Of course, the focus of the conference will not be on technology for the sake of technology. Rather, the focus will be on innovative, context-appropriate, student-centred teaching and learning technologies that have the best potential to address the dual imperatives referred to above, namely access to quality higher education and student success.

We consider ourselves fortunate that Professors Eric Mazur and Dick Ng’ambi have agreed to share their insights with us during the course of this conference. Based on their track records, the invited lectures that these specialists in the field of education innovation will present will undoubtedly add significantly to quality of engagement and scholarship offered by this conference.

For visitors to Pretoria, I hope that you availed yourself of the opportunity to visit the Virtual Reality Tunnel for Immersive Education as well as the Maker-space facility at the University of Pretoria while you are in the city.

I would like to thank the many sponsors of the conference. We hope to learn through technology.

Finally, I trust that you will find this conference stimulating and rewarding and that you will leave the conference with new ideas about how e-technologies can be harnessed to more meaningfully broaden access to higher education and enhance student success.

I would like to thank the many sponsors of the conference. We hope to learn from them where the next opportunities are for us to advance learning through technology.

Sincerely,

Norman Duncan
Vice-Principal: Academic University of Pretoria

Keynote Speakers

Prof. Eric Mazur (http://ericmazur.com/) is the Balkanski Professor of Physics and Applied Physics at Harvard University and Area Dean of Applied Physics. An internationally recognized scientist and researcher, he leads a vigorous research program in optical physics and supervises one of the largest research groups in the Physics Department at Harvard University. Mazur has founded several companies and plays an active role in industry. He is the Vice President of the Optical Society. In addition to his work in optical physics, Mazur has been very active in education. In 1990 he began developing Peer Instruction, a method for teaching large lecture classes interactively. He is the author of Peer Instruction: A User’s Manual (Prentice Hall, 1997), a book that explains how to teach large lecture classes interactively. In 2006 he helped produce the award-winning DVD Interactive Teaching.

Assessment: The silent killer of learning

Why is it that stellar students sometimes fail in the workplace while dropouts succeed? One reason is that most, if not all, of our current assessment practices are inauthentic. Just as the lecture focuses on the delivery of information to students, so assessment often focuses on having students regurgitate that same information back to the instructor. Consequently, assessment fails to focus on the skills that are relevant to life in the 21st century. Assessments are part of the ‘hidden curriculum’ as they are an important driver of students’ study habits. Unless we rethink our approach to assessment, it will be very difficult to produce a meaningful change in education.

Prof. Dick Ng’ambi is the founder and project director of the Educational Technology Inquiry Lab (ETILAB) – ‘a sandpit for educators’ at the University of Cape Town (UCT). He is a leading researcher in emerging technologies and mobile learning. He is currently the Stream Head of the Education-technology Programmes in the School of Education at UCT. He holds a Ph.D. from UCT.

Towards a culture of innovative pedagogical practices – shaking off institutional lethargy

One of the challenges facing Higher Education Institutions (HEIs) in Africa in general and South Africa in particular is institutional lethargy (i.e. tiredness, lack of energy and continued sleepiness). The problem with institutional lethargy is that lethargy gradually becomes an institutional culture (produced and being re-produced at institutions and taken for granted as the way things are). This fails to recognize innovation and marginalizes innovators, as ‘the way things are’ becomes threatened by new ideas and novel ways of doing and being. Institutions where such lethargy is left unchecked, perpetually feels left behind or that they are playing catch-up, remaining followers and knowledge consumers. In this keynote, the construct of institutional lethargy and its effect on innovative pedagogical practices will be addressed. Drawing from our work, examples of how technology is being used to ‘shake off’ institutional lethargy at pedagogical level will be presented.
**3rd Flexible Futures**

Higher Education Innovation Conference and Expo

CSIR Convention Centre, Pretoria | 5 – 6 September 2017

---

### Monday 4 September 2017, University of Pretoria

<table>
<thead>
<tr>
<th>Day 1: 5 September</th>
<th>Virtual Reality Centre</th>
<th>Study Centre</th>
<th>Makerspace</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 people per group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group 1</td>
<td>LEADER: Dennis Kriel</td>
<td>10:00 - 10:55</td>
<td>11:10 - 11:25</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>11:45 - 12:15</td>
</tr>
<tr>
<td>Group 2</td>
<td>LEADER: Adriana Botha</td>
<td>11:00 - 11:55</td>
<td>12:10 - 12:25</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>12:45 - 13:15</td>
</tr>
</tbody>
</table>

Parking is being arranged at the undercover parkade, entrance from University Road. Participants will be directed to the parking area where the leaders will await them. University of Pretoria staff should meet the group on the lawn in front of Engineering 1.

