Flexible Futures 2020

VIRTUAL HIGHER EDUCATION INNOVATION CONFERENCE
University of Pretoria

Teaching innovation in Higher Education: COVID-19 and beyond

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ABSTRACTS

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PLENARY SESSIONS:

KEYNOTE ADDRESS: DR TONY BATES
Why get on the bus to come to campus? Maximising the benefits of hybrid learning.

When students can study both online and face-to-face, how do we maximise the benefits of both? What can be best done online and what face-to-face? How do we decide? The presentation will offer some guidelines for such decision-making, focusing particularly on using hybrid learning to develop the knowledge and skills needed in a digital age.

Tony Bates is President and CEO of Tony Bates Associates Ltd, a private company specializing in consultancy and training in the planning and management of e-learning and distance education.
He is also Distinguished Visiting Professor in the G. Raymond Chang School of Continuing Education, Ryerson University, Toronto and a Research Associate at Contact North, Ontario.

JOINT PRESENTATION BY BLACKBOARD AND AMAZON WEB SERVICES:
Turning a crisis into an opportunity

With online programs playing a critical role in academic continuity, Universities need tools and resources that supports the learning needs of current students in these changing times caused by COVID-19. Also, there must be a way to measure the successful implementation of our online plans so that we can continually improve and grow. This session will highlight the successful strategies implemented by institutions globally, but also locally at the University of Pretoria. We will review how tools like Blackboard Collaborate which have had to massively scale on the AWS cloud to help instructors to quickly transition to fully online education and unpack some of the available data on the impact of these measures.

CENGAGE: Chad Bonney
How COVID-19 is accelerating megatrends in educational publishing

Cengage will look at macro environment factors, including what we know about the impact of Covid-19, that is changing teaching and learning in higher education, and how students' needs and the way they study is evolving. The session will take an overview of the megatrends in education resulting from those factors and what this means for the provision of e-learning. There is also emphasis on Cengage's continued support for higher education institutions in South Africa during the pandemic as more instructors look to deliver a blended learning solution or teach fully online.

PARALLEL SESSIONS:

ABDULLAHI K, Akuma FV, Callaghan R
The Flipped Instructional Strategy in Higher Education: Literature on Learning Opportunities and Challenges

The COVID-19 pandemic has not only tampered with our social interaction and health but has also seriously affected the way we teach and learn. In relation to the educational effects of the pandemic, and with the advent of technology and internet, the use of the flipped classroom instructional strategy has become increasingly popular among educators. It is a 180-degree shift in traditional strategy in instructional delivery. Flipped instructional strategy involves moving direct instruction from the group learning space to the individual learning space, and the classroom time is metamorphosed into a dynamic, interactive learning environment where the teacher serves as a guide to students as they apply concepts and actively engage in the subject matter. Despite the importance of this mode of teaching, evidence about the learning opportunities and challenges faced by the learners in flipped classroom is widely scattered in the literature. Thus, research is needed to identify from the literature opportunities associated with flipped instruction and challenges faced by the learner. The purpose of this research is to review literature on the opportunities presented and challenges faced by higher education level students when flipped instructions. This narrative systematic literature review will synthesises literature published between the year 2010 and 2020, focused on the flipped classroom model in Higher education contexts, and indexed in 5 international databases. Articles, book chapters, dissertations and conference papers would be included for review, and the results will be discussed against a bioecological model of student engagement. The earlier results indicate that some of the opportunities associated with flipped instruction include: student control over the pace of the learning, students attaining a deeper understanding of the concepts, increased learning efficiency of class time and better collaboration with peers. Some of the challenges presented include: difficulty focusing on videos watched outside of class, the length and pace of videos are a challenge for students in some flipped classrooms. By gathering such learning challenges and opportunities relating to the flipped instructional strategy in higher education, this research will be of service to usually time-starved lecturers who nevertheless need to be better aware of this information in order to enhance their implementation of the strategy as they provide their students better support. In this way, this research will contribute in cushioning the educational effects of the pandemic in the context of higher education learning.

ADEBESIN F, Mennega N, Botha A

Leveraging low-cost technology to Support Teaching and Learning during COVID-19 Lockdowns

This abstract is an output from the SoTL grant received for 2020. Ethical clearance was obtained for the research

The first incidence of COVID-19 was reported in Wuhan, China in December 2019 and as of June 2020, about 9 million confirmed cases have been reported worldwide. South Africa reported its first case on 5th of March,2020, and the country passed the 100 000 mark by the 23rd of June. Governments across the globe instituted national lockdowns to curb the spread of the virus, with consequent impacts on several aspects of our lives, including teaching and learning.

Several higher education institutions across the globe resorted to online teaching to enable the continuation of teaching and learning. For higher education institutions that have previously embraced the flipped classroom approach, the switch to online teaching was relatively easier. Flipped classroom is an educational approach where face-to-face instructions are blended with learning activities outside of the classroom through the use of technological resources. One of the technologies that could be used to support the flipped classroom is pre-recorded videos. A pre-recorded video has the benefit of being available to students anytime, anywhere outside of the classroom.

The number of students registered on INF264 exceeds 900 and almost all of these students have a limited information technology (IT) background. Prior to the national lockdown, 12 practical demonstration sessions per week were presented in the computer laboratories on campus. As such, the continuation of online teaching and learning has to mirror the physical practical demonstrations in the laboratories. Following the national lockdown, students had to return to their home environment where internet connectivity is limited for many.

In this presentation, we report on our experience with the use of custom-designed videos that were created from screen recordings using Microsoft PowerPoint to support online teaching.

The unique context of the module dictates that any meaningful use of pre-recorded videos should take cognizance of the practical nature of the module. Consideration should also be given to the divergent circumstances of our students who have had to leave the campus and their residences. Practical demonstrations of advanced Excel functions were carried out as we would in the physical laboratory environments. The demonstrations were captured using Microsoft PowerPoint screen recording functionality, which also incorporated audio recordings. This enabled us to speak through each step of the practical demonstrations. The recordings were sub-divided into smaller logical sections to ensure that the resulting video files were not too large while at the same time not compromising the logical flow of each section. The screen recordings were subsequently converted to mp4 video files before they were uploaded unto ClickUP for students. A total of 19 screen recordings were created to support online learning. The responsibility for creating the videos were shared between the module lecturers and teaching assistants.

We evaluated the impact of our interventions using the results of two surveys, (i) the *student feedback on teaching pilot study* and (ii) the *student feedback on online teaching*. Preliminary results showed that the online videos supported students' understanding and application of the core concepts of each unit in INF264.

ANTONIDES A, Maritz R

On B-Com-ing the future: Transitioning to a sustainable future of work for business management education

As formal teaching and training grow in extent, there is the danger of creating an undesirable split between the experience gained in more direct associations and what is acquired in school. This danger was never greater than at the present time, on account of the rapid growth in the last few centuries of knowledge and technical modes of skill. John Dewye, 1916 (as quoted by Gallagher 2020:5)

The contributory story Higher Education will tell in ten years' time will be determined by a number of dynamics currently shaping the future of work (FoW) narrative. Known, hypothesised and unknown capabilities that will silhouette and remodel the 2030 workforce are packaged in popular nuances like 4IR, disruptive innovation and implicit talent pipelines. HE is currently deluged with various trendy "top 10 skills lists" that assumingly should instantaneously inform and model qualifications, curricula and even modes of delivery, preparing for future workplace competencies.

Very little substantial confab and insightful design thinking occur in strategising for the future of work within the business/commerce offerings in HE. Will our students be equipped with employability and self-employability competencies in 2030 via business managerial qualifications? Are the current formal offerings aligned with future workplace trends and dynamics? Hancock, Lazaroff-Puck, and Rutherford (2019) urge for a practical approach where the FoW should be driven by organisational lead, developing internal capabilities before acquiring the new. Contemporary discourses and debates focus on efficiency ratios in business managerial processes (Robotic Process Automation versus human productivity), in essence less human capital. What is the role of HE then, within the context of business managerial offerings? The modern world of business managerial work is facing new realities with rapidly changing complexities in terms of the nature and dynamics of work (especially influenced by the 4IR and the interconnected economy). Economies are becoming increasingly complex and globalised, and new technologies and innovative business models are bringing about unforeseeable disruptions to the world of work. This has never been more pressing and is illustrated by the imminent changes in our business environment stemming from the global Covid19 pandemic.

Complexity creates opportunity. We propose an integrated and innovative conceptual offering that endeavours to transition as a sustainable commerce degree focusing on and shaping future business managerial competencies.

ASMAIL FM, Eccles R, BRESSER P

Adapting the implementation of community engagement projects amid COVID-19

Rationale: For the past five years, third year undergraduate allied health professions students at the University of Pretoria were required to conduct an interprofessional project with a community, based on identified community needs (Maree et al., 2017). The goal of the project was to uplift and empower the community by initiating a sustainable project. Students were required to demonstrate interprofessional healthcare leadership and community development principles. This year, 2020, due to the COVID-19 pandemic, it was not possible for interprofessional student groups to implement their projects, which were already planned with the communities prior to lockdown.

Process: The project was adapted, and students were required to write a report based on the previously planned interprofessional community project, as well as propose ideas to continue to support communities through online approaches. This included how they would adapt their project for challenging circumstances (e.g. COVID-19) using online approaches including, but not limited to, online meeting platforms, WhatsApp and email.

Outcomes: The amended projects will encourage innovative thinking in the face of real challenges, inform future community engagement projects and result in interprofessional education between students. Community Engagement at the university acknowledged the need to implement more online community engagement projects. Once project submissions are evaluated, proposed ideas will be shared with Community Engagement for long-term planning.

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BORNMAN DAJ

Applying design thinking principles in re-aligning the method for large group undergraduate business management teaching and learning

From the outset of the year 2020, the Coronavirus 2019 (COVID-19) pandemic has created significant challenges globally and has had an irreversible impact on the higher education community. Globally, the majority of higher education institutions have had to jump in head first to convert current curriculum to an online environment (in many cases on an untested and unprecedented scale), whilst being mindful of technology that could be accessible by all stakeholders involved, especially students (Houlden & Veletsianos, 2020). This gave rise to the **question** of *whether the higher education sector was prepared (despite the pandemic) to continuously adapt to the developing digital era of teaching and learning*. As students in the current academic sphere (i.e. Generation Y /'Millennials' and Generation Z /'Screen-agers') are seen as being connected digitally 24 hours a day, seven day a week, it has become evident that higher educational institutions have had to adapt, improve and change their traditional teaching and learning methods. Technology systems (i.e. the use of mobile devices and various online platforms) have made an impact on these students and therefore traditional classroom lecturing had to be adapted in order to fully assist students to understand difficult theory, concepts and application. This is even more evident in emerging markets where limited resources exist and the impact of interventions needs to be cost effective on a much larger scale. Without having time to take this into account the migration from traditional to hybrid/blended learning to a fully virtual and online delivery strategy had to occur almost overnight and for university staff, the workload for preparing online education has been astounding, and the shift is not easy (Wang, 2019). This generated a **new question** *in terms of the problems surrounding what could be done to ensure that teaching and learning still takes place, and which methods need to be employed to ensure student- and university success (i.e. having good pass rates and remaining relevant to the current students).* This question was informed by a combination of *learning theories* focusing on cognisance and humanism such as that of Benjamin Bloom (i.e. Bloom's Taxonomy) and Carl Rogers (i.e. Roger's Humanist Theory). Furthermore, when attempting to solve problems which are stakeholders-centered, focuses on diversity (in terms of audience and environment) and experimental, the answer could possibly be implementing design thinking principles. The design thinking process (i.e. empathising, defining, ideating, prototyping and testing) combined with its techniques can be adapted not just in an organisational context, but also in academia, *assisting lecturers and students to solve problems in diverse environments* (Antonites, 2020; Cutumisu, Schwartz & Lou, 2020).

Therefore, the **purpose of this work in progress paper** is *to illustrate how design thinking principles were utilised in restructuring a large undergraduate business management module toward effective execution of technology adoption, teaching and learning, student engagement and assessment in virtual classrooms during the South African Lockdown due to COVID-19* (Shenoy, Mahendra & Vijay, 2020). The module is highly applied and entrepreneurial in nature and pose specific challenges in both online delivery and assessment. Additionally, this work in progress paper aims *to detect what possible future methods should be implemented to assist students and lecturers on their teaching and learning journey, in order to achieve academic success, potential scalability and sustainability*.

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BOSMAN I, Smith AE
Tools for engagement in online teaching contact sessions

During the COVID-19 pandemic and the resulting move to remote teaching and learning, two modules in the BIS Multimedia degree made use of two online tools to make online contact sessions more engaging. For IMY 211 (Multimedia and Hypermedia Theory) the Whiteboard tool, which allows anyone to draw and type text on a shared space in Blackboard Collaborate was initially used as a placeholder before some classes. However, it was found that students made use of the opportunity to draw, write messages, and even play games like Tic Tac Toe and Dots and Boxes. In IMY 110 (Markup Languages), Multimeter was used as an interactive polling tool as a means of keeping students engaged and to obtain their feedback in an interactive way. This presentation will discuss the implementation, advantages, and disadvantages of the Whiteboard and Mentimeter tools in the context of remote contact sessions. Both tools present the opportunity to keep students engaged in unique ways by allowing them to interact with the content or with each other during these online contact sessions.

CLOETE M, Coetzee SA, Schmulian A

The effect of a digital student loyalty programme on student motivation, engagement and academic performance

Higher education institutions, internationally, are challenged by poor student engagement and a lack of motivation while intrinsically and extrinsically motivated students have been recognized as a crucial element to the efficiency of such institutions. Many undergraduate students experience difficulty in self-regulating their learning and find it challenging to identify and follow a strategic, personalized learning path. Management and instructors need to address these challenges as they are amplified by large, diverse groups of students.

This project explores the adoption of a student loyalty programme, designed to influence student behavior, engagement and motivation, through positive reinforcement. In particular, a digital student loyalty programme was developed for a large diverse first year student group, to encourage each student to follow a strategic, personalized learning path for a specific course, to alleviate the strain on instructors to individually engage with students, and to address students' lack of self-regulatedness in a higher education context with the aid of technology.

