribution type: Innovation

Contribution format: Presentation

Author(s): Sheik Ismail, A

Keywords: Student health, mood, drumming

Abstract:

The health status of students is a growing concern, not only at Stellenbosch University but also nationally and internationally. In my role as lecturer, class coordinator and clinical work coordinator, I am confronted daily with the health issues (particularly mental health issues) of students in the B. Occupational Therapy programme.

I often reflect on how to improve students' resilience to better deal with the stressful learning situations many students in the Faculty of Medicine and Health Science have to cope with, particularly with the combination of academic and clinical work. The following is a narrative of the innovative process I devised in this regard.

As I did not have time available to convert the idea into a research project, I had to be innovative and make it a part of our students' learning and my teaching experience. This resulted in the rhythmic activity of African Djembe drumming. As a clinician, I have successfully used rhythmic activities for adults with physical disabilities and children with learning difficulties. From an occupational therapy perspective as humans and occupational beings (people engage in activities and tasks in everyday living that are meaningful and contribute to their health and well-being), our body functions and daily routines have a rhythm and pattern. When we are in sync with ourselves and the environment we are healthy and we learn more effectively.

In Term 1, I completed a drum facilitation course and then proceeded to offer weekly drumming sessions over a five-week period in Terms 2 and 3 to B. OT II students (who volunteered to engage in the programme). Feedback from students has indicated that these sessions have had a positive effect on their mood. Thus, I plan to continue offering drumming sessions in 2020.

This has prompted me (in collaboration with B. OT IV students) to do a feasibility study in 2020 regarding the effect drumming has on the mood of B. OT undergraduate students. Depending on the findings, I will engage in further research into the effect of an occupational therapy-led drumming programme on the mood and resilience of FMHS students and the impact this has on academic performance.

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Title: Early Assessment: Chrystal Ball or Dropping the Proverbial Academic Performance Ball?

Contribution type: Research

Contribution format: Presentation

Author(s): Bruwer, A; Ontong, J

Keywords: Early assessment, first-years, financial accounting, academic success, predictor

Abstract:

Current emphasis on students' academic adaptation in higher education necessitates the evaluation of predictors of successful preparation of first-year students (Steenkamp, Baard & Frick, 2015:113). This study evaluated the implementation of early assessment (EA) in two first-year financial accounting courses at a South African university, namely an introductory financial accounting course aimed at students without prior exposure to accounting, and a professional body accredited accounting course aimed at students with prior exposure to accounting. This module-specific benchmark assessment early in the academic year is often used as a predictor of preparation, adaptation and potential future academic performance (Stellenbosch University, 2017).

The academic contribution of the EA has been questioned following the discontinuation of the EA protocol in specific faculties. The study focus comprises two research questions, namely whether the EA can be used as a predictor of future academic performance of two different academic performance groups and whether students in a lower academic performance group are able to achieve success despite a low result in the EA. The research methodology included an analysis of variances to determine the correlation between the early assessment and either mid-year or final marks, as well as significance evaluation of the measured variance analysis using the Bonferroni test.

The findings suggest that whilst the EA could potentially be used as an early warning sign for at-risk academically low performing students, the EA could also result in a misleading representation to students in the high academic performance category. Principally, the EA was found not to be a reliable predictor of future academic performance. In addition, the mixed results obtained from the evaluation of the effect of the nature and format of the assessment suggested that it had a low and non-meaningful effect on the predictive value of the early assessment.

The fact that students in the academically low performance group were largely able to pass the module, however, suggests the success of intervention utilising the EA as an early warning. Higher education module developers could therefore consider the implementation of an appropriate EA in various undergraduate modules, based on the findings.

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Title: Economics Curriculum Renewal and Graduateness: The CORE Curriculum at Stellenbosch University

Contribution type: Research

Contribution format: Presentation

Author(s): Jansen, A

Keywords: Curriculum renewal, economics, graduate attributes

Abstract:

University education must equip graduates with attributes adequately to prepare them for the workplace and to function effectively as citizens in a global society. In recent times, questions were raised about the economics curriculum, how it has been taught, and the preparedness of graduates to address real world problems. According to the report of the Post-Crash Economics Society (PCES) (2014:4), the conventional curriculum exposes students to various theories that cannot easily be connected to the real world. Birdie (2016:1) highlights that the current content and how it is sequenced and taught are problematic. These concerns have led to the development of the CORE (Curriculum in Open-access Resources in Economics) project. The CORE project differs from the conventional curriculum in that it identifies contemporary economic problems and equips students with the necessary toolkit to evaluate them.

As part of a curriculum renewal project, the Department of Economics at Stellenbosch University (SU) is revising its undergraduate curriculum, with graduate attributes underpinning our renewal initiatives. We anticipate that the CORE curriculum will develop students' critical thinking and their abilities to evaluate economic problems within a real world context. We implemented the CORE curriculum as a pilot in the Economics 288 module (a service module to students in the Arts and Social Sciences Faculty), and feedback on its efficacy will be crucial to inform ongoing curriculum and programme renewal initiatives in the Faculty. The primary objective of this study is to evaluate whether the CORE curriculum contributes to critical thinking, and if it aids in developing well-rounded individuals that are cognisant of their environment and can apply their acquired skills to societal problems.

The research method applied was the completion of a student survey that contained questions from the Motivated Strategies for Learning Questionnaire of Pintrich et al. (1991) (aimed at eliciting responses on student motivation, learning strategies, and skills development in Economics 288). Open-ended questions augmented the survey, and generated additional data on the contribution to graduate outcomes. It is envisaged that this study will provide insight on the contribution of the economics curriculum towards graduateness at SU and the findings will enable evidence-based leadership in other programme renewal activities.

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Title: Educating in an Instant(gram) #blendedlearning

Contribution type: Research

Contribution format: Presentation

Author(s): Swanepoel, G; Bruwer, A

Keywords: Instagram, technology, blended learning, innovative teaching, student perspectives

Abstract:

The anticipated fourth industrial revolution and non-linear sharing of information has afforded tertiary education opportunities to apply new technology within their pedagogy model (Jovanovic, Chiong & Weise, 2012). The prominence of social networking sites (SNSes), specifically Instagram, calls for educational institutions to apply them within an innovative blended learning approach. This study aimed to analyse students' perspectives on the use of Instagram as a blended learning and administrative tool in tertiary education.

The research questions were aimed at determining whether Instagram could be used in blended learning and how students prefer Instagram to be used within tertiary education. Whilst the use of Facebook as an educational tool is widely researched, limited studies exist on the use of Instagram in tertiary education. In 2015 it was established that Facebook still had more users than Instagram; however, teenagers were moving to Instagram (Lang, 2015). Four years later, those teenagers find themselves within the tertiary education system. Thus, the expectation is set on tertiary education to apply Instagram for easy communication and an enjoyable teaching experience (Handayani, 2016; Khalitova & Gimaletdinova, 2016).

The perceptions of students on the use of Instagram in tertiary education were evaluated using a questionnaire approach and analysed as continuous data on a 5-point Likert scale. The Instagram account created by the research team as a blended learning tool had more than 270 student followers whose perceptions were further analysed on the application of Instagram in tertiary education. By using a one-way t-test, the preferred blended learning approach to be implemented on Instagram was determined. Whilst previous research only focused on the possibility of the implementation of Instagram, this study indicates how tertiary education can apply Instagram within an innovative blended learning approach.

The study found that Instagram creates an always-on learner, thinking about the module outside of class. Students perceive it to be an effective educational tool aiding them to understand difficult topics better, as well as an administrative tool complementing the current administrative systems. The overall perception is that there is a place for Instagram in tertiary education, with both the lecturer and the student as the driving force.

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Title: Educational Value of Surgical Procedural Videos as Perceived by Surgery Registrars

Contribution type: Research

Contribution format: Presentation

Author(s): Baatjes, K

Keywords: Surgery, procedures, technology, digital

Abstract:

Surgical training in South Africa is challenged by limited training resources and insufficient opportunities to revisit procedures outside the operating room. Educational solutions combining instruction under direct supervision with technological advances in surgical, clinical and educational practice could be beneficial. Videos of real-life procedures make surgical course content available in a visual format and can serve as a source for self-learning and revision by students (1)(2). Embedding multimedia learning tools in surgical education has been reported (3), but research of its perceived value and educational significance appears to be lacking.

In an attempt to address this gap, the researcher performed and recorded two operations and produced it as teaching videos, incorporating the principles of cognitive load theory (1)(2). This pilot study aimed to answer the following research question: What is the perceived value of surgical procedural videos as a learning tool by Surgery Registrars?

All currently enrolled Surgery Registrars (29) were invited to participate in the research, which received ethical clearance. Fifteen volunteered and provided consent. Before and after having watched the two curriculum focused procedural videos, participants completed paper-based questionnaires reflecting on their level of experience and confidence in performing the procedures. Reflection on the perceived value of the videos for learning surgical procedures was part of the post-questionnaire. A data analysis was done through descriptive statistics.

The registrars reported they found the videos valuable for learning as the content was aligned with learning outcomes and it was a source of information. Several commented on enjoying the surgeon's perspective of the procedure and a few indicated a need for zooming into the field sometimes. Suggestions towards the design and planning of future video material were also offered.

Clinically practising surgical educators should play a leading role in the evolution of surgical training by implementing varied teaching strategies, in addition to active participation in operations. Wearable cameras that record procedures from the surgeon's point of view might be one such strategy that could change the way we teach, and the way registrars learn. Further qualitative research is planned to develop a deeper understanding of the value of this intervention.

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Title: E-Learning's Many Crises: The Case of the Faculty of Military Science

Contribution type: Research

Contribution format: Presentation

Author(s): van Diemel, R

Keywords: E-learning, Mode 2, military education, pedagogical issues, dropout, throughput

Abstract:

Telematic or distance education (DE) has since its inception in 2003 been promoted as one of the flagship offerings in the Faculty of Military Science at Stellenbosch University (SU). However, on its tenth anniversary there was little reason for celebration. Four wolves have made themselves comfortable at the door of e-learning at the Military Academy: firstly, the high dropout rate; secondly, the low throughput rate; thirdly, budget cuts for e-learning; and fourthly, shortcomings in the ICT (information and communication technology) infrastructure to administering e-learning optimally.

The context of the research problem: E-learning's many crises in the Faculty are easily recognised, but do we fully understand the pedagogical interventions (reconfigurations) and EduTech innovations needed to resolve these crises? (Ellis, 2013).

Problem statement: Research question: What pedagogical interventions and enabling EduTech design changes are needed to advance the true potential of e-learning in the Faculty of Military Science?

Subsidiary questions are:

- Why is there a non-alignment with the Department of Higher Education and Training (DHET) policy on the provision of DE in South African universities?
- What changes in the scholarship of e-learning are needed to align with SU's Learn and Earn Mode 2 Model?

Theoretical framework: Military education praxis will advance in the Faculty once the theoretical underpinnings of e-learning are explored, understood and embraced by all stakeholders (Nichols, 2003). The scholarship of e-learning and that of face-to-face teaching and learning are not in competition with each other. Once this is understood, a vision for the future of military teaching and learning can be put in place, which paints a picture of the "art of the possible".

Research methodology: The nature of the proposed study requires critical engagement with relevant internal communication circulars, memoranda and minutes of Faculty and Executive Council Meetings, reports, as well as documents originating at SU on the Scholarship of Teaching and Learning and Mode 2 in particular.

Possible implications: The advent of the fourth industrial revolution has created a level of worldwide complexity and change for the military. By optimising their e-learning platform and offering, the Faculty will ensure they remain competitive with military academies around the globe. [\[Back to Index \]](#)

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Title: Embedding Graduate Attributes in a Renewed Occupational Therapy Curriculum: A Longitudinal Analysis of Change

Contribution type: Research

Contribution format: Presentation

Author(s): Plastow, N

Keywords: Graduate attributes, occupational therapy, curriculum renewal

Abstract:

Background: Graduate attributes are the personal qualities, skills and values that university graduates require for their future work and participation in community life; the end product of the process of university education. Given that the first cohort of students that followed the renewed occupational therapy curriculum graduated in 2018, it was important to evaluate whether those graduates had developed the attributes required to work in the South African healthcare system. The purpose of this study was to understand how graduate attributes develop over four years of a curriculum, and whether our renewed curriculum, which embedded graduate attributes, was different to our previous curriculum.

Research question: How do graduate attributes develop across the four years of a renewed occupational therapy curriculum, and what is the difference in exit-level attributes between renewed curriculum and 'old' curriculum B. OT students?

Theoretical framing: Frenk et al. (2010) advocate transformative learning, which enables health professionals to become agents of change. Barrie (2007) argues this transformative learning occurs by integrating desired attributes into the curriculum. At the heart of our curriculum renewal programme was our vision of who and what Stellenbosch University Occupational Therapy graduates are when they walk across the stage to receive their undergraduate degree.

Methods: Within a collaborative inquiry into curriculum renewal, a prospective observational cohort study of the first cohort of the renewed curriculum (N=50) was conducted using survey questionnaires at the end of each academic year for four years. The final cohort of the 'old' curriculum was a second sample. These students completed the survey questionnaire at the end of their final year of study.

Findings: Findings using repeated measures ANOVA showed consistent development of the graduate attributes over the four years of the renewed curriculum. Analysis using the independent t-test showed significant differences in the development of graduate attributes between renewed curriculum students and one previous cohort.

Significance and conclusions: This is the first study in occupational therapy to investigate how graduate attributes develop over time. The findings may contribute to curriculum development processes in other professions, particularly those that aim to embed graduate attributes across all curriculum activities.

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Title: Enhancing Graduate Attributes in a Postgraduate Research Methodology Module

Contribution type: Research

Contribution format: Poster

Author(s): Roomaney, R

Keywords: Research methods, postgraduate students, graduate attributes

Abstract:

Background: Our aim was to enhance graduate attributes by employing innovative techniques of teaching and learning in a postgraduate research methodology module. Emphasising and developing the graduate attributes of these academically strong students is of importance as they are at the beginning of their professional careers.

Research question(s): The study had three objectives, namely (1) to adapt the existing module, (2) to evaluate the effectiveness of the adapted module in enhancing students' knowledge of research methodology, and (3) to assess students' perceptions of their graduate attributes as a result of participating in the module.

Theoretical framing and literature review: We drew on a conceptual framework of graduate attributes offered by Barrie (2007). Barrie (2007) argues that students develop generic graduate attributes by means of the learning activities and opportunities offered as a part of teaching. We de-emphasised a lecturer-centred teaching approach in favour of student-centred learning where student engagement with the curriculum is fostered.

Methods: We adapted the module to incorporate innovative methods of teaching and learning in addition to traditional lectures. We then evaluated the module in terms of the knowledge of research methodology students acquired as they progressed through the module. We used a single group pre-test, post-test design to evaluate change in their knowledge. We collected data from 23 students in the class and conducted a t-test. When the module had been completed, we assessed students' perceptions of their graduate attributes as a result of participating in the module by conducting qualitative interviews with them. This data were analysed using thematic analysis.

Results: The quantitative analysis showed that there was no statistically significant change in students' knowledge of research methods, but the qualitative analysis revealed that students perceived a change in their graduate attributes as a result of the module.

Implications: Academic achievement was considered a priority among students and they did not consider the importance of developing graduate attributes. Their reflection on the importance of graduate attributes toward the end of the module only indicates that it may be worth asking students to reflect on graduate attributes throughout the module. Lecturers should encourage this reflection among students.

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Title: Evaluating and Defining the Military Geography Curriculum at the South African Military Academy

Contribution type: Research

Contribution format: Presentation

Author(s): Henrico, I

Keywords: SA Military Academy, Faculty of Military Science, Military Geography, GIS, Remote Sensing

Abstract:

The SA Military Academy (SAMA) has housed the Faculty of Military Science of Stellenbosch University since January 1961, with the purpose of developing future military leaders of South Africa. This Faculty offers various undergraduate and postgraduate programmes, which are fully accredited by the Council for Higher Education. These programmes consist of a wide range of academic modules (Military Science, 2013). This paper investigates the importance of Remote Sensing (RS) as one of six modules of the undergraduate curriculum of Military Geography presented at the SAMA.