Set-up of exhibition stands and posters at CSIR Convention Centre. Posters can also be set up early on 5 September.

---

### Tuesday 5 September 2017, CSIR Convention Centre

**PROGRAMME**

**Opening PLENARY:** Vice Principal: Academic, University of Pretoria

Opening PLENARY: Vice Principal: Academic, University of Pretoria

**08:30**

**09:00**

**Keynote PLENARY online:** Assessment: The silent killer of learning

**CHAIR:** Wendy Kilfoil

**10:00**

**10:30**

A comparison between automated and manual marking of programming assignments

**Christoph Stallmann and Vreda Pieterse**

Two ways of making Mathematics fun through assessment

**Harry Wiggins**

Implementation of Numbas e-assessment system for a first-year Engineering modules

**Ridwaan Fakir and Ione Loots**

**CHAIR:** Detken Scheepers

**11:50**

Using YouTube to enhance instructional effectiveness in Chemistry for first-year students

**Christine Mundy and Marietjie Potgieter**

Lecturers’, mentors’ and students’ perceptions and beliefs towards online assessments

**Tebogo Kekana**

**CHAIR:** Astrid Turner

**12:35**

Vendor stalls, Posters attended by designers with handouts

**13:00**

Lunch

---

Parking is being arranged at the undercover parkade, entrance from University Road. Participants will be directed to the parking area where the leaders will await them. University of Pretoria staff should meet the group on the lawn in front of Engineering 1.

---

Parking is being arranged at the undercover parkade, entrance from University Road. Participants will be directed to the parking area where the leaders will await them. University of Pretoria staff should meet the group on the lawn in front of Engineering 1.

---

Parking is being arranged at the undercover parkade, entrance from University Road. Participants will be directed to the parking area where the leaders will await them. University of Pretoria staff should meet the group on the lawn in front of Engineering 1.

---

Parking is being arranged at the undercover parkade, entrance from University Road. Participants will be directed to the parking area where the leaders will await them. University of Pretoria staff should meet the group on the lawn in front of Engineering 1.

---

Parking is being arranged at the undercover parkade, entrance from University Road. Participants will be directed to the parking area where the leaders will await them. University of Pretoria staff should meet the group on the lawn in front of Engineering 1.

---

Parking is being arranged at the undercover parkade, entrance from University Road. Participants will be directed to the parking area where the leaders will await them. University of Pretoria staff should meet the group on the lawn in front of Engineering 1.

---

Parking is being arranged at the undercover parkade, entrance from University Road. Participants will be directed to the parking area where the leaders will await them. University of Pretoria staff should meet the group on the lawn in front of Engineering 1.

---

Parking is being arranged at the undercover parkade, entrance from University Road. Participants will be directed to the parking area where the leaders will await them. University of Pretoria staff should meet the group on the lawn in front of Engineering 1.

---

Parking is being arranged at the undercover parkade, entrance from University Road. Participants will be directed to the parking area where the leaders will await them. University of Pretoria staff should meet the group on the lawn in front of Engineering 1.

---

Parking is being arranged at the undercover parkade, entrance from University Road. Participants will be directed to the parking area where the leaders will await them. University of Pretoria staff should meet the group on the lawn in front of Engineering 1.
### 13:45
**From passive to active learning: Using clickers in large classes**
**Carel Oosthuizen**
The manner in which lecturers use educational technology in a classroom setting at a University of Technology in South Africa
**Pauline Machika and Dina Msiza**
Enhancing pedagogy in Genetics: The hybrid vigour model
**Kershney Naidoo and Kishen Mahesh**

**CHAIR:** Moeketsi Sesemane

### 14:55
**Implementing learning analytics within a South African higher education institution: A case study of lessons learnt and work in progress**
**Dolf Jordaan**
**Best paper finalist**
The importance of creating personalized learning
**Karen Walstra**
**CHAIR:** Marietjie Potgieter

**Advising digitally savvy students: A blended approach to delivering academically advising syllabus**
**Ninette Aucamp**

