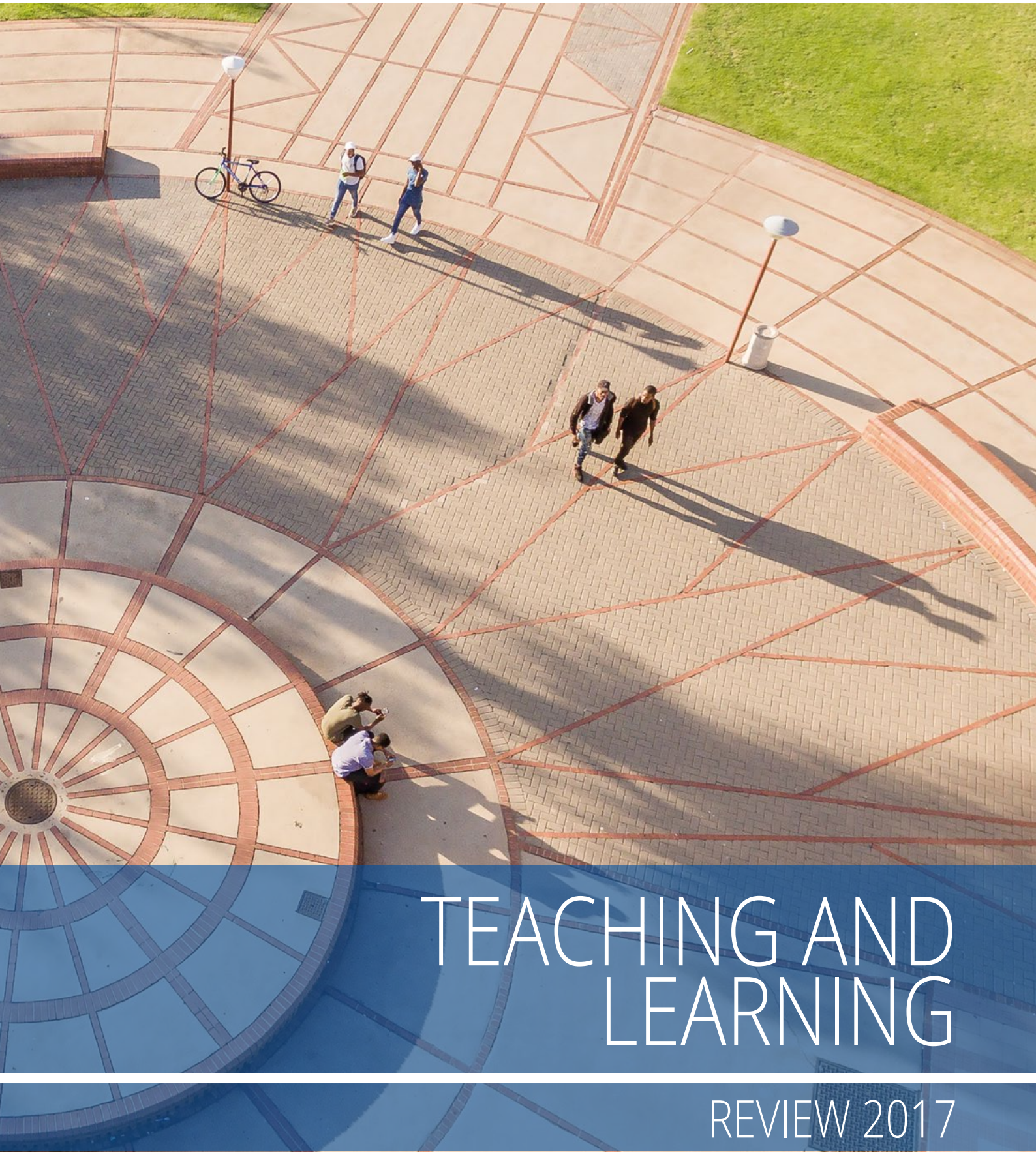

TEACHING AND LEARNING

REVIEW 2017

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Vision

To be a leading research-intensive university recognised internationally for its quality, relevance and impact and for developing people, creating knowledge and making a difference locally and globally

Navigational markers

Quality, relevance, diversity and sustainability

Goals 2017–2021

1. To enhance access and successful student learning
2. To strengthen the University's research and international profile
3. To foster and sustain a transformed, inclusive and equitable University community
4. To optimise resources and enhance institutional sustainability
5. To strengthen the University's social responsiveness and impact in society

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Deputy Deans/Heads of Teaching and Learning:

Professor Johan Oberholster,
Faculty of Economic and
Management Sciences

Professor Salome Human-Vogel,
Faculty of Education

Professor Alta van der Merwe,
Faculty of Engineering,
Built Environment and
Information Technology

Professor Dianne Manning,
Faculty of Health Sciences

Professor Hennie Stander,
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Faculty of Law

Professor Marietjie Potgieter,
Faculty of Natural and
Agricultural Sciences

Professor Ernest van Eck,
Faculty of Theology and Religion

Professor Dietmar Holm,
Faculty of Veterinary Science

Foreword by Vice-Chancellor and Principal

Professor Cheryl de la Rey

Over the millennia societies have preserved and passed on knowledge through a range of activities and media, including oral transmission (by such figures as the travelling bards of the middle ages, the story-tellers of Africa and the hedge teachers of Ireland), and inscription on scrolls, papyrus, vellum, paper, etc. More recently, digital media have come to the fore as a means of passing on knowledge.

Teaching is not merely capturing or transmitting content. Rather, it is about the mediation of knowledge and skills. It involves exposure to new information in the context of existing knowledge through exposition, discussion and application, with the promise of building on what is known, generating new insights and perspectives and adding to the existing store of knowledge. Moreover, it is about engaging students to act in ways that will lead to learning and the generation of new knowledge. The concepts of how students learn and how we teach them to manage their access to knowledge for success are both of equal importance.

The perspectives of many contemporary theorists and practitioners inform the University of Pretoria's approach to teaching, learning, assessment and student success. A particular focus is on teaching in a digital age, both to enhance student progression and to enable the future success of graduates in a work environment where technology is ubiquitous. The scholarship of teaching and learning at the University, as well as the practice thereof, add to the rich theoretical mix that influences how we teach and how we support students to succeed. Learning analytics, using a variety of data, also provides evidence to support improvements in teaching.

Importantly, the University of Pretoria's approach to teaching does not draw a sharp distinction between teaching and research, recognising that the best teaching is appropriately informed by the latest developments in research. At the same time, teaching and the scholarship of teaching and learning, at their best, extend and enrich knowledge, thereby raising new questions for advanced research. In this way, a symbiosis between teaching and research is generated.

In recent years, teaching in a research-intensive university has been widely studied internationally, and the emphasis is on creating synergy between teaching and research. The University's inquiry-based learning model advocates integrating research into the curriculum from a student's first year of undergraduate study and intensifying the rigour as a student progresses through the degree and on to postgraduate studies.

I commend the innovative efforts of our academics to enhance the quality and impact of teaching in 2017. In particular, I acknowledge the increased use of educational technology and specifically the Learning Management System (LMS) to support teaching and learning at undergraduate level. The use of the LMS increased from 39% in 2007 to 94% in 2017, up from 87% in 2016. Data show that students who used the system more actively had a higher final grade in 2017 than students who spent less time on the LMS elements of their modules. Well-designed hybrid learning has a positive impact on student success, and the University of Pretoria is therefore committed to pursuing this approach.

The Teaching Development Grant from the Department of Higher Education and Training continued to contribute significantly to teaching development and student success in 2017. Since its institution in 2014, the Siyaphumelela project, funded by a grant from the Kresge Foundation, has been instrumental in the development of the University's ability to use data to improve student success. Many donors provided support to students through bursaries and wrap-around services, including the Michael and Susan Dell Foundation, the MasterCard Foundation and the SAICA Thuthuka Bursary Fund. UP was also fortunate to be chosen as a member of the group of universities piloting the new Ikusasa Student Financial Aid Programme, which focuses on the 'missing middle', talented students who fall outside the parameters of the National Student Financial Aid Scheme but do not have the means to study at a university.

On behalf of the University of Pretoria, we are grateful for the financial and moral support of our many donors, stakeholders and alumni. Your continued support assists the University to create opportunities for academically meritorious students to realise their dreams and aspirations and thereby expands the national pool of professional talent.

Cheryl de la Rey
Vice-Chancellor and Principal
April 2018

Foreword by Vice Principal: Academic

By all accounts, 2017 was a very productive year in terms of teaching and learning at the University of Pretoria (UP). There can be no doubt that this was largely due to the hard work and commitment of the University's teaching and learning stakeholders, among others, our Department for Education Innovation, our Deputy Deans/Faculty Chairs for Teaching and Learning, our Faculty Teaching and Learning Committees, the Department of Information Technology Services, the Department of Student Enrolment and Administration, and our lecturing staff.

In many ways, 2017 was also a seminal year, as it was during 2017 that many important strategies that were meant to lay the basis for the enhancement of student success at UP were initiated or consolidated. Indeed, student success served as the key impetus for all teaching and learning initiatives at UP during 2017. It is worth emphasising that, for UP students, success refers not only to the numbers of students passing their modules and programmes annually, but also to their attainment of academic qualifications in the minimum time, their holistic development, and appropriate career development and success after university.

The Council on Higher Education argues that 'student success does not arise by chance. It requires intentional, structured, and proactive action that is systematic in nature and coordinated in application'. It was with this perspective in mind that we prioritised a range of teaching and learning initiatives related to the University's ambitions to enhance student success significantly. A selection of these initiatives is briefly described below.

The FLY@UP project was one of the key initiatives by means of which the University endeavoured to improve student success rates during 2017. As should be generally known by now, the project aims at improving the University's student success rates by offering students various forms of support, including tutoring, advising, learning communities and access to e-resources. However, while offering our students these various forms of support is essential for their academic success, to my mind it is the core message of the campaign that is perhaps most crucial. The message, as articulated in its simplest form, is that students should assume personal responsibility for their own success. Once they have completed their studies and leave the University, they will leave behind much of the support offered to them during their studies. However, if during the course of their studies they internalise the FLY@UP project's core message, they will leave the University with one of the core ingredients of a successful post-university career.

Given the growing importance of graduate employability, and in keeping with the University's expressed commitment to student success beyond graduation, considerable attention was invested in the consolidation of the University's Work Readiness and Entrepreneurship (WREn) project during 2017. The WREn project encompassed two pivotal programmes, namely the Ready for Work Programme and the Entrepreneurship Programme. Both of these programmes were developed by the Centre for Career Services in collaboration with Enterprises University of Pretoria. Prof Alex Antonites, of the Faculty of Economic and Management Sciences, played a key role in the conceptualisation and development of the Entrepreneurship programme. During 2017 (as had been the case prior to 2017), both the Centre for Career Services and Enterprises University of Pretoria showed that they have a vital role in the University's teaching endeavours.

Launched in March 2017, the Ready for Work Programme is an online, free-of-charge co-curricular programme aimed at enhancing the work readiness of UP graduates. In 2017 it included four professional online development (POD) packages. Perhaps indicative of the Ready for Work Programme's appeal and viability, approximately 1 093 students enrolled for these PODs within three months of their roll-out.

The University recognises that, as the world of work changes, particularly as a result of the so-called fourth industrial revolution (commonly also referred to as 4IR), university graduates will increasingly not only have to consider multiple careers, but also entrepreneurship as a means of creating employment opportunities for themselves. Of course, it is generally also accepted that entrepreneurship is one of the most important drivers of job creation and economic growth – something that is currently sorely needed in the South African context.

In 2017, therefore, the University launched a free entrepreneurship POD for UP students. The POD is aimed at providing successful candidates with the tools, skills and assistance they will require in order to become successful entrepreneurs. Close to 1 500 students registered for the POD within the first three months following its launch. This can certainly be considered a significant achievement on the part of the team that developed and managed the POD.

Given its importance for student success, curriculum transformation constituted another central teaching and learning priority in 2017. The University recognises that student success is inextricably linked to the increasing flexibility and relevance of its curricula. Furthermore, it recognises that to remain relevant our curricula have to be revised and renewed on an ongoing basis. In 2017, Senate approval of the curriculum transformation framework document, *Reimagining curricula for a just university in a vibrant democracy* (which had been developed by a group of UP academics in collaboration with a small group of student representatives)

represented the University's commitment to ongoing curriculum renewal.

In keeping with its commitment to a hybrid approach to teaching and learning as a means of enriching students' learning experiences and preparing them for a future in which technology will become increasingly omnipresent, the University continued to prioritise technology-mediated learning. This was reflected in 2017 in the significantly increased number of modules across all faculties showing enhanced levels of online content and activities.

An associated priority in 2017 was the provision of facilities that are conducive to stimulating and promoting the use of e-technologies in teaching and learning. These facilities include Internet-connected social learning spaces, Wi-Fi access across all campuses and appropriate computing and other learning devices (including clickers and laptops) for staff and students, particularly the latter. Of course, here it is important to acknowledge the support of the Department of Information Technology Services and the Department of Facilities Management in the programmatic development of social learning spaces on all our campuses as well as the densification of Wi-Fi provisioning.