An increasingly popular technological trend in education is gamification, which uses game elements to promote desired behaviours and drive learning outcomes and to enhance students' engagement, motivation and academic performance. Gamification allows students to receive instant feedback about their progress in a course and provides acknowledgment if the student accomplishes a task. When a student reaches a specific goal, there are rewards, such as rankings, badges and medals, which are usually given through a score system to the student. Gamification, therefore, has shown much potential in motivating, engaging, and directing students along a strategic learning path for a specific course. However, developing self-regulated learning (SRL), particularly for lifelong learning, requires more than engagement, motivation and direction along a strategic learning path for a specific course. In addition, SRL requires students to develop good learning habits in respect of self-management and self-monitoring that may assist their lifelong learning beyond a single course.

While habit formation has yet to be explored in gamification in an education context, insights into habit formation are evident in the gamification adopted to influence customer behaviours through customer loyalty programmes (CLP). CLP's attempt to influence and reinforce customer behaviours through inter alia, forming habits, which results in beneficial memory processes. Habits refer to an individual's memory-based tendency to execute a specific behaviour, given familiarity from past experiences, in similar contexts. Habits allow individuals to perform well-learned behaviours efficiently with nominal attentiveness and enable the concurrent performance of other behaviours. Due to the unforced nature of habit selection, people find it difficult to suppress habitual behaviours or participate in alternative behaviours, due to the increased cognitive efforts necessary to intentionally choose a less familiar path or process of behaviour. Therefore, to encourage the forming of good learning 'habits' and develop students' SRL skills, this paper provides a process description of the development and adoption of a digital student loyalty programme, informed by customer loyalty programmes that reinforce customer behaviours through the forming of habits.

Qualitative evidence of student feedback on their lived experience with the programme and quantitative evidence of the differences in academic performance are included to investigate if the use of habit based customer loyalty programme design features in a student loyalty programme can influence students' motivation to self-regulate their engagement during the learning process, and ultimately improve their academic performance.

COMBRINK HMVE, Marivate V
Agent Based Artificial Intelligence for Timeous Student Support Strategies

Higher Education has leveraged significantly through the aid of technology within the classroom, be it may virtual or face-to-face. So much so that blended learning is the norm in various aspects of higher education, with emerging pedagogies fundamentally implementing digital educational technologies within its framework. Digital educational technologies, like web-based applications and university learning management systems are widely used within higher education. However, these aforementioned educational technologies are not the only types of digital tools available that can be used within the classroom or curriculum. This creates an opportunity for the use of lesser known technologies to enter the teaching and learning space within higher education. Data science within higher education has the potential to become a pivotal part of 21st century instruction because the use of it can practically frame a student's learning around a particular concept. In this context, the incorporation of big data creates a space for innovative data science solutions and applications, unique to higher education. These technologies have the potential to promote sequential learning, equitable education and provide timeous student support strategies from a particular subject matter. Within the early to mid-phases of a student's academic year, there are quantifiable indicators and scenarios that can be used to identify challenges in the students learning. More often than not, these indicators are used to identify students who are at risk of performing poorly, but do not take context like distress and other factors within their academic year into consideration. The timeous support refers to an intervention that changes the course or trajectory of the student's learning outcome. There are multiple potential solutions or applications that may be created from this specific problem. One of these applications refers to agent-based learning. Agent based learning, or reinforcement learning, is a concept used in artificial intelligence, robotics and machine learning where a simulated representative or agent, navigates itself through a virtual space by performing specific actions centred on goals and rewards. This particular tool is widely used in various real-world applications, however, not utilised within the higher education space. Part of the reasons for this are that both the environment and policies used within this application are difficult to quantify. This is because these environments rely heavily on the application of education theory within the context of data science. This is challenging and complex, but creates a very dynamic, innovative and unique opportunity where the marriage of higher education and data science gives rise to a new and pioneering field with endless potential and opportunities. Within this paper, the conceptualisation, design, and logic of this type of application specific to the provision of timeous student support strategies will be shared. In addition to this, challenges and practitioner notes about the development of this will be touched on. The specific methodologies, theories and evaluations for this type of application will be referred to within the presentation.

DAVIS NC, Rautenbach V

Developing student generated digital media as an assessment tool for geoscience

The uncertainty of a COVID-19 induced South African landscape prompted many of us to reflect and adapt our teaching and learning approaches. The introduction of a new module within this context heightened the sense of urgency to critically engage with online learning outcomes, capacities and assessment tools. Now more than ever, we realise that in our capacity as science educators we have a social responsibility to ensure that our graduates are not just equipped with subject relevant knowledge, but they should also be able to demonstrate effective learning and communication skills in a digital space. This scenario thus provided us with an opportunity to actively explore online teaching methodologies that can promote deeper learning and the work readiness of students who are expected to function in increasingly digitized work environments. In this regard, student generated digital media (SGDM) as an assessment tool has been identified as a valuable approach for the assessment of learning of students within this context. Various studies have already reported higher levels of student engagement and improved learning performance where these teaching strategies have been applied. Despite reports of successes with the approach, the need for a more rigorous methodology to assess teaching and learning outcomes where SGDM's are used; remains evident. SGDM as an assessment tool is already adopted in the Department of Geography, Geoinformatics and Meteorology (GGM) to a limited extent, but an exact methodology with adequate student support and training in creating these digital artifacts are not yet fully developed. The nature of student support that would be required within the online learning context, the suitability of marking rubrics and scalability of the approach in diverse online contexts are therefore identified as key variables requiring more rigorous engagement. The research conducted for this paper were therefore positioned to engage with these conceptual questions as we attempt to concretely explore linkages between learner experiences and learning outcomes through the introduction of digitised assessment opportunities. The new module which will require students to produce digital media (e.g. podcasts, short film or blogs) as part of their assessment will be used as case study to assess the depth/level of students learning and critical engagement with the content. Moreover, the assessment methodologies (e.g. marking rubric and instructional design) will be critically reviewed against a criteria weighing its pedagogical, instructional and curricular relevance. Finally, findings from the analysis conducted during this inquiry would be used to develop a methodology for using student generated digital media (SGDM) as an assessment tool for a geoscience module in the South African context. In this paper, some of the practical and theoretical considerations of introducing SDGM as an assessment tool in the COVID-induced South African learning context will therefore be detailed and preliminary findings from the implementation of the approach in the new human geography module is presented

DE WAAL A, Holm D

Bayesian networks for knowledge discovery and curriculum optimisation in academic programmes

The Handbook of Educational Data Mining [1] serves as a comprehensive introduction into the practice of EDM and is a useful reference for EDM practitioners. It explores all the application fields within EDM and describes a large number of real-world examples that make use of a variety of different methods and techniques.

The most popular use of Bayesian networks (BNs) within educational research is in the sub-field of student modelling, such as Bayesian knowledge tracing models The random variables that are represented by BNs in student modelling applications are various domain specific measures of student knowledge in addition to data generated by students interacting with the Intelligent Tutoring System [2].

The purpose of this study was to develop data-driven decision support models relating to higher education. This was done by applying Bayesian networks as an artificial intelligence (AI) method to student throughput data in order to discover relationships between modules in academic programmes. In this study, we developed a Bayesian network which describes the critical pathways to success in an academic programmes. We furthermore show that it can be used to optimise existing curricula in academic programmes and understand the impact of interventions such as summer schools on student success. It also identifies weaknesses such as bottlenecks within the curriculum and deficiencies in prior exposure or schooling of students in order to improve student success.

We applied Bayesian networks on two academic programmes: BEng and BVSc. These two programmes are vastly different in structure as BEng provides more curriculum options to students and for BVSc, students need to adhere to a strict set of modules for accreditation purposes.

The overall impact of this study is on academic programme decision support such as curriculum optimization and high impact intervention strategies.

References:

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[2] Olivier Pourret, Patrick Na¨ım, and Bruce Marcot. Bayesian networks: a practical guide to applications, volume 73. John Wiley & Sons, 2008.

DU PLESSIS WP
Lessons Learnt from Online Lecturing

A number of lessons learnt while creating video lectures during the recent lockdown are summarised below, and additional information will be provided at the conference.

Specific approaches to recording lectures will vary depending on the lecturer and the hardware and software available. However, it is noted that screen-recording software such as OBS Studio is extremely useful and surprisingly simple to use.

Once a video has been recorded, the question of how to share it arises. Video files are normally large, with a sample 52-minute lecture having a file size of 73.4 MB. While free data was arranged for students, posting three or four files of this size each week would strain the relationship with data providers and providers of learning management systems, and would require time-consuming downloads. Uploading videos to YouTube as "Unlisted" videos means that only people with the links can access the videos. YouTube has vast facilities for storing videos, so this addresses the problem of storage space. Additionally, YouTube videos are available in a number of different quality options, with lower-quality options requiring significantly less data. Finally, YouTube allows videos to be downloaded, so students only need to download each video once.

However, even low-quality YouTube videos are large and YouTube data is not free, so additional file-size reduction is required. Two-stage video encoding produces smaller files for a given quality. This two-stage encoding is time-consuming because the video must be processed twice, but the benefits achieved are worth the additional time. More importantly, the audio of a lecture video can be a significant component of the overall file size (two thirds of the 73.4 MB file mentioned previously), so the compression of the audio data can have a dramatic effect on the file size.

Ultimately, the success or failure of online lecturing is determined by what the students think. Student feedback included a number of interesting comments. A number of students commented on how similar the recorded lectures were to lectures before lockdown, which eased the transition, while others noted that pre-recorded lectures allowed them to watch the lectures a time of their choosing. A number of students mentioned that being able to pause a lecture and to repeat portions of it helped them to understand the material better. At the other extreme, one student noted that he watched the lectures at twice normal speed to save time. The main concern was the lack of interaction, with both the students and the lecturer noting the effects of this.

Examining the data about when lecture videos were accessed is also useful. One interesting observation is that many students only started watching the lectures a few days before the semester test, suggesting that formal evaluations are required to ensure that many students keep up to date. Additionally, the majority of the students accessed the smaller lecture videos on Blackboard Learn rather than the higher-quality videos on YouTube, suggesting that data costs were a significant concern.

DU PLESSIS-DE BEER A

Building pre-service teachers' capacity: A Mentorship Intervention for mentor lecturers

The development and implementation of a mentorship intervention aimed at enhancing pre-service teachers' capacity is described. Pre-service teachers depend on mentors who can guide them not only to acquire professional knowledge and competence in specific subject fields, but also to be equipped with the necessary soft skills to remain flexible and focused on self-development. We argue that mentorship activities are however not always clearly structured, resulting in mentor lecturers focusing on classroom practice rather than nurturing relationships with students or on fulfilling the role of motivator, role model, supporter, and change agent. Final year undergraduate pre-service teachers (n=340) from a higher education institution in South Africa were selected for participation in the first phase of our study (2017) period. The pre-service teachers' mentoring needs and expectations were explored. During the second phase (March 2018), mentor lecturers (n=25) from the same institution shared their perceptions of the responsibilities of mentors. Based on the feedback received, a mentorship intervention was developed and implemented by mentor lecturers during July-September 2018 (third phase), after which the value of the intervention was explored with mentor lecturers and pre-service teachers (fourth phase, September 2018). A participatory reflection and action (PRA) approach was followed and a case study design was utilised. Hudson's five factor model was utilised as theory for this study. Data were generated by means of inductive thematic analysis and documented through PRA-workshops, open-ended questionnaires, observation, field notes, mentorship booklets and posters created by participants. Findings indicate the importance of striking a balance between mentoring activities that focus on the professional identity development of future teachers, and activities that support their self-development on a personal level. More specifically, the findings of our study indicate that mentors can, when implementing a guided intervention based on the needs of pre-service teachers, support both the professional and personal development of future teachers. In terms of their role as professionals – both in and outside the classroom, mentors were able to promote a strong teacher identity among pre-service teachers in terms of them for example becoming expert facilitators of learning, curriculum specialists, lifelong researchers, partners for parents, and classroom managers. In addition, mentors in our study succeeded in supporting prospective teachers with self-development, in areas such as effective time-management, being empathetic towards learners and parents, being innovative in the classroom and believing in their own abilities as teachers. As such we conclude that the semi-structured mentorship intervention we developed and implemented provide a potential way that higher education institutions can support pre-service teachers' professional as well as personal development. A follow-up phase will further explore potential ways in which face-to-face mentoring of pre-service teachers, by means of this newly structured mentoring intervention, can also be adapted to online e-mentoring, especially in the current Covid-19 situation.

DU TOIT MN, Eccles R, Pillay DB, Abdoola S

Implementation of a tele-intervention framework for speech-language therapy service delivery

Introduction: Globally, telepractice has become a successful platform to offer healthcare, including speech-language pathology services. Telepractice is the use of telecommunications technology for remotely rendering speech-language pathology professional services by linking therapists to clients for assessment, intervention, and/or consultation. Tele-intervention specifically refers to treating communication- and swallowing-related conditions via a telepractice approach. Telepractice has been used for over thirty years, but its implementation has increased over the past decade. This is mainly due to advanced technology and an increase in demand for speech-language services. Even though tele-intervention has been available for a long time, delivering services via telepractice is often not introduced during undergraduate training. Tertiary institutions should be among the key constituents involved in telehealth education, training and development. Undergraduate SLP students should be exposed to tele-intervention as a means of remote SLP services before they enter the workforce. The Department of Speech-Language Pathology and Audiology developed a framework that can serve as an approach for SLP undergraduate students and lecturers to deliver tele-intervention services when face-to-face services are not possible.

Method: The speech-language pathology clinics that are offering tele-intervention services include the fluency, voice, neuro-communication and early communication intervention clinics. The lecturers jointly developed a tele-intervention framework based on existing literature. Processes outlined include weekly preparation with the lecturer prior to the intervention session. Students then send an invite for the Google Meet to the client, family and lecturer.

In the session, students evaluate the functional application of strategies covered in the previous sessions to daily life. A new strategy is then introduced, that scaffolds upon previous strategies, and its relevance to the client's identified goals is outlined. The client practices the strategy with the students in the session. Everyone then jointly plans how to apply the strategy meaningfully in specific daily routines. The lecturer is able to provide guidance throughout the session and students receive formal feedback and marks after each session.

Clients are encouraged to send feedback regarding the implementation of the strategy prior to the next tele-intervention session. Students then use this information to plan accordingly. The day before the next session, students send a brief outline and possible demonstration of the concepts to be covered.

Results: Feedback, thus far, has reflected both positive outcomes as well as challenges in implementing tele-intervention services. The tele-intervention framework appears to facilitate increased client management responsibilities from students, functional implementation of therapy approaches and strategies as well as contingent, specific feedback from clients. Lecturers appeared to implement direct teaching initially, but the supervision process has become more collaborative and consultative, leading to enhanced student self-assessment and learning. Challenges have included technology issues, the novelty of the medium, restricted application of intervention strategies and non-attendance of clients.