**Innovative student success strategies reaching beyond the classroom**
**Louise Thorpe (Blackboard)**

**CHAIR:** Adriana Botha

### 15:55
**TEA**

### 16:15
**The inter-app-tive classroom,**
**Ronel Callaghan and Jody Joubert**

Embracing messenger Chatbots in teaching and learning,
**Stephen Coetzee**

**CHAIR:** Tony Mays

### Wednesday 6 September 2017, CSIR Convention Centre

<table>
<thead>
<tr>
<th>Day 2: 6 September</th>
<th>Ruby</th>
<th>Exhibition Hall</th>
</tr>
</thead>
</table>
| 8:30              | **Keynote PLENARY:** Towards a culture of innovative pedagogical practices – shaking off institutional lethargy  
*Professor Dick Ng’ambi, University of Cape Town* |  
**CHAIR:** Thea de Wet |
| 9:35              | Digital learning solutions – using technology as an enabler to evolve teaching methods and student outcomes  
*Panel discussion, Chair - Andrew Robinson, Panelist – Claire Blackman, Panellist – Joné Pienaar, Panellist – Stuart Webster, Amanda Cheung (CENGAGE)* |  
**The importance of digital literacy in achieving student success in 2017,**  
*Aamina Gangat (Pearson)*  
**CHAIR:** Lindiwe Soyizwapi |
| 10:50             | TEA  | |
| 11:15             | Thinking without a box: Innovative teaching practice and technology in a crisis response  
*Jennifer Winstead, Cheryl Foxcroft, Creswell du Preez and Jaco Diedericks* |  
**Virtually having normal lectures through challenging times**  
**Carel Oosthuizen**  
**Insights from science teaching and learning during disruptions**  
**Ina Louw, Rethabile Tekane and Marietjie Potgieter**  
**CHAIR:** Masebala Tjabane  
**The AfriVIP project: Open education resources in Veterinary Science**  
**Marius Pienaar**  
**Using analytics and data to assist in creating personalized learning environments**  
**Karen Walstra**  
**The potential of the Library MakerSpace to develop student understanding**  
**Dennis Kriel, Machdel Matthee and Marita Turpin**  
**CHAIR:** Erika Muller |
| 12:50             | LUNCH |  |
| 13:40             | Achieving 21st century tertiary education by making learning visible and removing fragmentation,  
*Lieb Liebenberg (ITSI)* |  
**Equipping academics to teach in the digital age,**  
*Myles Thies (Blackboard, Inc.)*  
**CHAIR:** Dolf Jordaan |
| 14:45             | Collaborative assessment – enhancing cross-cultural team work  
*Astrid Schmulian,*  
**Blended learning: Enhancing learning for student success in Organic Chemistry**  
**Lynne Pilcher, Ina Louw, Lizelle Fletcher and Marietjie Potgieter,**  
**Best paper finalist**  
**CHAIR:** Sanet Haupt |  
**Comparison of unimodal and bimodal English comprehension among clinical associate students**  
**Helena Kruger-Roux and Pineteh Angu**  
**Using e-learning to create interactive lessons in English education**  
**Lizette de Jager**  
**CHAIR:** Jacqueline Rammupudu |
| 15:45             | **PLENARY:** Closure and announcement of winning paper,  
*Best paper evaluators: Thea de Wet, Moeketsi Sesemane, Astrid Turner* |  
**Best paper:**  
**Award for Excellence in Teaching and Learning**  
**Amanda Cheung (CENGAGE)**  
**CHAIR:** Thea de Wet |

### Move between venues

**CHAIR:** Moeketsi Sesemane
THANK YOU TO OUR SPONSORS
PAPERS AND DEMONSTRATIONS

Aucamp, N. Advising digitally savvy students: A blended approach to delivering academic advising

Academic advising as a profession and a practice must meet today’s digitally savvy students ‘where they are’. Traditional face-to-face advising interactions are no longer enough to provide academic advising syllabus and promote student engagement. This study is focused around the development of an innovative blended learning approach to delivering the academic advising syllabus to students. A complete course-redesign was implemented on the online advising platform. The focus is a showcase of the re-design and implementation of the online academic advising course and presents findings on the effectiveness and impact of the blended academic advising approach at the UFS.

Callaghan, R. and Joubert, J. The inter-app-tive classroom (Demonstration)

Interactive teaching and learning have gained prominence in education in the past few years. Advancement in technology has created possibilities to implement interactive approaches within the classroom and beyond. The purpose of this demonstration is to illustrate the interactive environment that can be created in a teaching and learning space, incorporating a variety of technology and mobile applications. This environment consists of physical and virtual elements that must be meaningfully integrated. Applications that create the virtual environment enhance the teaching and learning process. These applications support content creation, presentation, communication, assessment, and reflection. The technology includes mobile devices, interactive surfaces, projection and casting. The demonstration showcases such an environment in a way that will allow for audience participation.