In 2017, the Tshebi Data Analytics Task Team, which was established in 2016, also significantly intensified its work. The primary goal of the Task Team is to mine and analyse all of the University's data platforms with the aim of identifying student performance trends as well as the enablers of and obstacles to student academic performance. The findings of the Task Team's analyses were communicated to faculties so that they could develop and implement appropriate interventions aimed at enhancing student success. Given the University's manifest commitment to evidence-based teaching practices, I foresee the work of this Task Team becoming increasingly central to future student success endeavours.

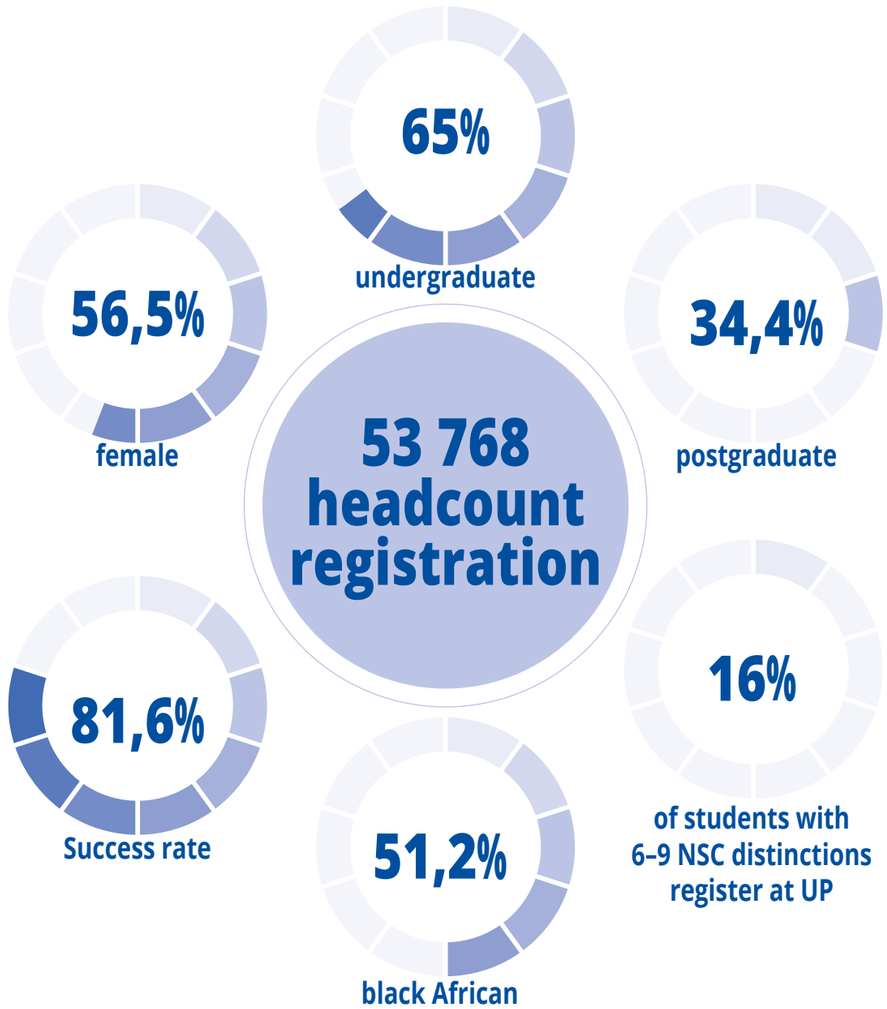
The provision of an integrated, holistic student academic support system is critical to the FLY@UP initiative and therefore to the University's efforts to improve its student success rates. Consequently, the Department for Education Innovation commenced the process of developing a framework for the integration and management of all academic support services key to student success. These services include student on-boarding and orientation services, student wrap-around projects (e.g. the MasterCard Foundation, Dell and ISFAP projects), faculty student advisor services, learning community initiatives and tutoring services.

While community engagement is clearly one of the key strengths of the University's teaching and learning programme, this strength is not sufficiently visible to all within and beyond the University. Given that a greater public awareness of this strength could be used to help the University with its recruitment, employability, diversity and social responsibility targets, work was commenced in 2017 on a social responsibility website (www.up.ac.za/usr) that is aimed at cataloguing and opening for public scrutiny the University's community engagement initiatives.

Thus, as previously stated, 2017 was indeed a productive year in respect of teaching and learning endeavours at the University. However, as indicated earlier, none of what was achieved during 2017 would have been possible without the hard work and dedication of, among others, the Director and staff of our Department for Education Innovation, our Deputy Deans/Faculty Chairs for Teaching and Learning, our Faculty Teaching and Learning Committees, the Director and staff of our Department of Information Technology Services, the Director and staff of our Department of Facilities Management, the Director and staff of our Department of Student Enrolment and Administration, the members of the Senate Committee for Teaching and Learning, and all our lecturing staff, tutors and faculty student advisors. I thank them for their invaluable contributions to the University's teaching and learning priorities in 2017. I am confident that these contributions have laid the basis for significant future achievements related to student success.

Norman Duncan
Vice-Principal: Academic
April 2018

Student Data 2017 – Institutional



Teaching and Learning Priorities 2017

The teaching and learning plan focused on a number of strategies to enhance access and successful student learning: increased funding for students; transformed curricula; the FLY@UP minimum-time-to-completion project, including comprehensive student support; acknowledging and rewarding sustained high performance and innovation in teaching; up-scaling the extent of data-based decision-making; improvements in the physical infrastructure, including the provision of social learning spaces; enhancing creativity and access in the online space; initiatives focused on work-readiness and entrepreneurship. Each priority will be discussed in this review.

Increased funding for students: Attracting donor support to increase access and success for disadvantaged groups

Michael and Susan Dell Foundation (MSDF)

The University of Pretoria (UP) has secured funding for two initiatives from the MSDF: the Dell Young Leaders (DYL) Scholarship Program and the Sikelela Scholars Program (SSP).

Dell Young Leaders (DYL) Scholarship Program

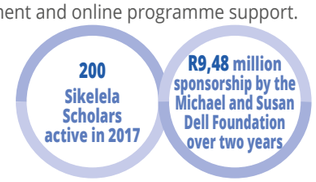
The DYL Scholarship Program actively supported 216 students at UP through the 2017 academic year, providing them with continued scholarship funding, as well as wrap-around support in the form of academic, psychosocial, financial and career-readiness support. The Foundation provided an amount of R3 297 000 specifically for the wrap-around support provision.

The higher-than-average proportion of students who complete in minimum time is ascribed to the wrap-around support received as part of the award. The total number of DYLs who have completed their undergraduate studies to date is 102, while 182 students are continuing with their qualifications at UP in 2018.

The Sikelela Scholars Program (SSP)

The SSP was launched at UP in June 2016 and seeks to empower and reinforce the success of young South Africans, ensuring that they complete their chosen degree and are ultimately prepared to compete for meaningful employment post-graduation.

First-year students who are studying professional degree programmes and are eligible for the National Students Financial Aid Scheme (NSFAS) were invited to apply. A hundred successful students received laptops, food and book incentives, mentoring, tutoring, skills development and online programme support.



The most recent academic results indicate that SSP students equal or outperform students with similar demographic and academic profiles ('Control Group').

Some of the successful interventions that the SSP has rolled out are:

- creating awareness of student support services on campus (for example, platforms were created for students to share their positive experiences and learnings with other students);
- building a strong sense of community – students have a deep sense of belonging and know that they are not alone;
- driving high attendance rates at skills development workshops by running competitions for the best feedback on the workshops; and
- close monitoring and deep level of support for at-risk students.

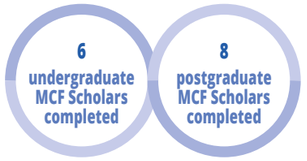
MasterCard Foundation Scholars Program (MCFSP)

UP entered into a partnership with the MasterCard Foundation (MCF) to offer scholarships to academically talented but financially needy youth from Africa to study at the University from 2014 to 2023. The MCFSP was founded on the premise that all young people, no matter their starting point in life, should have the opportunity to obtain a quality education and pursue their aspirations. The goal of the MCFSP is to develop a cohort of transformational leaders who will support social transformation and economic growth on the African continent.

MasterCard Foundation Scholars Program

Several interventions aimed at transformational leadership development were in place for current and new scholars. These sessions exposed scholars to global issues and viewpoints while developing values and competencies critical to leadership and civic engagement, in line with the ethos of the MasterCard Foundation.

The success of the scholars should be noted.

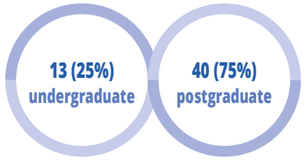


Based on his excellent academic performance, one student in the Faculty of Engineering, Built Environment and Information Technology (EBIT) received the opportunity to study at the Massachusetts Institute of Technology for one year of his degree. Another student, who started with her BCom degree at UP, successfully completed her honours in 2017 and will register for her master's in Economics in 2018. She is an excellent role model for other scholars on how to complete qualifications in the minimum time and advance to higher degrees.

In June 2017, 13 MCF scholars from UP participated in the Tertiary Scholars Convening in Johannesburg. The convening is an annual meeting where scholars gather to share their journeys as next-generation leaders and learn from other scholars already effecting change in their fields of expertise.

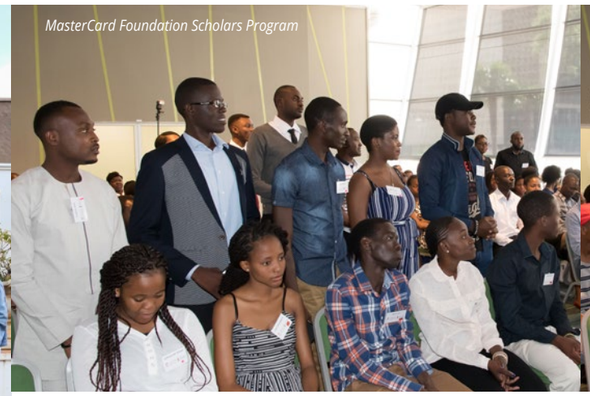
The MCFSP Annual Learning Convening took place from 17 to 19 October 2017 in Kigali, Rwanda. The theme of the event was 'The future of work in Africa'. It brought together more than 100 participants, including university presidents and vice-chancellors, NGO leaders and administrators from the MCFSP network of 28 university and NGO partners.

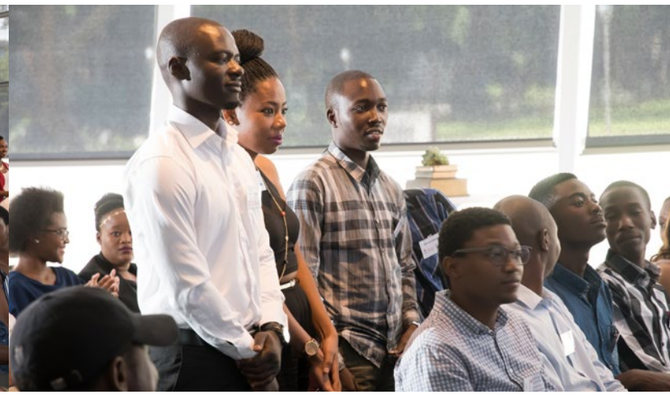
In 2017, a total of 53 undergraduate and postgraduate scholars were recruited from Botswana, Lesotho, Kenya, Ghana, Malawi, Nigeria, South Africa, Swaziland, Tanzania, Uganda, Zambia and Zimbabwe for the 2018 academic year.



The 2018 Orientation planning for the new intake was finalised in late 2017. It included a three-day Future Leaders Experience for the new cohort, to assist them in adjusting to the university environment as well as the broader community. A key component of the orientation is a focus on cultural intelligence, which equips individuals to work effectively in diverse contexts.


Dell Young Leaders (DYL) Scholarship Program


MasterCard Foundation Scholars Program



FLY@UP Open Day

Ikusasa Student Financial Aid Programme (ISFAP)

ISFAP was designed to address the so-called 'missing middle' student who did not qualify for NSFAS funding. It provided funding to students on a sliding scale depending on family income. Additional funds were provided by the Department of Higher Education and Training (DHET) to deliver wrap-around services as additional support to these students. UP was one of eight institutions where the programme was piloted. At UP funding was provided to 190 students studying Accounting Science, Actuarial Science, Medicine and Engineering. The funds only became available in the second semester of 2017 owing to the pilot nature of the programme. The pilot will continue in 2018, and possibly beyond.

Transformed curricula

The Curriculum Transformation Workstream, initiated in 2016, concluded its work during 2017. The meetings were co-chaired by the Vice-Principal: Academic and a student representative. The draft document was workshopped in every faculty during a roadshow by members of the Workstream. It was also reviewed by national and international experts in the field. The Senate approved the *Reimagining curricula for a just university in a vibrant democracy* framework in May 2017. All faculties were tasked with providing a comprehensive curriculum transformation plan within the framework by the end of June 2017. Many faculty reports showcase how they approached the priority.