Tele-intervention offers students a novel means of providing speech and language services to vulnerable populations. This clinical framework appears promising in terms of functional service delivery and for facilitating the growth of clinical skills.

ECCLES R, Asmail FM, Heinze B, Du Toit M
Person-centred communication through video essays

Rationale: Person-centred communication is recognized as the cornerstone to quality healthcare delivery and is associated with positive health outcomes. The current mandate to flatten the curve through social distancing, as a result of COVID-19, raises many challenges and limitations to developing person-centred communication strategies in undergraduate healthcare profession students. In addition to simulated virtual client encounters, video-essays can be used to assist in training students while adhering to social distancing regulations.

Process: In educational settings, the term video-essay is used broadly for lecturer-student generated videos and facilitates transmediation from written-text to digital forms. Undergraduate senior speech-language pathology and audiology students, at the University of Pretoria, were required to record themselves explaining a profession specific concept to a non-speech-language pathologist or audiologist. Considering the nation-wide lockdown, the person had to be someone they were living with. The concepts included, but were not limited to, explaining complex conditions such as auditory neuropathy spectrum disorder or describing language facilitation strategies such as auditory highlighting. Students were required to explain these concepts appropriately while demonstrating counselling techniques. Students then had to demonstrate a contingent intervention activity conducted within an everyday routine.

Outcome: The main objective of the video essay assignment was for students to develop person-centred communication skills through multimodal experiences that allow for expression and creation of self-knowledge.

Results: Students obtained an average of 70.8% (SD ± 8.2) for the video essay assignment. Feedback was analysed using thematic analysis. From the feedback, three main themes were identified namely clinical application, skills obtained, and challenges. Many of the students reported that, during this assessment method, they had the opportunity to develop their clinical skills by applying theoretical concepts and practicing them until they were satisfied with the outcome. Most students found the method of assessment to be challenging as it felt unnatural and rehearsed. All students reported that this video essay assignment helped them to better understand and explain the concepts and strategies they have to convey to clients. After reviewing and reflecting on the video essay, most students indicated how it helped them to improve on the manner in which information is given to the clients. They also felt it provided valuable insight into the accuracy with which they conveyed information and the techniques used during counseling.

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FOURIE M, Betts K
Pivotal Pedagogy

The COVID-19 pandemic has forever changed education worldwide where universities had to swiftly adopt to Emergency Remote Teaching by moving instruction online. In many virtual classrooms, teaching and learning are now taking place in an online modality. The COVID-19 pandemic has disrupted traditional education models. Reimagining the pedagogical approach to online teaching and learning is essential in optimizing student success. It is important to remember that online learning is a mode of delivery, a manner of delivering education to participants, not a particular method of teaching (Bates, 2016). Online learning is further evident of pedagogical strategies for instruction, student engagement, and assessment that are specific to learning in a virtual environment. The secret in a virtual environment is to be able to '*teach*' online and to actively engage students to support the transfer of learning within a course and across real-world contexts. There are however some barriers to online learning of which misconceptions on how learning takes place is most evident. Universal Design for Learning (UDL) is a framework based on scientific research on how the human brain learns that can improve and optimize teaching and learning for all people. In the absence of the application of the UDL framework, especially in an online environment, teachers in many instances assume that the application of technology can 'fix' ineffective pedagogy. In addition, a lack of online human touch, a guided and scaffolded approach to teaching and learning, and the application of pivotal pedagogy, consequently, can hamper successful student learning. As uncertainty looms, pivotal pedagogy is critical to lecturers, instructional designers, and educational technologists in higher education. Pivotal pedagogy is defined as teaching and learning that actively engages students in educational experiences through instruction, active learning, assessment, alternative equivalencies, and feedback building upon theory and practice to support comprehension, application, and transfer of learning seamlessly across learning formats (face-to-face, blended, online) in alignment with student learning outcomes (Betts, 2020). This session will discuss strategies to shift instruction, active learning, assessment, multi-modality feedback, and instructional equivalencies across all face-to-face, blended, and online formats. Best practices for student engagement, transfer of learning, and balancing workload and cognitive load across learning formats will be shared. At the of this session, attendees will be able to: (a) Define alternative equivalencies, (b) Optimize technology to support transfer of learning across real-world contexts; (c) Apply Universal Design for Learning principles to support multiple means of engagement, representation, and action and expression; (d) Apply pivotal pedagogy quickly and seamlessly as needed in the future. The challenge is the pandemic has not abated and the future of teaching and learning is continuing to evolve. However, there is the opportunity to collaboratively and strategically move beyond a "new normal" and to provide dynamic educational opportunities through new models that meet the diverse needs of students worldwide in an evolving future.

GERBER AJ

The distinguishing characteristics of flipped classrooms

With the current global Covid-19 pandemic causing havoc in daily higher academic and teaching routines, more and more residential institutions encourage instructors to transform existing courses to flipped classrooms as part of an online, blended learning strategy. Even though this seems a reasonable transition, several challenges emerged such as a vague concept of exactly what flipped classrooms entails, the lack of instructor influence and learner engagement when students are not in class, a lack of guidelines for transforming an existing course, as well as unique challenges for inclusion of all learners in a digitally divided developing country in Covid-19 lockdown. In order to respond, we embarked on a study to identify the distinguishing characteristics of a flipped classroom to contrast them with traditional teaching in order to understand how to change existing teaching approaches to conform to the true nature of an online flipped classroom. Adopting a systematic literature review we collected 167 publications that specifically addressed flipped classrooms in higher education computing disciplines. We found that the primary distinguishing characteristics of flipped classrooms include the fundamental theoretical departure point that is learner-centric rather than instructor-centric, complete dependence on a transition from passive to active and engaged learners, three distinct types of learning activities that differs in focus from traditional teaching activities, and a change in the primary role of the instructor from a teacher to a facilitator during class sessions. In addition, we identified the core learning theories associated with flipped classrooms and how such theories influence flipped classroom approaches. The value of this study is that the results contribute towards understanding how flipped classrooms differ from traditional teaching approaches. It is therefore a good starting point towards understanding how online flipped classrooms can be designed and implemented to be more effective, as well as how to avoid potential pitfalls in flipped classroom design.

HECHTER J

Online assessment in a first-year mathematics module as part of an extended degree in engineering

The COVID-19 pandemic and the national lockdown resulted in acceleration of the online teaching and learning process in residential South African universities. This paper pertains to online assessment that was included in a first-year mathematics module as part of an extended degree in engineering. The module assessment comprised of 50% continuous assessment and 50% summative assessment, namely two semester tests. The continuous assessment included clickUP assignments, clickUP tests and written assignments. Students were requested to submit an honesty declaration before they could access and submit assessment.

Students were familiar with clickUP assignments since a percentage of their assessment were diagnostic online assignments prior to COVID 19 . Students had a week to complete assignments and were often given more than one opportunity to submit an assignment. The full memorandum was released upon submission of an assignment, therefore, enabling students to learn from their errors after task completion. On average, students were given a week to work on and submit written assignments.

During the online teaching period traditional class tests were replaced with clickUP tests that had to be completed within a specified time limit during online collaborate sessions. The format of these tests was either multiple choice questions in the same format as clickUP assignments, or written tests. Students were requested to do the calculations for multiple-choice questions on paper, and thereafter scan and submit the document online. This practice could allow the lecturers to verify that students' answers correlate with their calculations. The written clickUP tests were completed on paper and submitted online. Students needed additional time for the process of online submission of documents – approximately 10 minutes for a 50 minutes test.

The format of the semester tests was analogue to the continuous assessment since it included an online section with multiple-choice questions (20 marks) and a written section (40 marks). Students were requested to rename their PDF documents, e.g. Section A calculations, name and student number. Again, students needed additional time for submission. The larger the document, the longer it took to upload. If students encountered internet issues they were asked to immediately WhatsApp their documents to the lecturer in order to confirm that the mathematics was completed within the time limit for the test.

Marking of assessment occurred in two ways. Continuous assessment was marked online with a mouse or with an Apple pencil on an iPad. Semester test written sections were downloaded, saved in the Cloud and marked in colour on iPads. The marked tests were emailed back to students in order for them to have the graded tests available when the memorandum discussion took place in the virtual classroom.

The grading of assessment indicated that some students used unfamiliar notations that were not taught to them. Further investigation revealed that some of the notations when evaluating limits and doing integration correlated with methods used by online tools, e.g. Symbolab. This observation could compromise the validity of the test and needs to be investigated further.

HOLLIDAY M, Majola T
The Digital Skills Gap and how the Cloud Degree Addresses this Gap

According to a study conducted by Gartner in 2017, the Cloud is a dynamic growth sector. Gartner estimates this sector will grow to $411B by 2020, and for the third year running. Additionally, LinkedIn identified cloud and distributed computing as the most in-demand skill for employers. However, we can't fill the demand for these jobs. McKinsey has conducted a landmark study around mid-to-high skill job gap. This study shows that time to hire increased by 80% from 2009 to 2015. Additionally, there is a shift toward "higher-skilled, less routine positions requiring judgement and technical skills". To address this challenge, Amazon has created AWS Educate, Amazon's global initiative to accelerate cloud-learning and to prepare for the cloud-enabled jobs of tomorrow. Through AWS Educate institutions, educators, students may apply to receive access to 12 cloud career pathways that include content, knowledge checks, and a final project. Additionally, AWS Promotional Credits to use AWS services in hands-on learning. Lastly, AWS Educate provides a job board with opportunities mapped to the cloud career learning pathways.

Through our customers' experience AWS Educate program has the following impact:

1. Awareness and master of cloud technology
2. Employment and employability
3. Bringing cloud skills and careers to higher education
4. Career objectives and learning plans
5. Entrepreneurial and technological creativity

JANSE VAN RENSBURG CJ, Coetzee SA, Schmulian A

Perceived usefulness and validity of an online social annotation platform in accounting education

Collaborative reading, as a form of collaborative learning, is grounded in the social constructivist theory of learning, which emphasizes that students learn through the process of sharing experiences and building knowledge and understanding through discussion. Pre-class reading of primary theoretical source documents is an integral part of a successful flipped classroom environment, where the transfer of theoretical information is shifted outside the classroom in the form of a pre-class assignment (for example a reading assignment). Online, social annotation platforms (OSAPs) are designed to encourage pre-class reading activity, engagement and conceptual understanding. Student pre-class reading behaviour on OSAPs have been explored and their efficacy demonstrated with regards to the reading of textbooks. An OSAP has, however, not yet been used with technical documents, such as International Financial Reporting Standards. The objective of this study is to analyse student and instructor perspectives of the usefulness of an OSAP as a pre-class reading tool in a financial reporting flipped classroom environment. In addition, the study envisages to independently validate the accuracy of the integrated assessment algorithm of *Perusall*, a popular OSAP. Three instructors on the course will independently perform quality scoring, following the *Perusall* scoring system, on a selection of student annotations. Instructor scores will be compared to the automatically generated scores of the *Perusall* algorithm for purposes of concluding on the validity for its use in a financial reporting class environment. Student and instructor perspectives of the usefulness of *Perusall* will be analysed through a mixed methods approach. A survey approach to collect qualitative and quantitative data relating to the students' experiences of the use of *Perusall* will be followed. Quantitative data will be generated using a scaled Likert-attitude response. Qualitative data will be collected through open ended questions. Further qualitative feedback will be gathered from the course instructors. The quantitative data will be analysed in SPSS Statistics 21. The qualitative data from the survey instrument will be analysed through a content analysis and by identifying themes from the students' experiences using NVivo 12.

JANSE VAN RENSBURG C, Coetzee SA, Schmulian A

The role of authentic assessment in developing digital creativity

This study reports on the use of an authentic assessment, requiring a digital creative output, in an undergraduate competency-based financial reporting course. In particular, this study documents the design and development of the assessment and analyses the students' digital creative outputs and their reflections on developing these outputs. Assessment plays an important role in competency-based education. Competency-based assessment facilitates learning and provides certification of achievement to society, as an indicator of being competent to function independently in the real world. Despite accounting education's transition to competency-based education, it is submitted that assessment in accounting education continues to be characterised by the high stakes summative assessments of professional accounting associations, which are often isolated from the real world. There is an urgent need to change the nature of assessment from purely summative approaches, to competency-based assessments for learning, incorporating authentic assessment tasks. Authentic assessment tasks represent the constructive alignment of teaching, learning, and assessment within the context of the real world and allows students to construct knowledge and develop the competencies necessary in the workplace.

The 21st century workplace is being significantly transformed as a result of the Fourth Industrial Revolution. Individuals without the necessary digital competencies increasingly risk redundancy in the 21st century workplace. Creativity is another of the most needed competencies in the 21st century workplace. At the intersection of digital technology and creativity is the emerging domain of digital creativity. While digital creativity has been explored from the perspective of domains traditionally perceived as more creative, integrating the development of students' digital creativity into an accounting course that is traditionally perceived as being less creative should assist to better prepare these students for the dynamic and fluid 21st century workplace.

The authentic assessment, designed and developed in this study, required the students to collaboratively research The Coca-Cola Company and identify any particular aspects that would be considered relevant to users of the company's financial report and that can be faithfully represented. The students were then required to synthesize and communicate, to potential users of the financial report, the results of their research through a digital creative output. The design and development of the authentic assessment was informed by the eight critical design elements of an authentic assessment proposed by Ashford-Rowe, Herrington & Brown (2014).

The majority of students experienced the development of a digital creative output as positive and agreed that this assessment challenged their own perceptions of financial reporting. The students were primarily challenged by the limited guidance provided in the instructions, with having to work in groups and with overall time constraints. Students acknowledged that this type of assessment is necessary to prepare them for the challenges they will face in their future careers and they enjoyed having to 'think out of the box' and display their creative sides. Exposure to technology in the digital environment were perceived favourably as it was seen as relevant to their future careers. A number of students acknowledged that this assessment made them think about the importance of information presented in the financial report and caused them to link class room theory to the real world.

JORDAAN M, Mennega N

Community partners' experiences of higher education service-learning and community engagement projects in the Faculty of Engineering, Built Environment and IT

A qualitative study was designed to examine the value of community engagement projects to community partners. Community partners from 30 different sites, who work with students enrolled in the compulsory undergraduate course – Community-based Project course (code: JCP) – of the Faculty of Engineering, Built Environment and Information Technology at the University of Pretoria, South Africa, were interviewed regarding the extent of their input in the course and the implementation of their projects.