In the military, RS not only provides information on a military force's equipment, infrastructure, movement and activities, but also offers significant potential ability to predict military operational intent. Its importance as a strategic force multiplier is recognised by militaries around the globe. The theory of RS and its practical applications using a dedicated image processing software (e.g. ERDAS IMAGINE, ENVI and PCI Geomatics) are equally important. Understanding both the theory and practical application of RS will greatly benefit any military operator who produces geospatial products in support of military operations.

This paper subsequently asserts that the curriculum of RS for military students should gain prominence and recognition among military academic professionals. The structure and contents of this curriculum should emphasise the importance of RS by considering relevant theory and practical application, specifically military application through dedicated image processing software. Currently, the theoretical and practical components of the SAMA RS curriculum are well defined, but more emphasis is placed on theory than on the practical application of RS. In addition, practicals lack military application per se, and dedicated image processing software to conduct military-specific practicals does not exist in the institution.

This paper analyses the importance of the RS curriculum in Military Geography studies at the SAMA. It defines a practicum method of teaching military students both theory and practical applications of RS. An important contribution to this study is that it reviews the incorporation of the ERDAS IMAGINE image processing software in the existing curriculum.

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Title: Expectation vs Reality – Student Perspective on Internship in Wine Sciences

Contribution type: Research

Contribution format: Presentation

Author(s): du Toit, M

Keywords: Internship, student expectations, programme renewal, career path

Abstract:

Internships are widely used in experiential and vocational learning. However, employees and students/interns often do not have consistent or shared expectations, which could lead to challenges with creating and growing successful internships (Kensingler & Muller, 2006; Coronado et al., 2012; Otara 2014). The Department of Viticulture and Oenology implemented a compulsory six-month industry internship for final-year students in 2012. However, before rolling out the newly conceptualised final year (with the embedded internship) in 2020 as part of programme renewal, it is important to assess the students' experience and expectations of the current internship. The overall aim of this research project is thus to uncover student perceptions about their internship expectations and experiences. The specific research questions are: 1) What level of preparedness does students feel they have for their final year of industry internship? 2) What are students' experiences in terms of the value of the internship as a learning opportunity? 3) How, if at all, does the internship contribute to job-readiness and career opportunities? Students from the 2019 cohort will be asked to reflect through an online survey on the expectations they had before entering the internship; to reflect upon whether their studies equipped them with the knowledge and skills needed to successfully complete the internship with open and closed questions. Qualitative and quantitative data will be gathered and analysed using thematic analysis and descriptive statistics. Data still needs to be collected and therefore results are not available yet. It is envisaged that the findings of the research project will provide insights, expectations and challenges regarding the students' expectations of, and preparedness for their internship. It will also guide the lecturers responsible for the internship about the kind of mentorship needed by the students. The findings will also inform the current programme renewal if changes need to be made in certain modules, to ensure the students are equipped academically for the challenges of the internship, and have the necessary graduate attributes or soft skills to handle all the industry challenges of a working environment.

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Title: Exploring Pre-Service Teacher Development through Service Learning

Contribution type: Research

Contribution format: Presentation

Author(s): Lebethe, A; Barends, Z

Keywords: Pre-service teacher development, service learning, responsive literacy and numeracy teachers

Abstract:

Background: The gap between theory and practice experienced within teacher preparation programmes is a persistent issue worldwide. This divide is also entrenched in the lack of an evidence-based knowledge base for content knowledge and pedagogical content knowledge within teacher preparation programmes. In addition, recognition should be given to the complexity of education in South Africa because of its apartheid past. Therefore, teacher preparation programmes should prepare pre-service teachers to address issues rooted in disparity, difference and inequality.

Theoretical framing and literature review: National and international literature indicated that to bridge this divide and teach for social justice, initial teacher preparation programmes will have to redesign their modules so that they produce expert practitioners who know how to use the knowledge of the profession to advance all learning. This can only be achieved if teacher preparation programmes are strategic in their teaching and learning methodologies (Ball, 2000; Snow, Burns & Griffin, 1998). Teacher preparation programmes incorporate Work-integrated learning (WIL) to integrate theory and practice. However, to do this successfully, WIL needs to be fully grounded in practice and interwoven with academic content and professional development opportunities (Rose, 2006; Spear-Swerling & Brucker, 2004).

Research question: What teaching and learning opportunities can be used to develop pre-service teacher learning?

Methodology: This project illustrates how service learning, a component of WIL, was used in a teacher preparation programme to create teaching and learning opportunities for pre-service teachers to develop responsive teaching practices. Shulman's theoretical framework for teachers' content knowledge (Shulman, 1986) was used to form the knowledge base for the service learning assignments. Pedagogical documentation was used in variety of mediums to make pre-service students' pedagogical work visible (Dahlberg, Moss & Pence, 2007).

Conclusion: This project found that engaged teaching and learning opportunities such as service learning offers pre-service student teachers the opportunity to learn about practice in practice and for practice. The pedagogical documentation created a strengthened relationship between the university and the participating schools and enabled a critical consciousness of teaching and learning (O'Loughlin, 2016).

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Title: Exploring Speech Therapy Students' Perceptions of Authentic Video-Cases

Contribution type: Research

Contribution format: Presentation

Author(s): Oosthuizen, H

Keywords: Speech-language therapy, video, case study, South Africa

Abstract:

Background and rationale: Undergraduate students often find it difficult to apply their theoretical knowledge in a clinical context. By including authentic case study examples, lecturers can establish the relevance of theoretical content for students (Kember, Ho & Hong, 2008).

Purpose: To describe the perceptions of undergraduate Speech-Language Therapy students regarding inclusion of authentic video-cases in a theoretical module on developmental communication disorders.

Literature review: Multimedia learning research suggests that "people can learn more deeply from words and pictures than from words alone" (Mayer, 2014). Visual representations may also be easier to remember and relate to information in long term-memory (Cherney et al., 2008; De Leng et al., 2007). Benefits of using video-cases in health sciences education range from enhanced memory for course content (Cherney et al., 2008; De Leng et al., 2007), improving clinical reasoning skills, (Hoben et al., 2007; Lysaght & Bent, 2005) stimulating shared cognition in a problem-based learning curriculum (Balsey et al., 2005), and increasing student motivation (Kember et al., 2008). Video case studies are particularly well suited to illustrating communication disorders.

Methods: A qualitative, interpretivist research design was followed. Focus-group interviews were conducted with 22 second-year students in the programme B Speech-Language and Hearing Therapy. A modified contextualised content analysis approach was used to analyse interview data.

Implications: Findings may help lecturers and clinical educators to design learning opportunities that illustrate the real-world application of theoretical knowledge for students.

Results and conclusions: Seeing a realistic example of a person with communication difficulties generally made it easier for participants to understand, remember and engage with the module content, who also felt they could more easily imagine themselves in that clinical context. This seemed to (re-)awaken in them a sense of purpose and motivation. Being presented with real-life communication problems made them realise the relevance of their profession, and reflect on the skills they would need to cultivate to be effective therapists. However, participants experienced cognitive overload at times when the processing requirements of a task exceeded their available cognitive capacity (Mayer & Moreno, 2003).

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Title: Flipping the Classroom: Improving and Innovation through Conversion of Economic Evaluation Module from Contact to Blended Learning

Contribution type: Innovation

Contribution format: Presentation

Author(s): Nkonki, L

Keywords: Blended learning, flipped classroom, economic evaluation

Abstract:

Recognising the clear evidence that high quality economic evaluations of healthcare interventions are fundamental to a robust, resilient, responsive health system, the Division Health Systems and Public Health introduced a module titled Economic Evaluation in 2012, to address this need by providing graduates with the necessary knowledge, skills and competence to conduct economic evaluations alongside effectiveness studies. The module is offered over 5-day face-to-face block week. We have had good feedback from all the previous seven cohorts. The main challenge is striking the correct balance between providing sufficient theoretical foundation and practical exercise in the limited time. Students taking this module are largely health professionals, without prior training in economics. Thus, the module needs to cover sufficient theory, before practical application of the concepts. In order to improve teaching and learning opportunities for students, I converted the Economic Evaluation module from face-to-face contact to blended learning in 2019, using flipped classroom principles. The selected theoretical components of the module were recorded and provided to students prior to the face-to-face block week, accompanied by appropriate self-assessment prior to class. Students would be able to start this module earlier than the current contact block. Class time is then freed from the simple delivery of information and used for exercises in critical thinking, group problem-solving, and active learning exercises (Moffet, 2015). The presentation will focus on students’:

- successful completion of online activity,
- understanding of key concepts prior to attending face-to-face sessions,
- experience of the of the teaching innovation.

Overall, students had a positive experience of the innovation. Success factors to implementing successful blended learning are comprehensive lecturer training, support and ongoing evaluation. Ongoing evaluation, during task development rather than solely at the end of the programme, gives a more thorough and multi-faceted evaluation which in turn ensures the overall quality of the course. The application of teaching and learning innovations such as flipping the classroom and blended learning provides an opportunity for effective capacity building in the field of health economics.

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Title: Game On: Identifying Game Elements that Facilitate Student Engagement in an Industrial Psychology Context

Contribution type: Innovation

Contribution format: Presentation

Author(s): Adams, S; du Preez, R; Barnard, M

Keywords: Gamification, student engagement, learning technologies

Abstract:

With the numerous challenges facing higher education, concerted efforts are required to support student success and enhance the quality of teaching and learning. A significant predictor of student success is student engagement that is underpinned by the provision of educationally purposive activities. Strategies for facilitating student engagement are well documented and with the increased use of technology, these strategies have also been extended to online environments yielding new avenues for creative and innovative approaches that support purposive educational practices. A recent addition to game-inspired interventions in education is educational gamification, which offers tools to design learning environments that stimulate motivation and foster engagement. The study thus sought to uncover the features of a gamified intervention that facilitates student engagement. Through systematic, iterative micro-cycles of research, proposed by the design-based research approach, two gamified online learning interventions were developed, applied and evaluated in two Industrial Psychology modules. This presentation will report on the key learnings from these studies specifically the game elements employed and the observed influence on the dimensions of student engagement (i.e. behavioural, emotional and cognitive engagement). The primary contribution of this presentation is to demonstrate the complex and dynamic interaction between game elements and the engagement dimensions in the process of student engagement. The findings offer key insights into the features required to design gamified learning environments that facilitate student engagement and will contribute to the enhancement of the pedagogical and educational use of the tools educational gamification provides.

Please note that this presentation is a test-run for the same research being presented at the World Conference for Online Learning taking place in Dublin, Ireland at the start of November.

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Title: Generation Z: Language of Teaching and Learning in Natural Sciences

Contribution type: Innovation

Contribution format: Presentation

Author(s): Botha, M; Nel, T

Keywords: Natural Science, Generation Z, teaching and learning

Abstract:

“We fail to teach effectively because we don’t understand the group that we teach” (Fataar, 2017). We are of the opinion that effective teaching and learning is not happening because of ineffective communication within the Generation Z (GenZ) environment.

Born in the technology era, GenZ uses technology as their mother tongue, thus their language of communication becomes mostly digital (Claveria, 2016; Hughes, 2018). Teaching GenZ must be relevant as we participate in global conversations and communities where technology and social media spreads, and deepen the co-dependency of GenZ, faster than before. We need to “re-wire” and adopt a mind-set of change (Rosen, 2013), creating mutual understanding for both GenZ students and educators, embracing this teaching opportunity.

As lecturers in a first-year Natural Sciences Education module, we find that lecture attendance become infrequent due to a lack of essential communication between lecturer and student, causing teaching not culminating effectively into learning. We pursue the question, or need, of acquiring relevant communication skills and techniques, adopting a digital language for natural sciences education in order to teach the emerging generation effectively. This experience however, is not unique to natural sciences but affects other learning environments as well.

Research involving Gen Z is mostly contained in the business world or workplace (Dryden & Vos, 2005; Jenkins, 2019) with little found in natural sciences education. The absence of education fields in research on relevant communication techniques for GenZ is of great concern. It is therefore imperative to create learning environments in which GenZ can thrive, giving the intimidating, but exciting technological advancements a place in education.

This investigation is based on an interpretative paradigm, utilising qualitative methods including interviews and observations, obtaining information about teaching and learning in the classroom and making sense of GenZ’s lived experiences regarding the ‘language’ used to teach Natural Sciences.

In this paper we argue that learning to speak the ‘language’ of GenZ would culminate in conducive teaching and learning environments. Furthermore, insights from this investigation could inform effective teaching and learning in other specialisation fields of study involving GenZ.

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Title: Health Science Students' Participation in an Inter-Professional Education Activity

Contribution type: Research

Contribution format: Presentation

Author(s): Kloppers, M; Bardien, F; Titus, A; Bester, J; Inglis-Jassiem, G

Keywords: Interprofessional education, clinical training

Abstract:

Background: It is increasingly recognised that current healthcare contexts need professionals to work collaboratively to provide the best possible care to patients and their family (Takahashi, Brissette, & Thorstad, 2010). Traditionally, group-based intervention follows multiprofessional approaches. While circuit-based intervention allows one professional to target multiple impairments at different stations (English, Hilliers & Lynch, 2017). Interprofessional circuit-based group therapy for people with stroke could be used to counter the so-called profession/professional tribalism. Interprofessional education (IPE) is an approach that facilitates learning from, with and about one another to allow for more effective collaboration (Ateah et al., 2011; Gilbert, Yan & Hoffman, 2010; Thistlethwaite, 2012). The study aimed to explore undergraduate health sciences students' experience of being involved in the planning and execution of a community-based interprofessional functional circuit-group activity.

Methods: A qualitative study design using semi-structured interviews was employed. It included twelve final-year SU students from three health sciences disciplines. Thematic content analysis was used to recognise emerging themes. Ethical approval (N18/02/019) and SU institutional permission were obtained.

Results and Discussion: Three themes emerged, namely (i) IPE wheel, (ii) tandem-riding, and (iii) rolling effects. The overall findings of the study revealed that this IPE opportunity beneficially impacted the students' collaborative competencies in their knowledge, attitudes, skills and behaviours. While placed at this community-based rotation, students are immersed in a service-delivery environment where patient interventions are coordinated by a representative rehabilitation team. Within this already rich IPE learning and clinical context, the integrated stroke circuit group activity was nested to enhance further interconnectedness. The scaffolding of the students' collaborative competencies has brought them closer to future collaborative professional practice. This cohort of undergraduate students has been primed in their practice-readiness as health care professionals for the 21st century that will promote quality care, embrace teamwork and be centred on the interests of patients. Students who are exposed to this integrated circuit-group activity may develop an understanding of (i) patients and their unique contexts, (ii) their own role development and complementary overlapping between professions, and (iii) the value joint interventions offer patients and rehabilitation teams in resource-constrained settings.

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Title: Identity, Teaching, and Learning: Teaching Church History and Church Law at Stellenbosch University

Contribution type: Research

Contribution format: Presentation

Author(s): Plaatjies-Van Huffel, M

Keywords: Identity politics, ethics of concern, curriculum renewal, decolonisation, decoloniality

Abstract:

The Faculty of Theology at the University Stellenbosch had a Reformed history and served a homogeneous group of students (Afrikaners) for more than a century. Demographics at the Faculty has changed since 2000. Currently students at the Faculty represent a broad range of cultural, racial and denominational backgrounds. The demographic changes influenced the academic offering at the Faculty, which was formerly denomination specific, Western and European. The growing ecumenical face of the Faculty of Theology, as well as the student protests of 2015 and 2016, invigorated a discourse on traditional epistemologies, theories, methodologies, ideologies, identity politics and the decolonisation of the curriculum.

Identity is being used in this study as a philosophical and theological concept. According to Brown (2012:12), citing Smith et al. (1999), "One's identity has a major influence on how they perceive others, their self-esteem, self-confidence, aspirations, motivation, and effort expended in various aspects of their life." Avoidance to facilitate positive identities of students, including their racial identity, may have consequences in a learning and teaching environment. According to Varelas (2012), "identity construction is interrelated to learning and teaching, educating and being educated."

The question in this study is not whether identity politics, inter alia race, ethnicity, religion, gender, primary language, occupation, socioeconomic status, and sexual orientation should exist, but rather in what form should these be represented in the curriculum.

The research entailed a mixed-method approach and used a scoping of the available literature, as well as a questionnaire with open and closed questions completed by undergraduate and postgraduate students.