Cheung, A. (CENGAGE) and Panel. Digital learning solutions – using technology as an enabler to evolve teaching methods and student outcomes

1) transitioning from using traditional teaching methods and resources to integrate digital platforms and content into your course.
2) How do you think the use of digital learning solutions can really help with getting students interested and engaged
3) What role does online content and platform play in facilitating assessment and providing appropriate feedback to students?
4) Student feedback

Coetzee, S. Embracing messenger Chatbots in teaching and learning (Demonstration)

Until recently, online learning resources have fallen far short of offering an effective or personalized learning experience. However, an innovation appears to offer potential for effective personal learning – Chatbots in messaging apps. The purpose of our chatbots (Accounting Rookies, FRK 201 and IFRS Rookies) is to act as a virtual guide or ‘tutor’ for introductory and intermediate financial reporting students, to improve their learning outcomes, to provide an alternative means of content delivery, to increase student motivation and interest, to increase our own productivity as instructors and to enable high-quality personalized education that is widely available and freely accessible. This presentation will demonstrate the use of the tool.

De Jager, L. Using e-learning to create interactive lessons in English education

Students today are more technologically advanced than ever before. They live their lives with technology at their fingertips. Not only do they own multiple ICT devices, they use them constantly. The task for teachers today is a stronger focus on successfully integrating e-learning into the curriculum. This paper reports on a project conducted with the aim of sourcing and evaluating Android Apps for use in the English classroom. It offers a narrative of the process undertaken in the project and explores the benefits of using Apps in the English classroom for learning, practising and studying. E-learning methods
and strategies that work and support learning in the modern classroom are introduced. The aim is to close the gap between traditional methods of teaching languages and literature and the way in which technologically intelligent students learn a language. Challenges in terms of implementation and assessment strategies are addressed. The paper shows how Apps can be the change agent that will take the language classroom into a whole new way of learning.

Fakir, R. and Loots, I. Implementation of Numbas e-assessment system for a first-year Engineering module

With almost 1,800 students registered for Mechanics, a first-year engineering module at the University of Pretoria, the process of marking weekly short handwritten tests had become cumbersome and expensive for the Department of Civil Engineering. Hence, the need arose for an online assessment solution. A pilot study using Numbas, a free web-based open-source system, was adopted through the university’s online Blackboard Learn clickUP portal. Numbas can generate a timed unique test for each student with adaptive marking for follow-up questions, return feedback and provide solutions once graded. Since the assessment is online, results can easily be accessed and processed as needed.

Gangat, A. (Pearson) The importance of Digital Literacy in achieving student success in 2017

During the last four years we have seen an increase in the use of digital tools and courseware at higher education institutions in South Africa and also in other markets. Join us to learn more about our learning journey over the past four years. Find out how user error owing to low digital literacy influences user experiences when interacting with digital courseware and how you can enhance your students’ success by incorporating various tools to improve learning outcomes.

Hanekom, T. and Van Jaarsveld, W. DEECE Robot Car Race Day: Technology-supported, project-based collaborative learning (Demonstration)

The practitioner demonstration will involve a brief discussion of the approach in the module and a demonstration of the robot car race involving some of this year’s top teams. Third-year students in microcontrollers, a module presented by the Department of Electrical, Electronic and Computer Engineering, design and construct a Microcontroller-based Autonomous Robotic Vehicle (MARV) for the practical component of the module. The MARVs need to follow a series of coloured lines in a racing event autonomously. The use of coloured lines complicates the problem outside the normal scope of internet resources forcing students to fall back on their own skills instead of hacking together a solution from the internet. The MARVs participate in a race to showcase and celebrate the students’ accomplishments. The project aims to equip students to excel in the contemporary field of embedded control. It systematically guides them through the development of a fundamental set of engineering skills. Presentation of the module relies heavily on technology support. Integration of a practical assignment for the concurrent analog electronics module aims to create cohesion among EEC fields to expand the learning benefits of the robot race across modules. The approach has enhanced student interest in the module as well as their success.