The community partners share a common interest in the students' education. They have a great deal of expertise to share with students and the University. By working together as peers and building long-term reciprocal relationships, people from the community and the University can be co-teachers and partners in education. The pragmatist representations of community partners can be challenged when they understand their own stakes in service-learning or community engagement projects. This better aids higher education institutes in the continued creation, management and critical evaluation of service-learning and community engagement pedagogies and curricula.

This study describes the service-learning or community engagement experience from the viewpoint of the community partners and reports on the dimensions of value created for community partners. The research outcomes will be used to develop a manual for community partners to assist them in identifying suitable projects, supporting students and ultimately assessing students fairly. The manual will include successes and challenges identified from the various community engagement experiences, and in this way assist the community partner to become informed and supportive partners of the module. Community partners will receive the manual online, with hard copies made available for communities without internet access.

KHOZA HC

Tensions experienced during remote teaching and learning: A narrative self-study of a novice science teacher educator

When institutions were faced with the need to move to remote teaching and learning, lecturers had to make rapid shifts that involved pedagogical decisions requiring new planning and teaching orientations. The notion of tensions has been used to research practitioners' thinking and the process of making decisions in the work they do (Dong, Seah, & Clarke. 2018). In teacher education, tensions are regarded as tools for understanding and improving practice. Berry (2008) argues that tensions are experienced by those who tend "to manage complex and conflicting pedagogical and personal demands" (p. 28). Although exploration of these tensions does not guarantee resolutions, identifying them, and mapping them as one moves from one context to the other is important to understand one self's practice.

In this ongoing self-study (Samaras, 2011), I am exploring these tensions to understand and gain insights from my practice of teaching remotely. Data was collected using a reflective journal where I documented my teaching ideas, thoughts, events in my journey of remotely teaching a science methodology course to pre-service teachers. The journal entries also contained my reflections on the departmental meetings we had in preparation and continuation of remote teaching and learning. I shared some of these entries with a critical friend through phone calls and WhatsApp messages and this triggered further reflections. In the preliminary analysis of my reflective journal through coding the phrases that reveal tensions and categorisation of those codes, I have identified two broad tensions: (1) personal teaching philosophies versus institutional demands and (2) modelling the practices of teaching science to learners versus modelling the practices of teaching learners online. In the process of moving from the 'traditional' teaching to remote teaching, one experiences tensions requiring and/or leading to a need to alter pedagogies of teaching. Two insights about teacher teachers remotely are revealed. Firstly, one needs to understand how the 'mandate' of teacher educators – the idea of content turn and pedagogical turn including modelling practice (Russell, 1997) – can be achieved. Secondly, the movement to remote teaching and learning could be seen as a change of 'culture'. McClay (2011) reminds us that one may find themselves adhering to the demands of one culture and this is often the previous one; in this case the traditional (face-to-face) teaching and learning. As such, it is important for one to be encultured into the other culture (that of remote teaching and learning). This is because a movement from one 'culture' to the other is often accompanied by conflicts and 'pulls' that may not be understood by the practitioner unless they are explored. In this study, I raise questions about teaching pre-service teachers remotely and positioning of teacher educators in online teaching and learning.

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KIRSTEN E, Du Toit E, Van Hoepen R
Can Excel help Finance students to excel? A study in student work readiness

Word processing and the ability to use spreadsheets are basic requirements for nearly all jobs (Zhang, 2014). To teach students the use of spreadsheets, using software such as Microsoft Office Excel, is the best way to prepare them for the work environment. The literature emphasises that Universities should integrate more practice-driven Microsoft Office Excel components into business and finance modules as part of curriculum improvement (Balik, 2009; Doe, Annan, Ahiale & Anyamadu, 2016; Zhang, 2014). This should equip students with the Excel skills they need to be successful in the current job market (Zhang, 2014).

This study investigated the effect of an intervention, namely a Microsoft Office Excel course, on students' Excel skills – actual and perceived. The aim of the intervention was to improve finance students' MS Excel skills, with specific reference to more advanced financial applications, so as to improve finance student employability and transition into the workplace.

The students had to complete an Excel skills test before and after the intervention. Both these Excel skills tests included a measurement of the students' perceptions of Excel and their skills, before the commencement, as well as after the completion of the test. The order of the experiment can thus be shown as:

Perception (P1) > Excel skills test (EST 1) > Perception (P2) >> Intervention >> Perception (P3) > Excel skills test (EST 2) > Perception (P4).

The majority of the students believe that Microsoft Office Excel is a critical skill to master before entering the job market, and that they will be using this skill on a daily basis when they start in the workplace.

Based on an analysis of P1 and P2, it was clear that the first Excel skills test (EST 1) affected the students' perceptions of their own Excel skill level. The perception tests before the intervention provided evidence to the students that their Excel skills were not as advanced as they initially thought, indicating overconfidence bias. After the intervention, the students were however not as overconfident as before EST 1 (P1 vs P3). The students believed that their skills improved, but only moderately so. However, after completing EST 2, the students felt they proved a significant improvement in their MS Excel skills. The paired-samples t-test from the data of EST 1 and EST 2 shows the significant improvement between students' basic, intermediate and advanced Excel skills after the intervention. The students showed the most improvement in advanced Excel skills, followed by intermediate skills. Therefore, the intervention not only improved the students' skills, but also influenced their perceptions of both the importance of Excel skills, as well as their actual skills. It is recommended that all levels of Excel skills should be integrated into finance and research modules in order to ensure retention of these skills.

Implementation in BComHons Financial Management 2020 – including remote interventions due to lockdown.

We proposed that Excel should be integrated in the modules as part of normal homework and assignments. Due to the nature of the homework and assignments (Excel Spreadsheets), students submit it and feedback is provided through the Learning Management System (LMS). This created a very easy transition to remote teaching due to Covid-19.

Full article will be available by Aug 2020

KORKIE FE, Lubbe I

Movement made easy: Multilingual micro-lessons

Background & Aim: The sudden lockdown-online approach forced many academics to reflect on and re-evaluate their teaching strategies. The majority of the fundamental concepts of movement analysis, joint- and muscle structure and function are abstract and often difficult concepts for students to understand. Currently, all lectures (contact and online) are presented in English, the official language of communication of the University of Pretoria. According to the analysis of the General Household Survey[1], only 16,55% of South Africans speak English as their first language. To study in a second, and sometimes third language, has many disadvantages. Students struggle to: understand abstract concepts, express themselves, communicate (verbally and in writing) and often lack subject specific vocabulary[2,3]. Students have to take notes during lectures. Effective note taking depends on effective listening skills to be able to grasp concepts quick enough to be able to write it down correctly[5]. Note taking in a second or third language may lead to spelling mistakes, decreased speed of note taking, less concepts captured and lower marks obtained in tests[6].

Research showed, if students have the opportunity to study in their first language subject specific vocabulary is mastered[3] with more success. This leads to the recognition and clarification of concepts, interaction with peers and lecturers, the ability to complete given tasks with confidence and improve learning[5,6]. Once a concept is understood, students are more prone to manage and direct their own learning[5]. Improved vocabulary and the recognition and interpretation of words and concepts results in language proficiency and ultimately improved writing skills[3,4,6].

The lack of online teaching material on fundamental concepts of human movement lead to the development of the micro lessons. With the micro lessons, students have the opportunity to master the content of a lesson in their own time, which improves academic performance, reasoning skills and the ability to integrate the lecture content with more ease[3]. The uniqueness of this project lies in the multi-lingual approach. Although the voice over is done in English, side notes on key concepts are given in Sepedi, Afrikaans and isiZulu[1].

The main aim of this project is to improve subject specific vocabulary, to improve concept understanding and to improve academic performance of second year Physiotherapy students. Furthermore, students have the opportunity to learn basic concepts in four languages which may improve communication skills with patients and patient care.

The primary target group is the second year Physiotherapy students. However, with the added on languages third and fourth year students may also benefit from the micro lessons.

Methodology: Micro-lessons were designed with the Storyline 3 – Articulate software program. Fundamental concepts are explained in English and the subject specific words (vocabulary) are given in Afrikaans, Sepedi and isiZulu. Third and fourth year Physiotherapy students will evaluate the content and the feedback will be used as needed.

As this is an ongoing project, subject specific vocabulary will be tested before the second year students have access to the micro-lessons. After each theme the test will be repeated. Results will be compared.

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KRUGER-ROUX H, Louw I, Du Preez A

Multilingual educational subtitling for improved comprehension of discipline-specific videos

Previous studies on educational subtitling at the University of Pretoria focused on same language subtitling (English audio and English subtitles) of overseas-produced discipline-specific videos and indicated that educational subtitling improves comprehension. By and large, students perceived educational subtitles as helpful for their understanding of subject-specific content. The comprehensional benefit of same language educational subtitles was quantified as equivalent to a repeated viewing of the same material in unsubtitled format.

The current study is the first to investigate the comprehensional and attitudinal benefits of locally produced discipline-specific video material with translations into indigenous languages and by making available English in more than one register. The researchers partnered with the Department of Animal Science, Faculty of Natural and Agricultural Sciences, who produced a series of fourteen highly technical videos on the dissection of a sheep.

The English-audio videos were subtitled as:
1. a full English version (as close to verbatim as possible, making use of jargon and academic English);
2. a plain English version in which less technical language is used to explain concepts;
3. a keyword version containing only terminology as identified by the course lecturer; and
4. simplified, translated versions in the home languages Afrikaans, Sepedi and isiZulu.

With the advent of COVID-19, the Department of Animal Science was better prepared to move the curriculum online, having already invested in the creation of video material. However, whereas in previous years the unsubtitled videos were used in conjunction with practical sessions, COVID-19 saw the videos replace practical sessions. As a result, the relative importance of the videos was considerably higher as students relied on them for knowledge that would typically also have been imparted through practical sessions.

This paper reports on the progress of the research up to this point, namely:
1. the access of subtitles by students based on Google Analytics before and after the online move of the curriculum;
2. attitudinal factors and perception of students (Qualtrix survey); and
3. differences in comprehension between the use of subtitled and non-subtitled material (Qualtrix survey).

LEMMENS JC, Tshebi

Improving student success through module evaluations.

A project to evaluate challenging modules emanated from the Tshebi data-analytics committee. The purpose of these evaluations is to improve the module success rates, through data-informed decisions and negotiated support from the Department of Education Innovation. Deputy Deans nominated modules for an evaluation. In total, 20 modules were selected, 9 in the first semester and 11 in the second semester. Each module task team (consisting of lecturers from the module, Deputy Deans; and staff from the Department for Education Innovation) received a module report consisting of the module success rates over a number of years as well as the performance of students from service programmes. Meetings were arranged with each task team to discuss the student experience throughout the module, touching on aspects like the curriculum, T&L, assessment, student support and the policies and practices that impact module success. At each meeting, the need for additional information was identified to gather quantitative and qualitative information regarding the pressure points that were identified during the task team meeting. The findings of the 2019 project will be shared during the presentation, as well as the adapted approached followed in 2020.

LOUBSER M

Teaching Conservation Science online, to students without a science background.

This is the second year of UP's MA Programme in Tangible Heritage Conservation (THC). The programme is the first of its kind in Sub-Saharan Africa and trains qualified conservators to care for the continent's cultural heritage.

There are no undergraduate academic conservation programmes, which is why we have enrolled students from very diverse backgrounds – mostly within the humanities and with very little background in science. But the THC degree programme emphasises conservation science – a struggle for most of our humanities students.

The THC programme has to, therefore, teach our students fundamental scientific principles so that they can interpret the material science that underpins conservation. For example, conservation students need to understand concepts like redox reactions, which baffle undergraduate science majors, because this theory is the basis of corrosion and corrosion treatments.

Our approach was to develop a syllabus that introduced theory through conservation-based case studies, and then let the students apply the theory in practise. In the first year it became clear what worked and what did not work, and we revised our approach.

This approach was scheduled to be tested during 2020 and then the COVID-19 pandemic changed the rules of the game. Concepts that were challenging in face-to-face sessions with intensive hands-on demonstrations suddenly had to be taught via an unresponsive flat screen. The pandemic forced the THC programme to re-design its methodology, source different resources and re-invent cross-continental collaborative sessions. In the end, our students received a much broader background to the study of conservation than would normally be possible and affordable.

This presentation discusses the successes and essential teaching moments of our unique course. It also offers some ideas on how the methods we developed could be used in the future to ensure students can contextualise the theory and put it in practise in the specialty conservation modules, and perhaps other courses as well.

LOUW I

Tutor training: Using clickUP and interactive videos

Tutor training is time consuming, labour intensive and consistency across faculties is challenging. The aim of this project was to create uniform training, present it in an online self-paced fashion and establish student perceptions about it. In 2020 all tutors at UP had to complete an online module, for generic tutor training, based in clickUP (LMS). Three themes were addressed in 10 short videos: "the tutor", "the student" and "learning". In theme 1, the four videos addressed "The roles and Responsibilities of a tutor", "Characteristics of a good tutor", "Ground rules for a safe space" and Managing diversity". Theme two had three videos: "Handling difficult students", "Growth mindset and learning" and "Motivation and reflection". In the last theme we included: "How learning works", "Questioning" and "Study skills".

These videos only supplied soft skills training and disciplinary guidance will still be given by individual departments. Each video was either followed by a quiz or contained in-video assessment. A Qualtrics survey collected quantitative and qualitative data about their experience of the training. Between February and May 924 students accessed the survey. They needed to answer the first question to activate the release of their "letter of participation" that was needed by their departments for appointment purposes. The project continues as more tutors for quarter 3 and four are now doing the training.

The study followed an exploratory case study design and informed consent was received from students to use the anonymous feedback from the survey. No sampling was performed, but students could choose to leave the survey blank after answering the first question. Descriptive statistics will be shared as well as insights from some of the qualitative data that were thematically analysed.
Preliminary results indicate that students engaged with and benefitted from the chosen topics. One quote in response to the question "What did you find most useful?" is: The videos were the most helpful. I found it easier to follow and understand what was said in the videos. More especially the examples that were shared by the presenter throughout all the videos were quite useful. On the question "What was least useful" we receive 47 tutors who disliked the crossword puzzle that they had to complete. Duration was another complaint and a variety of all off the topics presented. When we asked them: "How will this training impact your tutorial/laboratory practice?" we received 52 responses that listed an improvement in their confidence as the impact. More results will be shared.