This is the first study conducted on identity politics and curriculum renewal at the Faculty of Theology. The research findings highlight the awareness of students that race and gender are not pre-existing realities, but rather socially constructed categories and a creation and expression of social power. These findings should be considered when redesigning the Church Polity and Church History curriculum. The research findings may also be applicable to other academic environments.

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Title: Implementation of a Research Experiment to Improve Practical and Research Skills of Undergraduate Students

Contribution type: Innovation

Contribution format: Presentation

Author(s): Molotsi, A; Salie, K

Keywords: Course, practical, skills, students, workplace

Abstract:

It is well known that graduate students when entering the workplace lack critical thinking, the willingness to self-manage learning, reflective thinking and problem-solving skills (Kemper et al., 1997). Therefore, the aim of this study was to implement a practical aspect to a pre-existing course for final-year undergraduate students at Stellenbosch University. This was done to determine whether it would contribute to the ability of students to think critically and independently and do problem-solving. The original module in 2017 involved a data analysis component only. Students felt that they were not able to understand the results presented because the data used were not their own. Therefore, in 2018 an experimental part of the course was implemented. The students were assigned to a chicken and sheep trial. The sheep and chicken were fed different diets. The effect of the diets and gender on growth parameters, feed intake, semen quality, molecular differences and meat quality traits was measured. A qualitative method was used to collect data using in-depth interviews with six students previously enrolled for the course in 2018. The purpose of the interview was to discuss their learning experiences and the soft skills that they acquired. The interviews were in English and were recorded. The data were transcribed into written text in MS Word and a thematic analysis was used to analyse the data. All of the participants indicated that they enjoyed working with the animals and that it helped them to understand the theory that is covered in class. Some of them indicated that there were time constraints to executing the experiment and that they learned how to take responsibility for the animals. Most of the participants indicated that they felt prepared to continue with postgraduate studies. Some of the skills obtained as noted by the students were time management, planning of projects, teamwork, crisis management, and reading and writing scientifically. This experiment can be of use to others as it can assist students to guide them in how to execute research, as well as to teach them soft skills that are necessary in any working environment.

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Title: Incorporation of Low and “Lower” Tech Spectroscopy in EDP Chemistry

Contribution type: Innovation

Contribution format: Presentation

Author(s): Pretorius, C

Keywords: Spectroscopy, first years, low-tech, low-cost

Abstract:

Most educators agree that a practical component in a curriculum forms an essential part of learning science. Hofstein and Lunetta (1982) along with Lazarowitz and Tamir (1994) have suggested that laboratory activities have the potential to enhance constructive social relationships, promote positive attitudes and lead to cognitive growth in science.

One challenge associated with designing practicals is the cost involved for the equipment and chemicals used during experiments. To this end, budget constraints limit lecturers in their ability to design practicals that utilise advanced materials and equipment.

However, advances in technology have enabled the development of more cost-effective instruments that can aid student learning in the laboratory. Four low-tech version spectrometers were acquired and implemented in practicals for the EDP Chemistry course. A spectrometer, an instrument that measures the interaction between light and matter, promotes inquiry in practicals, allowing students to gather and analyse data visually, providing them time to observe, reflect on and construct conceptual knowledge in relation to the experiment and instrument (Hofstein & Lunetta, 2003).

By incorporating spectrometers in an experimental session, students gained hands-on experience with the instrument and associated software. The instruments were also used as a central component around which a pseudo-virtual experiment was built and made available to students. Lastly, students were challenged to build their own low-cost versions of spectrometers.

The idea to construct low-cost spectrometers as an alternative to higher-end products is not new, with various designs existing in literature (Kuntzleman & Jacobson, 2016; Kvittingen, Kvittingen, Melø, Sjursnes & Verley, 2017; Pereira & Hosker, 2019). By building low-cost spectrometers, students took charge of their own learning and a significant increase in student engagement was seen.

Educators in the science and engineering fields that rely on specialised equipment need not be deterred by the high cost of instruments sought for practicals. New technology offers various low-cost options to be explored that could also be used to create unique learning opportunities for students.

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Title: Intentional Design for Global Learning at Stellenbosch University

Contribution type: Innovation

Contribution format: Presentation

Author(s): Warren, J

Keywords: Global learning, learning outcomes, intentional design

Abstract:

A global education is increasingly being seen as the key to providing students with critical skills and attitudes to be successful in the 21st century and contribute to a better world (Connell, 2016; Nair & Henning, 2017). As a result, there was an explosion in internationalisation of higher education over the past few decades (de Wit & Leask, 2019).

Assuming that 'mere exposure' equates to 'global learning', many institutions' focus for internationalisation has been on increasing student, staff and researcher mobility, international collaborative research, and the number of courses that are 'international'. Research demonstrates that this instrumental approach does not necessarily lead to producing key student learning outcomes (Berg, Connor-Linton & Paige, 2009; Green, 2013). Thus, there has been a turn to focusing on intentional design and intervention for global learning outcomes (Berg, 2009; Elon, 2017; Hovland, 2014).

The Global Education Centre (GEC), a unit within Stellenbosch University International, has recently undergone a reconceptualisation in which they embed global learning principles in their modules, processes, and relationships. Starting from an alignment of the GEC's programming with SU Vision 2040 and the core strategic themes, the Centre formulated an internal definition of 'global learning'. From this, the GEC determined that taking a student learning outcome approach to programme and course design would be the most powerful way to align. The GEC has set about redesigning in-house programmes intentionally and explicitly to align with a provisional set of global student learning outcomes.

In parallel to this process, the GEC has begun to engage various faculties, divisions, and departments on 'global learning'. This self-reflective session looks at what the GEC has found in the past six months and suggests ways faculties could incorporate 'global learning' by intentionally designing for it. It also asks participants for their views on the need for global learning at SU and encourages discussion around the way going forward at the institutional level. A co-constructed definition, set of outcomes, and statement will allow for coherent uptake of this important initiative. This is a timely endeavour as SU is in the final stages of approving an internationalisation strategy.

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Title: Interactive Online textbook for Second-Year Linear Algebra

Contribution type: Innovation

Contribution format: Presentation

Author(s): Bartlett, B

Keywords: Tutorials, online, interactive, webpage, recitations

Abstract:

The second-year Linear Algebra course at Stellenbosch is a key stage where students pivot from the kind of “algorithm-based” mathematics they are more familiar with from school to a higher “abstract” mathematics with definitions, theorems and proofs. This year I introduced a new set of notes for the course, in the form of an online interactive textbook:

<https://math.sun.ac.za/bbartlett/teaching/W214.html>

It was built using the PreTeXt system, and contains a number of features that the students found useful. These include knowls (drop-down reminders of definitions and theorems in context), interactive demonstrations, and handy navigation tools. In this talk, I will demonstrate this book and report on the survey I did about it.

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Title: Leading for Learning: A Qualitative Probe into Distributed Leadership

Contribution type: Research

Contribution format: Presentation

Author(s): Fourie-Malherbe, M; Nell, I; Kotze, A

Keywords: Distributed leadership, trust, professional autonomy, communication, collaboration

Abstract:

This presentation reports on a project that explores the manifestation of distributed leadership at departmental and faculty level at Stellenbosch University (SU). Against the background of growing corporatisation of universities, managerialism has in recent times dominated higher education. Yet, lately disillusionment and resistance against managerialist approaches have been growing. Distributed leadership is one of the alternative forms of leadership that has started to gain traction in education institutions, particularly in the UK and Australia.

Building on work that was done by a group of researchers in Australia who developed a matrix of criteria and values to enable the development of distributed leadership, this project investigated to what extent these criteria and values are present at departmental and faculty level in SU. The first phase of the investigation consisted of a survey among academic staff members of one department and one faculty at SU. The questionnaire was based on the matrix and requested respondents to rate the manifestation of the criteria and the values of distributed leadership in their own environment on a four-point Likert scale. The survey data, among other things, demonstrated significant differences between the department and the faculty, with the department consistently scoring higher than the faculty.

Subsequently, fourteen individual interviews were conducted, seven with members of the participating department and seven with faculty members. The interviews were transcribed, coded and analysed, using Atlas.ti.

Our preliminary findings demonstrate that participants value high levels of trust and a culture of respect for academic expertise and autonomy. Moreover, they regard open and consistent communication as a prerequisite for distributed leadership. Participants also exhibited a widespread recognition of the need for change, and of the importance of collaboration.

However, it was clear that in contexts where academics experience an absence of these core values (trust, respect, recognition of change and collaborative relationships), practicing distributed leadership is almost impossible. The research findings demonstrate that, when certain conditions are met, distributed leadership is a viable and effective alternative to managerialism, and that distributed leadership practices are strongly supported and even appreciated by academics.

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Title: Lessons Learned from a Pilot 'Hybrid' Module: Exploring Multimedia Design

Contribution type: Research

Contribution format: Presentation

Author(s): de Klerk, M; Lutz, M

Keywords: Hybrid mode, multimedia learning, learning design, online teaching and learning

Abstract:

Hybrid learning (HL) describes, in the Stellenbosch University context, an emerging mode of academic course delivery that combines limited face-to-face contact sessions with significant periods of fully online learning. The exploration of HL aligns with the university's core strategy of enabling networked and collaborative learning through the innovative use of digital technologies (SU Vision 2019 and Strategic Framework 2019-2040).

In July 2019, a new undergraduate module was launched to pilot this approach within the Faculty of Science. The newly registered Chemistry 164 module was implemented with the explicit intent to offer students an alternative outcome to proceed with their second-year modules, which they would have otherwise been prohibited from doing due to failing Chemistry 124 in their first semester. These HL students engaged in predominantly fully online learning activities, designed to enable an improved understanding of threshold concepts within the broader, introductory Chemistry curriculum.

The purpose of this study was to ascertain how specific learning design approaches enabled or hindered student success. Students' online engagement with specific types of multimedia resources and activities (i.e. videos-based exercises and narrated lessons) were critically investigated and compared to their academic performance.

Multimedia learning principles (Mayer, 2014; van Gog, 2014; Ayres & Sweller, 2005) informed both the design and evaluation of this module. Various data sources - incl. online activity statistics, student feedback, assessment results and an analysis of the online course interface - were analysed through conceptual understandings of how multimedia causes (or prevents) split-attention, personalised learning, signalling of important concepts and information transfer. Findings suggested correlations between specific design approaches, types of multimedia and the quality of students' learning.

The results of the study further highlight the significant need for an organisational learning design system that draws from both disciplinary-specific pedagogical knowledge domains and technical design expertise. The reiterative collaboration between academic, professional and technical support staff proved to be a key enabling factor for the facilitation of HL. The lessons learned from (continually) evaluating the educational efficacy of multimedia in the Chem164 virtual classroom should be of value to other HL or online education projects.

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Title: Lessons Learned from an SCA in SOM-224 at Stellenbosch University

Contribution type: Innovation

Contribution format: Presentation

Author(s): Haas, T; Zeranka, S; van Zijl, G

Keywords: Student-centred approach, lessons learned, reflection

Abstract:

All Civil Engineering (CE) modules at Stellenbosch University, with the exception of two modules, are taught using the 'lecturer-centred approach' (LCA) resulting in limited teaching flexibility. This approach often results in 'over teaching', limited time for student engagement, students' over-reliance on summarised lecture notes, "spoon-fed" learning and inhibiting students to wrestle with fundamental concepts on their own or in groups (Grant, 2017; Mazur, 1997).

Four Strength of Materials (SOM) modules form the Engineering Mechanics module chain. These modules are considered 'difficult' as they focus on abstract concepts and the development of fundamental theoretical knowledge used throughout the programme. In this chain, SOM-224, a second-year module, is considered problematic due to its high failure rate, which could be attributed to the concerns of the LCA.

A 'student-centred approach' (SCA) was adopted to encourage group work through discussions and problem-solving, as well as to address the concerns of the LCA (Crouch & Mazur, 2001). The 50-minute periods were divided into 15-minute lectures followed by 35 minutes of in-class problem-solving sessions, culminating in weekly tutorials without tutorial tests. To further enhance lectures, numerous internet resources were provided. SOM-224 was evaluated using weekly internet quizzes, two midterm tests and two final assessments.

From anecdotal evidence, it would seem that both students and lecturers experienced challenges with the implementation of the SCA. The paper therefore aims to explore the lessons learned from this initiative to ensure improved implementation. The study required ethical clearance and institutional permission to conduct the investigation through an online survey questionnaire.

Trends observed include: approximately 80% of the students that attended lectures did not remain for the in-class problem-solving sessions, the tutorial sessions were poorly attended, the pass rate increased by 5%, while the average decreased by 0.6%. Owing to the reduced lecturing time, lecturers were unable to concentrate on fundamental concepts in terms of how assumptions affect the formula and the limitations thereof. Given the increased pass rate and certain concerns of the LCA addressed, SOM-224 will be presented using the SCA with refinement taking the students and lecturers concerns into account.

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Title: Live Experiments in First-Year Chemistry Lectures

Contribution type: Innovation

Contribution format: Presentation

Author(s): Arnott, G; de Villiers, K; van Otterlo, W; le Roex, T; Lutz, M; Claassens, I; Jurisch, C

Keywords: Chemistry, live experiments, threshold concepts, engagement, first-years

Abstract:

Chemistry is an exciting practical science that should create a ‘wow’ factor in students. Unfortunately, the classic lecture style, whilst still holding some value, fails to convey these amazing chemical wonders in a practical and visible way. This is problematic, since the first-year students are missing important learning opportunities that could help solidify threshold concepts (Talanquer, 2015), especially through the stimulation of active learning (Bryson & Hand, 2007; Freeman et al., 2014). Performing live chemistry experiments during lectures is a way to engage students (Walton, 2002), and has certainly been a classic image that many people have about chemistry, although some also question whether the time is wasted (Beall, 1996).

In 2019, we received funding from the Fund for Innovation and Research into Teaching and Learning (FIRLT) to implement our first phase of introducing live experiments to the first-year chemistry students. Although some live experiments were already being performed by certain lecturers, these were rare and random events. Our plan was to develop a set of experiments that clearly fitted into our curriculum, whilst focusing on developing the threshold concepts that students needed to grapple with. In this first phase of our project, the goals were to, a) develop relevant and exciting experiments with the help of teaching assistants, and b) assess whether the student body were responding positively to these experiments.

Our presentation will discuss our progress in this project, including some of the learning pitfalls and mistakes we have made along the way. One of our experiments will also be demonstrated, to see whether we can also use it to teach a mixed audience something ‘wow’ about chemistry.

In conclusion, we have developed twelve experiments and found, through electronic student surveys, that the students have shown an overwhelming enthusiasm to the live experiments. The effect of this on student learning is however difficult to determine at this stage as our primary goal was focused on implementation and engagement in year one. This work will be of interest to those who lecture in the natural sciences whose concepts are often taught more from a theoretical standpoint (and whose courses could perhaps do with some practical demonstrations).

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Title: Looking Closely at What They Say and What It Tells Us: Experiences in Digital Learning Space

Contribution type: Research

Contribution format: Presentation

Author(s): Khoza, L; van der Merwe, K; Rabe, C; Mashilo, B

Keywords: Facilitate, learning, Learning Management System, teaching, value

Abstract:

An increase in digital support provided in education has seen an adoption of digital learning platforms known as Learning Management Systems (LMS). An analysis of literature on LMS shows that the topics of LMS usage (Venter, van Rensburg & Davis, 2012; Mtebe, 2015), satisfaction (Naveh, Tubin & Pliskin, 2012), attitudes (Govender, 2014; Mkhize, Mtsweni & Buthelezi, 2016) and learning analytics (Mwalwumbe & Mtembe, 2017; Prinsloo, 2018) have received the greatest attention. However, utilisation of the LMS to facilitate the learning process, appears to be under-researched (Sharpe, Benfield, Roberts & Francis, 2006; Laurillard, 2012).

This study explores lecturer and student experiences at the Faculty of Military Science in using the LMS for enabling the learning and teaching process. This study provides a faculty-wide overview of the use of the LMS at undergraduate level across all programmes. It is envisaged that results of the study will highlight the extent to which the usage of the LMS as a learning space includes or excludes students from access to learning (Boughey, 2012).

This paper aims to determine the following: 1) the value that lecturers and students place on using the LMS as a platform to facilitate learning and teaching, 2) the typical resources, activities and assessments that lecturers and students place value on, and 3) the reasons why they place value on those resources, activities and assessments. A mixed method approach is employed. The data are statistically and thematically analysed (Plowright, 2012).