The framework highlighted four drivers for curriculum transformation, and their implementation is clear in some of the faculty narratives:

- responsiveness to social context,
- epistemological diversity,
- renewal of pedagogy and classroom practices, and
- an institutional culture of openness and critical reflection.

As a parallel strategy, the Vice-Principal: Academic sponsored a public lecture series in 2016 and 2017 to stimulate the academic debate around curriculum transformation. The speakers and topics for 2017 were:

- Prof Catherine A Odora Hoppers, DST/NRF South African Research Chair in Development Education & PASCAL International Observatory, UNISA, speaking on 'Beyond decolonisation to prudent transformation: Towards cognitive justice'
- Ms Lovelyn Nwadeyi, BA (International Studies), Stellenbosch University; MSc in Peace and Conflict Studies, Uppsala University in Sweden, with a paper entitled 'Decolonising the curriculum: Justice, humanisation and healing through education'
- Dr Saleem Badat, Programme Director: International Higher Education and Strategic Projects, Andrew W Mellon Foundation, addressing 'Trepidation, longing, and belonging: Liberating the curriculum at universities in South Africa'
- Prof Crain Soudien, CEO: HSRC, on the topic of 'Debates in the decolonisation movement and their relevance for curriculum renewal in South African higher education'
- Prof Garth Stevens, Deputy Dean: Humanities Research, University of the Witwatersrand, with a paper titled 'Curriculum transformation: Potentialities and pitfalls of the decolonial impulse'

FLY@UP

FLY@UP is the University's flagship initiative to bring together the activities that promote student well-being and success. FLY stands for the **F**inish **L**ine is **Y**ours, and the initiative is aimed at ensuring minimum time to completion. Faculties fully support the initiative and focus on the academic development of students in the classroom and in tutorials. Faculty student advisors (FSAs) helped students with co-curricular skills such as time management, test-taking skills and study skills. First-year students are assigned trained mentors for psychosocial support, particularly if they are from rural areas or are the first in their family to attend university.

FLY@UP was launched in 2016 but campus closures resulted in a suspended rollout of events, although messages of support and guidance continued online through social media.

Various FLY@UP events held in 2017 on the piazza, a favourite gathering place of students, included FSAs, student health services, student counselling, library services and career services, promoting a holistic approach to success and well-being. Events were also held at the other campuses.

Students were advised through a variety of media to choose their modules carefully, manage their time and work consistently, and aim for a good semester mark. They were urged to take responsibility for their own success.

The existing student access and success model's initiatives were all integrated under the banner of FLY@UP, from academic orientation – face-to-face and online – to mentoring, tutoring and advising.

2017 Orientation

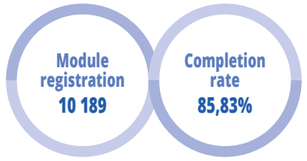
The first point of contact once a student is registered is engaging with the institution's Orientation Programme. Owing to the student protests in 2016, only registered students were allowed on to the Hatfield Campus in 2017. This required that the registration and the Orientation Programme be split in terms of timing and location. Once students had registered, there was a condensed period for the Orientation Programme. Each student spent one day on the campus instead of the normal week. This limited contact period with the students forced the University to rethink the programme. The result was a six-hour Orientation with a focus on the Student Academic Readiness Survey (the basis of the early-warning system), academic support, the FLY@UP minimum-time-to-completion campaign, hybrid learning and library orientation.

Orientation is seen as the first institutional involvement in a student's life at university and needs to be comprehensive. The evaluation of the abbreviated programme indicated that the period was insufficient to prepare the students for the experiences that followed. The report was used to inform the planning for 2018.

Student Academic Readiness Survey (STARS)

STARS is a self-report survey that identifies students in need of academic and psychosocial support (for integration into the university environment) and financial needs. All new students are surveyed during Orientation using the STARS. A total of 7 484 first-time entering students in first year completed the STARS during Orientation week. Data from the STARS were analysed and the students identified as being at academic risk were recommended to attend academic development programmes organised by their respective FSAs and to participate in the mentorship programme organised by the Department of Student Affairs.

Extended first-year Orientation online – UPO



This online module, which began in 2014, was intended for all first-year students at UP, to help them transition into the experiences of academia. In the last few years it has become the responsibility of the FSAs to drive this module. In 2017, an approach of 'nudging' students, in the form of regular text messages, was employed to encourage them to complete the module.

In December 2017, the University launched a free online university preparation course for provisionally accepted first-year students, based on UPO, entitled 'At the starting line: Gearing up for university'. This course aims to develop a range of skills, such as time management, note taking, study skills, goal setting and academic reading, before these prospective students enter the University. Most people have heard of MOOCs (massive open online courses) but this was a small, private online course (SPOC) for targeted students.

The students who completed this preparation course could receive partial credit for it towards their first-year UPO module in 2018. Feedback received was positive. It is hoped that the module will gain in popularity as it becomes established.


Department of Student Affairs (DSA) Learning Communities coordinators

Faculty student advisors (FSAs)

The role of the FSA was refined in 2017 to take into account developments around student success. In line with the teaching and learning plan of the University, the focus of FSAs includes:

- presenting on services available to first-year students during Orientation;
- managing UPO in the faculty;
- delivering academic skills workshops on topics such as time management, goal setting and study skills;
- promoting the FLY@UP campaign; and
- advising on curriculum/module changes together with the faculty experts.

FSAs are the first point of contact for any student needing support. They recommend referrals where necessary. In addition, the trend towards data-driven decision-making requires that FSAs:

- collect data on student interactions related to performance,
- maintain data on Qualtrics,
- record UPO assessments,
- prepare monthly reports on activities, and
- track students' performance before and after FSA interventions.

Learning Communities (LC) Pilots: An interdisciplinary approach to student success

The Department of Student Affairs (DSA) concluded a pilot project on First-Year Learning Communities at the end of 2017. The project was initiated in 2015, with the support of a grant from the Kresge Foundation. The project was conceptualised with both equity and student success as a focal points.

Learning Community enrolment 2017: 1 024

86% of students who attended 75% of sessions reported a positive impact

The purpose of the project was to find ways of levelling the ground for students who face a number of challenges. The project targeted first-year students who did not stay in University residences and who had applied for financial aid. Participating students had to have at least three modules in common. Students were put into groups of 15 members, and each group was allocated a coordinator who was a senior student. Coordinators with similar characteristics (not in University residences and on financial aid) were recruited and trained. For the first year of the project, participating students were drawn from the faculties of Economic and Management Sciences (EMS), EBIT, and Natural and Agricultural Sciences (NAS). Students from the faculties of Law, Humanities and Education were added in the second year of the project.

One student reported: 'The support I got from LC and my peers is one of the reasons I am where I am today. It was a support structure that assisted me to survive all my struggles not only academically but also socially. … Now here I am today, I managed to finish my degree not only on time but also with distinction and I am admitted to an honours degree that only takes 50 candidates out of thousands of students'.

In 2017, all faculties began to pilot their own LCs using criteria based on the international understanding of what constitutes such a system.

Humanities Learning Community enrolment 2017: 1 417 SLK120 students

The Faculty of Humanities reported a 10% increase in student success in the large first-year module in which they piloted it. In order to facilitate learning and provide students with a space to communicate with peers and engage with academic material beyond the lecture halls, LCs were created in the Department of Psychology. This department was selected to host the LCs because it has the largest enrolment of Humanities' first-year students. The LCs served as an intervention to strengthen not only academic performance but social cohesion as well.

EMS created LCs in one of the generic first-year modules during the second semester. Students were divided into diverse groups, taking into account levels of academic performance, gender and race to ensure the greatest possible diversity in each group. Students were expected to work in their groups and provide feedback on real-world problems during a dedicated weekly or bi-weekly lecture. This initiative proved to be especially successful in breaking down barriers between different student groupings, enabling peer learning and support, as well as enabling them to function in groups simulating the working environment.

In NAS, attention was focused on first-year, first-time students who were excluded and readmitted for the second semester. The students selected to take part in the LC initiative were invited via e-mail and SMS. They were divided into four groups – two focused on Biological Sciences and the other two on Physical and Mathematical Sciences. The groups were placed under the supervision of facilitators, who were senior students – three were postgraduate students at master's level and one was a final-year Actuarial Sciences student. Feedback from one of the participants encapsulated the value of the activity: 'After being introduced to the learning community, I was able to communicate freely with our tutors/group leaders, because I was now able to consult where I did not understand and that helped me to pass my second semester modules. It has also helped me in making friends who I was able to study with, as we had the same modules. The workshops were also a great help during examination time as they helped with time management and other things'.

NAS Learning Community enrolment 2017: 1 024

Acknowledging and rewarding sustained high performance and innovation in teaching

The academic career

Academic Induction attendance: 81

Tutors trained: 352

Assistant lecturers trained: 37

***clickUP*/ e-learning course attendance: 720**

Opportunities for academics to access professional development activities are considered to be a lead indicator for improving the quality of teaching. The mandate of the Department for Education Innovation (EI) is to provide teaching development activities that have an impact on the quality of teaching and learning at UP. The annual programme comprises priority training offered by education consultants (ECs) and instructional designers (IDs), such as the annual Academic Induction Programme, training on *clickUP*, training of tutors and assistant lecturers, and ad hoc training on request of academic heads of department.

Some training on data analytics was provided through the Tshebi data committee, coaching from Jan Lyddon of the Kresge Foundation and attendance at the Siyaphumelela conference.

The flagship Academic Induction programme for newly appointed academic staff was offered by EI in collaboration with the Department of Research and Innovation (DRI).

DRI staff briefed lecturers on the support for research development at the University, including additional seminars for their professional development as researchers: an early-career academics orientation; an early-career researchers development programme; a mentorship programme for black female academics, and a writing clinic presented by top researchers on topics relevant to writing of various stages of proposal development, journal articles and theses, as well as research methodology and data analysis.

In the past, most of the continuous professional development programmes presented by the EC group had an inter-faculty focus, as the Academic Induction still does. Since 2016, however, the ECs have implemented a faculty-based approach to training, with the following goals: to increase enrolments for the programmes, to acknowledge the difference between the faculties and to have a greater impact on teaching practices. In 2017, the faculty-based


Academic Induction programme

training was implemented according to faculty- or department-specific needs and included the following: assessment, curriculum development and review, teaching methods, student engagement, hybrid teaching and learning, teaching portfolios, marking skills training, and use of clickers.

Lecturer participation in faculty-specific interventions: 1 073

Lecturer participation in peer-learning opportunities: 593

Less formal brown-bag lunches, faculty teaching seminars and conferences on teaching were also presented, where the ECs took on a coordination role in the faculties of EMS, Health Sciences, Humanities and NAS.

Each faculty also received funding from the Teaching Development Grant (TDG) to host a teaching and learning seminar or series of peer-enhanced events, and make teaching awards. The processes were led by the deputy deans or heads of teaching and learning, whose contribution to the improvement of the quality of teaching at UP cannot be over-emphasised.

The E-Education unit in EI offered priority training related to the use of the learning management system, *clickUP*, how to facilitate online learning, how to use Turnitin to detect possible plagiarism, and the potential of new technologies. These learning opportunities are seen as supporting the hybrid approach to teaching and learning

Creating Digital Lectures attendance 135

One new course, entitled Creating Digital Lectures, was introduced as a priority course, as it provides the possibility to continue with lectures even when students are not on campus. The popularity of the course led to the presentation of five extra sessions beyond the three scheduled ones. Three events were scheduled by EI from the TDG for all UP lecturers, one by the deputy dean of NAS for lecturers from that faculty and another by the dean of Mamelodi Campus for her lecturers.

Turnitin training attendance 31

The increase in the use of Turnitin (84%) to submit assignments as an alternative assessment strategy led to the need for more lecturers to be trained in the additional functionalities within Turnitin. An additional course, Turnitin Grading & Feedback, was created. The Turnitin system produces 'similarity reports' that alert lecturers to the need to investigate possible plagiarism.

Flexible Futures III conference

The third Flexible Futures conference was held at the CSIR on 5 and 6 September 2017. The theme of the conference was 'Technology-enhanced innovation in teaching, learning, assessment and student success strategies'. The conference was preceded by visits to UP's Hatfield Campus to view the Virtual Reality Centre in Mining Engineering, the Engineering Study Centre and the MakerSpace in the Merensky 2 Library.

Prof Mazur's presentation

There were two excellent keynote speakers: Prof Eric Mazur, Balkanski Professor of Physics and Applied Physics at Harvard University and Area Dean of Applied Physics, and Prof Dick Ng'ambi, the founder and project director of the Educational Technology Inquiry Lab (ETILAB) – 'a sandpit for educators' at the University of Cape Town. Prof Mazur spoke on 'Assessment: The silent killer of learning', focusing on the fact that most university assessments are not authentic and not related to the 21st-century workplace. He made the point that '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'. See the full presentation on YouTube: https://www.youtube.com/watch?v=Kevu7pH9BrY&feature=youtu.be. Prof Ng'ambi delivered his keynote speech on the topic, 'Towards a culture of innovative pedagogical practices – shaking off institutional lethargy'. He warned that such lethargy becomes a culture that 'fails to recognise innovation and marginalises innovators', and discussed how technology can disrupt this lethargy at the pedagogical level.