LUBBE I, Adam S
Unconventional assignments: Giving students voice, choice and responsibility

Introduction: Medical Schools in South Africa favors a conservative and traditional teaching approach, consisting of didactic sessions, bedside teaching and clinical rotation. However, changes in patient profiles, increasing student numbers and decreasing clinical platforms are forcing lecturers to think radically different; to challenge the status quo of decades of established teaching practices and utilize innovative teaching and assessment strategies.

Teaching and assessment of students on aspects of Maternal Health has become increasingly complex. The concern is that mother and child mortality is one of the Sustainable Development Goal (no 3) where we as a country are failing to achieve remarkable improvement. Problems are related to the individual, social circumstances and public health issues. And then, to add to the complexity, a pandemic brought us as a country, as a health sector and as a university to a halt.

The Covid-19 pandemic lockdown has forced universities and medical schools to rapidly implement on-line teaching and assessment while maintaining constructively alignment, support learning and developing critical thinking skills.

Method: Medical students in their third year Obstetrics rotation were assigned a group project (Adam, 2019) aligned to their specific Learning Outcomes. They were instructed to watch a video (Goldner, 2012) and to **produce** novel, creative solutions to the issues identified in the video. The format of this assignment was open to the students, however traditional essays and PowerPoint presentations were excluded. The content submitted (assignment) was limited to a 5-minutes artifact which was submitted via the LMS.

The hidden curricula was to engage the students in collaborative learning to produce a creative, comprehensive submission that demonstrates teamwork and knowledge of online tools, plagiarism, and referencing. Submissions were peer-assessed, thus stimulating critical thinking and reflection, and peer interaction. The assessments were managed via Google Forms. Each group assessed 5 other groups' submissions (24 groups). Assessment was based on a rubric developed by the students, thus ensuring buy-in, and was based on 3 critical factors.

Results: This assignment achieved the intended outcomes:

1. Teamwork/collaboration
2. Information and Technology (ICT)-skill development
3. Flexible, creative, critical thinking
4. Knowledge application, integration and self-directed learning
5. Visionary leadership
6. Fun while learning

Discussion: Lessons learnt from this approach:

1. The format of this assignment is scalable and adaptable to almost any topic.
2. It requires minimal resources and students used easily available free resources/apps.
3. The students reacted positively to this assignment as compared to the usual essay they submitted for this assignment. This format resulted in very varied submission of the assignments that demonstrated creativity, ICT use, teamwork, and out-of-the-box thinking.
4. There was minimal work required by the facilitator/lecturer, as compared to marking the numerous essays. There was a positive enthusiastic response from guest lecturers who reviewed the assignment submissions.
5. Assignments like this can also be used for interpersonal teaching and learning, as it encourages teamwork and communication. It requires leadership, interaction, and collaboration; thus

achieving many of the 21st century graduate competencies in addition to knowledge of the subject.

6. These type of assignments should form part of an integrated, continuous assessment approach (van der Vleuten, n.d.).

Challenges: There was an anticipated challenge – that students would might not have access to technology. However, none of the students verbalized any challenges, not in producing the artifact or in doing peer-evaluations.

Feedback and Evaluation: The students was appreciative of this alternative approach and gave positive feedback. This concept was presented to the Faculty of Health Sciences (Brown Bag Lunches) and was well-received. The expandability and impact on student learning requires further exploration.

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LUBBE I, Adam S

Unintentional stealing – when ignorance isn't really bliss…

Universities have been struggling with issues relating to plagiarism from time immortal and now during the COVID-19 lockdown it would appear as if teaching and assessing remotely and online illuminates the magnitude of the potential for academic dishonesty. One would assume that students and staff are inherently honest and that they accidently venture into the dark and dangerous area of plagiarism. However, academic dishonesty is viewed in a serious light, with dire consequences varying from disciplinary interventions up to possible expulsion from university.

Traditionally, the library personnel take on the mammoth task of equipping academic staff and students with the necessary basic information as it relates to plagiarism. They offer training and workshops and focus on all the nuances and variations of plagiarism. However, despite all their efforts, there was a raising concern of academic dishonesty amongst our students. It also became evident that there were a few 'cloudy' areas of uncertainty amongst the academic staff as well.

A small *ad hoc* sub-committee from the Faculty of Health Science's Teaching and Learning committee was formed, consisting of an Educational Consultant, a Professor / Lecturer from the School of Medicine and a member from the Library. The Deputy-Dean acted as a Quality Control Member. The members volunteered to look at different, cost-effective and easy to create content to assist in a plagiarism awareness campaign. This was necessary since it was evident that the traditional approach was less successful during the lockdown period.

The committee looked at some of the different ways that people prefer to interact with content and based on those preferences, decided on the format of the content. Each member of the sub-committee took responsibility for a certain approach to create content.
The decision was further made to create micro-learnings, consisting of small pockets of learning, as well as low-cost interactive content for learning and reinforcement of learning.

The content created by the members included a:
- Basic digital app or application that can be downloaded on a mobile device;
- Short animated video;
- PowerPoint presentation (narrated and in pdf-format);
- Re-purposing of an earlier recording by a guest presenter on the use of images and how to cite them
- Quick animated 10-mark quiz in the format of a game; and
- More elaborated (but still basic in complexity) digital escape room game

The content is released and rolled-out via the faculty's LMS as soon as it is created, quality assured and approved at faculty level.

This is still a work-in-progress and the impact of this initiative has not yet been evaluated.

There are certain challenges as it relates to this type of awareness and support campaigns – especially if it is not outsourced. The most significant challenge was TIME to conceptualize and create the content, since this was an add-on to the committee members' already overfull schedules. Linking closely to the time-factor, is the learning of new skills and the time it takes to master those skills to enable one to use new applications and platforms to create the content.

One of the lessons learnt by the committee members, is that sometimes ignorance is bliss in that we did not anticipate the amount of time it will take to create a single small pocket of learning (and how

brutally honest family members can be about the artifacts created). The advantage emerging from this process is now we know how to use the platforms and apps and can guide others in using it.
The hidden goal was also to showcase to the lecturers the different ways and approaches that they can use to assist students in their learning processes.

Since most of the content were created using OER, going forward, one might look at funding to buy some of the programs or apps used to create the content and replace the OER-branding with UP-branding.

To conclude: Creating such a campaign is easily scalable and can be repeated for various areas of concern or training.

MAJOZI PC, Ogude NA, Mathabathe KC, Meyer IJ, Mthethwa N

The management of ECPs through the effective use of learning analytics: The case of the Mamelodi Campus

The Mamelodi Campus developed the Mamelodi Referral System, M_RS, by adapting the student academic development excellence model (SADEM) in 2019 to provide a systematic approach to management of the Extended Curriculum Programme (ECPs). The SADEM (Ogude et. al. (2012) indicated that the student success initiatives are most effective when the responsibility is evolved to faculty level under the leadership of the deputy dean. The M_RS was initially conceptualized to provide customized support to students based on their academic performance in the light of their desired academic pathway. The recent effect of COVID-19 drove educational institutions across the world to move teaching and learning online, and this was also the case with the University of Pretoria. This shift provided an opportunity for the Mamelodi Campus to rethink the initial approach, resulting in learning analytics as significant in identifying students that need support at the early stages of onboarding onto online learning and then later to monitor effective online presence and engagement. The early evaluation of the M_RS has shown much potential on it being effective to manage student success in ECP's. The initial successes over the months of May and June 2020 included 1. Creating a trail of student logins on the modules to identify students not accessing clickUP both according to individual modules and their academic stream, 2. Monitoring students' number of clicks (measure of engagement) within a module and across the stream against the module averages, 3. Monitoring submissions according to their streams, 4. Bringing together all the evidence of student support initiatives from Academics, Faculty Student Advisors, Telephonic Tutoring, Campus Operations and Education Innovation; and lastly, 5. Providing a holistic picture of the students' academic wellness from all the above-mentioned data sets. In this paper, we demonstrate the adaptation and some of the successes achieved. We also provide initial thoughts on how the system could be used to track ECP students in the third semester modules and beyond.

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MALHERBE K

The use of H5P for interactive online learning and ethical decision-making skills development

Introduction: H5P platform promotes the use of interactive teaching methods during the world COVID-19 pandemic. H5P.com provides integrations for LMSs like Canvas, Brightspace, Blackboard, Moodle and other systems that support the LTI standard. In addition, H5P has plugins for WordPress, Moodle, Drupal and several other publishing systems.

A method which encourages use of the branching scenario platform is the use of authentic, but virtual patient interaction with various case scenarios to promote virtual decision making development[1-2].

Background: An intravenous pyelogram (IVP) is a fluoroscopic method[3] which assesses the presence of hydronephrosis and related renal obstruction (calculi) by means of dynamic imaging of the renal parenchyma. However recent technology has led to modern methods for imaging of the renal tract such as Computed Tomography (CT).

The traditional method of teaching IVP is limited, due to the lack of theoretical knowledge and a basic understanding of conventional tomography methods in a x-ray department[3]. Due to these limitations, the need to develop a e-learning method for assessing student knowledge was identified. H5P provided a branching scenario process by which trial and error and interactive scenarios allows a virtual platform for student education. Predetermined questions and answers are embedded in the scenario to guide to various patient outcomes such as confusion and angst, depicted by the virtual patient[1-2]. If the incorrect branching scenario is selected and the patient's presentation of anxiety is not addressed, the branching scenario allows a teaching point and reverts back to a previous scenario to allow feedback and re-integration of knowledge.

A 6 scene storyboard was developed with a summary (See Annexure A).

Discussion: Student centred learning should be delivered as such to allow active role playing in the creative learning process[2,4]. This method allows flexible learning paths and various pedagogical methods, allowing a sense of autonomy amongst students.

As part of external quality assurance[5], pedagogical innovation methods should be recognized and supported as alternate modes of teaching and learning[6] (See Annexure B[5]).

Aim of study: The aim of the study is to assess the effectiveness of virtual e-learning platforms, such as H5P, in comparison to traditional education methods.

Conclusion:

External quality assurance reviews should account for specific guidelines, frameworks and strategies to support innovative e-learning methods[4,6]. Previous studies has shown an improvement in procedural skill and clinical reasoning, making the teaching method applicable as alternate methods of assessment[2].

Further studies should assess design variants in virtual patient platforms.[1-2]

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MALHERBE K, Lovric G, Kekana M, Lubbe I
MBTI in the development of conflict management skills in undergraduate students

The promotion of student development of conflict resolution skills as it is an important soft skill needed in professional practice and team conflict resolution is not well developed within the current Radiography undergraduate curriculum. Students enter the professional training degree programmes with existing conflict resolution skills. In order to raise self-awareness and promote conscious best practice in conflict resolution, Meyers-Briggs used as a self-assessment to raise self-awareness. There is a significant need for understanding the nature of conflict and the role of personality on the choice of conflict styles amongst undergraduate students. The Myers-Briggs Type Indicator is a career exploration tool currently utilized at numerous tertiary institutions internationally. The test was originally developed to describe individuals core personality according to four main personality groups[1], as researched by Dr Carl Jung's theory.

The use of Myers Briggs test as an educational tool, should have the main provision of insight dispositions into framework development of intra-and-interpersonal relationship assessments. The development of successful relationships and self-awareness of personality types[1] with/of fellow undergraduates is hypothesized to be the key role in conflict management in the clinical placements. The value-neutral approach in this methodology, is encouraging open conversations in the academic environment. The MBTI is also useful for identifying learning styles of students and to assist them during alignment to certain career choices[1]. Most importantly it has much value in stress management, team building and change management[6]. It is hypothesized that the process of self-perception and awareness of undergraduate students following the MBTI tool would lead to the development of an applicable and relevant conflict management tool to be used as part of the curriculum and mentorship programme.

There are limited teaching and learning resources for the development of soft skills amongst undergraduate students during conflict resolution in the clinical setting.

Limited information is also available regarding the nature of epistemology in the introduction of Myers Briggs questionnaire into a module as part of a student-centred teaching and learning strategy. Aligning to this problem statement is the lack of information regarding the relationship between psychological typing and the development of beliefs and knowledge gathering during systemic studies. MBTI has not been used as yet to apply Jung's theory of dichotomy to specific case related problems in undergraduate student's field.

The study will initiate a pilot study of qualitative explorative mixed method design of 45 undergraduate students at the Department of Radiographic Sciences. There will be a mixed method approach to the data collection of quantitative MBTI results and qualitative reflection assessments of student's perceptions and world views. The proposed data captured will potentially develop new methodology and education frameworks for conflict management.

The use of MBTI as an ethical decision-making model can help assert future practitioners (students) to develop and analytical and strategic approach to different decisions. For this to occur, self-awareness during ethical decision making is an important factor to keep in mind.

MASIKISIKI B, Marivate V

Automating Utility Value Intervention evaluation of student writing using Natural Language Processing.

Numerous pedagogical methods have been used in order to find ways that can improve educational outcomes throughout schools. Student's outcome can be affected by a number of reasons such as, lack of motivation in the study field or psychological reasons such lack of interest in certain topics or lack of confidence in their abilities. According to John Dewey, keeping students interested in the course content can be viewed as a crucial factor that can improve their performance[1]. Durik and Harackiewicz state that one way to develop a student's interest in activities is to find meaning and value in those activities , they argue that the higher a student's perceptions of task value and competence-related beliefs, the better students perform in a task[2].

One method that has been viewed as a powerful predictor of interest is called Utility-Value Intervention (UVI) [2]. UVI refers to the value a task has for an individual because it is useful for achieving current or future goals and it helps students focus on the personal relevance and usefulness of the course material (Eccles et al., 1983)[3] .

UVI can be integrated into course pedagogy, where students are asked to write about the relevance of the course topic to their own lives [4]. These writing interventions in which students write essays connecting specific course content to their own lives have proven to be effective for students who doubt their competence and have a history of poor performance[5].

However, the process of grading the written intervention is still manual and is viewed to be time consuming and costly. Graders need to have a background of the course content and fully grasp the principles of UVI[3]. An article that was published by (Beata Beigman Klebanov Jill Burstein , 2016) highlights that having an automated evaluation process of UVI could help scale UVI interventions and can make the principles of UVI implemented to a larger scale[2]. In this study, we propose to implement the principles of UVI in an African context by conducting practical experiments as a way of investigating the effectiveness of UVI. An evaluation student's background performance before the implementation of UVI and after the use of UVI will be conducted. Most of the current implementations of automated UVI models employ supervised machine learning methodology such as random forest regression to evaluate the degree to which a writing sample can be automated for scoring, however accuracy for all writing genres is still a big challenge[4]. The results of the practical study that was conducted by a group of researchers from the University of Wisconsin indicates positive results for a genre of personal essay, but negative results for the letter genre[2]. This study will therefore make use of recent deep learning technologies that support natural language processing as a way of improving the accuracy of the current automated UVI models and to evaluate how the models will perform with African data. A request for collaboration with the department of linguistics has been requested for the reason of getting more insight about rules of language processing during the implementation of automated UVI scoring model, especially the feature extraction process.