Quantitative data are collected from the LMS and qualitative feedback collected from lecturers and undergraduate students through questionnaires and focus groups. Hence, results will not be generalised beyond the Faculty's case. A social constructivist is adopted to enhance our understandings as we gauge lecturer and student opinions on how and why they view the use of the LMS as a learning space that supports facilitation of learning and teaching (Boughey, 2012).

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Title: My Suitcase and I: Planning a Developmental Opportunity for Economic and Management Sciences (EMS) Extended Degree Programme (EDP) Students

Contribution type: Research

Contribution format: Presentation

Author(s): Malan, S; du Preez, R

Keywords: Extended Degree Programme, programme renewal, student development

Abstract:

A core institutional goal of Vision 2040 and Strategic Framework 2019-2024 of Stellenbosch University is the delivery of a transformative student experience “to qualifying students from all backgrounds including students who face barriers to participation in university education”. The Extended Degree Programme (EDP) students are such a cohort. A transformative experience is predicated on the provision of opportunities towards greater personal growth and attainment of particular graduate attributes.

The purpose of the presentation is to unpack the development of an advancement opportunity for EDP students as part of the Faculty of Economic and Management Sciences (EMS) programme renewal initiatives, namely the Value-Added Experience. Furthermore, we address the research question: What elements should be included in a value-added experience over all years of study, which will provide a scaffold for holistic student development and transformative learning towards SU graduate attributes?

Four interrelated theories, namely attitude-behaviour-, self-efficacy-, coping-behavioural- and attribution theory informs this intervention. Lewin’s model of action research is followed. The current Value-Added Experience Programme, in the first-year BCom (Management Sciences) EDP focuses on the entry-level articulation gap and provides academic and psychosocial support that underlies student success. Principal components of the programme include personal and academic development, familiarisation with appropriate institutional support services, peer mentoring and individual and group psychotherapy.

However, merely focusing on the entry-level articulation gap during the first year fails to address the multiple curricula and pedagogic transition points commonly experienced by EDP students during the course of their undergraduate studies, all of which contribute to lower graduation rates. The repositioned BCom (Management Sciences) EDP programme offering will address this particular challenge. The revised EDP offering will afford students that also meet the admission requirements of the three-year programme, the opportunity to engage in an enriched Value-Added Experience over a four-year period, with each intervention module targeted toward the yearly transition points and the development of graduate attributes.

Our students might only have a few items in their suitcase upon arrival at the Faculty of Economic and Management Sciences, but they can graduate with a suitcase filled with tools to position them as successful EMS graduates in the 21st century world of work.

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Title: Perceptions of Postgraduate Students about Management Accounting 'Lectorials'

Contribution type: Research

Contribution format: Presentation

Author(s): Ngobese, L; Kock, M; Dlephu, T

Keywords: Perceptions, lectorials, benefits

Abstract:

Lectorials are voluntary sessions where students are exposed to tutorial questions in a lecture format, without the consequence of an assessment thereafter.

This study was inspired by the contradicting perceptions among the authors of this paper about whether lectorials contributed to students' academic success. Several studies have evaluated the relationship between lecture attendance and improved marks or tutorial attendance and improved marks in varying disciplines. These studies concluded that there is a positive relationship between attendance (of either tutorials or lectures) and improved marks. No studies, however, could be found that examined the perceptions of Management Accounting students at postgraduate level on whether lectorials were beneficial. Management Accounting was chosen because it is increasingly being assessed in the professional examination.

In order to evaluate whether students perceived lectorials to be beneficial and to identify those benefits, the researchers asked the following questions: Were lectorials beneficial? What were those benefits? Which recommendations do students believe will be effective? The study used a questionnaire that consisted of qualitative and quantitative elements. The questionnaire delivered an adequate response rate that agreed with Everitt's (1975) prescribed minimum response rate of 10%.

The results showed that most respondents perceived lectorials to improve their marks, with a substantial number of respondents having extremely high expectations about the extent to which they expected their marks to increase. The results further revealed that only students that achieved an average of 60% and above in their third year experienced a marginal improvement in their marks, which means that students who achieved below this band in their third year (and would be assumed to need the assistance) are not benefitting from it. The respondents also perceived the exam technique and insights of academic trainees (recent graduates of the course) to be an added benefit to the lectorials.

These results demonstrate that lectorials must be revised to cater for students that achieved an average of less than 60% in their third year; that students must be made aware of the limited benefit that comes with attending lectorials and that recent graduates of the course must be factored into academia's succession planning.

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Title: Physiology Classes: Cooperative Learning Enhances Critical Thinking, Integration and Understanding

Contribution type: Research

Contribution format: Presentation

Author(s): Essop, F

Keywords: Physiology undergraduate classes, cooperative learning, active learning, critical thinking, student engagement

Abstract:

Physiology students grapple with large amounts of subject content and hence memorise facts to pass examinations. Students therefore display limited critical thinking and creative skills, integration abilities, and/or a deeper engagement with subject content. This study aimed to bridge this knowledge gap by employing Chickering and Gamson's (1991) principle of cooperative learning where students work together in small groups, thereby enhancing active learning and student engagement. The aim was also to promote critical reflexivity (Cunliffe, 2004) while expanding critical/creative thinking abilities to solve real-world problems (DiCarlo, 2009).

During the second week of the 5-week cardiovascular Physiology 314 module, we made a special assignment (designed to enhance active and engaged learning) available to the students (n=225). Students were instructed to freely form working groups (n=3 per group) and informed that the assignment was due by the end of the module. The range of assignment questions were in line with Bloom's revised taxonomy for assessment (Anderson & Krathwohl, 2001). Student groups were expected and encouraged continuously to work on the assignment (outside class-time) as the module proceeded. Three 30-minute group work slots were also created during class-time, with the lecturer and postgraduate students circulating between groups and acting as soundboards. After the submission date, students anonymously completed an electronic questionnaire while focus-group interviews were also conducted.

A relatively large proportion of the final assignment marks fell within the upper quartile range. Moreover, 69% enjoyed the active learning sessions during class time and indicated that it was mostly used to cooperate with group members. They highlighted that its completion increased their critical thinking, integration and creative abilities together with a deeper understanding of subject content. Questionnaire data also suggest that the cooperative nature of the assignment potentially resulted in some self-development, i.e. inter-personal relationships, self-motivation and increasing productivity. Cooperative learning is thus a feasible approach to implement in relatively large undergraduate classes as it can enhance critical thinking and problem-solving abilities. Such generic skills (critical thinking, problem-solving, and teamwork) can hence be relatively easily cultivated in undergraduate classes that should eventually help lower the skills gap in South Africa.

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Title: Predicting Student Success: Realigning Graduate Attributes and Admission Requirements

Contribution type: Research

Contribution format: Poster

Author(s): Burger, J; Fourie, P; Swart, M

Keywords: Student success, graduate attributes, admission requirements

Abstract:

Background: Recent changes in the subjects indicated for university admission create an opportunity for innovative thinking and praxis in managing enrolment with a view to ensure student success. This reality, in conjunction with the fact that subjects in the Faculty of Arts and Social Sciences are generally not directly aligned with school subjects, has forced us to examine all aspects of our academic offering critically, with a view to delivering students who possess our institution's graduate attributes. Where successful delivery marks the end of the process, this presentation focuses on the start of the process: admission requirements.

Research question: What predictors of student success can be derived from the final marks of school leavers, given the varied examination systems, contexts and lived experiences of students from our typical, extremely diverse pool of applicants?

Theoretical framework: The initial parameters were supplied by an ethnography-based case-study framework. Within these parameters, a more comprehensive descriptive statistical analysis – the core of this presentation – has been undertaken using deductive logic.

Methodology: The first step in the study involved investigating the admission regimes of other faculties inside and outside the institution. The results revealed that there were limited insights of use to us in our context. Consequently, actual data from students at our own institution were used. The process required that elements in the student's academic history that could predict success be identified. The admission marks, first-year success and performance of the first-year cohorts of 2016, 2017 and 2018 were compared. This analysis was undertaken with the aid of the Centre for Statistical Consultation and in accordance with the relevant institutional and ethical guidelines.

Implications: The results of this study will help to establish an admissions model that is better aligned with the changing school curriculum. It also enhances more equitable admission and, eventually, greater student success aligned with the institution's graduate attributes.

Originality or interest: In a context in which access to higher education forms the core of current discussions and institutional value formation, equity and efficiency in admissions are fundamental requirements.

Preliminary results: It would seem that Mathematics as a subject could be an indicator of student success. However, the study is ongoing. [\[Back to Index \]](#)

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Title: Preparing Health Science Professionals for Multilingual Contexts

Contribution type: Research

Contribution format: Presentation

Author(s): Jacobs, C; Mhlabeni, L; Dyubeni, F; Archer, E

Keywords: Preparing, health science, professionals, multilingual, contexts

Abstract:

The Faculty of Medicine and Health Sciences at Stellenbosch University offers discipline-specific language learning through teaching isiXhosa Clinical Communication (XCC) to undergraduate students. These XCC offerings are embedded within various programmes and modules, and aim to improve quality healthcare while promoting isiXhosa communication. The offerings equip undergraduate clinician with isiXhosa intelligible clinical communicative competences and their cultural awareness is augmented. The research questions of the study are:

- How is the purpose of the isiXhosa Clinical Communication offerings understood by the various stakeholders?
- Are the isiXhosa Clinical Communication offerings achieving their purpose?
- How can the isiXhosa Clinical Communication offerings be improved?

The study drew on Kemp's (2009) multilingualism notion that acknowledges proficiency in two or more languages. Multilingualism as an impediment in clinician-patient communication is highlighted in Western Cape literature (Crawford, 1999; Killian et al., 2010; Levin, 2006). This has posed a challenge in quality healthcare delivery. It also drew on multi-method approaches such as interviews, surveys, focus groups, observations and document scans. All interviews and focus group sessions were recorded, transcribed, coded and thematically analysed. Classes and assessment events were observed and course documents were scanned and analysed. The participants included current and past students; XCC facilitators; clinical module lecturers; simulated patients and the external moderator.

The data revealed seven cross-cutting themes: Purpose, Time, Content, Assessment, Collaboration, Integration, Communication and implementation. These themes will be discussed in detail in the oral presentation. Key implications of this work are clarity that had to be sought regarding the purpose of XCC offerings and consensus of stakeholders in terms of integration of disciplinary content into these XCC offerings. A generic course is deemed appropriate in the first year of tuition. A more cost-effective model of utilising 'simulation patients' is strongly considered. Faculty management and key stakeholders should agree on overall costs of XCC offerings. Participants valued the collaboration between XCC facilitators and clinical module lecturers, and the resulting integration of isiXhosa and clinical content. However, there were differences of opinion regarding whether the XCC offerings should be embedded in programme modules, or be loose-standing modules in their own right.

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Title: Professional Development of Natural Science Teachers through a Community of Practice

Contribution type: Research

Contribution format: Presentation

Author(s): Botha, M; Philander, C

Keywords: Community of practice, continuous professional development, Natural Sciences teachers

Abstract:

In South Africa, the Department of Basic Education is concerned with Continuous Professional Teacher Development (CPTD) with the intent to improve the quality of teachers in the field. Well-qualified and competent teachers, and therefore, quality teaching and learning, is a critical factor linked to learner performance. This investigation focuses on the possibilities of Wenger's populist community of practice (CoP) as a theoretical frame, to support the professional development of specifically Natural Sciences teachers in the Vredendal area, the most northern rural school district on the west coast of the Western Cape. Rural school environments present unique barriers such as teacher isolation, poor quality infrastructure, inadequate teaching resources, overcrowded classrooms, unqualified and underqualified teachers, shortage of basic necessities, lack of financial support, remoteness from main training centres, poor teacher motivation and teachers teaching multi-grade classes that hampers CPTD (Ndlalane, 2006:100; Steyn, 2008:18; du Plessis & Subramanien, 2014:21; Smith, 2014:233).

This paper aims to address the question of how a community of practice approach can support the professional development of Natural Sciences teachers in a rural community, in an attempt to overcome some of the identified barriers. An inductive research approach was adopted utilising a naturalistic case study methodology. Qualitative data were captured by means of questionnaires, semi-structured interviews, and observations during the CoP sessions.

Thematic data analysis of generated data indicates that local teachers have a common need for support with subject content knowledge, pedagogy and teaching strategies related to Natural Sciences. Participants acknowledged the vital role a CoP can play in assisting them to collaborate with colleagues in the community and to acquire the necessary teaching strategies and pedagogies that contribute mostly to their CPTD. The principles and aspects that could influence the effective operation of a CoP are highlighted, and some of the findings centred on the professional identity of teachers are considered critical factors in their motivation, effectiveness and retention for professional development. The authors argue that emerging characteristics of an effective CoP approach could assist in the advancement of continuous teacher professional development of Natural Sciences teachers in rural areas, now and in the future.

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Title: Programme Renewal: Perils, Pearls and Possibilities

Contribution type: Research

Contribution format: Presentation

Author(s): Volschenk, M; Meyer, I; van Schalkwyk, S; Blitz, J; Smit, L; van Heerden, B; Geiger, J

Keywords: Programme renewal, change management, leadership, organisational adaptability

Abstract:

Continuous programme review and renewal are key to ensure that higher education curricula remain responsive to ever-changing knowledge, educational, economic and societal needs (Bitzer & Constandius, 2018). Effecting large-scale programme renewal is a complex and challenging process, which requires adequate preparation and support for all stakeholders to ensure that the desired change is implemented and accepted. While the pivotal role of leadership in successful programme renewal is increasingly being researched, there is paucity in the literature on exploring the voices of frontline faculty teachers responsible for implementing the resulting curricular change (Venance et al., 2014). In 2017, the Faculty of Medicine and Health Sciences embarked on a full-scale renewal of the MBChB programme as part of an institution-wide programme renewal initiative, with a view to equipping graduates with the competencies needed to deliver 21st-century health care in increasingly complex contexts. A process evaluation study is currently in progress with the aim to inform our understanding of how relevant process interventions employed during the renewal process facilitated the intended curriculum change. It is envisaged that the findings will inform further decision-making and ongoing implementation during subsequent phases of the project.

Data generation for this phase of the study consisted of unstructured individual interviews with key role players on their perceptions and experiences of the renewal process to date. This enabled us to explore the voices of faculty teachers and clinicians as they navigated themselves through the various phases of programme renewal. Data analysis consisted of open coding and thematic analysis.

Preliminary findings indicate that, even if a proposed programme renewal initiative is supported by the majority of stakeholders, their engagement with change may be influenced by numerous factors. These include uncertainty, resistance to change, relationship building, collaboration, involvement and empowerment, effective communication, and organisational culture.

We conclude with a discussion on the complexities of large-scale programme renewal, as informed by the 'leadership for organisational adaptability' framework (Uhl-Biena & Arenab, 2018), and share our reflections on the importance of understanding, valuing and engaging with the unique needs of various stakeholders throughout the programme renewal process in order to achieve the desired results.

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Title: Promoting Doctoral Education at the Faculty of Medicine and Health Sciences

Contribution type: Innovation

Contribution format: Presentation

Author(s): Chabilall, J; Coombs, B

Keywords: Doctoral education, short course, Activity Theory, proposal writing

Abstract:

Background:

Doctoral education has received considerable attention and has been studied extensively over the years. This paper takes a unique perspective and reports on 'nurturing doctoral growth' as advocated by Cloete (2015), in particular at the Faculty of Medicine and Health Sciences at Stellenbosch University.

Focus of presentation:

Three key areas are taken into consideration to describe the concept of doctoral education in the Faculty: Institutional data; the creation of a one-stop-shop for doctoral students; and results of a descriptive case study – the Pre-doctoral Short Course Analysis (2019) – all of which confirm growth of doctoral education in the Faculty. The qualitative case study made use of questionnaires and interviews to determine to what extent the respondents felt that the Pre-doctoral Short Course was beneficial to students who attended.

Implications:

The numbers and diversity of doctoral students in this Faculty have increased dramatically over the last five years, from 151 in 2014 to 266 in 2019. The number of PhD graduates is also rising steadily each year. Doctoral education in the Faculty is discussed as a descriptive case study to demonstrate that mere ability to conduct independent and original research is often not sufficient for students to embark on doctoral studies.