UP collaborated to a limited extent with the universities of the Witwatersrand, Johannesburg and South Africa, and the Tshwane University of Technology on the arrangements for the conference, and used reviewers for the abstracts from a wider pool of South African universities. Proposals were received from several universities but UP dominated and demonstrated the level of excellence it has attained in the use of technology for teaching and learning, as well as community engagement.

Presentations included demonstrations, notably the 'DEECE Robot Car Race Day: Technology-supported, project-based collaborative learning' by Prof Tania Hanekom and University of Pretoria Engineering students, and 'The inter-apptive classroom' by Dr Ronel Callaghan and some of her colleagues from the Faculty of Education.

The conference was well supported by e-learning and educational companies such as BlackBoard, CENGAGE, McGraw-Hill Education, Pearson and ITSI, as well as the Gautrain, which sponsored student attendance.

There was a 50% response rate to the conference evaluation questions and Prof Mazur's presentation received by far the highest score. As one of the participants noted in the open feedback, it was 'a highlight that will not be forgotten'. Three papers were chosen as potential best paper during the abstract evaluation phase, and the winner, based on an evaluation by a review panel of three, was 'Blended learning: Enhancing learning for students in Organic Chemistry' by a team from UP: Lynne Pilcher, Ina Louw, Lizelle Fletcher and Marietjie Potgieter. They also scored the highest of the three on the conference evaluation feedback.

Alternative assessment seminar

The Vice-Principal: Academic hosted an alternative assessment seminar organised by EI on 5 May 2017. Lecturing staff from different faculties showcased innovative assessment strategies to a large audience that almost filled the Senate Hall. Presentations ranged from long-standing, proven practices to brand new innovations.

Prof Amelia Goddard of the Faculty of Veterinary Science discussed the use of computer based-testing using integrated case studies set by all the clinical disciplines to replace the final oral examination of BVSc student. This change resulted in more objective and fairer assessment. It also significantly reduced the stress of students.

Drs Imade Ayo-Yusuf and Vanessa Mostert showcased how dental students are videotaped to monitor their communication skills while treating patients. They use video, rubrics, self-assessment, peer-assessment, patient-assessment and assessor feedback in the evaluation of communication skills in Dentistry. The authenticity of the assessment and immediate feedback to the students support them in improving their skills.

Prof Stephen Coetzee and Ms Astrid Schmulian of EMS introduced the use of collaborative assessment with scratch cards in a class situation to enhance cross-cultural teamwork among accounting students.

Profs Monray Botha and Hermie Coetzee of the Faculty of Law discussed lessons learnt during their implementation of online assessment during the campus closure at the end of 2016 as a means to complete the final assessments of Mercantile Law students.

The final presentation by Dr Elias Willemse of EBIT shared lessons learnt and practical advice after a pilot study with Numbas. This product allowed him to introduce continuous randomised individual assessment of 1 500 students in his Engineering Statistics module while alleviating the marking load.

The YouTube playlist of all the videos is available at https://youtu.be/DDEfkVYgdGQ?list=PLnuPgVOV6tNAXnnHAHNo27ohQjND2eUdL.

Teaching excellence laureate winners

At the annual Achievers' Evening, the University conferred one individual and one team laureate award for teaching excellence.


Prof Ernst Wolff

Prof Ernst Wolff

Prof Ernst Wolff, an NRF B-rated researcher from the Department of Philosophy in Humanities, was recognised for his long-term transformation of the curriculum by including voices from across Africa in his teaching alongside Western texts. His teaching portfolio reveals not only his teaching philosophy but also experimentation with content over a number of years, his engagement with his students, his development of their curricular and co-curricular skills, his availability to his students and his successes and failures with technology. He is currently focusing on lifting out some of the key concepts that frame his teaching and research, at the heart of which are the complexities of the meaning of human interaction.

Prof Wolff's teaching takes the students' spontaneous philosophising as a point of departure; the lecturer plays the role of facilitator, amplifier and example, and simple technologies serve as a holding environment. His understanding of this intricate framework comes from his learning and teaching experience and his research on human agency that has convinced him of the interdependence of human creativity and technicity, of spontaneity and method. Added to these two elements is student-lecturer interactions, which he considers to be a particular case of citizen-citizen relation, meaning that all the concerns and responsibilities of citizenship have to inform the 'what' and 'how' of teaching relations.

For him, all teaching efforts consist of increasing the intensity and variety of interactions between students and lecturer: the lecture introduces students to course materials and the practice of philosophy, supported by a battery of interventions designed to facilitate students' learning practice. The perceived cultural bias of readings and prescribed works is simply removed by prescribing material from a range of cultural backgrounds, and 'what philosophers everywhere strive to do well'. In short, they are taught to become researchers through their engagement in the practice of doing philosophy.

He also prepared a study on curriculum design in Philosophy in contemporary South Africa, published in an ISI indexed journal: Wolff, E. 2016. Four questions on curriculum development in contemporary South Africa. *South African Journal of Philosophy*, 35(4): 444–459.

Ms Corlia Joynt and Ms Madelyn Cloete

Ms Corlia Joynt and Ms Madelyn Cloete

Ms Corlia Joynt and Ms Madelyn Cloete from the Department of Accounting in EMS won the team award for their innovative approach to teaching and assessment in their field, making both more authentic in terms of workplace requirements. The winners write: 'The project for which we received the laureate award for team teaching can best be described as a milestone in our journey toward the evolution of an Accounting educational experience through the development and implementation of a hybrid model for first-year accounting students. We followed a holistic approach, constantly cognisant of the alignment of outcomes, content delivery and assessments (grounded in Biggs' theory of constructive alignment)'.

Innovative methods of content delivery and assessment were discovered and made fit for purpose along the way, creating a model that fosters continuous engagement and the development of critical skills, as these lecturers continue to strive for an all-inclusive, deeper learning experience, incorporating technology and research-based teaching practices.

Receiving the award inspired them to continue on their journey in pursuit of workable solutions in an ever-changing educational environment. It also provided a platform from which they were able to disseminate the lessons learnt as the recognition from university peers and authorities gave the project credibility. They say: 'We see ourselves as ambassadors of UP's drive towards an institution-wide hybrid teaching model, evident from the fact that we are already in the process of replicating the model in other courses in the Department of Accounting'.

They hope to expand their offering of a hybrid teaching and learning programme to include a course in Basic Financial Literacy. The content for this course is already included in the academic literature for which they are co-authors, and they would like to replicate the model to offer opportunities to the large number of low-skilled employees (for example, in the mining industry and the informal trade sector) in South Africa.

The development of their multi-lingual glossary reached its apogee in the finalisation of a mobile app to make the information readily available to students.

In the future, they envisage the inclusion of more of the eleven official languages of South Africa, with co-operation from UP's Department of African Languages, to promote education in indigenous languages for even more students.

Community engagement award winner

The University of Pretoria has the largest community engagement programme of any university in South Africa, with more than 15 000 students earning credit towards their degrees in 2017 through working on modules requiring the application of their disciplinary knowledge and skills in communities to solve problems identified by the communities. Mr Marco van Dijk, of the Department of Civil Engineering in EBIT, won the Community Engagement Award in 2017. His master's degree students worked on various water-related projects in rural areas across South Africa. Their work focused on providing rural electrification using renewable, sustainable hydropower technologies in various forms. The engagement of Mr van Dijk and his students solved real problems using innovative techniques. They also trained and employed community members to collaborate on projects and then trained some to sustain the projects after their completion.

Mr Marco van Dijk

Teaching Advancement at University (TAU) Fellowship Programme

Dr Lizette de Jager, Education

Ms Corlia Joynt, EMS

Dr Lizette de Jager of the Faculty of Education and Ms Corlia Joynt of EMS were nominated for the prestigious Teaching Advancement at University (TAU) Fellowship Programme. TAU is the result of a collaboration between several South African universities and was initiated in 2015 under the auspices of the Higher Education Learning and Teaching Association of Southern Africa. It is a two-year programme aiming to contribute towards the enhancement of teaching and learning in higher education. Award-winning lecturers representing higher institutions from across South Africa get together for a week every six months.

These sessions serve as platforms to disseminate valuable teaching and learning practices, share the latest research in teaching and learning, and collaborate across disciplines and institutions. Ms Joynt states: 'It is a very rewarding programme to be part of: like-minded academics share their passion for teaching and learning excellence in an ever-changing landscape of higher education. I was filled anew with a deep sense of gratitude towards my home institution, the University of Pretoria, for granting me this opportunity and investing in the development of practices to promote teaching excellence'.

Up-scaling the extent of data-based decision-making

The University of Pretoria is currently a national leader in the use of data to support student success. In the past few years, the University has focused on learning and learner analytics, as well as more general academic analytics.

The Vice-Principal: Academic established an analytics team, the Tshebi committee, in 2016, which focused on undergraduate student success. In 2017, the committee met every second Monday to consider UP data sets and take actions. The focus was on the differential success rates of students, including graduation rates, progression, determinants of drop-out and student engagement. The intended purpose of the data presented at this committee was to allow for knowledgeable discussion and decision-making. Various systems were used to produce reports for this purpose, such as the Higher Education Data Analyser (HEDA), Blackboard Analytics for Learn™ and various statistical models like Bayesian models and cluster and survival analyses. Qualitative research into student well-being and the characteristics of successful students was launched.

Given the success of the Tshebi committee in studying and acting upon undergraduate data, it was decided to form a similar committee for postgraduate data. A preliminary meeting was held with a Kresge Foundation data coach in November.

The three-year funding from the Kresge Foundation for Siyaphumelela will come to an end in 2018 but the University successfully applied for a further bonus of $100 000 for the use of predictive analytics and a 'nudging' campaign. Part of the Siyaphumelela grant was used by the Department for Education Innovation to explore a predictive analytics framework. The department received training from the international Predictive Analytics Reporting Framework team in using the student success matrix and interpreting the data from their reports. They gained skills in working with large data-sets and preparing them for data analysis and data visualisation. Reports on predictive analytics using student academic data were shared with the UP team. From the results, course credits are highly predictive of progression and graduation rates. This knowledge was used to inform the bonus grant project.

The University was the first African higher education institution to implement Blackboard Analytics for Learn™. The *clickUP* (Blackboard Learn™) learning management system (LMS) gathers extensive data about the activity of its users (lecturers and students), course design and student grades within the online learning environment. The Blackboard Analytics for Learn™ system combines these data with student and course attributes from the PeopleSoft Student System to provide comprehensive reports and dashboards for students, lecturers and various levels of faculty and institutional management. These reports provide information on the activity and marks of a single student across his/her modules, the performance of all students in the modules in a department or programme, the use of the *clickUP* system across a faculty and across the whole institution, as well as the impact of course design on student activity and engagement.

Data from the Analytics for Learn™ system were used to provide feedback to faculties about the role of the LMS in their teaching and learning strategies. A specific report was developed for EBIT for accreditation purposes. Other faculties requested reports to support their teaching and learning strategic planning for 2018 or for departmental evaluations.

Dashboards were completed for students and implemented before the end of 2017. The data show the students their own performance but also their performance in relation to the class. The data could help students to regulate their own learning.

A project was completed in 2017 through which grades from the LMS can be exported to the Student Information System, which should improve the use of the LMS grade centre to capture marks. Faculties have also implemented processes to improve the capturing of grades in the LMS, which will increase the value of the student progress dashboards.

During 2017, the latest results of the South African Survey of Student Engagement (SASSE) were shared with the University. A team including all the deputy deans attended a briefing by the University of the Free State and the data were shared at the Student Access and Success Committee. The SASSE report data were disaggregated according to faculty and distributed via the Vice-Principal: Academic to each faculty deputy dean or head of teaching and learning in 2017.

Improvements in the physical infrastructure

A focus of the teaching and learning strategy was the creation of social learning spaces and the Department of Facilities Management supported this strategy ably, extending the spaces available. However, the Department of Library Services showed that physical infrastructure is not necessarily the only way to go to satisfy 21st-century students accustomed to holding the world in the palms of their hands.

Social learning spaces

Social learning spaces are well-defined spaces that encourage learning outside of the formal learning environment and keep students active on campus when they have long periods between lectures. The drivers for an increase in the number and size of these spaces have been student success, the hybrid learning model, transformation agendas, discussions, surveys and interviews with students and staff. The Department of Facilities Management recognises that the University's facilities must support the rapidly evolving education environment.

2017 marked a year of planning with regard to social learning spaces. The planning office of the Department of Facilities Management, with the support of external professionals, has numerous projects that promote social learning. Furthermore, all new projects explore and implement opportunities for social learning.