MOGALE RS, Ngcobo N

Transdisciplinarity as an approach to Teaching and Learning in Nursing Science

Introduction and Background: The transdisciplinarity approach (TDA) to teaching and learning are increasingly becoming prevalent in higher education institutions. Despite these aspirations and support for TDA, academic departments continue to categorize and canalize their ways of teaching and learning in undergraduate studies, thereby perpetuating the constraints and deficits of preparation for the world of work. The deficit is usually noticeable on completion of the studies when the students are faced with the realities of their work environment. However, by using TDA in undergraduate teaching and learning programmes, students are more likely to transcend their own discipline and finding solutions to complex problems in their fields of work.

Transdisciplinarity in teaching and learning forces students to think across, beyond, and through the academic disciplines that are represented at the university. Transdisciplinarity fosters novel and creative teaching and learning initiative; it involves transcending of disciplinary boundaries, a sharing of knowledge, skills and decision-making, a focus on real-world problems and the inclusion of multiple stakeholders in the academy, practice environments and communities. The intention in transdisciplinary education is to deconstruct and transform the traditional classroom teaching and learning, with a focus on *doing, living together and 'being*.' This approach is about negotiation and transformation of the relationships in classroom teaching, the institutional structures, the social relations of the wider community and the nation.

Although the term 'transdisciplinarity' dates back to the work of Jean Piaget in 1970 and Erich Jantsch in 1972, to this day transdisciplinarity is perceived as a provocative and threatening in teaching and learning environments. The mere use of the term TDA evokes negative reaction amongst faculty members and researchers, who fear that this approach would render their work void of normative standards of review and evaluation traditionally associated with their individual disciplines. This emphasises the need to establish a deeper understanding of what the transdisciplinarity in teaching and learning entails and the benefits thereof, in order to address misconceptions and unrealistic perceptions that create barriers to the adoption and implementation of this approach.

Aim: Funded by Scholarship on Teaching and Learning University of Pretoria, the aim of this study was to explore and describe current transdisciplinary teaching and learning initiatives for the improvement of the student learning and engagement for a selected module within the Department of Nursing Science.

Methods: This study used a multiple methods research design that employed several data collection methods among undergraduate nursing students who were registered in the specific module. Primary data was extracted from various data sources, including online wiki group interviews, reflective notes from field visit and expert lectures.

Findings: The data was analysed and categorized into three broad themes, namely diversification of teaching and learning, learning about social realities and reflective learning.

Conclusion From the findings we learnt that transdisciplinary is a sustainable method of teaching and learning as it creates new intellectual spaces, appreciated by both students and staff who took part in the teaching module. Transdisciplinary teaching and learning initiatives provided diversity in the teaching module and increased experiential learning moments in this health care learning programme.

MOODLEY K, Wolff E, Robberts AS, van Wyk M
Survivor: Transitioning to Online Learning

Comprehensive Online Education Services, University of Pretoria[1]

COVID - 19 has spoken! Over the last few months, the deadly COVID - 19 virus has impacted on the lives of all citizens across the world. The need for social distancing and healthy living have become the epitome of life as we know it. The long-term effects of this virus have resulted in all education sectors taking learning online, in some form or the other. The University of Pretoria is no different. With approximately 17200 reported cases within our country to date (20-05-2020), the safety of students and staff cannot be compromised. With this in mind, a panel discussion on the transitioning process from face-to-face or hybrid mode to online learning was inspired. Pre Covid-19, two academic programmes that have just started running fully online, were conceptualised, designed and developed. Two learning designers and four academics hope to share the experiences of creating a fully online programme of sound quality and rigour. The panel discussion highlights the challenges and successes during the transition process for academics, that were not under pressure by time constraints, to emphasise the complex experience current academics are facing to cater for the demands that COVID - 19 has placed on higher education.

Introduction: With the recent outbreak of COVID-19 there has been a radical change in the presentation of learning content. For academics this has brought about uncertainty, fear and anxiety as they transition from face-to-face and hybrid modes of teaching and learning to online learning. Even though online learning comes with many rewarding and beneficial aspects, the transitioning of curricula to online modality has brought about challenges in numerous curriculum design and development phases. These phases can be categorized as (1) Analysis; (2) Design; (3) Development; (4) Implementation; and (5) Evaluation commonly known as the ADDIE model. For the purposes of this study, emphasis will be placed on phases two (design) and three (development), as implementation and evaluation are still under investigation. In addition, design will be broken down into conceptualisation (which entails strategising about the programme purpose, structure, teaching strategies and assessment) and design (which entails storyboarding the aforementioned ideas to create a blueprint of the modules) (Quigley, 2019).

Two departments within the university have experienced the transitioning process from face-to-face to online mode. A fully online postgraduate programme in Public Health and Public Management were conceptualised, designed and developed prior to the COVID-19 outbreak. This allowed the academics in these two programmes to experience the transitioning process more gradually and reflect on their own development as individuals and professionals in the field.

This presentation will take the form of a panel discussion in which academics will have the opportunity to share their personal experiences and how they addressed problems in the transition from 'contact pedagogy' to 'online pedagogy'. The panel discussion follows a "survivor" challenge approach, allowing the audience to vote between three curriculum paths to be explored. Each path is a phase in the transitioning process. The audience will determine the path of discussion that they would prefer to hear about. This will be done using a voting application. "We will then tally the votes and once the 'tribe' has spoken" the discussion with four survivors who thrived throughout the transition to online learning, will proceed.

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[1] *Moodley, K; Wolff, E; Robberts, A.S; van Wyk, M.*

MOSTERT E, Haupt S, Holm D

The student voice in Veterinary Science teaching and learning

The focus of this paper is a longitudinal research project done in the Faculty of Veterinary Science aimed at informing decisions to improve the undergraduate Veterinary Science programme.

The 'voice of the student' is playing an increased role in the future of Higher education in South Africa. Meeuwissen et al (2019) indicate that student engagement, described as the 'student voice', linked to student participation in teaching and learning in higher education, is a growing phenomenon. Considering the 'student voice' would lead to student-staff collaboration and the benefit is evident in some institutions where it was implemented. It leads to a better understanding of teaching and learning processes by all stakeholders. The student voice in higher education can be defined as obtaining student views regarding their learning experiences and considering these views in determining the teaching and learning model to be used (Seale, 2010). In doing so, the role of students are redefined as they are seen as partners in the education process (Ngussa & Makewa, 2014). Seale (2010) indicate that the student voice would mostly refer to transformation of learning experiences, participation in educational processes and empowerment in decision-making and problem solving. Ngussa & Makewa (2014) refer to the important role students have to play in changes in education since their education should prepare them for the challenges that they would experience once qualified and functioning in the professional environment. It is therefore important that they take responsibility for their own learning and have a voice in how they are educated.

The longitudinal research has been done since 2009 and the researchers followed a mixed qualitative and quantitative method. Data collection has been done over different years of study following students from their first year of study to their final year. Working veterinarians and graduates performing the compulsory community service have been included to elicit what are the knowledge gaps in the programme.

The main research question to answer: What are the most relevant curriculum, assessment and teaching trends that make graduates from the Faculty of Veterinary Science successful, work-ready and competitive?
Sub-questions include: 1. What is the pre-knowledge of students regarding the Veterinary Science degree programme? 2. How do students experience learning in different year groups? 3. What are students' expectations of a career as a veterinarian/veterinary nurse? 4. What support and guidance do students need while studying? 5. What are the positive and negative factors of students learning experience? 6. What is the value and applicability of the curriculum? 7. What are the future plans of final year students? 8. What is sufficient or insufficient in the training of veterinary medicine?

The results of the research and how it influenced changes in the veterinary curriculum and teaching practices will be highlighted in the presentation.

MPOFU B

From Post-Doc to lockdown Teaching and Learning: Pedagogical lessons for Religion and Mission in the changing post-COVID-19 context

Online education offers flexible, although sometimes limited and unaffordable higher education and allows people to work while studying. Critical to improving access to online learning programs within the African context, is the expansion of internet connectivity especially for people living outside of urban communities. This paper employs the concept of 'sacred pedagogy' to examine the experience of transition from Post-doctoral research to teaching online during the time of CODID-19 disruptions. By examining the impact of COVID-19 on Theology and Religion studies through post-colonial lens, this paper also explores the impact of these disruptions on the current restructuring of Faculty theme, objectives and vision. The paper briefly explores the current state of the field of Religion and mission studies and draws on Faculty programs to highlight the impact of COVID-19 on online teaching and learning practices within the field of mission and religion studies. By exploring these challenges, lessons are drawn to provide actionable recommendations as a contribution to the evaluation and restructuring of the Faculty of Theology and Religion's vision and objectives.

NTHONTHO MA, Madonda NF, Maroga MJ

From hybrid to E-mentoring in the nGAP Mentorship Programme

Leading universities across the globe encourage the development of focused mentoring systems for their academic staff. This clearly explains that mentoring is no longer seen as a 'nice-to-have'. Instead, it has effectively become a requirement within the group of leading universities globally. This is because mentoring is increasingly recognised as potentially fulfilling a vital role in effective staff recruitment, retention and performance as well as actualising staff potential. To echo the practice of leading universities globally, the Department of Higher Education (DHET) in South Africa has introduced the New Generation of Academics Programme (nGAP) to nurture and grow young academics. The programme provides for mentorship for young academics for the purpose of their development and growth in academia. Young academics in the nGAP are assigned mentors who nurture them for the duration of the programme.

At the heart of the mentoring programme are two vessels whose functionality can either grow or break it and these are the "mentor" and "mentee". The former being a junior or newly appointed employee of the university who actively participates in its professional activities and processes while the latter is an appointed senior academic staff member, officially appointed to assist the mentee in meeting agreed-upon academic and career development goals. They both enter into a relationship with the purpose of advancing academic development and career success of the mentor. It is for this reason that mentoring is referred to as a relationship and a process that unfolds between a mentor and mentee with the goal of advancing the career development and success of the mentee.

While the milestones to be achieved in the mentorship are clearly spelled out, very little has been provided as the guide to follow. The ball is in the court of the mentor and mentee to figure out what and what does not work in this journey. This independence was exposed by the covid-19 pandemic that put all academic activities on hold. As plans for the "new normal" started emerging, almost all programmes including teaching and learning as well as research had Continuity Plans besides the Mentorship Programme. It was our responsibility to see to it that the programme runs effectively. The role of the Instructional Designer with e-support expertise became very crucial. Her expertise on clickUP (UP in-house brand name for Blackboard Learning Management system) was used for purposes beyond teaching and learning. We utilised tools such as digital lectures, Blackboard Collaborate Ultra, Google Meet, E-mails, and WhatsApp to continue nurturing this new academic into the profession.

In this paper, we (mentor, mentee and the Instructional Designer) share our experiences of the nGAP mentorship programme during the covid-19 academic where the E-mentoring helped us relate to the "new normal". In so doing, we use auto ethnographic research design under the qualitative research approach that enables us to reflect on our lived experiences from the hybrid to the E-mentoring. Few elements contributed to the success of the transition. These include trust, commitment and dedication to one's responsibilities, openness and being true to one another, strive to be above the game and involvement of the consultant when she was needed most. Regardless the absence of mentoring continuity plan, we were able to rise above the fears, trauma, uncertainties and anxiety imposed onto us by covid-19. We were able to keep the momentum of the academic activities of the university.

PAULET E, Tink CA
Music/lyrics and students' pre-tertiary discourses: a new introduction to academic literacy

This study investigates the effectiveness of an introduction into academic literacy through the incorporation of musical lyrics into an online forum as a way for first-year students of the Natural and Agricultural Sciences at the University of Pretoria to convey their discourses prior to beginning tertiary education. For the task, students were required to choose a song that they felt reflected their pre-tertiary experience, and to illustrate why they felt their selected song was appropriate. As well as sharing their own experiences and relevant songs, they were expected to comment meaningfully on the post of a fellow student. Thereafter, students had to complete a survey. It is the results of this survey, in conjunction with the forum posts of 25 selected students, and data from the learning management system, that will be explored in this study.

POTGIETER M, Tekane R
Insights gained from training a blind student in biological sciences

Although the teaching and learning of students with blindness and low vision in STEM disciplines are well documented abroad, to date, there are no published studies on successful teaching and learning strategies for students with blindness and low vision in STEM fields, specifically in science disciplines, in South Africa. Therefore, in this paper, we report on how teaching, learning, and assessment were adapted to make science disciplines accessible to John, a blind student who enrolled in biological sciences at the University of Pretoria. Several factors contributed towards the success of this undertaking. This includes the availability of tutors who committed a large amount of time to help the student to understand content presented in lectures, tutorials, and practical sessions; a well-resourced and effective Disability Unit; committed and generous lecturers who ensured that John was well accommodated in lectures, tutorials, and practical sessions; and finally, the commitment and dedication that John had towards learning.

RAMSAROOP N

Emergency immersion into online education: A quantitative report on the use of the learner management system (LMS) by academics and students for remote teaching and learning during a crisis

The COVID-19 pandemic resulting in lockdown around the globe is driving several educational institutions into adopting remote teaching and learning strategies within a short space of time using their learner management systems (LMSs). This research focuses on the use of a LMS for remote teaching and learning by university academics and students while dealing with the trauma and unpredictability of the pandemic during extraordinary circumstances.

Online learning is seen as a blended learning tool and involves interaction between students and lecturers. Distance learning is the opposite, with no interaction between student and lecturer. Learner management systems (LMSs) are popular with universities in delivering a blended teaching and learning style. LMSs' have advanced from modest delivery and management systems to crucial parts of modern learning and performance improvement systems. During the pandemic, remote teaching and learning via the LMS platform will play a principal role in shaping LMSs for knowledge acquisition, skill and competency transfer.