Conclusions:

The Pre-Doctoral Short Course case study revealed that students were comforted by the fact that their challenges were not unique and that working within the diverse group activity provided the necessary motivation to pursue their studies. Participants in the Pre-Doctoral Short Course eventually registered for the PhD and many have even graduated. Results confirmed that the short course is a constructive support system to students who are in the early stages of doctoral studies. Students revealed that they found the support most beneficial and were subsequently inspired to engage confidently with conceptual, theoretical and methodological aspects of doctoral studies. The Faculty has seen immense growth but recognises that wide-ranging support has to be ongoing. Present discourses aim to create capacity building exercises that will support students emotionally and academically in the writing phase as well.

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Title: Putting the “i’s” Back in ‘Multilingualism’: The importance of ‘Identity’ and ‘Ideology’ in the Development of Academic Literacy Skills

Contribution type: Innovation

Contribution format: Presentation

Author(s): Bernard, T; Lombard, S

Keywords: Academic literacies, multilingualism, linguistics, identity, ideology

Abstract:

The development of academic literacy skills is an important focus area in higher education institutions (HEIs) across the globe. This is in part due to global efforts to widen access to groups of people who were previously denied access to higher education for political, social, and economic reasons, and such efforts have led to a more diverse, multicultural and multilingual student body. Thus, language practitioners are constantly faced with the task of equipping a diverse group of students with the linguistic skills needed to function optimally in HEIs. As researchers and facilitators, we are concerned with ways of doing this that promote equality and social justice. In this talk, we discuss some of our approaches to developing academic literacy skills within the framework of social justice. Our approaches are informed by contemporary insights developed within the field of sociolinguistics and include functional rather than grammatical approaches to language, discourse models of language, notions of multilingualism and translanguaging, language biographies, language ideologies and autoethnography (Halliday, 1978; Fairclough, 2009). We show how, by incorporating these ideas and practices into the academic literacy classroom, the classroom transforms into a space of collaborative learning where both facilitators and students become more aware of their linguistic biographies and the ways in which their histories and identities play a part in language acquisition (Bernard, 2018).

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Title: Refining the Interprofessional Module: The Doctor as Change Agent

Contribution type: Innovation

Contribution format: Presentation

Author(s): van Zyl, M; Geldenhuys, M; Carstens, S; Visser, M

Keywords: Interprofessional, graduate attributes, personal development plan, undergraduate curriculum

Abstract:

Background: The Doctor as Change Agent module (DRACA) presented in the fourth- and fifth-year medical curriculum uses the graduate attributes to equip medical students to serve as change agents. This is achieved through collaboration in culturally diverse teams, developing the skills to be patient-centred and using their professional voice to advocate for the communities they serve in order to facilitate change within the health system whilst maintaining personal wellness. Students are guided to compile a personal development plan and their attempts at developing these competencies are assessed by means of a personal interview at the end of the module.

Focus of presentation: The presentation will focus on students' perception of the DRACA module, and highlight the strengths and weaknesses of this module.

Description of work: Feedback from previous students has led to the revision of the DRACA module by updating and improving the content and presentation of workshops in collaboration with other Stellenbosch University departments. The students participated in the module and completed a pre- and post-module questionnaire. These, together with student feedback regarding the workshops and the facilitator questionnaires have been analysed.

Implications: Post survey findings showed an increased commitment to serve as change agents, an increased level of perceived competence to serve as change agents and a significant increase in their level of interest in the module. Interprofessional collaboration during DRACA exposed students and facilitators to diverse expertise, insights and opinions. This contributed to developing the students' worldviews and approaches to becoming change agents. Value to practitioners: The FMHS is currently in the process of developing a new MBChB undergraduate curriculum. The DRACA module can showcase their innovative approach towards the teaching and learning of the graduate attributes, by presenting and integrating our innovations in the new curriculum in a practical and sustainable way.

Conclusions: The DRACA module has broadened students' perspectives on what it means to be a doctor as change agent. It assisted them in their perception of developing their personal competencies required to become change agents. The module format was well received by students and feedback for improvements was highlighted.

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Title: Reflection or refraction? Shining a Light on Assessment in Engaged Learning

Contribution type: Research

Contribution format: Presentation

Author(s): McKay, M; Smith-Tolken, A; Nyakatya, M; Bruintjies, G

Keywords: Reflection, engaged pedagogies, assessment

Abstract:

Engaged pedagogies form a continuum of approaches in higher education (HE) to facilitate relevant learning. Institutions in which societal engagement is a core value should have engaged practices within their repertoire, to produce 'socially robust' knowledge (Gibbons, 2006:4). Engaged pedagogies are less frequently used in STEM faculties, but are becoming more popular as these education practitioners grapple with relevancy, complex workplaces, and the need for social justice and critical citizenship. Educators who 'border-cross' to less familiar pedagogical practices often do so without the necessary grounding in educational theory. They thus find this 'foreign' territory extremely challenging, especially regarding issues of assessing student learning and development of graduate attributes and critical thinking. Reflection has been shown to be an excellent way of evaluating student learning through experience in societal spaces, but understanding of its various models is needed before deployment, in order to avoid issues such as inappropriate levels of disclosure and possibly, unethical practices (Boud, 1998). Thus, this study was set up to explore practitioners' use of assessment in collaborative engaged T&L (CETL). The research was conducted at Stellenbosch University (ethical clearance TL2018-7453). Our research focused on whether practitioners in CETL understood the use of reflection as an assessment tool, and could match the best model of reflective practice with their work. Quantitative and qualitative data (online questionnaire, storytelling and focus groups across ten faculties) showed that there was a critically significant lack of knowledge regarding the theory and models of reflection, and little opportunity for practitioners to learn about them within the current institutional systems. This study also highlights that the use of reflection is context-specific, and the importance of a community of practice. The study notes that truly 'engaged' HE institution will divert resources and support to practitioners in order that they can fully realise all the opportunities that CETL offers for society and graduates.

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Title: Responsive Curricula for Healthcare Professionals

Contribution type: Research

Contribution format: Presentation

Author(s): van Schalkwyk, S; Jacobs, C; Blitz, J; Volschenk, M

Keywords: Curriculum renewal; social accountability; critical consciousness

Abstract:

In South Africa, where the realities of health inequity, and the burden of disease and service in resource-constrained environments dominate, curricula for health professions education (HPE) need to deliver relevant professionals who are not only clinically competent but also critically conscious of the contexts in which they serve and health care systems within which they practice. This study responds to these imperatives by exploring the understandings of HPE teachers on two purposively selected programmes in the Faculty of Medicine and Health Sciences (FMHS) at SU regarding the principles underpinning their curricula. Curriculum coherence requires that those implementing a particular study programme have a shared set of understandings regarding the broad principles upon which it is built. A disconnect between the intentions of curriculum designers and the understandings that HPE teachers bring, could have serious implications for the translation of such principles into teaching practices and for students' learning. The study seeks to investigate this problem.

This qualitative study is informed by an interpretivist paradigm. The research questions are framed as:

- How do the participating HPE teachers understand the broad principles upon which their curriculum is built?
- How are these understandings translated into their teaching practices?

Data collection included focus group sessions and individual interviews with programme co-ordinators, module leads and HPE teachers, as well as the analysis of programme and module curriculum documentation for the medical and physiotherapy programmes. Preliminary findings from the thematic analysis of focus groups and interviews will be shared. Participants expressed a range of understandings of how their programmes and modules were responsive and relevant to the social context, describing innovative teaching practices arising from these understandings. Initial conclusions indicate that HPE teachers on the programmes understand the need to develop students who are not only clinically competent but also critically conscious of the contexts in which they serve and the health care systems within which they practice. A dilemma for many, however, is how far to take the social justice agenda - whether to only raise students' awareness of the realities of health inequities or to prepare students to take on the role of change agent.

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Title: Self-Assessing Summative Assessments: Perceptions of Management Accounting Students and Lecturers

Contribution type: Research

Contribution format: Presentation

Author(s): Kirsten, C

Keywords: Self-assessment, reflection, life-long learning

Abstract:

Background: Sustainable assessment practices are important to equip students with a life-long skill of assessing their own future learning needs (Boud, 2000). Students must take responsibility in assessing their own learning by becoming more participative and building on their assessments by judging whether their own learning is sufficient, complete and appropriate; and any encouragement will aid this process (Candy, 1994). Summative and formative assessments can be used together to aid future learning (Brookhart, 2001). In order to encourage their own assessment of their learning achievements, a self-assessment instrument was developed for Management Accounting students to reflect on their performance in summative assessments. This research explores the usefulness of this instrument.

Research question: How useful is a self-assessment instrument to facilitate reflection on students' performance in summative assessments?

Theoretical framing and literature review: Self-assessment involves the process whereby students identify standards applicable to their studies and to determine the degree to which they have met those standards themselves (Boud, 1991). Self-assessment is crucial for students better to understand themselves; the complexity of tasks and learning objectives; and assists them to strategise on how to improve their learning (Sadler, 1989). It also enhances student motivation, self-efficacy and achievement (McMillan & Hearn, 2008), and has been linked to improving critical thinking (Austin, Gregory & Chiu, 2008).

Methods: Primary data were gathered from Management Accounting students and lecturers by means of a survey, in order to determine the usefulness of a self-assessment instrument.

Implications and significance of research: The use of an instrument to encourage students to reflect on their performance in summative assessments can assist in determining their own future learning needs. This is a valuable skill for students in all tertiary education fields, not only Management Accounting, and the usefulness of this instrument could be further researched in other contexts.

Results: The instrument is perceived by both lecturers and students as useful for reflecting on students' performance in summative assessments, especially for identifying problem areas. It assists students in preparation for future tests and discussions with lecturers. Time constraints and motivation to complete the form are some of its main drawbacks.

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Title: Sense-Making within a Reflective Practice: From Instruments to Metacognition

Contribution type: Research

Contribution format: Presentation

Author(s): Schuster, D; Wessels, D

Keywords: Reflection, noticing, metacognition, sense-making

Abstract:

This study focuses on developmental aspects of metacognition (How?) and recognises the work done in this field by Schoenfeld (1987) in describing metacognition and its importance in the teaching and learning of mathematics (Why?). It originates in the researcher's ongoing work in personal professional development through the lens of the Discipline of Noticing (Mason, 2002) in which the objects of study are the researcher's own actions and choices, as well as the structure of the researcher's attention.

By recognising Vygotsky's ZPD as requirement for the acquirement of higher order skills, the researcher seeks to not only model metacognitive behaviour, but also aims to elicit such behaviour from students through the integrated methodological cycles of reflection, awareness and noticing – all part of an interrelated schema aimed at achieving reflection-in-action, something Donald Schön (1983) calls 'knowing-in-action'.

The study is located in the researcher's own teaching experiences; specifically in a sequence of significant events while teaching integration to first-year students at the Military Academy, with the aim of achieving structural conceptualisation through relational understanding (Skemp, 1976), but where the subject matter typically lends itself to (highly) instrumental instruction. Consequently the material is problematised and although the locus is very narrow, the (meta-)cognitive skills thus modelled are more overarching in terms of (mathematical) sense-making. It is argued that there is a need for parallel development of (specific) mathematical techniques alongside the associated metacognitive skills for broader application in problem-solving as part of mathematical construction, and that it should not be assumed, but indeed should itself be modelled. The data take the form of an account of the interactions of a number of first-year students and their lecturer during a calculus lecture, which illustrates features of noticing and growing awareness, followed by an account-for the events in which these features are discussed and important themes are identified for future cycles of classroom implementation.

This cyclical qualitative study strives to facilitate and demonstrate evolution within a teaching practice: new noticing by the participants (lecturer and students), changed awarenesses, and new ways of thinking, which may be used for future moments of noticing.

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Title: Social Justice Matters: Learning Differently through the Arts
Contribution type: Innovation
Contribution format: Presentation
Author(s): Costandius, E; Brand, A
Keywords: Mind-body learning, art-based teaching, social justice, post-qualitative research

Abstract:

There is a perception that learning only engages the cognitive. Why is it then that the body often reacts before the mind rationalises bodily action? Is it then important for the body to learn? The mind and body both learn, often in different ways. Social justice issues such as class, racial, gender and sexual orientation discrimination is an entangled mind-body experience. Discrimination is understood cognitively, but also felt affectively. The main aim for social justice, according to Nancy Fraser, is “participatory parity”, where all can interact as peers in an equitable manner. Practising the arts could open up spaces for learning in an embodied way that could result in mind-body learning. Even though various authors have written about embodied learning, very few outside the arts have practically experimented with and researched embodied learning in higher education environments.

During the implementation of the visual redress projects, various faculties contacted us to address the issue of students often feeling excluded and unwelcome in their learning spaces. The visual redress project aims to address social injustice and misrecognition caused by visual symbols and objects by compensating through new visual symbols. We realised that engaging with symbols and objects in a visual manner only will not effectively address the physical affective experiences of students and, therefore, we started working collaboratively with students and lecturers of various faculties to experiment with embodied engagements in terms of visual symbols and objects. In this research, we share the often surprising and unsettling results of the various workshops. The research draws on the writings of Fraser (social justice), Zembylas (affect) and Dolphijn and van der Tuin (new materialism) to sketch a theoretical framework to think through the need for and possibilities of mind-body learning. This research aims to contribute to new perspectives of mind-body learning and how they can contribute to social justice issues such as discrimination and misrecognition. The aim of the experimental processes of the workshops was also to gain insights into how to do research regarding social issues differently, specifically engaging in post-qualitative research methodologies.

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Title: Socio-Material Perspectives on a Capacity Building Model of Technology Integration

Contribution type: Research

Contribution format: Presentation

Author(s): Strydom, S

Keywords: Socio-materialism, technology integration, capacity building

Abstract:

The integration of technology into the higher education (HE) curriculum is high on local and international agendas. It is expected of graduates to manage information overload; demonstrate abilities seamlessly to cross boundaries and to exhibit social and digital citizenship (Barnett, 2012; Bozalek, Ng'ambi & Gachago, 2013). Although technology-augmented programme renewal is a common occurrence in HE practice, research into the relation between key role-players and the positioning of technology is limited (Bolldén, 2016). It is therefore of value to recognise and critically consider the interplay between academics, professional support staff, technology and the curriculum in the modern higher education institution (HEI).

A devolved faculty-specific model pioneered the introduction of blended learning coordinators (BLCs) to assist in capacity building and technology integration in different faculties. Drawing on the socio-material perspective that argues for a shared view in terms of humans and non-humans, this case study aims to uncover the dynamic material forces at play in HE practice settings. It draws attention to the shifting connections among the social, material and socio-technical in the introduced model.

Rooted in a qualitative paradigm (Parpio, 2013), an explanatory and exploratory research design (Marshall & Rossman, 2011) informed this exemplar case study. Purposive sampling was employed to collect data from semi-structured interviews conducted with 12 BLCs, 10 line managers, 2 project coordinators and 2 senior management members. Data were analysed via thematic analysis over a three-year period.

The success of this proposed model is rooted in the interplay between BLC appointments, quality and responsiveness associated with BLC support, differential professional learning, and the status of technology as mediating artefact in the process of curriculum renewal at a higher education institution.

This study signals to management and academics the role of the social and material (i.e. the agent, technology and the curriculum) as intertwined with equal recognition offered to all in professional practice and learning.

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Title: Specific Skills or Transversing Travellers? The Dilemma: Should C21 Competencies be Learned Specifically or Generically?

Contribution type: Research

Contribution format: Presentation

Author(s): Dullaart, G

Keywords: Competencies, capabilities, performance assessment, curriculum, co-curriculum

Abstract:

This research theoretically explores the question: Should competencies be learned specifically or generically? Competencies in higher education (HE) can be understood with Shavelson (2013) as complex abilities, which are closely related to performance in real-life situations. In Biggs' 1995 article on assessing for learning, he argues in favour of active performance assessment, requiring problem-solving and active demonstration by students of the knowledge, rather than propositionally accounting for knowledge. The elements of action and of a realistic setting resonate strongly with recent demands for HE in South Africa to be relevant to the workplace and to students' contexts.

This study aims to synthesise one of the debated aspects of performance assessment and competencies in HE: whether it should be discipline-specific or generic. As SU graduate attributes propose capabilities that require performance in real-life situations, the SU debate on whether graduate attributes should be learned inside or outside the curriculum (Strydom & Jacobs, 2014) can draw on scholarship about competencies.