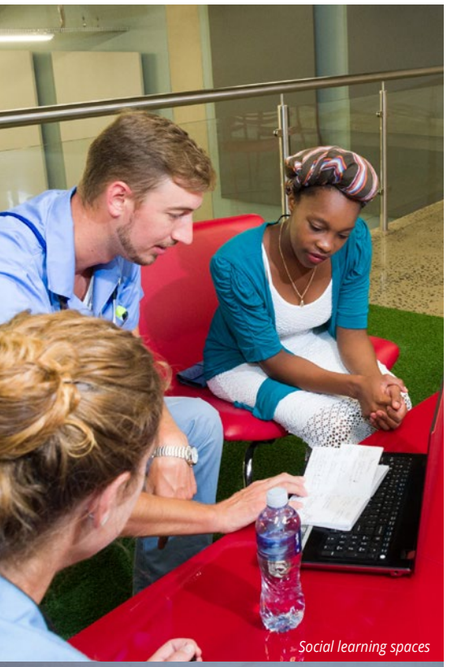
In their book, *Generation Z Goes to College*[1], Seemiller and Grace state that students prefer intrapersonal and independent learning over group work, yet like to do their individual work alongside others when studying. They like their learning to be practical and hands-on and want their professors to help them engage with and apply the content rather than simply share what they could otherwise find on their own online. The popularity of entrepreneurship and advancements in technology are also informing design decisions. The students are eager to be involved in their community and their futures. They actually prefer person-to-person contact as opposed to online interaction. As planners, the Department of Facilities Management takes cognisance of these aspects when planning all new facilities or when changes are made to the existing structures.

It is known that informal learning spaces stimulate interdisciplinary learning, networking, innovation and idea creation. They offer students quality learning opportunities, knowledge sharing and peer-to-peer engagement. They provide marketing potential for prospective students and improve student marketability for future employment. Most importantly, such spaces improve relations between the students and the institution.

A 2017 departmental survey of students from first-year to master's level asked

Social learning spaces

[1] Seemiller, C & Grace, M. 2016. *Generation Z Goes to College*. San Francisco: Jossey-Bass



Social learning spaces

participants to comment on their social, learning and spatial experience. An overwhelming majority throughout the year groups felt that there was a need for increased peer-to-peer interactions; platforms for social interaction (such as food and beverage stations, coffee bars); areas for relaxation, and informal discussion areas. They expressed the need for additional learning experience pertaining to technical expertise in their field of study, presentation skills, technological tools, digital advancement and practical experience, none of which is classroom bound. The spatial recommendations included the development of outdoor areas, bringing nature into the building, natural light and the need for a diversity of spaces. Spaces must inspire and be vibrant. In addition, the most important elements for the students in their learning environment are 24-hour accessibility to the buildings, accessibility of information and spaces that reflect social and environmental responsibility.

A mini-refurbishment was undertaken for the Department of Statistics in the Information Technology Building that included the opening of the tea room into the passage. The tea room is open to students and staff. Small meetings are held in the space. The removal of a section of the wall allowed natural light to flood the long internal corridor. The tea room is centrally located and becomes the breakaway space for the department. The modern interior contributes to the professionalism of the environment and makes it a great place to be. The one boardroom was converted into a multi-use lecture room with flexible furniture. The venue can now serve a range of functions. It has a floor-to-ceiling whiteboard-painted wall, which is fantastic for teaching statistical calculations.

The Faculty of Theology and Religion received a refurbishment as part of its centenary celebration. The main lecture hall was renovated and the foyers received minor interventions in order for the faculty to be visually more welcoming and inclusive. Adding small worktops into the foyers, with power points and Wi-Fi, encouraged students to stay in the building. The changes activate the spaces and move completely away from old, cold and hard institutional facades.

Department of Library Services – Supporting teaching and learning

The University of Pretoria library is regarded as one of the best university libraries in South Africa. It provides a comprehensive information service by supporting the learning needs of clients in the Learning Centre and providing customised research support via faculty libraries, to facilitate information and knowledge solutions to the University's core business. The libraries at different campuses consist of the Merensky 2 Library, the Oliver R Tambo Law Library, the Education Library, the Mamelodi Library, the Jotello F Soga Library (the only veterinary science library in South Africa), the Music Library and the Health Sciences Libraries. In addition to the traditional library services, the library presents a holistic online service to its clients, including e-books, e-journals, a digital research repository, customised web pages, subject guides, digitised full-text local collections and a digital reference service.

Two highly innovative developments are highlighted below: the MakerSpace and the UP Libraries App.

MakerSpace

During 2017, the MakerSpace continued to support teaching and learning across the University of Pretoria through several undertakings in which students and academics were stimulated to collaborate, discover and learn in a creative atmosphere. Several workshops were conducted throughout the year, where collaboration between research and innovative ventures were driven, supported by faculty and enterprises. Manufacturing Systems (MVS) and Informatics (INF) were two key courses where the MakerSpace staff supported undergraduate students, who were challenged to think outside the box and prototype visual concepts for their course-work.

The MakerSpace continues to engage with various departments and partners to create relevant supportive mechanisms for students to drive teaching and learning, as well as research outputs. To motivate participation and reward innovation, students were challenged to participate in hackathons and exhibit their abilities and ideas, proving their work-readiness or entrepreneurial spirit. These events aimed to bring together disciplines and solve problems relevant in Africa. Events were hosted with SARILAB as well as the LaunchLab to stimulate students to link their creativity to industry.

For students who have identified themselves as entrepreneurial, the MakerSpace has continued with the Department of Business Management, headed by Prof Alex Antonites, to build the entrepreneurship incubator, known as University of Pretoria Business Incubator (UPBI). With the UPBI team, students were guided through a talk series and rapid incubation to prepare them for the business environment. The MakerSpace assisted by aiding with innovative prototyping sessions and various other resources. This allowed students to apply themselves and their knowledge. Standard Bank, one of several partners who also assisted, did so by hosting the challenge sessions for young entrepreneurs in the programme, as well as presenting an innovation challenge to all students in October.

MakerSpace

To aid in stimulating an innovative mind-set within our students, the MakerSpace hosted several workshops, including Arduino training, Design Thinking for Multimedia (where they identified water solutions within Africa), and communication pathology (where key areas of concern regarding clinicians' and children's interactions with technology were proposed in constructive design). These sessions encouraged a collaborative approach to teaching and learning, where students were tasked to visualise their ideas, which inspired them to research these hypotheses further. Where new trends emerged on a global scale, we were supported by partners from Intel to provide training to students on artificial intelligence and deep learning.

The MakerSpace will continue to create an accessible and supportive environment for students, ensuring they are work-ready by developing skills to create and innovate. For those whose concept is of a business nature, the entrepreneurship incubator will be made available more extensively in 2018, to support the entrepreneurial drive within UP.

UP Libraries app

After many years of lobbying, an app for the UP Libraries was launched on 20 July 2017. The project team that made this happen comprised Elsabe Olivier and Carike Schoeman, with Dr Heila Pienaar as coach. This is only the second academic library app in South Africa. The app can be downloaded from the Android and Apple stores – more information is available at: http://www.library.up.ac.za/quality/app.htm. The latest statistics indicate that the app has been downloaded 3 251 times, and since July 2017 almost 20 000 queries (clicks, keystrokes) have been recorded. The August quality survey indicates that the mobile app has been warmly welcomed by students and staff members alike. The students are enthusiastic, calling it 'genius', complimenting the library on the convenience in that it frees them from having to rely on laptops or computers on campus and enables them to renew their books easily, and saying that the app focuses 'on the current and future needs of users'. To echo one student: 'Well done guys!'.

The move towards student self-service came about partly because the library likes to remain at the forefront of technology innovation at the University and partly because of the closure of some of the UP Libraries during the #FeesMustFall campaign. It became clear that library products and services must be more prominent in the online world. Using the UP Libraries app, a student can be almost self-sufficient in terms of academic information content.

A *Perdeby* article on the UP Libraries app was published in the issue of 14 August 2017: https://www.perdeby.co.za/sections/news/tuks-news/5649-new-app-launched-for-ups-libraries.

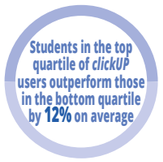
Enhancing creativity and access in the online space

The successful use of hybrid learning during the campus disruptions in 2016 led to even higher levels of adoption during 2017 in undergraduate modules that had an online presence in the learning management system (*clickUP*). A similar increase of course-work master's programmes using *clickUP* was visible in 2017.

Working online

The University received a grant of $200 000 from the Carnegie Corporation of New York to collaborate with the universities of Cape Town, the Free State and Johannesburg to conduct research into the move to blended or hybrid learning during #FeesMustFall.

Concern was expressed by parents, students and lecturers alike during campus closures about the quality of online versus contact education. Far from providing inferior learning opportunities, data from *clickUP* show that students who use the system frequently outperform those who do not.



A campaign was launched at Welcoming Day in 2017 to change the mind-set of various stakeholders towards hybrid teaching and learning with messages such as 'Because the learning mix matters', 'Because your success matters' and 'The classroom and beyond' (implying that the lecture hall is not the only site of learning but also that technology skills benefit students beyond graduation). Students were told to expect contact sessions and practicals with lectures, classroom interactions that use technology, teaching and assessment conducted partly online, modules that have online elements, and preparation to be technology-savvy and workplace-ready on graduation. The campaign included posters, the use of social media, short videos of students and videos of successful hybrid teaching across all faculties (see the Faculty of Health Sciences' example at https://www.youtube.com/watch?v=-wkvcO3B8qc and the Centre for Augmentative and Alternative Communication's example at https://www.youtube.com/watch?v=B43S7nqyT3M).

Examples of innovative hybrid initiatives are given by some faculties in their reports.

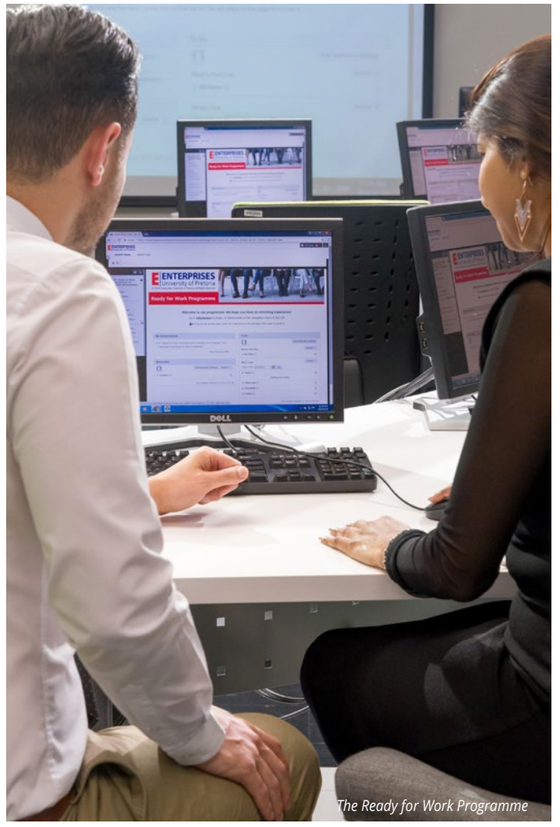
The Department of Information Technology Services (ITS) contributes to teaching and learning excellence through its Unit for Academic IT (UAIT). This fact has been highlighted by a drive to optimise the use of technology in both lecture venues and student computer laboratories in recent times. This drive generated a number of exciting projects aimed at improving the teaching and learning experience and included the expansion of Wi-Fi coverage to most lecture venues, the upgrading of audio-visual (AV) equipment in lecture venues, as well as the renewal of technology in student computer laboratories.

Wi-Fi connectivity is no longer a luxury and has become essential in education. It was a mammoth task to realise full high-density (HD) Wi-Fi coverage in approximately 400 lecture venues across all campuses, and 427 wireless access points were implemented to achieve this objective.

Quality AV equipment in lecture venues forms a vital part of teaching and learning, and various projects were undertaken in an effort to improve the experience of lecturers and students. First up in 2017 was the replacement of the microphone systems in all venues with high-quality Sennhieser equipment. This was followed by the first phase of data projector replacements as well as the replacement of overhead projectors with document cameras. Proactive maintenance of AV equipment was made a reality with the implementation of specialised software that monitors equipment and notifies technicians of components in need of replacement.

Student Computing Services further offered a wide range of services focused on teaching and learning and the enabling of lecturers and students through the use of various technologies. ITS runs a number of priority training courses to enhance lecturers' digital literacy.

Some of the recent projects that were launched in order to improve the service delivery in computer facilities across the various campuses include the improvement of AV technologies in various classroom facilities, the acquisition and implementation of a comprehensive computer laboratory management system and the replacement of standard desktop computers with more modern 'all-in-one' type units.



The Ready for Work Programme

Extensive upgrade projects and the expansion of a number of facilities on the Hatfield, Prinshof, Groenkloof, Onderstepoort and Mamelodi campuses were also undertaken.

Furthermore, additional Wi-Fi capabilities have been installed at a number of computer facilities, and provision has been made, and a dedicated support service established, for students who would like to make use of their own computing devices.

Initiatives focused on work-readiness and entrepreneurship

The University of Pretoria is interested in success in the academic programmes but also success in future careers. In March 2017, a fully online Ready for Work Programme was launched by Enterprises UP after collaboration with the Department of Enrolment and Student Administration and other UP role-players. The professional online development (POD) modules were offered free to UP students, who can do them in their own time and at their own pace. Later in the year an Entrepreneurship POD was launched. Completing these modules should give UP students an edge when applying for positions. (See http://www.enterprises.up.ac.za/training-solutions/ready4work/.)