Jordaan, D. Implementing learning analytics within a South African higher education institution: A case study of lessons learnt and work in progress

Data analytics have become an essential feature of society including Higher Education (HE). Although data have been embedded in core functions in HE, such as academic- and financial administration, the emerging field of Learning Analytics (LA) promises to impact not only on student success but also on teaching and learning. The promise of ‘data-driven decisions’ is a theme in the majority of LA related articles and publications. This paper aims to show that the promise of data-driven decision making may remain a dream if it is not supported through changes in policies, processes and strategies.

Kekana, T. Lecturers’, mentors’ and students’ perceptions and beliefs towards online assessments

Assessment is crucial in showing if learning has taken place. However, online assessment has its own challenges, particularly when it comes to assessing in a university of technology, as recent research into online assessment has shown. This paper explores perceptions and beliefs of lecturers, mentors, tutors and students on the challenges linked to online assessment. An investigation using a questionnaire complimented by in-depth interviews with a selected sample of research subjects was conducted to explore online assessments beliefs and perceptions among these stakeholders.
Kriel, D., Matthee, M. and Turpin, M. *The potential of the Library MakerSpace to develop student understanding*

The library MakerSpace at the University of Pretoria offers students the opportunity to turn their ideas into tangible products rapidly. First year Information Systems students were introduced to the Maker Movement with its focus on collaboration and joint innovation. Having to apply design thinking to develop a corporate gift within monetary and time constraints, they could experience the economic potential of rapid prototyping using the tools available. These tools include 3-D modelling and printing within a supportive environment. Through this assignment students developed a better understanding of effective design processes and the elements of the Maker Movement that include making, Maker Spaces and the maker identity.

Kruger-Roux, H. and Angu, P. *Comparison of unimodal and bimodal English comprehension among clinical associate students*

The aim of this pilot study is to establish whether there is a significant difference in the comprehension of a discipline-specific video for clinical associates with English audio between participants watching the video with English subtitles and participants watching the video without subtitles. Participants are required to complete a multiple choice comprehension exercise based on the video and the results of the test and control groups are compared.

Lieb Liebenberg (ITSI). *Achieving 21st-century tertiary education by making learning visible and removing fragmentation*

Tertiary institutions and lecturers are expected to do the impossible. They must deliver world class, relevant 21st century training on par with what happens in similar institutions all over the world. It is expected of them to do so within the constraints of South Africa being a developing country and as such to do this with limited finances, resources, intermittent Internet connectivity, and other challenges.

Louw, I., Tekane, R. and Potgieter, M. *Insights from science teaching and learning during disruptions*

The student unrest during 2016 posed a real risk for academic progress. Students in the Faculty of Natural and Agricultural Sciences were given limited access to campus and lecturers had to be innovative to complete the learning plans for the semester. This study shares a meta-reflection on experiences as reported by lecturers from thirteen departments. Video data were analysed inductively to generate themes and sub-themes. Three themes emerged from the data: namely, ‘actions taken by the lecturers’, ‘lessons learnt’ and ‘future plans’. The insights that the lecturers gained about themselves and their students are shared.

Machika, P. and Msiza, D. *The manner in which lecturers use educational technology in a classroom setting at a University of Technology in South Africa*

Within the South African higher education context very little is understood about the manner in which lecturers use educational technology when implementing a university-wide blended learning strategy at a university of technology (UoT). A survey questionnaire was distributed among lecturers with the primary aim of trying to make meaning of the manner in which lecturers use technology within a UoT classroom environment. The results of the study revealed five key findings that underpin the manner in which lecturers use educational technology in this setting.

Mundy, C. and Potgieter, M. *Using YouTube to enhance instructional effectiveness in Chemistry for first-year students*

In embarking on a blended learning approach for first year chemistry, YouTube videos were chosen as a vehicle for student learning. The videos were short and structured. They were viewed outside class time. Videos were produced for two of four examinable topics. Data were gathered to measure the effectiveness of the videos through student questionnaires, student performance, YouTube analytics and a focus group interview. Students had an overwhelmingly positive reaction to the intervention. It was found that students performed best in the topic with the most viewing time – Redox reactions. Additionally, students’ self-evaluation of performance was over-confident in all of the other topics.
Naidoo, K. and Mahesh, K. *Enhancing pedagogy in Genetics: The hybrid vigour model*

Hybrid learning has been incorporated into many undergraduate and postgraduate modules within the Department of Genetics at the University of Pretoria. The online learning system creates a space for enhancing pedagogical practices that cater to all learning styles, providing a platform for students to engage and interact with course content. These vary from traditional teaching strategies to the use of technology-adapted interfaces that make use of web-based management applications, such as BlackBoard Learn. The aim is to showcase the use of various technological tools that aid teaching and learning methodologies via the use of digital platforms for innovative assessment.