Van der Vleuten (2018) proposes that competencies must be learned in discipline-specific curricula, and not generically. On the other hand, McLeland (1973) warns against too much specificity, advising instead to analyse competencies on a higher level of abstraction, clustering occupational competencies in thought patterns to get maximum generalisability for various actions' outcomes. More recently, Gijbels (2011) explores interdisciplinary and generic competencies and their relationship to domain-specific competencies. Similarly, the SAQA level descriptors have successfully achieved generic descriptions of outcomes and competencies on high NQF levels.

In practice at SU, there are various degrees of integrating competencies in the curriculum, with degrees of discipline specificity. This study theoretically explores possible syntheses to resolve the dilemma.

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Title: Stuck in the Middle with Service-Learning, or Engaging in a Hybrid of Practices?

Contribution type: Research

Contribution format: Presentation

Author(s): Smith-Tolken, A; McKay, M; Nyakatya, M; Bruintjies, G

Keywords: Collaboration, engaged practice

Abstract:

In South Africa, service-learning (SL) is commonly defined as community-based experiential learning which is curriculum-based, credit-bearing and structured in terms of students' educational experiences in organised community interaction activities that meet community goals as identified and agreed upon (Smith-Tolken & Bitzer, 2017). At Stellenbosch University (SU), SL was mandated by a policy, encouraged through SL training courses and incentivised by centralised funding (SU, 2009). SL influenced many other teaching practices to adopt learning-by-doing theory, the importance of reflection, and striving for reciprocity in partnering with societal organisations and institutions. In 2015, a conference round table discussion found that at SU SL practice permutations had developed that was more suitable for some academic programmes, that were not strictly adhering to the practices that constitutes SL, but fitted the description of being collaborative and engaged. The concept of collaborative engaged teaching and learning emerged as a hybrid form of engaged scholarship of teaching and instigated a more formalised research project that explored this concept over the last three years. This presentation reports on the research that was done and focuses on the conceptualisation of the concept, its theoretical grounding and the typology of practices that constitutes it and answering the research questions: What is the definition of CETL at Stellenbosch University? What forms do the practices take in the institution? Which theoretical frameworks underpin these practices? A literature overview showed that the term is used in Australia and in certain US universities and constitutes similar practices that were found in the study. A survey amongst SU academics were done in 2018 on all the research questions followed by a focus group discussion. The practices, their theoretical grounding and the associated typology that emerged are presented. The findings of this research help to elaborate preferences of engaged pedagogical approaches, and how more than one approach can be utilised effectively in a single academic programme. It further shows how different practices complement each other, and that, in order to maximise innovation in teaching in learning, a diversity of pedagogical spaces can be occupied that deepen student learning, increase retention, and ensure it is more future-focused

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Title: Student Perceptions of Academic Support Contributing to Transformation of the Accounting Profession

Contribution type: Innovation

Contribution format: Presentation

Author(s): Ontong, J; de Waal, T; Wentzel, W

Keywords: Thuthuka, South African chartered accountants, transformation, accounting education, SAICA

Abstract:

Recent academic performance of students in their chartered accountancy professional examinations has been under scrutiny by the business community in South Africa (South African Institute of Chartered Accountants [SAICA], 2019). Noting the importance of preparing students in a higher education setting for future professional examinations, this study focuses on Thuthuka Bursary Fund (TBF) accountancy students. All of them are from the black, coloured and Indian (BCI) groups. The study attempted to gain insight into TBF students' perceptions regarding two academic support structures, namely structured tutorials that are currently offered only to TBF students, and individual learning programme sessions, offered to all students. Therefore, the aim of the study was better to understand the support format required in equipping students to better prepare for examinations. The study analyses these perceptions in order to identify which aspects make both support structures more conducive to the perceived learning needs of students.

Understanding student perceptions regarding the effectiveness of academic support initiatives is critical to the success of students and in terms of these initiatives meeting their objectives. The study finds that certain aspects of the support classes examined are positively contributing to students' perceived learning effectivity, while other aspects can be improved upon. Students seem to prefer smaller support class sizes, language-specific presenters, support classes being scheduled during normal class hours instead of after hours, emphasis on examination technique and to a lesser extent, course content being covered. Both support classes' documented objectives include practising examination technique, which was found to be aligned with students' perceived objectives in attendance of these classes. The findings suggest regular student reviews should be executed regarding support offered. This could result in revisions to existing support structures, which could contribute to better assistance to students, potentially increasing their performance in continued professional development after university.

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Title: SU Graduate Destination Survey 2018/2019: Graduates and Employment Trends

Contribution type: Research

Contribution format: Presentation

Author(s): Kroon, C; Timmey, M; du Plessis, Al

Keywords: Graduates

Abstract:

Over the past few decades, South Africa has witnessed an increase in youth unemployment (Cape Higher Education Consortium [CHEC], 2010). Universities nationally are rightly concerned about the employability of their graduates. The rationale for the Stellenbosch University (SU) Graduate Destination Survey is to establish the employment trends at graduation.

One of the goals of the Unit for Graduand Career Services (UGCS) is to prepare students for the transition to the world of work. Data about, among other things, our graduating students' activities after graduation, their employment patterns and how graduates secure a job dynamically support the UGCS in tailoring its services. In 2017, a definite gap was identified in SU's knowledge about its graduates and their future plans. The last time the institution conducted similar research locally was in March 2003. Since then, SU had to rely on the 2012 report by the CHEC to monitor and learn about the future plans of its graduates.

The logical decision was therefore made in 2017 that the University would conduct this research annually for the SU context specifically. A new graduate destination survey was designed and administered electronically in 2017. In 2018, the second round of the new graduate destination survey was conducted with a few changes and additions based on recommendations and lessons learned from the 2017 survey. New additions to the survey include information about postgraduate graduates and graduates from the Faculty of Medicine and Health Sciences and the Faculty of Military Sciences.

This survey enables more up-to-date reporting on current trends to management and it empowers the UGCS to fine-tune its services to the needs of senior students. Moreover, it will allow stakeholders from support services and faculties to become aware of employment and further study trends and to utilise the findings to inform strategic initiatives. This presentation will focus on the results of the December 2018 and March 2019 graduation ceremonies. Some of the interesting insights and recommendations will be shared. Additionally, comparisons between the 2017 and 2018 surveys will be made, and specific findings will be highlighted and discussed.

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Title: Teaching Advancement at University (TAU): Communities of Enquiry in Higher Education

Contribution type: Innovation

Contribution format: Poster

Author(s): Gerber, B (1); Nakhooda, M (2); Bayat, A (3); Antia, B (3); Nell, I (1); Carter, F (4); Dippenaar, A (2); Cupido, X (2); Levine, S (4); Yeats, J (4); Collett, K (3)

Keywords: Communities of enquiry, attributes of university teachers, technology, tentacular teaching, student capital, decolonisation

Abstract:

The second iteration of the Teaching Advancement at Universities (TAU) Fellowship, a project of the Higher Education Learning and Teaching Association of Southern Africa (HELTASA), took place between January 2018 and July 2019. A selection of Enquiry Group Projects, from participating academics of the four Western Cape Universities is currently presented as five separate posters. These represent diverse topics that are aimed at addressing various challenges in higher education, with the objective of developing change agents and creating communities of best practice in higher education.

1. Developing expectations of academics as university teachers: This collaborative visual project takes the form of a multi-layered electronic poster, which uses the botanic metaphor of a baobab tree. It is used to explore, identify and illustrate what the authors consider to be valuable attributes of university teachers – <https://youtu.be/yoA9guMut-8>
2. Advancing technology-assisted learning in higher education: This work entailed a modelling of factors to be considered when higher education institutions attempt to harness technologies in T&L to produce graduates who are equipped to handle the 21st century workplace – <http://www.etau.co.za/index.php>
3. Tentacular teaching: This installation is designed as a provocation about what constitutes justice in higher education. We invite those that ‘care’ to entangle with our installation, to engage, add and share their thoughts and experiences with this encounter, co-created previously with students and academics, including ourselves.
4. Nurturing student capital: Challenges in teaching and learning are re-imagined as ‘resources’, and implemented in ways that harness often-neglected student capital. The aim is to foster agency in the co-creation of knowledge, in meeting various objectives of higher education.
5. Disrupting privileged knowledge and disciplinary boundaries through decoloniality: The authors set out to explore decolonisation from within, between and beyond different disciplines and university contexts. The art-based poster raises questions around the authors’ (and viewers’) positionalities, pedagogies, the scholarship of T&L, and the students.

These projects seek to drive positive change in higher education by interrogating accepted practices and proposing novel thinking and application of pedagogies to best serve the needs of students, staff and institutions. Fellow academics are encouraged to engage with TAU members and search for ways in which innovation can be collaboratively driven.

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Title: Teaching and Learning Communication: Help Us Help You

Contribution type: Innovation

Contribution format: Poster

Author(s): Adendorff, H; Swart-Jansen van Vuuren, C; van der Merwe, C

Keywords: Communication, teaching and learning initiatives

Abstract:

Communication is key to the success of many ventures. In this interactive poster, we explore the idea that the way in which communication about teaching and learning (T&L) at Stellenbosch University (SU) is received and perceived plays a pivotal role in how people respond to initiatives aimed at promoting, enhancing or supporting teaching.

Drawing on work about how different knowledge practices are legitimised (Wolff, 2015; Maton, 2012), we argue that communication about T&L is usually concerned with (1) a problem/issue (the what) and/or (2) an approach (the how) for dealing with the problem/issue. Since the amount of emphasis placed on these can vary from weaker to stronger, communication can reach academics in one of four ways: focusing on a 'problem/issue', an 'approach', both or neither. We can represent this as two perpendicular axes, with the four quadrants depicting the four ways of communicating: (1) Possibilities: emphasising a problem; (2) Procedures: emphasising an approach, (3) Principles: emphasising both, and (4) People: emphasising neither.

Recent literature on professional development suggests that "respectful collaboration" (Winberg, 2018) and "care-full" environments (Herman, 2016) are key factors to consider in our communication. Bringing these ideas together, we conclude that not all trajectories are equal, and that the trajectory of T&L conversations can be a key factor in the response it gets. For example, conversations that start with a focus on people or possibilities have the greatest chance of being seen as treating "academics as people and scholars in their own right, rather than as a means to an end" (Herman, 2018).

With this interactive poster, we will offer academics an opportunity to participate and add their voice by indicating on the poster (1) how T&L communication usually reach them, and (2) how they would prefer it to reach them. Through this, we hope to create a collaborative visual, either supporting or refuting our argument.

We believe that the result of this process will offer (1) novel insight into how SU communicates with academics, and (2) a theorised approach to communication strategies at SU.

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Title: The Development of Ukwanda Centre for Rural Health

Contribution type: Innovation

Contribution format: Poster

Author(s): Meyer, L; Coetzee, F; Couper, I; Muller, J

Keywords: Trans-formative learning, distributed training, IPE, rural health

Abstract:

Background, context, purpose: The Ukwanda Centre for Rural Health (Ukwanda) was formally established in 2002 by the Faculty of Medicine and Health Sciences (FMHS) as part of its vision to train health care professionals with relevant knowledge and hands-on experience of the health issues facing rural and underserved communities. Ukwanda has had significant achievements in the fifteen years since it began, including the development of a flagship rural training model (the Rural Clinical School) and an internationally recognised expertise in the area of rural health professions education. Students have reported transformative learning experiences while being immersed in communities longitudinally.

Particular focus of the presentation: To provide information on the educational innovations and current projects of Ukwanda

Description of work done: Ukwanda initiated and implemented undergraduate training programmes for health professionals to meet the needs of rural and other underserved areas. The centre fostered and facilitated research in affected rural and disadvantaged communities through capacity development and provides platforms to disseminate completed relevant health interventions research and health professions education research. Ukwanda provides innovative leadership in inter- and transdisciplinary community interaction initiatives. The annual rural research day and district based community partnership functions were created for this purpose.

Implications: Ukwanda has established several training sites on the distributed platform and developed a network of role-players involved in Community-based education and training on the distributed training platform. Several educational innovations were developed over the past 17 years and provided key learning experiences for the transformation of the current health professions curricula. Some of the innovations in distributed training and interprofessional training of health care professionals have already been implemented with success by other South African universities.

Value to fellow practitioners

Ukwanda has established a model of training undergraduate students in rural environments that supports transformative and collaborative learning with multi-sectoral participation. The knowledge we have gained could assist programs within other faculties at Stellenbosch University to extend their programs to rural areas.

Conclusions: Ukwanda through its undergraduate programmes is consistent with increasing international attention paid to the needs of rural areas, particularly coming from organisations such as the World Health Organization (WHO), the Organisation for Economic Co-operation and Development (OECD) and the International Labour Organization (ILO).

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Title: The Gamification of Engineering Management 454: Initial Experiences

Contribution type: Innovation

Contribution format: Presentation

Author(s): Jurgens, CJ

Keywords: Engineering education, gamification, affective learning

Abstract:

Through this project, fellow practitioners may see that when effective systems are in place to enable cognitive engagement, students are more likely to benefit at an affective level (Gilmore et al., 2017). This concept has often been explored across literature (Gilmore et al., 2017; Blackie, 2015; Wolff et al., 2018; Dorfling et al., 2019). However, this project practically demonstrates how better to connect educational theory and practice. Several innovative educational initiatives within the Faculty of Engineering have successfully linked theory and practice in the past, as well as adopted a more holistic approach to engineering education. A particularly successful theory-practice project was conducted by the Department of Process Engineering during 2016. Students competitively pumped water to different heights using equipment purchased through the Fund for Innovation and Research into Teaching and Learning (FIRLT) (Pott et al., 2017), thereby sustainably contributing to improved student grasp and engagement. This innovation project aims to apply a different ‘systemic approach’ to an existing Civil Engineering final-year module (Engineering Management 454) by integrating several graduate Exit Level Outcomes to achieve deeper learning and cognitive grasp, as well as to support this learning affectively via a gamification element. If successful, this different systemic approach could be applied to other engineering modules as well.

Subtopics within the module were re-arranged according to several “levels”, which allowed students to earn skill badges for their “Maties Civil Engineer” hard hats.

These badges included:

- Individual badges for Engineering Economy, Professionalism, etc;
- Team badges for Communication, Collaboration and/or Labour Relations, etc;
- Forbes badges for Creativity, Leadership, etc (peer awards).

The module framework and group projects were also revised to support the above outcomes. The presentation subsequently discusses the process of redesigning Engineering Management 454 and its group projects to include all of the topics discussed throughout the semester via:

- The Holistic development of Civil Engineering graduates;
- Employing an incentivised teaching approach to improve student engagement, collaboration and attendance at industry presentations;
- Developing a Gamification element by rewarding continuous progress with badges linked to a “Civil Engineer” identity.

As the project is scheduled for completion by December 2019, the lecturer will share initial experiences in lieu of the final results.

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Title: The Impact of Transport-Based Experiences on Transport Science Academic Performance

Contribution type: Research

Contribution format: Presentation

Author(s): Bruwer, M; Sinclair, M

Keywords: Transport science, constructivism, diversity, equality

Abstract:

The constructivist learning model considers learning to be developed by building on existing knowledge acquired through past experiences (Webb, 1980; Kolb, 2005). In line with constructivism, theories of cognitive development suggest that an individual's ability to learn is directly influenced by environmental stimuli that children are exposed to in key developmental stages (Warner & Sower, 2005; Salvia, Ysseldyke & Bolt, 2010). If constructivism is accepted, then the improvement of diversity and shifting of classroom demographics in South Africa brings into focus the potential impact that the multiplicity of our students' backgrounds can have on learning. This will require the acknowledgement of individual reference points in shaping understanding in the classroom.

Transport Science 324 and 364 form part of the curriculum of the BEng Civil Engineering degree at Stellenbosch University. Some students are observed to struggle in Transport Science and this research investigates if there are systemic reasons for the difficulties faced by these students in mastering the course material. The purpose of this research is to investigate whether students who have been exposed to traffic and public transport (as a pedestrian, cyclist, driver and/or passenger) in multiple environments, have a better grasp of traffic engineering principles than those with limited exposure.