The Ready for Work Programme

The continuously evolving nature of the world of work has led to an increasing demand for tertiary institutions to produce graduates who are employable

in the sense that they are equipped with a range of knowledge, skills and attributes that enable them to succeed in the world of work and in life.

The 21st-century work environment undoubtedly requires a much more multi-skilled and self-sufficient labour force. To ensure their success in their chosen occupations, both now and in the future, graduates need skills that enhance their graduate and personal profiles, as well as skills that will assist them to contribute meaningfully to the workforce, the community and the economy while being successful in their chosen careers.

Against this background, a work-readiness initiative was launched for students and graduates by the University's Career Services and Enterprises UP. The Ready for Work Programme was specifically designed for students and graduates of UP to acquire the requisite skills and attributes to help them integrate into the world of work more easily.

The programme is organised into essential skills packages, each containing several one-hour modules and a specialised skills section that alerts candidates to other courses in Enterprises UP's online course portfolio with modules on more specific skills that will prove useful in the workplace, such as basic project management.

The online learning modules cover aspects such as choosing a career, creating a career plan, researching potential employers, writing a CV and cover letter, how to do job searches, preparing for an interview, professional communication and much more.

The Ready for Work Programme provides successful students with the ability to print digital records of completion.

Ready for Work registration 2 180

The Entrepreneurship Programme

The high unemployment rate in South Africa and the resulting growing importance of graduate employability and self-employability prompted UP to place even greater emphasis on work-readiness and entrepreneurship. The goal of the Entrepreneurship Programme is to enhance entrepreneurial activity among students to facilitate self-employment.

With the youth unemployment rate in South Africa currently estimated to be higher than 40%, and as the world of work changes, particularly as a result of the so-called fourth industrial revolution (4IR), it is envisaged that university graduates will increasingly have to look towards


Prof Alex Antonites

entrepreneurship as a means of creating employment opportunities for themselves and others. Furthermore, it is generally accepted that entrepreneurship is one of the most important drivers of job creation and economic growth.

Prof Alex Antonites of EMS directs and manages the entrepreneurship course that was launched in 2017. Enterprises UP assisted Prof Antonites with the development of this custom-designed course for UP students. Any registered student can sign up for the course in which they can learn entrepreneurial skills at their own pace and in their own time, free of charge. The course is open and applicable to students regardless of their field of study and is transferrable to any entrepreneurial environment.

This online Entrepreneurship course and its constituent components (viz #Start_UP, #Link_UP and #Grow_UP) are largely presented online and as co-curricular offerings. The ten-week online course covers the entire entrepreneurial process with a key focus on acknowledging entrepreneurial orientation and intent. Furthermore, these courses are aimed at providing participating students with the tools, skills and support required to become entrepreneurs.

The programme tracks students' progress through the use of achievements. They receive an achievement for each learning unit completed, and finally a completion achievement for finishing all learning units. Students can then generate a digital record of completion that they can print out and include in their curriculum vitae.

Students who complete the entrepreneurship course may then also, optionally and for a fee, submit their business plan for assessment by industry professionals.

Entrepreneurship registration 1 859

While the course is free to UP students, it is also being marketed to the private sector as a paid-for programme. The revenue accrued from paid-for external enrolments for the POD will be used to subsidise the participation of UP students and graduates in the programme, as well as unemployed graduates from partner universities in Africa.

UP is committed to enhancing its graduates' employability and entrepreneurial skills, not simply because it is committed to developing well-rounded graduates with meaningful and successful careers but also to contribute to development on the African continent at large.

Faculty of Economic and Management Sciences

The teaching and learning achievements in EMS in 2017 focused on good teaching that included a hybrid approach as well as student success at university and in the workplace.

7 821 EMS registration

79,8% EMS success rate

2 678 EMS graduation

Winners of Teaching and Learning Excellence Awards 2017 with Prof Johan Oberholster (middle), Deputy Dean: Teaching and Learning

EMS celebrates teaching and learning excellence: Annual Awards Function

At the EMS Annual Awards Function on 21 June 2017, four Teaching and Learning Excellence Awards were presented to lecturers for exceptional, innovative initiatives and dedication to EMS students. The purpose of these awards is 'To recognise a consistent record of outstanding teaching and learning related activities for lecturers who clearly demonstrate that they make a significant contribution to enhancing the students' learning experience'. This is in accordance with the UP 2025 Plan, which states that 'effective teaching and learning … are key to fulfilling the primary function of the University: that is, to produce knowledgeable and skilled graduates, in line with the high-level needs of the South African economy and society, and to replenish our human capital needs'.

The following staff members, in alphabetical order, were recognised for teaching excellence and associated innovations:

- Ms Madelyn Cloete and Ms Corlia Joynt: This team changed the first-year experience of non-CA Financial Accounting students and facilitated change in the teaching approach in the Department of Accounting. Electronic mark sheets were used for the first time in the first semester in this module. In the two second-semester modules of this group, a comprehensive assignment was used, which simulated business transactions through four phases. Virtual lectures and an online examination (the first of its kind in the department) were successfully completed in 2016 and were again used and refined in 2017.
- Ms Marina Kirstein and Ms Bernice Beukes: The third-year external Auditing team incorporated technology at several levels into their curriculum. Examples of different forms of technology used to facilitate teaching interventions are: e-tutorials, an online simulation (AuditSim) and video recordings. With the re-engineering of the pedagogy and the module teaching model to incorporate hybrid learning, the flipped classroom model was also introduced.
- Ms Rolien Kunz: This lecturer introduced an innovative teaching approach for the honours external Auditing module, involving active engagement between the lecturer and students and among students, to promote deep learning and enrich the students' learning experience. The short-term benefit was that students were actively involved in the learning process. This created opportunities for them to connect the concepts to their own personal knowledge and experience, and to engage in higher-order thinking, such as the synthesis of the internal control concepts and their payroll and personnel knowledge, as well as the evaluation of the presented internal control answers.
- Ms Astrid Schmulian, Ms Cecile Janse van Rensburg and Prof Stephen Coetzee: This team instituted webinars for second-year Financial Accounting students registered for the chartered accountancy (CA) programme. Given that their students increasingly function in cyberspace, they developed a toolbox of teaching interventions, including web conferences. The didactic content of the module is ideally suited to YouTube, and more interactive discussions and other student-centred activities can largely be accommodated using web conferencing. With web conferences the students can engage with the lecturers in the virtual classroom as if face-to-face and it affords them the opportunity to interact and raise questions and issues from wherever they may be. This hybrid teaching model is also invaluable in instances where students are unable to attend classes, and where the students risk losing contact time. The web conferencing allows the lecturers to stream video to the students on whatever Internet-connected device they choose to utilise (mobile phone, laptop or desktop computer).

Teaching pervasive skills to first-year Chartered Accountancy students

Research has shown that there is a definite gap between the skills employers require graduates to have and the actual skills that graduates possess. Employers tend to experience graduates as technically proficient, but somewhat lacking in what is commonly referred to as 'transferable', 'generic', 'soft' or 'core' skills or competencies. Consequently, higher education institutions and professional associations have been called upon during the last few years to bridge this gap. The South African Institute of Chartered Accountants (SAICA), the regulatory body of the chartered accountancy profession in South Africa, responded to this call by developing a Competency Framework that sets out the broader competencies that CAs should eventually possess. The competencies set out in this Framework are often not explicitly or purposefully included into the university curriculum, but several of these are implicitly developed in students as an unintended result of the teaching and assessment activities at UP. For example, the core competency in the Framework of 'Manages time effectively' is developed through the need to master all of the work before a test, and to write that test within the prescribed time limit.

Although some of these competencies are addressed in the curriculum, there are many that are not. The Department of Accounting therefore decided to implement an initiative aimed at purposefully integrating the competencies set out in SAICA's Competency Framework into the Accounting curriculum of first-year students studying towards a chartered accountancy qualification.

The initiative was implemented in partnership with an audit firm and a lecturer from the Albert Luthuli Centre for Responsible Leadership, and was carried out over the first and second semesters in normal class time – four sessions in the first semester and three sessions in the second semester. The work covered in those lectures was made available online in the form of videos in support of UP's drive towards a more hybrid teaching model.

The focus during the first semester was on developing and improving personal and communication skills. The sessions commenced with a self-reflection and examination by the students of their personal skills, and gradually progressed to cover how these skills would need to be applied in a constantly changing world. The world of work as it is today and the fourth industrial revolution were focal points in these sessions.

Learning outcomes were developed for each session by the UP lecturers and the audit firm conducted the teaching activities. Assessments based on the content covered were set by both the audit firm and the lecturers and included personal development plans, transactional writing and creative expressions of the main learning points.

The second semester focused on the role of the accountant in society. The three sessions were developed by a lecturer from the Albert Luthuli Centre for Responsible Leadership, and were presented by him and relevant people from the audit firm. The sessions focused on world views and sustainability, and the design of accounting in relation to externalities.

Learning outcomes were developed to ensure relevance for first-year students studying towards a SAICA-accredited Accounting degree. Online assessments were done before each session and there was a reflection after each class. A final assignment, including a group and an individual component, and focused on developing critical thinking skills, listening and written communication skills, was conducted and graded.

In conclusion, the initiative was deemed a success by the lecturers on the module, the students, as well as the audit firm, and definitely broadened the horizons of all parties involved.

EMS students and the world of work – Real-life marketing challenges

The Department of Marketing Management and Bridgestone South Africa (SA) partnered on the practical project for third-year Marketing Management students in 2017. The purpose of the module is to prepare students for the world of work by exposing them to real-life marketing challenges that require hands-on involvement with an industry partner. This involvement improves critical and creative thinking, and the end-result is the development of personal, professional and marketing skills through the client interaction, leading to well-developed marketing strategies and tactics. As such, the student becomes a co-creator in developing marketing activities for the marketing industry, bringing them as close as possible to the world of work.

The primary aim of the project was to increase awareness of the Firestone brand among 18- to 45-year-old tyre consumers residing in Gauteng through the development of a brand communication plan targeting specific segments as identified through market research. For this activity, the winning student team won themselves Firestone-branded power banks. In completing this part of the project, students were required to work in marketing teams of five to six members and ultimately had to submit and present three deliverables to a panel of industry judges. The winning teams under each deliverable were eligible to win very attractive prizes.

After the introduction to the project, team leaders visited the Bridgestone plant in Brits and students were taken through the entire tyre manufacturing process to familiarise themselves with the product. One of the students even commented: 'The trip to Bridgestone completely changed the way I think of an ordinary tyre: from a piece of rubber to a pure technical design of excellence'.

For the first deliverable, students had to


Bridgestone team

conduct research about the tyre purchase behaviour of consumers, using an online survey to identify the different segments that Firestone could possibly target going forward. The winning team of the research challenge was treated to a 4x4 excursion at the Gerotek testing facility, sponsored by Bridgestone SA. For the second project deliverable, students had to position Firestone as a brand for each of the four segments (as identified in the first deliverable) by providing positioning maps together with their draft brand communication plans of how they intend to increase awareness of Firestone. For deliverable 2, the winning team was treated to a BMW advanced driving course sponsored by Bridgestone SA.

The third and final deliverable entailed a detailed written brand communication plan focusing on increasing awareness of Firestone among one of the segments identified as part of deliverable 1. This was also presented to a panel of judges. The detailed brand communication plan included three communication elements, with one being a digital communication element where students pushed their creativity to the limit resulting in some unique strategies. Students also designed possible advertisements that Bridgestone could use, and even illustrated how Bridgestone could use tyres as part of Warrior Racing. The overall winning team won a weekend trip to Sun City during the December holiday, sponsored by Bridgestone SA. The judging panel was extremely impressed with the professional way in which the students presented their ideas. This innovative and practical project remains one of the highlights of the BCom (Marketing Management) degree. It is indeed an excellent example of co-operation between the private sector and academia, and presents an extremely valuable win-win situation that prepares students for the world of work.

Using artificial intelligence in teaching and learning

Prof Stephen Coetzee and Ms Astrid Schmulian from the Department of Accounting developed the Accounting Rookies (https://m.me/accountingrookies) and IFRS Rookies (https://m.me/ifrsrookies) messenger bots, to act as virtual 'tutors' for introductory and intermediate accounting students respectively.

But what is a bot? Bots are artificial narrow intelligence (ANI) programs designed to interact through text with users in a human-like way, answering questions and performing tasks, in a specific area. Bots offer several possibilities for teaching. They offer an alternative means of content delivery that, given the placement thereof in messaging apps, could increase student motivation and interest. It is natural for today's students to receive motivational messages, get reminders about upcoming tests, look for answers to study questions, or find another student revising the same topics, through a messenger application (app). Bots in messenger apps are ideally placed to fulfil these roles in a student's learning.