Oosthuizen, C. *From passive to active learning: Using clickers in large classes*

Engaging students in large enrolment first-year modules has been challenging. Giving a voice to all learners during a face-to-face lecture session seemed highly unlikely. With the introduction of an in class audience response system (clickers) this major challenge was changed into an interactive enjoyable learning experience for the learners as well as the lecturer. Being able to see if key concepts are being understood, and how well, during face-to-face lecture sessions have until now been a presumptive feeling based on the in class interaction with only a few learners actively participating. With the use of clickers, this changed drastically.

Oosthuizen, C. *Virtually having normal lectures through challenging times*

Disruption to the normal university programme left many lecturers stranded and in the dark towards the end of 2016. The route taken by most lecturers to continue with a semblance of normal teaching included narrated PowerPoint lectures provided as an online resource to students. This created in lecturers the feeling of being detached from their students. Virtual synchronous classrooms through BlackBoard Collaborate allowed real-time lecturer-student interaction as well as student-lecturer interaction that was recorded and provided as an online resource to all students.

Pienaar, M. *The AfriVIP project: Open education resources in Veterinary Science*

Working together, universities have to develop stronger national and regional knowledge systems in veterinary science. Addressing this need for education in Africa led to the creation of the African Veterinary Information Portal (AfriVIP). This project is a partnership between stakeholders in the veterinary and related industries. This paper explains the rationale of the AfriVIP portal and discusses the collaboration with OER Africa in the establishment and development of the portal, drawing together the intellectual capital of the Faculty of Veterinary Science of the University of Pretoria (UP) and its regional partners on an open education platform. Successes and challenges of the portal under an open licensing framework using open education resources (OER) are also highlighted. Furthermore, this paper briefly explains the envisaged collaboration with Vetlink and the World Animal Health Organisation.

Pilcher, L., Louw, I., Fletcher, L. and Potgieter, M. *Blended learning: Enhancing learning for students in Organic Chemistry*

A blended learning approach using the textbook’s online platform was introduced to enhance student success in first and second year organic chemistry. Increasing student numbers in the first year meant that students could only be accommodated in a face-to-face tutorial every second week and online tutorials in alternate weeks. The effect of face-to-face versus online tutorials on students’ marks was explored. Student preferences for learning modality were also investigated. In the second year a flexible design caters for student learning preferences allowing them to choose the mode they prefer. Preliminary results point towards a positive effect at both levels.

Rautenbach, V. and Coetzee, S. *Transferring work-readiness skills with technology in a community-based service learning approach for geoinformatics professionals*

Community-based service learning has proven to be successful for transferring work-readiness skills to final-year geoinformatics students at the University of Pretoria. Students complete a project from start to finish, using GISC knowledge and skills acquired to date. They work in teams to map an informal settlement, engage with the local community and implement a web solution for a community problem. Various technologies are used to transfer work-
readiness skills. The teamwork environment creates a social learning space for the acquisition of soft skills and for fostering a sense of social responsibility, important for a career as GISc Professional.

Schmulian, A. **Collaborative assessment – enhancing cross-cultural teamwork** (Demonstration)

This demonstration showcases the use of immediate feedback scratch-off cards in a collaborative assessment in intermediate accounting. The class was stratified according to prior academic performance before being randomly allocated to a group from each stratum. The resultant groups were culturally diverse. The students’ performance significantly exceeded that of their traditional individual assessments. Students reacted positively and 91% suggested they would like to be assessed in this manner again. Many of the students reported that the collaborative assessment created the opportunity for crossing perceived cultural divides and enhanced cross-cultural teamwork.

Scott, C., Boshoff, J. and Boshoff, D. **Role-play and immersive experiences as a learning platform to provide learners with career insights: The KidZania experience**

This paper investigates experiential learning through immersive role-play experiences for the purpose of providing learners with career insight as it is specifically applied in the KidZania concept. The study is based on a literature review of various learning techniques that provide learners with a comprehensive and realistic experience of real life events and provides a case study to investigate the application of experiential learning techniques within the KidZania concept. The focus is on learners between the ages of 4 to 14 and how role-play could enhance their understanding of potential career paths in their adult lives. This paper extends the research on the topic of experiential learning to how it is specifically applied in career awareness and indicates how the KidZania model could be successfully applied to increase children’s exposure to learning through this immersive experience within the South African context.