Students who participated in Transport Science 324 and 364 in 2018 were asked to complete an online survey that asked questions about their various exposures to transportation modes. The students provided their student number, allowing comparison of academic performance in Transport Science with overall academic performance and individual transport experience. The research identified a statistically significant relationship indicating that students perform better in Transport Science than academic performance in other modules would predict, if their level of experience of private motorised transport environments were relatively high compared to that of their classmates. This result complies with constructivist theory, that learning is enhanced by prior experience.

The research is ongoing, with the research team now investigating teaching methods and practical aids that provide all students an equal opportunity to perform to the best of their ability in Transport Science.

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Title: The Implementation of Computational Thinking as a Problem-Solving Tool in the Chemical Engineering Undergraduate Programme

Contribution type: Innovation

Contribution format: Presentation

Author(s): Theron, W; Coetzee, A; Louw, T; Wolff, K

Keywords: Computational thinking, chemical engineering, programming language, problem-solving, epistemic

Abstract:

Computational Thinking (CT) is a problem-solving methodology that uses fundamental concepts of computer science such as abstraction, algorithms, problem decomposition and simulation to solve problems (Jackson & Moore, 2012). Using CT as a tool, students can engage with problems independently and build additional skill sets to approach and solve a wide range of problems in different knowledge areas (Flórez et al., 2017:834).

Current Chemical Engineering undergraduate students only attain rudimentary programming skills, limiting them from applying CT to solve problems. It is deemed important continuously to engage students with programming problems to build their confidence in the use of CT as a problem-solving tool. Magana et al. (2016:441) found that self-belief and academic achievement of students are directly related. In addition to continuous engagement, students must be consistently exposed to CT. The current inconsistent use of programming languages throughout the undergraduate program (C++ and MATLAB/Simulink in four different modules) may well prevent students from attaining competence in a single programming language, decreasing their self-belief. This also limits their ability to abstract and translate fundamental programming concepts. Using the Legitimation Code Theory concept of Epistemic Relations (Maton, 2014), this paper provides theoretical support for classroom innovation designed to enable students to 'code-shift' between the different kinds of thinking required to effectively apply CT.

The goal of the current innovation is to identify new opportunities for the explicit incorporation of CT in the undergraduate Chemical Engineering curriculum without significantly increasing the workload of lecturers or students. This investigation will focus on ways to help students increase both their code-shifting strategies and self-belief in the use of CT as a problem-solving tool. This will be done by reviewing existing literature, selecting a single programming language based on identified best practices, and finding resources that will aid in overcoming the stumbling blocks that students face when using this programming language. Suitable modules in the undergraduate programme will be identified for the implementation of CT assignments to improve the continuity of engagement with CT. Finally, guidelines will be provided that can be used to inform the explicit incorporation of CT in other undergraduate programmes.

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Title: The Influence of Context on the Teaching and Learning of Undergraduate Nursing Students: A Scoping Review

Contribution type: Research

Contribution format: Presentation

Author(s): Meyer, R

Keywords: Context, learning environment, undergraduate nursing students, learning experiences

Abstract:

Background: The role that context plays in the teaching and learning space has been well documented, characterised as complex and dynamic (Bitzer, 2011). This complexity has been recognised in health professions education with calls for the adaptation of existing curricula, which are not adequately equipping graduates in the health professions to meet the needs of communities they serve (Frenk et al., 2010; Tanner, 2010). Understanding the context – the surroundings, circumstances, environments and settings – within which learning must occur, particularly when seeking to inform such curriculum renewal processes, is therefore important. This scoping review aimed to synthesise perspectives from previous studies related to the influence of context on the teaching and learning among undergraduate nursing students.

Research question: To inform this, one broad question was decided on for the scoping review: How does the context influence teaching and learning of undergraduate nursing students?

Methods: This scoping review was guided by the first five of the six stages for review proposed by Arksey and O'Malley (2005). The following databases were searched: CINAHL, ERIC, MEDLINE, ProQuest, Google Scholar and Web of Science, generating 1 164 articles. Based on the eligibility criteria, the articles were screened through several processes.

Results: The review yielded 55 articles. Five themes were identified, framing the context within which teaching and learning of undergraduate nurses takes place, including the organisational space, the nature of interactions within the healthcare team, the role of nurse manager/senior nurse, the role of the educator, and academic institution-hospital engagement. This review confirms that context is indeed a complex concept (Bates & Ellaway, 2016) encompassing multiple components that interact with one another in different ways and across different levels. Furthermore, from this review, it became clear that the way in which context influences teaching and learning is best understood across structural, cultural and interpersonal domains.

Conclusions and originality: While there have been many studies on the role of context in teaching and learning, this review highlights the interconnectedness of the various factors within the learning context, providing a framework that can inform decision-making when seeking to enhance teaching and learning in nursing education.

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Title: The National Benchmark Test in Academic Literacy: How Might it Inform Teaching and Learning at Stellenbosch University?

Contribution type: Research

Contribution format: Presentation

Author(s): Sebolai, K

Keywords: NBTP, HESA, NBT AL, teaching, learning

Abstract:

The national Benchmark Tests Project (NBTP) was a HESA (Higher Education South Africa) initiative that was mooted in 2005 against the background of what is now commonly known as the “articulation gap” (van Rensburg & Weideman, 2002) that has been reported among the majority of students entering South African universities in the last three decades. The general aim of the project is to help alleviate this situation by developing tests of academic literacy, quantitative literacy and mathematics that can measure the extent of the articulation gap among first-year students at the point of entry to university. One of the objectives of the NBTP is to assist with curriculum development, particularly in relation to foundation and augmented courses (or similar) (Griesel, 2006). Except for a recent paper by Cliff (2015) on how the construct of the National Benchmark Test of Academic Literacy (NBT AL) might inform teaching and learning in higher education, however, research studies on this subject are very rare in the public domain. The aim of the study underpinning this presentation is to make a contribution in this regard. More specifically, the study aims to answer the following question: What are the teaching and learning implications of performance on the NBT AL for Stellenbosch University students? In order to realise this, regression methodology will be used to measure the extent to which each of the subdomains of academic literacy assessed in the test is crucial for student performance in the Faculty of Law and the Faculty of Economic and Management Sciences. Secondly, academic staff with adequate teaching experience within the two faculties will be interviewed to triangulate the results of the regression analysis referred to above. These interviews will help determine if students in these faculties have academic language needs other than those assessed in the test. Combined, the results of the two analyses can help inform the curriculum underpinning the academic literacies courses currently offered by the Language Centre to these faculties in a way that has no precedent.

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Title: The Need to Use Translanguaging and Code Switching in Intermediate Phase Mathematics Teaching

Contribution type: Research

Contribution format: Presentation

Author(s): le Cordeur, M

Keywords: Language of Learning and Teaching, mother tongue instruction, Language in Education Policy, teachers' language competencies, mathematics instruction

Abstract:

English is the official language of learning and teaching (LoLT) by 90% of the learners in public schools in South Africa, after mother tongue instruction in the lower primary school. This study endeavours to cater for the English language learners (ELLs) who are in the education system today who do not have English as their mother tongue. However, they are supposed to be taught and assessed in English as stipulated by the current Language in Education Policy (LiEP), albeit that they have one of the indigenous languages as mother tongue.

This study is informed by the work of Cummins (2000) and particularly by the socio-psycholinguistics theory. The multimethod study incorporating language proficiency and mathematics word problem assessments, questionnaires, interviews and classroom observations obtained from 55 Intermediate Phase (IP) teachers purposefully selected from 16 educational districts in the Eastern Cape and 10 IP mathematics teacher educators from different teacher education institutions in the country. Data were analysed quantitatively and qualitatively.

Findings from the study revealed that the IP teachers' language competencies in English are not proficient and thus compromise the quality of mathematics instruction. The data suggested that while some teachers make an effort to teach in English, others predominantly taught in isiXhosa in text-devoid classrooms. Overall results in this study illustrate that lack of consistency is due to the fact that the majority of teacher education institutions does not enforce mastery in the language of instruction, and provide minimal or no guidance towards systemic use of translanguaging and code switching.

This study concludes that the onus is on teacher education institutions to prepare IP mathematics teachers adequately. It cannot be assumed that teacher language competency in the language of instruction is up to standard simply because a teacher is qualified to teach. It is anticipated that this study will contribute significantly to the current debate on language use in education. The study highlights teacher competency in the language of instruction as one of the most significant predictors of mathematics performance, particularly since the country's indigenous languages are yet to be fully developed to support mathematics instruction.

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Title: The Status of Portfolios in an Undergraduate Medical Curriculum: Lessons Learned from a Document Review

Contribution type: Research

Contribution format: Poster

Author(s): Volschenk, M; du Plessis, M

Keywords: Portfolios, undergraduate medical education

Abstract:

During the last two decades, global shifts towards competency-based approaches in undergraduate medical education have resulted in the increased use of portfolios as a means to document longitudinal individual competency development (Hall et al., 2012). Reflective portfolios are regarded as useful educational tools to foster the development of student knowledge, clinical practice, self-awareness and independent learning in a competency-based curriculum (Joshi et al., 2015). However, despite numerous theoretical descriptions of portfolio use in the literature, there seems to be a limited understanding of the use of portfolios in undergraduate medical education (Chertoff et al., 2016). When the Faculty of Medicine and Health Sciences decided to explore the use of a longitudinal competency-based electronic portfolio in the MBChB programme, we decided to first gain a better understanding of current portfolio use in the programme (Kern et al., 1998) in order to identify areas for improvement, as well as best practices that could be carried forward.

This poster presentation reports on the first phase of a situational analysis of portfolio use in the MBChB programme. A document review was conducted in 2017 to identify all current portfolios used in the programme. Twenty-two portfolios were identified across the six years of the programme and analysed according to an analytical framework to ensure rigor, consistency, and standardisation during data extraction. The development of the analytical framework was guided by the literature. Findings showed diverse approaches in terms of portfolio content, format, purpose, structure, assessment methods and media used. No use was made of the Mahara electronic portfolio platform on SUNLearn. Attention to reflection, feedback, mentoring, goal setting and the development of graduate attributes also varied significantly between portfolios. Portfolios consisting of patient cases were all assessed by means of portfolio interviews, which aligned well with current evidence on portfolio assessment (Yielder, 2016).

The findings of this study supported the motivation for the development of a digital, interactive, longitudinal portfolio system aimed at documenting and supporting individual student learning and progress through all six years of the MBChB curriculum. Moreover, it highlighted important areas for faculty development on the use of portfolios for learning and assessment.

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Title: The Times They are A-Changin': Mapping Emerging Teaching Modes as a Technosocial System

Contribution type: Innovation

Contribution format: Presentation

Author(s): de Klerk, M; Barnard, M

Keywords: Systems-thinking, hybrid learning

Abstract:

Stellenbosch University (SU), like many other traditional universities, is in the process of expanding its reach to new knowledge markets with online and blended learning models. Since 2018, a so-called 'hybrid learning strategy' has been accepted as one of the strategic foci of the SU's Learning and Teaching (L&T) portfolio. As a result, a new business model is currently being developed to grow organisational capacity for the design and delivery of high-quality academic offerings to off-campus students. Programmes that are redesigned in hybrid format would allow learners to meet with facilitators for block contact sessions, yet a large part of the learning will be facilitated in a fully online format. In this paper, the complex process of piloting a new mode of teaching and learning is framed as a technosocial system, comprising not only of emerging ICT-related infrastructures, but also of the complex social context that animates it (Hofkirchner, 2015). It is widely acknowledged that introducing new technologies in the curriculum tends to trigger significant changes in the activities and interpersonal relationships within the learning environment (Lim, 2002). The effect of such organisational disruptions at the complex techno-human interface is, however, notoriously hard to predict or control, but can be better understood through systems thinking approach (Allenby & Saretwitz, 2011). The authors of this paper, both actively involved in the hybrid redesign of a number of programmes at SU, attempted to identify the enabling and hindering factors for role players within the learning design system, as they respond and adapt to an emerging institutional business model. Agent-based modelling was applied to map the co-evolving roles of academics, instructional designers, professional support staff, faculty management, and administrative staff. A process of document analysis, observation and individual interviews allowed for the significant information feedback loops to be identified. The results demonstrate how flexible practices can be fostered within (healthy) organisational hierarchies, and how porous learning design systems – drawing from other knowledge domains beyond the university infrastructures – could enable organisational resilience.

This research will also be presented at the World Conference on Online Learning (WCOL) in Dublin (November 2019).

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Title: Time for a Black Suit: Disrupting Aspiring CA(SA)

Contribution type: Innovation

Contribution format: Presentation

Author(s): Sexton, N; Rudman, R

Keywords: Disruptive teaching, graduate attributes, scaling learning interventions, pervasive skills, black suit

Abstract:

The world of work that the Stellenbosch University (SU) accounting graduate enters, is changing with the technology era. The South African Institute of Chartered Accounts (SAICA) has responded with an updated Competency Framework to brace the profession for a volatile; uncertain; complex and ambiguous world with the CA20(25) project. The core focus of the aspiring CA (and auditor) is around business, digital, relational and decision-making acumen (SAICA, 2018). The Competency Framework focuses on both professional and technical skills. The technical skills of graduates in accounting “gets them in the door” (Low, Botes, Dela Rue & Allen, 2016), however, thereafter increased focus is placed on the professional skills of inter alia lifelong learning, analytical, teamwork and communication skills (Barac, 2009; Crawford, Helliard & Monk 2011), networking, and group work. Even though several of these required professional skills align with the SU graduate attributes, this is a significant departure from traditional thoughts about accounting pedagogy. With these professional skills in mind, the third-year undergraduate auditing lectures challenged the pedagogical approach, structure and norms to teach the “substantive procedures” keystone topic in auditing in a “disruptive” manner. The challenge was to disrupt the passive pedagogy with active learning interventions throughout, in a scalable manner, in a class of in excess of 700 students. The objective of this presentation is to reflect on the disruptive approach and highlight the benefits of the disruption; the challenges of scaling, several of these activities and the usefulness of SUNLearn (SU academic platform) as a tool to scale teaching activities. The results are important as they encourage change to more passive learning environments where large classes are taught.

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Title: Touring the Epistemic Plane: Student Question-Posing in Chemical Engineering Education

Contribution type: Research

Contribution format: Presentation

Author(s): Pott, R; Nortje, S

Keywords: LCT, student question-posing, algorithmic learning

Abstract:

Legitimation Code Theory (LCT), a sociological tool that allows visualisation of conception and understanding, is used here to theorise an intervention in a chemical engineering reactor design course. A recurring issue during engineering education is students' adopting a superficial learning route to problem-solving through 'pattern recognition' (Felder et al., 2000). Students can hide behind recognising the pattern of the algorithm, rather than grappling with (and therefore undergoing 'cumulative learning' [Maton, 2009]) fundamentals. Superficial learning methods can give rise to 'correct answers' but shallow understanding. Within the Epistemic Plane (a dimension of LCT) this represents a narrow transversal between the doctrinal and purist quadrants.

One assessment method that has seen application in courses susceptible to 'pattern recognition' is student problem-posing (Shakurnia et al., 2018; Nwosu et al., 2013). In our study, students were requested to set up the answers and model solutions to a reactor design problem, including discussions of concepts they intended to examine and the way marks are allocated. Discussions with students, student questionnaires and assignments were then used to trace the path the students traversed on the Epistemic Plane through completing this assignment.

The potential of problem-posing is in allowing (and forcing) students to explore the algorithmic nature of reactor design from multiple perspectives, and in so doing enabling students to shift towards more open-ended approaches. That is, they need to (i) conceive of the problem from their own experience, (ii) simultaneously and iteratively set up the question and solution, and (iii) consider both the correctness and completeness of the mathematics, and not simply as a way to 'game the system', but also to determine whether the question examines the content appropriately. This allows for reflective learning and contributes to student concept development, and concomitantly represents a more complete transversal of the Epistemic Plane, speaking to our hypothesis.

This ongoing study has two distinct aims. Firstly, to demonstrate a teaching intervention that improves student involvement, understanding and self-reflection. Secondly, the discussions hope to illustrate the explanatory power of the Epistemic Plane in theorising and understanding how and why this intervention was successful, with a view to application in other modules.