The use of the LMS for remote teaching and learning is driven by benefits such as flexibility, accessibility and the management of course delivery. During the time of crisis, academic institutions are placing great emphasis on training protocols for the LMS to be used effectively and to its maximum level for remote teaching and learning. Nonetheless, it appears that in general, academics and students do not always fully accept, and use the learning technology and every so often the learning management system (LMS) is not used effectively. A quantitative approach using the Unified Theory of Acceptance and Use of Technology (UTAUT) model is adopted to study how academics and students accept and use the university LMS for remote teaching and learning during a crisis. The UTAUT model was extensively used in information systems research and seems ideal for the current research study. UTAUT identifies four key factors namely, performance expectancy, effort expectancy, social influence, and facilitating conditions, as well as four moderators these being, age, gender, experience, and voluntariness. The four factors together with the four moderators are related to predicting behavioral intention to use a technology and actual technology use, in this case, primarily in a university environment during a crisis. Added to the four key factors and the four demographic moderators, this research will also focus on anxiety levels and self-efficacy regarding the LMS acceptance and use.

Online surveys were completed by university academics and students during the data collection stage of this research project.

Universities are currently held to the highest standard regarding their reaction to a crisis, a poorly managed strategy by university management in response to a crisis can negatively impact on trust, and can lead to decreased student enrollment. The findings of the study will aid in providing awareness on updating existing contingency plans and further, on how educational institutions prepare students and faculty to better adapt to remote teaching and learning using their LMS, when institutions have to unexpectedly close due to a crisis.

SEHLAPELO H, Madiba M

The comfort and discomfort of remote online learning during COVID-19 - a case for understanding inequality

Local and international universities were caught unexpectedly by the threat of COVID-19 and the lockdown that followed, which necessitated pivoting their teaching models from contact to remote online learning. For those universities that had already adopted hybrid learning model, it appeared as if the transition would be smooth and swift. Given the challenges that emerged, and the enormity of the preparations required, a number of South African universities had to postpone the beginning of their second terms. Using a critical realist lens, the paper will explore the interplay of structure, culture and agency associated with the implementation of remote online learning at the University of Pretoria (UP).

A greater part of the preparations concentrated on access to devices, data and connectivity. Despite the university's efforts to ensure that all students had access to remote online learning, quantitative and qualitative data from the Student Feedback on Online teaching reveal disparate realities. For instances, the level of comfort with which students accessed remote online learning varied immensely. For some students there were a number of enablers in place for them, whereas for others they were faced with serious constrains. Furthermore, the data exposes a number of inequalities amongst students which are often masked when they are in close proximity to the university and its facilities. This analysis aims at identifying pointers that can be used to mitigate the constraints faced by some students.

SIYOTYWA L

What guidelines can be developed for designing online rubrics for the assessment of student work in undergraduate programmes in the economic and financial sciences?

COVID – 19 has shifted a lot of boundaries and disrupted the status quo all over the world across different environments. Higher institutions of learning are left with no option to save lives while saving academic year. To ensure that learning continues, institutions derived multiple emergency learning approaches to ensure learning continues. Loss of pedagogy and quality of learning remains the concern to many as this means academics has to explore and adopt unusual ways of teaching and learning.

Assessments play a key role in a student's learning and success. Considering the current situation, additional teaching, learning, and assessment strategies have to be in place to ensure the integrity of programmes while assisting students to achieve intended learning outcomes.

Rubrics were originally designed with no intention to score student's work but as instructional illuminators. Rubrics are intended to provide instructions to teachers on how learning should be designed and feedback to students to measure their own efforts in terms of performance. Well-designed rubrics can teach as well as evaluate. Several authors view rubrics to have the potential to help students understand the targets for their learning and the standards of quality in assessments for learning.

However, rubrics are not necessarily being used effectively by educators. An informal anecdotal evidence about the use of online rubrics by academic staff in economic and financial sciences at a University of Technology showed that staff is not using online rubrics during the assessment of students' work. In a case when used, they are poorly designed with the intention to only score the students' work or clarify the administration process in completing the task. The approach makes it difficult for the students to know expectations, criteria, levels of achievement. Lack of rubrics also lead students to miss the opportunity to reflect on their progress made by towards achievement of learning outcomes over a period of learning and identify areas for improvement.

Students perceive specific feedback as more useful than non-specific feedback and by receiving feedback based on the criteria and levels designed easily improve their presentation skills. When designed and used appropriately, online rubrics are found to be helpful in improving learning and self-regulation. Research further emphasises the importance of students' learning possibly more important than curriculum objectives and teaching methods. Online rubrics are explained to be different from traditional rubrics for that they can provide more interaction and they help students to become more autonomous in evaluating their competences.

The resistance to the use of rubrics in education ascribes to the fact that most educators in higher education have little or no training in educational sciences (pedagogy) and would likely not stay abreast of new trends in assessment in their disciplines. Suggestions are that training opportunities for teachers, tutors, and students should be implemented to ensure appropriate design and use of rubrics.

This is work in progress seeking to explore what guidelines can be developed for designing online rubrics for the assessment of student work (Assignments and Projects) in undergraduate programmes in the economic and financial sciences

SMITH AE, Bosman ID

The use of Discord for student-lecturer communication during online teaching

During the COVID-19 pandemic, the modules in the BIS Multimedia degree transitioned to a flipped-classroom approach. As part of this approach, and to facilitate real-time communication with students of the degree, the BIS Multimedia lecturers made use of a Discord server which allowed communication to be centrally located and still functionally divided between the various IMY (Multimedia) modules of the degree. Discord was thus used alongside Blackboard and email and allowed an additional avenue for student-lecturer communication, presenting several advantages such as real-time communication and shared communication between students of a module. The use of Discord as a teaching tool is discussed, along with data from students and lecturers regarding their experience with using Discord during the COVID-19 pandemic.

SMITH S, Botha AJM

Reformulation of first year engineering practicals for improved learning and flexibility in online implementation

This work presents the reformulation of practicals for the first year, multidisciplinary engineering module Electricity and Electronics (EBN) at the University of Pretoria, South Africa. This project forms part of an initiative supported by UP2020 SoTL Grant funding. The aim is to develop practicals that substantially improve the link between theoretical work and practical implementation, thus improving overall student performance and a holistic understanding of the module content. The new set of practicals will also expose students to real-world electronic circuit applications without the need for laboratory equipment or access to campus facilities. Given the current Covid-19 pandemic, this approach is more crucial than ever, as is evident from the online implementation of modules university-wide since April 2020. In the early stages of the Covid-19 developments, initial work towards reformulation of the practicals for EBN was already underway, which assisted with the quick response to implementing fully online practicals. Reciprocally, the online practical implementation will be utilized moving forward to strengthen the reformulated practical developments.

The current practical content of EBN is made up of three practicals: 1) simulation of electronic circuits using OrCAD (https://www.orcad.com/), 2) an introduction to laboratory equipment and measurements through building and testing of resistive circuits on protoboard, and 3) theory, building and testing of operational amplifier circuits in the laboratory. Practicals 2 and 3 had not been carried out during semester 1 of 2020 by the time access to campus was no longer possible as a result of COVID-19. Various options were thus explored for implementation of practicals 2 and 3 online, many of which were not feasible given the budget and time constraints. A virtual laboratory solution that aligned with the technical content of the practicals and addressed the module learning outcomes was formulated using the open TinkerCAD Circuits platform from Autodesk (https://www.tinkercad.com/learn/circuits). Pre-practical content was developed in the form of lectures, videos and guideline documentation to adequately prepare students for the practicals using TinkerCAD Circuits.

In parallel, initial practical reformulation explored an integrated approach, with each practical containing theoretical, simulation, and physical building and testing of electronic circuits. The use of components such as user-controlled sensor inputs, visual indicators and batteries for powering the circuitry, to enable tangible results and feedback to be provided directly to the students off-campus are under investigation. The online implementations of the current practicals using TinkerCAD circuits will also be applied to the development of the reformulated practicals. This will allow for flexibility in the reformulated practicals, enabling completely online implementation of practicals if and when required.

The presented work showcases the practical developments to date, with the online practical implementation using TinkerCAD Circuits as an intermediate step in the reformulation of the practicals. Comparisons between hands-on practicals carried out in 2019 and the online practicals developed in 2020 are presented. Qualitative student feedback regarding the online practicals is also summarized to highlight the challenges and experiences of the students, with network and data aspects a primary concern.

SMUTS H, Jordaan M

The role of experiential learning as a creative, transdisciplinary and project-based approach for optimal, collaborative learning

Project based learning in education encourages students to explore and apply different ways of looking at problems and solving them. Large-scale community projects (LSCPs) in a higher education institution (HEI), provide an ideal environment for combining project-based collaborative learning with community needs. Through transdisciplinary, project-based learning students have the opportunity to work together to solve a problem, complete a task, or create a product, while learning through the actual experience. However, within the COVID pandemic and requirements for social distancing or even lockdown requirements, experiential learning in the context of the project-based approach obtained a new and different meaning. In this study, we designed an experiential learning framework for LSCPs in higher education taking cognisance of the unique project-based learning requirements due to COVID 19. By using the experiential learning framework for LSCPs in higher education, an HEI can ensure that their community module enables strong support to the community, and that students' knowledge and skills are enhanced.

SPIJKERMAN S, Green-Thompson LP, Manning D

Towards Global Surgery 2030 – Self-perceived Anaesthesia competencies of South African undergraduate students

Background: The Lancet Commission of Global Surgery called for universal access to safe surgery through transformative education. In South Africa, junior doctors anaesthetise patients without supervision or further training. An estimated 4.3% of maternal mortality in district hospitals in South Africa is anaesthesia-related with >90% potentially avoidable. No standardised national or international learning outcomes have been defined for undergraduate anaesthesiology training. In order to inform curriculum development, we evaluated the self-perceived anaesthetic competencies of South African medical students as well as the association of self-perceived competencies with duration of training at the various institutions.

Materials and methods: Following research ethics committee approval, undergraduate medical students across eight South African medical schools were approached to complete anonymous self-assessment questionnaires, rating their perceived anaesthesia competencies after Anaesthesiology training. The hardcopy questionnaires consisted of four open-ended questions and 54, four-point Likert scale items. Teaching schedules, learning outcomes and teaching materials were also obtained from each institution.

Results: Of 1689 students approached, 1505 participated (89%), of which 1486 responses were analysed. Most students (>80%) felt competent (Likert score 3 or 4) in history-taking, patient assessment, routine airway management and selecting anaesthetic drugs. More than 20% of students did not feel competent (Likert 1 or 2) in using a defibrillator, performing spinal blocks, managing hypotension and making an anaesthetic plan; > 30% in managing broncho- and laryngospasm, local anaesthetic toxicity, opioid and benzodiazepine overdose, cardiac arrest and anaphylaxis; >40% in performing general anaesthesia for caesarean section, setting a ventilator or managing hypoxia and hypercarbia; >50% in managing dysrhythmias, "cannot-intubate-cannot-ventilate" scenarios or high spinals and >60% in performing external cardiac massage or needle cricothyroidotomy. Open-ended questions called for longer anaesthesia rotations and more theatre and simulation training. Undergraduate students indicated a lack of self-perceived competence in the four main causes of caesarean section related maternal mortality in South Africa. These are aspiration of gastric contents (31% students), hypotension (29% students), high spinal block (59% students) and failed intubation (55% students). Students indicated low self-perceived competency in the management of several general medical conditions which are taught or reiterated in the Anaesthesiology curriculum. There was a difference in duration of training (2 to 7 weeks) and breadth and depth of learning outcomes between the eight medical schools. In most of the listed competencies, a significantly higher self-perceived competency was observed in students from the schools with longer duration of training.

Discussion and conclusion: The low self-perceived ability to manage emergencies and perform basic skills are concerning. We propose urgent transformation of undergraduate anaesthesiology training in South Africa with a standardised, national skills-based curriculum to develop fit-for-purpose, independent anaesthesia providers. This curriculum could inform curriculum development in Africa and other developing countries where anaesthesia providers work unsupervised and without further training upon exiting medical school.
Context of the work

This work serves as the first stage of a PhD study which aims to develop national undergraduate Anaesthesiology learning outcomes. Subsequent work includes:

- A comparison of existing learning outcomes and study material between the eight medical schools

- Interviews with block chairs of the Anaesthesiology modules at the eight medical schools to determine the teaching philosophy, teaching strategies, challenges and perceived successes of the various Anaesthesiology rotations.
- A Delphi study with teachers at tertiary institutions and trainers in peripheral hospitals to establish the educational and clinical needs and to inform the final proposed national undergraduate Anaesthesiology learning outcomes.

STEYN AA, Coetzee D, Matseke M
Moving content from semi-online to fully online: How Covid-19 made this possible

When a virus locks down an entire world, and forces faculty and students everywhere to go online, everyone, experienced or not, scrambled to find the best way, the best tools to engage with their students.

Moving from traditional to online learning has been on many academics' radar for quite some time. Engaging with online learning, accelerates the endless call to end traditional learning models leading to a rebirth (Kandri, 2020; Kalantzis, 2006; Aydin, Aksüt & Demir, 2019) if you may, and Covid-19 has only sped up or even catapulted this transition (Dennis, 2020) for many universities. With generation Z being ready long before we were. These students are tech savvy enough to easily "convert" to a new technology platform, but also old enough to go fully online with endless demanding content. Because of Covid, and surely long-after Covid-19, this "apetit" for online learning has and will continue to grow (Kandri, 2020).

But how did we, the lecturers of an undergraduate module in Informatics, tackle this curve-ball called lockdown enforcing fully online learning? How did we ensure that we still engage with students, ensuring they work through content and still actually learn? The answer, for us, was H5P.

At the end of 2019, UP obtained new software called H5P through Learning Tools Interoperability (LTI) integrated into UP's official Learning Management System (LMS). This software allowed for not only providing interactive material, but also real-time assessment, which is what Maki (2017) advocates for in her book "Real-time student assessment".

Our approach? When lockdown was announced, all the lectures for the rest of the semester (10 in total) was immediately recorded using either Office Mix or Camtasia software. Once the recording was reviewed, and quality checked by the lecturers, we created interactive slides as well as interactive videos using H5P. One of the features, or example is to stop the video or interactive slide at a specific point in time, and inserting a quiz or some kind of an assessment, based on the work the students were working through up to that point. Students cannot skip assessment questions and thus they were forced to complete and answer the assessment question, task or activity. At the end of the interactive content, once the student submits, a score is immediately incorporated into UP's LMS' grade center. This allowed us to not only track actual views, and engagement but also what the student's knowledge of that specific part of the content is.

By using H5P, as lecturers we could not only provide the content to the students in a fun and interactive way, but we could also see how and which students are engaging with the work. This allowed us to identify patterns of who engaged with the material and what their level of knowledge is per lecture, which is one of the key aspects identified by Maki (2017). As lecturers, we could create interventions by contacting the under- or even non-performing students to find out why they are not engaging with the material, and work with the students in finding possible solutions to their problems.