Stallmann, C. and Pieterse, C. **A comparison between automated and manual marking of programming assignments**

With an increased demand for tertiary education in South Africa, many classes at universities have grown, often without an increase in the number of academic staff. With a large student-to-lecturer ratio, it is essential to automate certain tasks. This paper investigates a tool for automating the marking of source code in programming modules. An analysis is conducted on the automated marking and compared to manual marking in order to determine the mark distribution between the two approaches. The analysis provides insights into the fairness of automated marking towards students and provides a foundation for tertiary institutions that are considering using or are currently using tools to mechanize the evaluation process.

Sutherland, C. and L’Abbé, E. **The amazing modern human race**

The Amazing Modern Human Race (AMHR) is an augmented reality game that simulates modern human migration on the Hatfield campus of the University of Pretoria. Augmented reality integrates digital information with the player’s environment in real time. QR codes are planted all over campus according to specially selected areas that correspond with fossil sites. Students scan the codes using their smart devices and unlock clues about human migration along with the GPS coordinates to the next QR code. The Amazing Modern Human Race integrates gamification principles, easily accessible technology and evidence-based science to create a stimulating and fast-paced learning environment.

Thies, M. (Blackboard, Inc.) **Equipping academics to teach in the digital age**

Blackboard and Eiffel Corp are celebrating an incredible 20 year partnership with the University of Pretoria. We reflect on the remarkable strides this valued partnership has made in twenty years and look forward to another two decades of working with the University to achieve even greater institutional success through the development of world class graduates and a dynamic and innovative faculty harnessing digital technology for teaching and learning.

Thorpe, L. **Innovative student success strategies reaching beyond the classroom**

This session will explore a series of innovative hybrid learning strategies designed to impact directly on student performance and success. It will consider the institutional conditions required to enable these strategies (including
curriculum design practices, academic staff skills and support and IT infrastructure) and mechanisms for measuring impact and success (including student satisfaction, engagement and performance). At the end of the session, participants will have an understanding of which technology-enhanced blended/ hybrid learning modalities have a demonstrable, positive impact upon student success and which approaches make ‘no significant difference’ to student performance. They will have a working understanding of institutional and individual actions that underpin these modalities. The session will also provide the opportunity to explore likely future trends in learning technology that will further encourage learner-centred education, create creative thinkers and improve student success.

Van der Westhuizen, C. Hybrid learning and university transformation: Meeting the challenges of online environments to advance critical diversity

Doing Difference Differently (UP3D), a University of Pretoria pilot module launched in 2015, advances transformation through critical diversity – particularly, through critical self-reflection about difference among all first-year students. This involves transformation at both the levels of curriculum and institutional culture. With the potential of student numbers swelling to the thousands, online was selected as method of delivery. The choice generated a challenge: it was essential to craft a real-life, face-to-face dimension, as the course is about self in relation to other, which cannot be addressed at individual level online. To address this challenge, an innovative hybrid learning approach was developed.

Walstra, K. The importance of creating personalized learning

Personalized learning is supposed to address the specific learning needs of an individual learner. A wide range of educational programmes, instructional approaches, academic-support strategies and learning experiences are incorporated to develop a personalized learning model. In education environments data are available about students’ academic progress and results but how could the data be used to personalize learning? A Grade 6 case study is used to demonstrate how data could be used. It illustrates how learners’ results and response systems encouraged learners to engage. Tools were used to analyse the individual learners’ results easily and provide information to benefit each learner’s progress. As part of the learning process students are encouraged to reflect, adapt and evaluate their own progress by analysing their own data. The Grade 6 case study data were used to establish accurate differentiated groups. Adaptive learning strategies could be developed to suit the individual needs of the learner, by telling a story using the data. This was done with the learners’ results to benefit each learner individually and enhance engagement.

Walstra, K. Using analytics and data to assist in creating personalized learning environments

In this practical session the presenter will demonstrate, using Grade 6 learners’ results, how the Google’s Grade Book could be used by lecturers and teachers to analyse the individual learners’ results easily and provide information to benefit each learner’s progress. The use of tools such as Google forms, in quiz mode, used a response tool, to provide instant feedback during sessions, will be demonstrated. The actual quiz results of learner’s show how the feedback is given and how engagement is enhanced. Other online tools, such as Socrative and Exit-ticket, provide instant feedback to students. Predictive technologies could assist the learner in achieving future academic goals. The data analysis would assist both student and lecturer, especially if the resources were available online.