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Title: Training career counselling students: Developing an artistic counselling tool
**presented in Afrikaans, interpretation services available*

Contribution type: Innovation

Contribution format: Presentation

Author(s): Conradie, K

Keywords: Animated short film; career counselling; career development; educational psychology; epistemological insights; artful teaching principles

Abstract:

Writing a nuanced and integrated career counselling report forms part of the set of professional skills a master's student in educational psychology requires, but the quality of such a report depends on, among other things, the degree of epistemological insights in respect of career development the report articulates and reflects. The aim of this tuition project was firstly to contribute to refining – by means of the poetic writing exercise, which included symbols, images and metaphors – the student's articulative ability with respect to epistemological insights into career development. Another objective of the project was to adapt the most suitable student writing attempt for an animated short film that could be used as a training or practice resource. The significance of the tuition project lies in the fact that it emphasises not only the cognitive, but also the sensory and emotive, dimensions of understanding, as found in the artistic teaching and learning principles of Dewey's theory. This project therefore can be situated within the already well-documented field of artful teaching. The animated short film is the eventual result of a group of educational psychology master students' initial theoretical formulation of the process of career development. Refined theoretical descriptions were eventually converted into client-friendly text to be utilised as part of the intake interview during career guidance. The client-friendly career development descriptions were translated in regional varieties of Afrikaans, English and Xhosa. This paper outlines the tuition project as far as the aims, process, methods and final outputs are concerned.

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Title: Training Staff and Students in Psychology in the R Computer Language: Implications for Integration into the Psychology Curriculum at a South African University

Contribution type: Research

Contribution format: Poster

Author(s): Coetzee, B; Kagee, A

Keywords: Psychology, statistical software, R computer language, SPSS

Abstract:

Background: In psychology departments in South Africa, the Statistical Software Package for the Social Sciences (SPSS) is routinely used to analyse numerical datasets. However, SPSS does not permit application of some of the more sophisticated analytic approaches that are increasingly necessary for use with behavioural data (Tang & Ji, 2014). The R language is becoming increasingly popular among scientists, including psychologists, around the world (Muenchen, 2012; Tippmann, 2014). However, in South Africa and especially in current psychology curricula, staff and students have had minimal exposure to the R computer language and its various functions. Integrating R into psychology curricula would equip students and staff with the necessary skills to analyse complex behavioural data. In order to understand whether R could potentially be integrated into the psychology curriculum at a South African university, we aimed to explore (using semi-structured interviews) staff and students' experiences of using the program following a six-week long training course held in 2017. In this paper, we report on those qualitative data.

Methods: We interviewed 10 participants (academic staff [n=7] and postgraduate students [n=3]) about their experiences of a six-session R training course held in November 2017. The data were analysed thematically using Atlas.ti v8.

Results: Participants spoke about the various useful functionalities of R and described it as a sought after skill in research. Participants preferred menu-driven software such as SPSS and perceived such tools as being easier to learn, time saving and more user-friendly. Participants indicated that their limited statistical skills and knowledge influenced their willingness to pursue software like R in future.

Conclusions: Our findings demonstrate sufficient interest among staff and students in psychology with regard to learning new statistical programs, and integrating programs such as R into the curriculum. However, participants felt limited by their general knowledge of statistics to pursue a program like R. Discussions about curriculum renewal will need to consider ways in which to integrate the learning of R or similar languages from the first year of university study. Without a basic understanding of statistics at undergraduate level, programmes such as R are unlikely to be adopted into current psychology curricula.

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Title: Transforming Transformation in Research and Teaching at South African Universities

Contribution type: Research

Contribution format: Presentation

Author(s): Pattman, R; Carolissen, R

Keywords: Transformation, participatory teaching and research

Abstract:

Academics in universities in South Africa are usually appraised according to the contributions they make in 'research', 'teaching' and 'community interaction'. In this presentation, we take issue with the compartmentalisation of these academic roles, and argue for the importance of teaching and research that engages with communities and their formations and interactions at universities. The title of our presentation is informed by a recently published collection of articles, which we co-edited, on ways of conceptualising and doing transformation in higher education. The authors of these articles comprised established and emerging scholars and researchers from nine different South African universities who were engaged in participatory forms of research and teaching with students (Cammarota & Fine, 2008). In this presentation, we draw on some of these articles to make a case for reconfiguring research and teaching at universities as potential transformative practices, which:

1. shift the focus of transformation from a managerial concern to one that is informed by the everyday experiences of students from diverse backgrounds. This may promote critical engagement and shared understandings in common contact zones (Ahmed, 2004).
2. engage with universities as sites of critical sociological and psychosocial research.
3. provide access and insights into the complex worlds of students as they navigate these in their everyday social lives.
4. cross the boundaries between teaching and research by engaging with students as knowledge producers.
5. criticise popular ways of thinking about race, gender, class, sexuality, disability and age as singular and natural markers of difference and diversity.
6. engage these as verbs rather than adjectives, and raise questions about whether and how these are performed.
7. explore how diversity is imagined and lived in particular contexts on and off campus.

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Title: Uncovering Factors that Influence Lecturers to Implement a Blended Approach

Contribution type: Research

Contribution format: Presentation

Author(s): Brits, K; Archer, E; Strydom, S

Keywords: Blended learning, technology-enhanced learning

Abstract:

Information and communication technologies (ICTs) is an emerging development in education globally (Frenk et al., 2010). The trend is more and more to integrate blended learning approaches in higher education institutions and to keep the mode of learning relevant to millennials. Medical curricula are often very full with not enough time to cover the content that is required. Literature suggests that blended learning could be an effective method of instruction that can increase face-to-face time for higher-order learning activities. However, it seems as if lecturers are not convinced of the benefits of using technology in their teaching. Technology is often only used for low-level tasks like word-processing and internet researches instead of using it for the full benefits it can offer in teaching and learning. This raises the question: What are the various factors that influence MBChB lecturers at Stellenbosch University (SU) in terms of the integration of blended learning in their teaching?

The Technology Acceptance Model (TAM) (Davis, 1989) was investigated for its technology-oriented nature to determine lecturers' attitudes towards technology. The Self-determination Theory (SDT) and Integrative Behavioural Model (Fishbein, 2000) were explored to investigate and understand the individual's psychological processes, including variables that could explain lecturers' behaviour in adopting learning technologies. To understand the behaviour of individuals and their meaning-making, the study took on a qualitative exploratory research design. Semi-structured, individual, interviews were conducted and analysed using a thematic analysis.

The MBChB programme was selected for this study as the programme is undergoing a curriculum renewal process and findings could give insight into how to optimise the use of blended learning. The study population included the 10 module chairpersons that teach in the formal MBChB programme in the Early Clinical Rotations, which includes both theory and clinical modules.

Preliminary results indicate that although the lecturers are positive about using technology in their teaching, they lack confidence when problems arise. Other emerging themes indicate that lecturers will use technology if it is useful in their context. Findings can assist other faculties in optimising the use of blended learning with the assistance of faculty development and further research.

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Title: University Experiences of Students with Specific Learning Disabilities (SLD)

Contribution type: Research

Contribution format: Presentation

Author(s): Dreyer, L

Keywords: Scholarly leadership, inclusive education, specific learning disabilities, transformation, social justice, student experiences

Abstract:

Creating a democratic society in which social structures promote unity in diversity in pursuit of transformation in South Africa is inextricably linked to the debate on inclusive education. Although operational guidelines for the implementation of inclusion and transformation of higher education (HE) are available (Department of Education, 1997), it seems if educational institutions still struggle to concretise legislation in educational transformation.

One of the most fundamental concerns in education today is the intensive effort to offer equal opportunities and access for all. Internationally several policy shaping documents and declarations transpired with the central theme of inclusion and participation as essential to human dignity and exercising of human rights (Dreyer, 2017).

Stellenbosch University prides itself in being an inclusive HE institution (Stellenbosch University, 2018). Scholarly leadership in the field of inclusive education requires academics to be cognisant and reflective of the implications of policy implementation (Biggs, 2012). This small-scale research project investigated how students with specific learning disabilities (SLD) experience their classrooms from a human rights and social justice perspective.

First- and second-year education students with SLD were purposefully selected to participate in this project. An e-mail was sent to all the first- and second-year education students inviting them to indicate their willingness voluntarily to participate in this research. Informed consent was explained to those who indicated YES. Ethical clearance was obtained before commencing with this interpretive, qualitative research project.

Data were collected through an online background survey. At the end of the survey, participants were asked if they would be willing to be interviewed. Participants who voluntarily engaged in a semi-structured interview provided a deeper insight into the experiences of undergraduate students with SLD studying at the University.

The anticipated impact of this research is that the needs of students with SLD will be embraced as a human right by lecturers in the Faculty of Education. Furthermore, that the curriculum will be designed and delivered to address the needs of all students. This should provide positive impetus for scholarly leadership at higher education institutions (HEIs).

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Title: Using SUNLearn Gamification Elements in a Virtual Learning Environment

Contribution type: Innovation

Contribution format: Presentation

Author(s): Pretorius, A

Keywords: Gamification, affective, satisfaction

Abstract:

Playing games is fun – for most people. This is evident from the time that is spent in online multiplayer environments, sports and other recreational activities. The motivation for people engaging in these activities can be harnessed to increase their effective participation in learning. One can tap into that kind of engagement through gamification – applying game elements to non-game environments to encourage higher participation and motivation. Gamification consists of various elements such as rewards, challenges, badges, experience points, and play activities that are integrated in the course.

According to Kapp (2012), gamification is “using game-based mechanics, aesthetics and game thinking to engage people, motivate action, promote learning, and solve problems”. Games have some distinctive features that play a key role in gamification (Kiryakova, 2014), for instance, the students become the game participants; outcomes are the key achievement reached by the participants; experience is measurable through a points system; an achievement level is reached as a reward through increased experience; visible rewards like badges are crucial for motivation; and ranking of users according to their achievements encourages increased effort.

In this presentation, I will explore the role of gamification in online courses and demonstrate three applications of gamification in current and past courses. I will also explore the possible effect of these activities on student responses to affective questions about gamification. I will discuss the process to design the gamification elements and the considerations for the advancement and points system. The importance of student engagement through an extended rewards system in the Faculty will also be demonstrated.

SUNLearn (Moodle) provides various gamification plugins that requires integration into courses to improve student engagement. However, this system needs to be carefully designed and implemented prevent it from becoming a distraction to learners or to detract from the course quality. Three different cases will be demonstrated using experience points and badges in SUNLearn. Additionally, I will discuss the students’ responses to these elements and future expansion of gamification in these courses.

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Title: Using the Semantic Wave to Develop Interdisciplinary Engineering Teaching Outcomes

Contribution type: Innovation

Contribution format: Poster

Author(s): van Rensburg, E; Wolff, K

Keywords: Engineering curriculum, cumulative learning, interdisciplinary research

Abstract:

Chemical engineering is by default a versatile profession, given the range of fields where it finds application. Teaching such diversity to the engineer is another matter altogether. With much emphasis on the bio-based economy and the quest for sustainability, bioprocess engineering is rapidly emerging as a cutting-edge, multifaceted discipline of the future. Whereas interest in this fascinating field is rapidly growing among engineering students, the harsh reality is that key knowledge of principles and concepts of biology, which underlies most bio-based technologies, is frequently lacking. These concepts, therefore, must be taught to the student in a concise and relatable manner to ensure that fundamental biological principles are pulled through to bring about a deeper understanding of mathematical descriptions of biocatalyst and bioprocess behaviour. The aim of this study is to bridge the gap between biology and engineering to allow the bioprocess engineer to not only design and operate processes to maximise process performance, but to also evaluate the underlying factors giving rise to process behaviour. The key objective is further to develop an existing bioprocessing module by constructively aligning two disciplines to facilitate integrated thinking around bioprocessing using 'Semantics', i.e. the Legitimation Code Theory (LCT) dimension of Semantics (Maton, 2014). An analogous approach was followed by Kelly-Laubscher and Luckett (2016) who described Semantics as bridging secondary and tertiary learning.

An existing final-year chemical engineering module in bioprocessing is critically evaluated using with the purpose of employing "Semantic Wave" methodology to scaffolded learning, thereby entrenching integrated learning over time using Bloom's Taxonomy. The key point of departure was a detailed analysis of curricular, pedagogical and module framework materials using Semantics to identify key gaps that hampered constructive alignment. Two key areas for improvement were identified, namely (i) using a case-study approach to bridge the gap between biological theory and engineering principles, and (ii) deviating from business as usual by including storytelling as a method of knowledge assessment in addition to solving mathematical problems. This study demonstrates the value of Semantics when approaching the teaching of a multidisciplinary subject, which would be of value to an increasingly integrated and multi-disciplinary technology age.

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Title: War and Other Stories: Talking Decolonisation in Science

Contribution type: Research

Contribution format: Presentation

Author(s): Adendorff, H; Blackie, M

Keywords: Decolonisation, care, collaboration, science

Abstract:

The student movements of 2015 to 2016 called for urgent attention to the decolonisation project in South African universities. Unfortunately, the conversations that ensued were often not constructive. In a previous study, we have shown that the breakdown can, at least in part, be attributed to a code clash between the knowledge practices in science and those in the fields from which the decolonisation calls are originating. Similar code clashes in other contexts have been shown to present themselves as “war stories” (Winberg et al., 2018). In a recent talk at Stellenbosch University, Fazal Rizvi warned against the generalised “us/them” binaries often found in such conversations. Arguing for a decolonisation narrative that “recognises the inevitability of encounters across diverse cultural and epistemic traditions”, he suggests that we focus on identifying the conditions required for such encounters to be productive.

In this paper, we will look at seven productive decolonisation conversations in science contexts. Our aim will be to try to understand why these conversations did not emerge as “war stories”. Using the LCT concept of Insights, the knowledge practices in these science-based conversations will be compared with the general decolonisation conversation in the media. With its interest in how knowledge practices position themselves in terms of the problems and approaches they legitimise, Insights offer a valuable perspective on the factors at play in these conversations.

We will show that whilst both sets of conversations started with a focus on people, rather than a problem or an approach, the way in which they did this, and their trajectories thereafter, differed substantially. The seven science conversations all included specific elements of “respectful collaboration”, i.e. “an understanding of one another’s areas and fields”, “negotiation around ‘boundary objects’”, “establishing a reduced common language” and “finding common ground” (Winberg et al., 2018).

The findings of our study suggest that “critical” and difficult conversations such as the decolonisation conversations requires a “care-full” (Herman et al., 2016) environment and “respectful collaboration” (Winberg et al., 2018). We believe that this paper will make a valuable contribution to how we conceptualise and facilitate possibly emotive “critical” conversations, such as the decolonisation conversation in science.

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Title: What's the Story Behind the Development of Africa's First Rural Clinical School?

Contribution type: Research

Contribution format: Presentation

Author(s): Couper, I; Muller, J

Keywords: Distributed training, Rural Clinical School, clinical training, community engagement, development

Abstract:

Background, rationale, purpose:

In reflecting on the centenary of Stellenbosch University, it is important also to look back on some of the achievements of the Faculty of Medicine and Health Sciences (FMHS). In response to the FMHS vision of a university-wide rural platform and a sustainable rural development project, the first Centre for Rural Health (CRH) in Africa, Ukwanda was established in 2002. The development of South Africa's first rural clinical school (RCS), a model pioneered in Australia, was seen to be a significant component of this and was supported by the HOPE project. In 2011, the RCS began clinical training for health professional students in the Cape Winelands and Overberg regions, with the doors to the Worcester campus being opened in 2012 to facilitate peri-urban experiential learning at Stellenbosch University. As of 2018, 722 final-year health science students had experienced the unique RCS environment.

Research question: What can we learn from the development of the Worcester RCS?

Methods: An explorative qualitative inquiry into the history of Ukwanda and the development of the RCS, spanning 17 years, was undertaken in 2017. Individual and focus group interviews were held with faculty role players involved in the development of the RCS. Participants were identified using network analysis and represented faculty management, academic programmes and student coordinators. Inductive analysis was conducted using Atlas.ti to identify themes, particularly in terms of lessons for future development.

Implications: Understanding the value and type of relationships, engagement, risks and reflection may assist with the expansion of the distributed training platform. Challenges and successes identified have informed the process of establishing a new training site in Upington, ongoing organisational development of the CRH, and further research initiatives in Ukwanda.

Significance: The RCS was successfully established in 2011. However, understanding the facilitators and barriers in its development will contribute to future growth and sustainability.

Results and conclusion: Major efforts, time and resources were committed by the Faculty to developing the RCS, which involved extended engagement with multiple internal and external partners and stakeholders. A complex array of physical, academic and political barriers and facilitators will be presented.

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