Asking questions and getting help from a bot can be beneficial to students. Some students may have anxiety about asking questions of instructors directly, particularly in large classes. In a large class, students are not always able to get full attention or immediate help from the instructors when they face problems. This may frustrate and demotivate students, discouraging them from seeking clarifications from instructors. Instructors may also feel overwhelmed by the volume of enquiries from students at any one time. Moreover, if the same question were asked by many students, it might be inefficient for instructors to repeat the answers frequently. Bots could assist in these circumstances. Unlike a fellow student or instructor, bots are able to offer help on demand. In addition, instructors can review the chat history and identify the more meaningful questions and address these questions with students.

The Accounting Rookies and IFRS Rookies messenger bots have been used in various pedagogical scenarios commonly faced by the instructors, and these are mentioned below.

A 'flipped classroom' approach was used. 'Flipping the classroom' means students gain exposure to new material outside of class, before class, usually via reading or watching videos, and then use class time to deepen that knowledge, perhaps through problem-solving, discussion or debates. The bots have been designed to transform the students' work outside of the classroom into a social constructivist environment. The bots encourage the student to watch specific videos or read specific material on the content before asking them various questions in a quiz-style format to assist them in gaining knowledge and comprehension of the topic in a social constructivist manner.

To overcome the challenges of teaching large student groups, an instructor may 'team teach' with the bots, which become 'co-teachers'. At its most basic level, team teaching takes the form of one teach/one support. The bots have fulfilled the support role. Students are able to personalise their learning and engage with the bots to get answers to commonly asked questions without disrupting the flow of the class as a whole. This enables students to work through the material at their own pace, allowing differentiated instruction. At key points, the instructors may interject to add additional explanations or information.

Stephen Coetzeec and Astrid Schmulian

The bots encourage students to reflect on their learning after class, to reinforce what was taught during the day, and ensure that they engage with the day's material, strengthening the learning pathways. The bots achieve this by broadcasting messages to the students in Messenger, containing, for example, a text message linking to a revision quiz. In addition, the students can subscribe to financial news services within the bots. The bots then push the latest financial news headlines to the students on a daily basis.

The bots are freely available within Messenger.

6 384 students reached since launch in first quarter of 2017

Bots' 'rate us' function - majority of students expressed satisfaction

72%: Bots 'won their hearts'

Only 7% of the students suggested they felt 'a little cold and disappointed'. Comments received from the students included: 'This platform is superb', 'I would like to thank you for giving me more knowledge on accounting' and 'I love the chat bot!'.

Faculty of Education

The teaching and learning achievements in the Faculty of Education in 2017 focused on hybrid teaching and learning as well as school implementation of innovative practices developed during studying at UP.

In the end ... we all 'clicked' online

In the Faculty of Education's BEdHons programme, the NMQ 755 research module is driven by excellence, innovation and student success. Within this module students are granted the opportunity to complete successfully a research proposal within one semester, supported by the academic inputs of a team of supervisors. Dr Annelize du Plessis answers the question: 'How do we manage to maintain a 99% pass rate among our students for three consecutive years?'.

NMQ 755 follows a hybrid learning approach, with students attending one lecture every second week for seven weeks as well as three supervision sessions. During the two weeks that students are not on campus, learning engagement is achieved through the use of *clickUP*, where they have access to a user-friendly module that shares, among other things, general resources, research tools and presentations of each contact session, as well as other relevant and frequent module-related communication.

The model that was followed is not necessarily brand new; however, the real innovation lies in the establishment and enhancement of the relationship between supervisor and student before the second-semester research project commences, the creation of a community of practice among the interdepartmental supervisors, and the creation of a learning community among the students.

The theory of the module is presented by the facilitator, but all the supervisors have access to the course to follow the delivery of the theory, and at the same time facilitate their own students' development of their project proposals through a series of Turnitin assignments. The supervisors therefore meet, guide and monitor their students long before they start with the empirical part of their research projects. *clickUP* tools such as the Grade Centre assist supervisors to monitor at-risk students closely and provide all students with prompt online formative feedback on assignments submitted through Turnitin. Assessment practices are aligned across the faculty by means of online rubrics that all supervisors use to assess the submissions formatively, enhancing the internal reliability and validity of assessment practices.

The community of practice among the students is technologically facilitated by means of group discussions on research-related matters and online activities such as the discussion board. Students support each other by answering questions on how to conduct a literature review, or how to choose the appropriate philosophical paradigm, etc.

Each year, this module is submitted to an external assessor to benchmark the quality and standard of the module for future improvement. Last year lecturers were commended on the innovative manner in which they facilitated the compilation of a research proposal as well as the manner in which the supervisor team collaborated with students and fellow supervisors.

Facilitators value and incorporate any feedback provided by both students and supervisors that may enhance the quality of the module each year. In this way cohesion is established and maintained.

Learning and leading in a digital age: *'ICT change agents don't do more ... they do differently'*

Dr Thiru Vandeyar's career in education spans 37 years. In this time he has been a classroom teacher, head of department for Mathematics, deputy principal, school principal, college lecturer, university lecturer, researcher and technology learner. In 2017 he won a teaching excellence award in the Faculty of Education and was nominated for the University's Teaching Excellence Laureate, to be decided in 2018. The award acknowledged the way in which he integrated technology in his teaching and contributed his insights to the wider University community through the implementation of a number of key projects.

Being a 'teacher at heart', he was willing to change his mind-set about teaching with technology. He says: 'My teaching philosophy is now firmly rooted in the constructivist-connectivism learning paradigms that enhance 21st-century critical skills of critical thinking, communication, collaboration and creativity. I have come to realise that my empirical research findings across various socio-cultural classrooms act as a good barometer in understanding the technology integration context. This research-garnered experience keeps my finger on the technology pulse in schools and serves as an impetus for changing my own teaching practice to influence pre-service teachers' pedagogy'.

Technology opened up a whole new world for him. Spreadsheets suddenly went from being a simple administrative tool to a software that reduces learners' cognitive load and enhances learning. He wanted to understand the dynamics of teaching with technology deeply and create applications and artefacts to improve his teaching and students' learning. He felt he was embarking on an exciting new path. He knew that if he could exploit technology, he could make impressive pedagogical changes to his teaching, which would really make a difference to learners and to his professional development. According to Dr Vandeyar, 'Good teaching requires constant innovation and the re-invention of pedagogical practice'.

So how did he change his practice?
The lessons learnt were from personal experience, research and online teacher communities of practice. His intention was to exploit technology to improve his teaching practice and simultaneously to illustrate to pre-service teachers the significant affordances that technology brings to the classroom. 'I love the fact that much opportunity exists now as most tools and resources are Web 2.0 cloud-based technologies and can be easily integrated into teachers' classroom practices', Dr Vandeyar explains.
First, he used a host of open-source software. Of particular importance are digital interactive concept maps that fit perfectly within the constructivist and connectivist paradigms. Second, he created augmented reality lessons to enhance both teaching and learning. Third, he developed his own video lessons for flipped classroom teaching and to support lectures in a hybrid teaching approach. Fourth, he used open-source software, Raspberry Pi technology, social networking, open educational resources and utility tools as a toolkit to enhance teaching and learning, particularly in technology-constrained classrooms. Fifth, he used technology tools for content creation, communication, collaboration and critical thinking through cloud-based collaborative tools (Google) to enhance a blended learning approach. Sixth, he created mobile apps and mobile technology to enhance access to online course content. Seventh, he explored utility tools (codex, screen-casting, file converters, etc.) for seamless ease of transition from mobile technology to laptop. Finally, he sought to facilitate faculty 'research outputs' data-collection methods in real time using collaborative tools and an app to manage the process personally.


Dr Thiru Vandeyar

Having all the affordances of technology does not imply that good teaching is evident. In this regard Dr Vandeyar sought to use technology to video-record his lessons digitally. By using Swivl™ technology, he could reflect on his teaching and lesson delivery and learn from his own teaching. This reflective practice instilled in his pre-service teachers the need to be critical about their own teaching.

Dr Vandeyar concludes: 'As a teacher who tries to inspire and lead change, my hope is to create agents who will shape ICT education innovation for social change'.

Early-grade Mathematics

Everyone is aware of the importance of Mathematics to many professions for which a degree prepares students. One begins to question, however, how important Mathematics is in the early years compared to other domains such as reading, attention or socio-economic development. Research has found that early Mathematics ability is the biggest predictor of later academic success.

When it comes to education, one of the biggest problems today is that high school learners do not take Mathematics seriously. They are simply not interested in this subject, despite the fact that this structural science can lead to well-paid jobs in engineering, statistics, education and technology.

To foster an interest in and love for the subject, the Department of Early Childhood Education decided to make Mathematics fun and exciting. Dr Roy Venketsamy and Dr Anienie Veldsman aimed to bring about a balance between theory and practice. One of the strategies used in the department was teaching Mathematics in the early grades through stories and games.

Stories play an important role in the growth and development of young children. The books they read and the characters they get to know can become friends. Children love stories. Keeping this in mind, all students registered for the Early Mathematics module (JGS 121) are assigned to write stories and develop a board game for learners in Grade R. The purpose is to transform the way Mathematics is taught and learnt in schools. Learning should be fun. Students produced very creative, interesting and imaginative stories, taking into consideration the developmental level, and social and cultural factors of these young learners. By combining Mathematics and literacy, Mathematics stories can help open up the 'world of Mathematics' to learners with a wider range of learning styles. Young children enjoy stories as they provide fun and a relaxed atmosphere for learning to take place.

Most students used their Mathematics storybooks during their teaching practice. All the storybooks are aligned to the topics in the Curriculum and Assessment Policy Statement. During their teaching practice, students found that both the learners and teachers welcome this resource in their schools. This practice is gaining popularity very quickly as other higher education institutions have started to adopt and implement this project. Another innovative strategy in ECE to improve teaching and learning is the development of 'Lesson Study'. Students work in groups to prepare, plan and develop different lessons and present these in class.

Interactive Mathematics apps

In the past, Euclidean geometry in its traditional form of theorem recognition and proof construction was voluntary as part of the school curriculum but, since the introduction of the CAPS curriculum all Grade 10 to 12 Mathematics, learners have to do it. In 2008, when it was optional, only 3,8% of the Grade 12 Mathematics learners nationally wrote the Paper 3 and, of those, almost half got less than 30%. A reason for this poor performance in geometry is the way it is taught. A potential way to address the problem is to teach future Mathematics teachers to use technology to make the learning of geometry interactive.

The growth rate of cell phone use in Africa is the highest in the world. South Africans access the Internet on their mobile phones since the majority do not have access to computers. Therefore, mobile technologies increasingly open new opportunities for education. This is why Prof Gerrit Stols developed apps for Android tablets and mobile phones. They are freely available on the Google Play Store. The Circle Geometry app comes with its user's manual. It is also available as an interactive iBook on the Apple Store. By tapping and dragging the cursor, students can discover relationships as well as formulate and test conjectures. The interactive nature of this app gives users the opportunity to visualise, understand and enjoy geometry. A second app is concerned with Interactive Mathematics and focuses on Grades 8 to 12. This app consists of more than 200 interactive applets that will help school students to discover and enjoy Mathematics.

The interactive applets were designed with an open source program called GeoGebra.

The use of the interactive apps can develop and reinforce concepts, enrich visualisation and rectify misconceptions. This inductive process lays the foundations for justification as well as explanation by deductive proof. The impact of this teaching and learning method is also evident in the high pass rate and enjoyment of the students.

Other teaching innovations include the development of an interactive website for Mathematics teachers and their students (https://school-maths.com). More than 30 000 copies of the manuals were downloaded from this website. Different organisations and institutions around the globe have asked permission to use Prof Stols's training manuals for the professional development of teachers. He has been invited to present workshops on many different occasions.

Applying constructionism in designing hybrid student learning communities

The Supportive Learning Environments module is a second-year core module of the teachers' degree programme, which also accommodates students from across various faculties and disciplines of the university. The lecturer, Maximus Monaheng Sefotho, strives to embrace diversity and inclusion of all students and thus the teaching philosophy adopted by the module is constructionism, premised on the principles of constructivism and experiential learning. Constructionism emphasises purposeful production of knowledge and holds that learning can be most effective if learning environments are contextually enriched to encourage diversity in perspectives and multiple interpretations of reality, and students are able to construct their own knowledge actively, which they can authentically demonstrate.

Drawing on constructionism, student learning communities (SLCs) were established to design learning experiences that engaged students in team learning beyond the formal classroom. The SLCs capitalised on the hybrid instructional strategy for learning context enrichment. *ClickUP* tools and collaborative instructional methods were used to facilitate learning opportunities and experiences for students to engage online and face-to-face in and outside class. The content and announcement tools were used to provide information and material to the students, while the discussion board, wikis and groups were the main tools used to facilitate student interaction and/or collaboration.

The SLC activities were designed as pre- and post-theme learning activities for students online and/or offline, depending on the nature of the activity. As a way of ensuring individual accountability, each SLC activity also involved engaging students in an individual learning and/or assessment activity after/before the team activity. *ClickUP* assignments and online quiz tools and assessment rubrics with clear assessment criteria and/or guidelines were used for purposes of formative assessment to guide and monitor learning and performance. Students engaged in assessment tasks that were continuously integrated with the different individual and SLC learning activities. In the end, students created innovative poster presentations to consolidate summaries of the themes they learned through the SLC engagement.