STRYDOM JF

Technology and Data: Keys to understanding and bridging divides

The COVID-19 pandemic has highlighted the fact that technology is key to the survival of higher education. In addition, the use of data and analytics has helped many institutions to develop some "certainty" in uncertain times. This paper will share the University of the Free State's response to the pandemic which includes the Keep calm, #UFSLearnOn and #UFSTeachOn campaigns for students and staff as well as initiatives to support vulnerable students. The paper will reflect on how technology and data laid bare the inequalities or divides in higher education but how data and technology helped create a better understanding of students and staff's lives and created new opportunities to build stronger pedagogical relationships between staff and students.

SWANEPOEL N

Seeing online teaching and learning through 20/20 vision: a practitioner's reflection

Prior COVID-19, using a hybrid teaching model (face-to-face and online activities), even though encouraged by the university, was seen as an add-on to teaching and learning practice. For many students, especially first year students, using the learning management system, ClickUP was unchartered territory. Despite being a constructivist practitioner, who aims to create learning opportunities for students through which they can discover their true potential and make their voice heard, transitioning to remote online teaching was also challenging for me. Even though I had always incorporated ClickUP into assessments for my modules, the transition from contact teaching to remote online teaching necessitated the need to incorporate alternative teaching and learning methods and the acquisition of new skills. In order to incorporate alternative teaching methods, I had to learn to effectively use a myriad of functions and tools on ClickUP.

Through the journey of three cycles of student feedback I have gained new knowledge and skills about methodologies that enhance my teaching. In addition, student feedback shed light into how to accommodate the needs of my students. Despite the initial fear and anxiety that students experienced at the start of the online learning season, it was clear that students had a hunger for education and embraced this new culture to learning. Students furthermore expressed their delight in constructing new knowledge through the new learning styles.

In light of 20/20 vision, I am excited to see what the possibilities for teaching and learning hold in store post 2020. While modules have been adapted to make online and remote teaching and learning possible, there is still a need for face to face contact teaching and learning. I have learned that the combination of contact and online teaching and learning has the potential to take my new teaching methodologies and students' rediscovered learning styles to great heights. This approach to teaching and learning serves as the starting point for innovative, reflexive and flexible teaching and learning.

TSHEOLE-NKOSI OM, Mogale RS & Bhana-Pema VM

Measuring the level of cultural awareness, cultural competency and cultural sensitivity, among nursing students enrolled in the selected module

Introduction and background: Given the diverse landscape of cultures and health care practices in South Africa, there is need for nursing students to develop knowledge, skills and attitudes in cultural sensitivity, cultural awareness and cultural competency. Based on the positive deviance approach (PD), we pursued a variety of options to leverage transdisciplinary teaching and learning resources that would yield more effective learning outcomes for the nursing students. The research project used a learning module and transdisciplinary pedagogy that enhanced the students' experience and instilled cultural sensitivity, cultural awareness and cultural competency relevant to South African communities.

Objective: Funded by University of Pretoria Scholarship for Teaching and Learning, the objective of the study was to determine the level of cultural sensitivity, cultural awareness and cultural competency among nursing students enrolled in the selected transdisciplinary learning module to respond to the diverse health needs of communities.

Methods: The study followed a multi method research design where several data collection methods were used, including a survey created through the QualtricsXM platform.

Setting and population: The research setting was the University of Pretoria, Prinshof Campus, and the population were nursing students enrolled for the selected module.

Sampling method and size: Total population sampling method was used as the students were sixty in number.

Data analysis: Descriptive statistical methods were used to analyse the data.

Results: A total of 30 undergraduate nursing science students completed the 54-item questionnaire on: general educational experiences, cognitive skills and cultural awareness, comfort in behavior and interactions with people from diverse cultures, preparedness to make culturally competent nursing care decisions in clinical practice as well as transdisciplinary approaches to teaching and learning. The survey respondents were largely females (93.33%); with an age ranging between 18 and 29 (M:2.07; SD:0.36). Eighty percent of students reported positive general educational experiences, 86% had increased cognitive skills and cultural awareness, 79% were comfortable interacting with people from diverse cultural backgrounds and 82.6% were ready to make culturally competent nursing care decisions in clinical practice. About 90% of nursing students attributed their comfort in handling cultural diversity to their participation in class. In addition, the students reported a demonstrable cultural sensitivity among the lecturers and professors, experts and practitioners who taught the module. The students expressed appreciation for the module content and the use of transdisciplinarity as a teaching and learning approach.

Conclusion and lessons learnt: The results indicated that students were ready to respect cultural beliefs of patients in their care while engaging the patients and their relatives in care decisions. The use of transdisciplinary pedagogy fostered participatory learning experiences for the students and the lecturers. The teaching and learning approaches used in the module as well as the content created a sustainable learning environment to prepare students for the world of work. This will enable nurses to respond to diverse society and ever-changing health needs and preferences within communities.

VENTER G, Lubbe JC, Bosman MC
Teaching Neuroanatomy: Actions speak louder than words

Background: Neuroanatomy in the medical curriculum tends to be challenging for both lecturers and students. Students and lecturers perceive the relevance and importance of neuroanatomy differently. If not taught sufficiently, students develop a dislike or fear (termed neurophobia) for the subject. This fear prevents them from being receptive to the teaching and consequently applying the neuroanatomy knowledge in the clinical environment. Lecturers are constantly under pressure to make use of more innovative teaching methods due to changes in the higher educational sphere and in the medical curriculum, especially given time constraints for the basic medical science subjects such as human anatomy. The lack of national standardized practices and content for undergraduate neuroanatomy in the South African medical curriculum causes uncertainty and contributes to this pressure.

Aims: Information on the approach and perception of undergraduate neuroanatomy lecturers in South Africa regarding neuroanatomy in the medical curriculum is scarce and inconclusive. A study was undertaken to explore the attitudes and perceptions of neuroanatomy lecturers towards the relevance of neuroanatomy, as well as the teaching techniques and approach thereof, in the medical curriculum. In order to determine whether the lecturers' teaching approach and attitudes could be a contributing factor to neurophobia.

Methods: In a cross-sectional qualitative study, neuroanatomy lecturers from the nine South African medical schools were invited to complete an anonymous online questionnaire. This questionnaire focused the lecturer's attitudes and perceptions as well as the current neuroanatomy-relevant teaching, facilitation and assessment practices used at their institutions, to look for common threads and constructive alignment within the curriculum. Results were thematically analysed and grouped.

Results: Lecturing staff from seven of the medical schools participated in this study and included fourteen respondents. Most respondents are professional anatomists (92.9%) and one a clinician (7.1%). The respondents classified themselves mainly as either proficient (78.6%) or experts (15.8%) in their neuroanatomy teaching experience. All the respondents acknowledged that neuroanatomy is important in their students' medical training. Themes emerging from the data indicated that only a few respondents deem it necessary to modernize or adapt their teaching approaches to be more suitable for the 21st century student. The results further showed that traditional teaching pedagogy such as one-directional didactic lectures and guided dissection are mainly used in the teaching of undergraduate neuroanatomy. This indicated a need for more innovative, technology-supported teaching methods more suitable for the 21st century medical students in South Africa.

Conclusion: A lecturer's perceptions and attitude towards the subject or content, greatly affect the facilitation approaches and techniques used. This might have far-reaching consequences for students as it might impact on their attitude towards the content.

VENTER JJ, Schmulian A, Coetzee S

Skill development

Team innovation is the production of creative ideas concerning products, services, processes, and procedures through a collaborative effort in a team. Team innovation can accelerate an organization's ability to create value by enabling the organization to bring products to the market faster and to better respond to sudden changes, such as the changes caused by disruptive technologies that swiftly and drastically alter the way that consumers, industries or businesses operate. Consequently, team innovation is increasingly prevalent in the workplace and developing students' competence therein is of increasing importance. The development of team innovation competence is, however, not a priority in most education settings. This study therefore reports on the use of a project-based assessment for learning, requiring team innovation, in an undergraduate accounting programme. In particular, this study documents the design of the project and analyses the student teams' innovative outputs, as well as the students' individual reflections on collaboratively creating these outputs. A mixed methods approach was used to explore the students "lived experiences" of the project through the use of a survey. The results from the qualitative and quantitative data suggest that the majority of the students experienced the team innovation project positively. The benefit of learning through creativity and through diverse others in an authentic way was widely acknowledged by the students. Developing accounting students' team innovation competence using project-based principles contributes towards reestablishing the link between professional accounting education and practice.

VON VINTEL C

eQuality and Equity: Perspectives on maintaining a just balance of student education during a pandemic

As we write this article the world is witnessing the spread of Covid-19. Institutions of higher learning are constantly having to adjust their pedagogic strategies due to governmental and health-related decisions surrounding national lockdowns. Like academics in universities across the globe, South African lecturers are forced to consider online technologies as a result of the shutdown of contact institutions. In this article we share insights into the transition of an academic literacy module from a hybrid to a purely eLearning model of instruction. The module is heavily populated and enrolls over 1,500 first-year natural science students. These students emerge from diverse ethnic, disciplinary and geographical origins. By analysing statistical data from the Blackboard learning management system (LMS) we represent students' accesses to, and interactions in, this domain during these uncertain times. We also address current concerns around university students' capacities to access eLearning systems in South Africa under the threat of Covid-19. The study concludes that it is essential for the academic project to continue to the greatest extent that emergency conditions allow. It also argues that knowledge must continue to be produced in order for disadvantaged students to successfully catch up with missed learning time.

WEDER N, De Waal M

Comparing Online Instruction to Problem-based, Guided-inquiry Learning in an Academic Literacy

Academic literacy courses are an increasingly prominent feature of many Extended Curriculum Programmes (ECPs) at South African universities. These programmes include an additional year of study to develop the necessary academic skills for students who are insufficiently prepared for the demands of higher education. This paper compares the results of two different instructional modes for the teaching of grammatical functions: online instruction and problem-based, guided-inquiry learning, within the context of a compulsory academic literacy course for ECP students studying at the University of Pretoria in South Africa. In the first semester of the Language and Study Skills (LST) module, four key grammatical functions (parts of speech, sentence structure, punctuation, and discourse markers) are positioned as foundations on which to base subsequent writing skills taught later in the module. These grammatical functions are usually taught using online quizzes, and this approach is certainly very valuable when contact classes are not possible. However, many LST students still struggle with the application of these functions well into the second semester, which prompted a reconsideration of what the best instructional practice for this content would entail. Problem-based guided-inquiry learning encourages students to actively engage in the learning process and supports them in constructing their own understanding; it is a student-centred approach, influenced by learning theories such as constructivism and the Learning Cycle. The problem-based guided-inquiry method presents a possible alternative pedagogical approach which is suited to LST's content and teaching style. The researchers therefore sought to design an intervention study for the Language and Study Skills (LST) course that specifically responded to the educational context and needs of the ECP students. Using both qualitative and quantitative data collection methods, the research sought to establish whether problem-based guided-inquiry learning significantly improves students' educational experience, knowledge and application of certain grammatical functions when compared to online instruction. Data collected from the intervention and control groups' semester tests and exams revealed there to be a statistically significant difference in the performance of the two groups, while data collected from focus group interviews and questionnaires established that students involved in the problem-based guided-inquiry learning intervention generally experienced it as enriching and enjoyable. This study contributes to the growing body of work on problem-based guided-inquiry instruction by expanding it to include academic literacy instruction as well as ECP modules, while also calling into question the effectives of online quiz-style instruction.

WEST J, Malatji M

The use of Google sites to promote quality teaching and learning in higher education

The use and integration of technology within higher education, specifically teacher education, has become vital in preparing student teachers for the 21st-century classroom. The literature shows that the integration of technology provides students with the opportunity to deeply engage with content and it promotes self-regulated learning. Over two years, 320 student teachers who enrolled for a Foundation Phase language teaching module at a University in South Africa, were tasked with making their own websites. Their websites had to include a blog, informative text and a Youtube video, explaining a language-related topic (as part of the module's content). The use of google sites allowed student teachers to create free websites and share their knowledge about language teaching on an international platform. Interpretivist paradigm and qualitative research design were used in this study. Technological Pedagogical Content Knowledge (TPACK) model was used as a theoretical lens to interpret students' experiences on the use of Google websites. An online questionnaire and interviews were conducted for data collection purposes. Anecdotal data in the form of assessment rubrics and notes were also collected. The results of this study revealed that the use of Google sites promoted self-regulated learning while developing their 21st-century, technological skills. Students pointed out that the guidance and training they received throughout the module duration benefitted them greatly in designing their websites. Students further indicated that they were given an opportunity to research more on the content to create their own blog. Challenges the students experienced included a lack of or slow internet access, load shedding, cable theft, as well as a lack of technological knowledge and skills. The biggest challenge they experienced was recording a video. Therefore, the study recommends Google sites should be used within higher education to promote quality and technologically advanced learning. However, lecturers should allow for sufficient time and provide proper guidance and training on the use of Google sites, the recording of videos and the writing of blogs.

WIGGINS HZ
Lessons learned from a first-year diagnostic test in mathematics.

Parker (2005) noted that mathematics is often perceived by students as one of the more difficult academic subjects and not surprisingly many universities are finding a large percentage of incoming students' skills that require remedial assistance before, they are able to take basic mathematics courses. This international trend also occurs in South Africa. Mathematics lecturers in South Africa are concerned about students' under-preparedness for university mathematics course (Craig, 2007; Engelbrecht & Harding 2008).

There is substantial diversity in student intake and a unitary educational process (that is one that assumes that all students enter with similar level of preparedness) tends to favour better prepared students and disadvantage those less well-prepared. Yeld (2010) observes that traditional teaching approaches in South Africa are still widely used. Yeld argues that these traditional teaching approaches ignore the backgrounds and academic skills of the students in the respective classes.

This research emphasizes that there is a need to evaluate and confirm student's prior knowledge. It should be noted that AARP (Alternative Admissions Research Project) Tests and NBT (National Benchmark tests) exists in South Africa. Unfortunately, the results of these tests are not easily available. Therefore, there is a need for an in-house test that each university can employ to assess first-year students' skills and prior-knowledge. This instrument examines fundamental concept generally accepted as pre-knowledge for typical first-year chemistry courses in South Africa. This discovery before the start of a course creates the opportunity for remedial activities and can have a positive impact in teaching or advising students for the correct placement.

This ongoing research will present how the readiness test for first year mathematics courses was developed, the rationale behind this initiative and some initial results obtained via classical statistical methods and the Rasch-model.