Wiggins, H. Two ways of making mathematics fun through assessment

Online assessment activities are becoming more prominent for large undergraduate university courses. In this paper, two methods of using e-assessment in a university mathematics course will be discussed. The presenter will share how e-assessment is used as a tool of enjoyment to help students have fun while learning problem-solving skills and self-assessment.

Winstead, J. and Foxcroft, C. Thinking without a box: Innovative teaching practice and technology in a crisis response

With the crisis of an incomplete academic year looming, the Nelson Mandela University took bold steps towards the end of 2016 to salvage the academic year. The multi-pronged plan required the rapid expansion of technology infrastructure into targeted community spaces, facilitating a significant increase in the university’s blended learning
drive. Simultaneously, the plan required the transformation of the Nelson Mandela Bay World Cup Stadium into a thriving academic space to host lectures and examinations. As a result of the innovative ‘without a box’ thinking around teaching practice and technology, the Nelson Mandela University successfully completed the 2016 academic year.

POSTERS


In order to better prepare clinical year students at the Faculty of Veterinary Science, University of Pretoria, South Africa, for their first live animal ovariohysterectomy (OVH), an interactive touch screen OVH application was developed.

Bookhan, V. The educational impact of WhatsApp messenger on Dental Students in Odontology

WhatsApp has been used as an innovative educational tool in other health science fields but its educational potential in dentistry has not yet been comprehensively investigated. The purpose of the research was to determine the educational impact of WhatsApp messenger on dental students, in Odontology, when it is used as a blended teaching and learning tool. Sixty two (n=62) consenting BChD V dental students (class of 2017) participated in this study during normal university hours to ensure that all students had access to the free Wi-Fi provided by the University of Pretoria at the School of Dentistry. At the conclusion of the study, the majority of the class (95 %) were in favour of using WhatsApp messenger as a teaching and learning tool to facilitate educational communication.

Du Pisani, L.A. The educational value of video in a hybrid teaching and learning environment

The poster will touch on the educational rationale for the use of video and posters in a hybrid teaching and learning environment. It will address student access to videos in the South African context, the key advantages and disadvantages of the use of video in teaching and learning, the criteria for good effective educational videos, the quality versus educational value and methods to make videos more accessible to students. The interactive poster will demonstrate how the Aurasma app can be used to activate video material embedded in a poster. On the surface, the poster is informative. With the app, it becomes three dimensional and enables students to view certain procedures from different angles in action. Examples of linking videos to static images like Aurasma and QR-codes will be practically demonstrated during presentation times.

Hanekom, T. and Van Jaarsveld, W. A holistic approach to technology support for embedded control education – the cool tool approach

The third year microprocessors module presented by the Department EECE at UP employs a variety of technologies to create an optimal learning environment. These include professional development tools for embedded design, sophisticated custom automated grading software, computerized tutoring, video tutorials, online tutorial sessions, hands-on classes in computer laboratories, expansion of laboratory-capacity for presentation of classes through a Skype-based protocol, student engagement through social media, quiz applications for formative assessment, and a high-tech approach to hosting the annual Robot Car Race Day. The poster will present a visual summary of these technologies as developed for and applied in the module.

Holmner, M. and Penzhorn, C. The amazing information race

Adopting a blended learning approach means rethinking and redesigning the teaching and learning relationship (Garrison & Kanuka, 2004) and the development of new skills by both students and teachers (Poutanen, Parviainen & Aberg, 2011). The shift to a new blended model in 2010 in Information Science involved a great deal of redesigning and extra work as all paper-based assessments had to be re-packaged electronically. The value of this hard work, effort and redesign was experienced in later years as it became less time-consuming to add new electronic assessment opportunities than to design them from scratch.

This study is an exploratory analysis of patterns of student engagement in a blended learning environment in a first-year course offered at the University of Pretoria. The uniqueness of the design of the study lies in the unit of analysis (a single course), the nature of the data that was analysed and the usefulness of the results for optimization of the blend of learning opportunities for different subgroups of the cohort.

Manning, D. and Scheepers, D. Flip or flop? Narrated PowerPoint for anywhere, anytime learning

Institutional investment in technology to enhance learning is converging with student investment in mobile devices for accessing information. This creates exciting opportunities for more interactive pedagogical approaches to harness the advantages of blended learning. The electronic learning platform of the University of Pretoria (a customized version of BlackBoard Learn, known as clickUP) includes a facility for easily creating and uploading narrated PowerPoint presentations.