The hybrid student learning community practice of the module assisted to identify a number of considerations useful in designing team-related instructional strategies within the context of inquiry-based learning. Informing student learning communities from the constructionism notion helps to achieve context-rich collaborative learning environments that cater for student diversity, drive cohesion and promote ongoing student engagement beyond the formal classroom. According to module learning communities, team learning exposes students to multiple opportunities for peer learning that show them the realities of teamwork and equip them with the necessary teamwork skills. Integrating online collaborative engagement helps students to engage purposefully with the information and technology, assisting them to develop the relevant information literacy skills for the knowledge economy.

Integrating strategies that ensure individual accountability encourages students to prepare and revise the material before and/or after engaging in a team, providing opportunities for repeated learning of the key concepts, in order to deepen and/or advance knowledge.

Methodology of Learning Support

Methodology of Learning Support is a module presented to third-year students in the BEd programme at the University of Pretoria. The module aims at strengthening teacher training for the third-year students through attending lectures and gaining hands-on experience in a school environment. It is presented for fourteen weeks in the first semester, compulsory for Early Childhood Education (ECE) students and an elective module for students in the intermediate and senior phases.

As part of fulfilling the requirements of the BEd degree, third-year students are offered work-integrated learning (WIL) opportunities. These students visit the schools and assess learners' perceptual skills with the aim of ascertaining the school readiness of the learners. School readiness entails more than just being at the right age and physical appearance to be ready for school. The under-development of school readiness skills can hinder learners' academic progress and curriculum accessibility.

During the theory period, students are trained to identify challenges in learners' perceptual development, with an emphasis on gross motor skills, fine motor skills, eye movements, laterality, spatial orientation, midline crossing, dominance, visual perception and auditory perception. As part of the practical component of this module, experiential learning as a teaching philosophy is provided to students on a weekly basis to implement the assessments and intervention techniques taught during the lectures. Students prepare resources to be used at their respective schools.

The students visit the schools once a week during the first and second quarters of the year. Each student is responsible for a group of two to three learners who have been identified by their class teacher as being in need of support. A ten-week perceptual programme is followed with these learners using the resources that students prepare in class.

Lecturers accompany students to schools to supervise the process of assessing the learners. Students document feedback in their reflection journals and give it to the teachers on a weekly basis. The feedback is used to track progress or the lack thereof at the end of the project. Teachers at the school review the project and give feedback to the lecturers. Student teachers provide the school with resources for continuous assessment and intervention.

Since the students come from different socio-economic backgrounds, the University collaborates with various stakeholders to make the assessment and intervention a success. The Community Engagement office in EI provides the students with transport to the schools. A group of volunteering women in the community helps with making the resources that students use for assessment and intervention.

The success and sustainability of this project depends mainly on the realisation of mutual benefit of all parties concerned. Student-teachers benefit by practically learning to assess foundation-phase learners on school readiness skills in real-life contexts. Teachers at the school would then benefit from the exposure to research-based intervention strategies instrumental in supporting learners experiencing learning difficulties stemming from the possible challenges children demonstrate in their perceptual skills.

Art integration in community engagement

Visual Art is increasingly used as an expression of human concern. The need to create awareness and inspire action is growing. Changing the meaning, understanding, experience and function of art is vital for this community engagement project run by Ms Delene Human. Visual Art is a subject not offered by many schools in South Africa as part of a teaching practice opportunity. This community-based, practice-led research project was established to assist fourth-year Visual Art Education students in discovering their own creative thinking skills and extending their professional education vocabulary by creating teaching practice opportunities for students who cannot find such opportunities in schools, as well as creating assessment and learning contexts for these students.

Student-teachers were expected to identify environment-specific challenges and shortcomings in and around a specific school community. They had to address these challenges by involving the school learners in developing creative solutions. The aim was that learners and student-teachers explore the materials and tools available in the immediate community to create viable and realistic solutions that can be sustained by the community, and hence improve the daily conditions in which the communities find themselves. This allowed the identity of the community to develop and strengthen.

The student-teachers inspired the creativity of a diverse group of teachers and learners by equipping them with the necessary knowledge, skills and values needed to utilise the limited resources available in their immediate community, to create a self-sustaining environment. By having to make use of what was already available in the area, the students were able to appreciate the individual community identity and embrace it as part of the real-life challenges, creating lessons that were more meaningful, and thus memorable to the learners. Thus, the subject content became secondary to the real-life knowledge, skills and values gained by all parties involved in this project.

This practice-led project allowed a diverse group (with regard to culture, economic status, politics, language, religion, etc.) of students, learners, teachers and staff to engage co-operatively and develop solutions through innovative and alternative means. Through self-expression, the hope is to create confidence within all participants. Emphasis is placed on process, inclusive long-term relationships and shared identity, where the focus shifts from the individual to the community.

The student-teachers had to appreciate

and teach art in a creative and visually stimulating way, by understanding various processes, theories and art media, and incorporating Visual Art with Life Skills and other school subjects. Through this form of teaching and learning, focus is placed on preparing student-teachers for the reality of being a teacher in South Africa. At the end of this project, students provided proof that they were ready to take on the challenges of professional teaching practice, by completing an alternative assessment opportunity: creating a self-portrait (theme: 'Altered perspectives') in the form of artworks exhibited at a visual art exhibition.

Sourcing and evaluating apps for interactive teaching in English

Dr Lizette de Jager is recognised within the faculty for her excellent teaching. She was nominated for the institutional teaching laureate for 2017 and for the TAU Fellowship. Her teaching philosophy rests on the importance of enduring understanding, thus teaching content could never be accepted as enough. She believes that it is an 'amazing privilege' to be able to reach students on an emotional level through the teaching of literature. Through discussions and debates, the social issues highlighted by the various authors are revealed to students and shed light on the nature of people. She feels it is rewarding to see how students take methodological examples and advice about excellent and innovative teaching to heart and how they apply that in lessons.

She encourages class interaction and participation and recognises engagement as being an effective teaching tool. Students are required to read articles, books and notes prior to lectures in order to engage actively and interact during lectures. To engage more enthusiastic students and to emphasise that a university education is more than a collection of marks, interesting and controversial topics that are not examinable are included in lectures. Questions that are arguable allow for multiple perspectives, and that lie at

the heart of the subject, are included. These questions raise more questions, provoking and sustaining engaged inquiry, and often raising important conceptual or philosophical issues.

Dr De Jager says: 'As a keen supporter of e-learning I feel my responsibility and duty to include technology in my teaching and learning acutely and follow an educate-by-example approach in designing instructional strategy, methodology and activities in English Methodology education to teach student teachers how to integrate e-learning into the English classroom'.

Students learn to use technology for teaching and learning purposes by exploring the possibilities of technology in facilitating and improving learning experiences. Using online peer collaboration as a teaching strategy, students source and evaluate apps based on predetermined criteria, then share these resources online with other communities of practice. After choosing the most applicable and relevant apps, they design interactive lessons for a variety of genres in the English curriculum. The use of interactive e-learning activities in classes reveals the power of technology to change thoughts, feelings and actions. Integration of e-learning based on pedagogical foundations improves instruction as well as the educational experience. Furthermore, the use of a wide variety of e-learning activities serves to aid language acquisition and technology skills concurrently.

The main teaching goal is to deliver high-calibre students to the teaching field, in line with the basic competences of a beginner teacher. Dr De Jager concludes: 'I have a duty and responsibility to teach. In order to achieve this I apply the most effective and useful assessment practices, and ensure offering of current, relevant and transformed curricula to students'.

Life Skills

An innovative approach to framing a teacher preparation programme requires that institutions of higher education (IHE) 'meet' pre-service students where they are in relation to their own development and context. Such a meeting can shed light on how to adapt the current education philosophy of IHE to better understand how the Millennial generation learn differently or similarly to Generation X. By incorporating prospective teachers' experiences, reflections and preferences to the mode of delivering their module (blended, hybrid, etc.), not only can they promote their involvement, but they can also potentially cultivate cognizance to one day 'meet' the young learner where he/she is, and also be open for adapting their teaching-learning approach.

The Social Studies second-year module (JLP 220) forms part of the BEd Foundation Phase degree, and the content draws on theory and practice on how young children can learn about themselves, others and their environment. This module is nested within two scholarship of teaching and learning (SoTL) projects.

Prof Miemsie Steyn and colleagues investigated whether *clickUP* activities and the SoTL seminar strengthened students' educational experience (knowledge, skills, and values) of Social Studies. The community of inquiry model was used to create a social, cognitive and teaching presence. The researchers used scheduled class meetings, group and individual assignments, *clickUP* activities (quizzes, uploading assignments, ungraded discussion board, gradebook, structured interactive *clickUP* site), the SoTL seminar, and a Questus survey to create multiple educational opportunities to explore the students' respective presences. The students' reflections, survey scores, and semester marks indicated that they benefited from the diverse activities, which contributed to their social, cognitive and teaching presences. The students were initially nervous, doubtful and even intimidated by the *clickUP* and face-to-face activities, but have come to enjoy and mature in how to access the different functions on *clickUP* (visiting the units, domain for test and discussions, uploading documents through Tii, accessing their gradebook, etc.). From their written reflections, their overall mark, and the Questus survey it is evident that the students predominantly valued the weekly *clickUP* quizzes, viewing their academic progression in the gradebook, and the weekly scheduled meetings and face-to-face interaction with lecturers. Strangely enough, they are not keen to engage with others using discussion boards or the chat room and still prefer WhatsApp and e-mail. They reported that the SoTL seminar helped shaped their cognitive, social and teaching presence.

The lecturers concur that 'The attempt to create a blended educational environment requires much adjustment and tweaking; however, we are satisfied that we have taken a step in the right direction in "meeting" prospective Social Studies teachers where they are'.

Active participation and hands-on learning: Contributing towards students' learning success

Dr Judy van Heerden bases her teaching approach on her teaching philosophy: 'I believe there is no replacement for active, hands-on participation to understand new content knowledge and to obtain the necessary skills and abilities that are needed to become an effective teacher. As a lecturer, I aim to create a link between theory and practice, to inspire students and to spark an interest in the field of preschool education, and to be aware of new and exciting developments in the ECD field'.

In 2017, the ECD model class was used in a variety of ways to provide all the students in the various modules for which Dr Van Heerden is responsible with opportunities to discover, experiment and explore in an interesting, safe environment that resembles a well-equipped preschool playroom. Early Childhood Development (JVK 400) elective students were introduced to a variety of resources, some bought, some donated, some self-made and many even discarded – everyday open-ended objects. These resources were all set up at different stations in the model class. In groups, these students used their critical, creative and problem-solving skills to investigate, develop and discuss various innovative ways of using these resources in different capacities by teachers and learners for learning support as well as for provocations (as part of the Reggio Emilia approach that they studied in depth). Apart from capturing various ideas, students took photographs of outcomes that emerged from these ideas. This treasure chest of ideas was later shared electronically with the rest of the class and every student can now benefit from the wealth of ideas generated by all.

Another innovative activity that was introduced was a research project that involved JVK 400 students collecting information from literature and websites, as well as from various experts, about the establishment and management of early child development and care (ECDC) centres. The aim of the project was to compile a suitable guide with all the necessary guidelines and practical advice that could enable prospective teachers to plan and establish a high-quality ECDC centre. Different groups of students completed the theoretical background on relevant sections of the topic. After completion of the assessment, all the sections were compiled into a complete guide for starting a high-quality ECDC centre. The last lecture of the year was used as a panel discussion. Principals of preschools and Grade R centres, as well as teaching union representatives, were invited as guest speakers to share their first-hand experiences and advice with the prospective teachers and to respond to questions. This was a very informative and successful session and was beneficial to all the students. Afterwards, a student wrote a letter of appreciation thanking her lecturers for the knowledge that she had gained during her four years of undergraduate studies, and specifically for the elective module that inspired and equipped her to establish her own baby centre, which accommodated six babies as of the beginning of 2018.

Dr Lelanie Smith and her students

Faculty of Engineering, Built Environment and Information Technology

The teaching and learning achievements in EBIT 2017 focused on both technology and soft skills, on local relevance as well as international collaboration, on the application of student learning to real-life problems in the workplace and in society to ensure sustainability, and finally on data science, a growing discipline and profession internationally.

Flying high: Dr Lelanie Smith – Teaching and Learning Award winner

Dr Lelanie Smith is a full-time lecturer in the Thermoflow Research Group in the Department of Mechanical and Aeronautical Engineering. Her field of research is applied aerodynamics and computational modelling, but she is also passionate about aircraft design and engineering education. She has created and managed multiple local and international collaborative projects successfully. Her MEng was completed on a project with the Council for Scientific and Industrial Research (CSIR) and her PhD piloted an exchange and collaborative study with the University of Southern California, which was funded by Airbus, Bristol.

The AREND project, which Dr Smith manages and for which she received the EBIT Teaching and Learning Award in 2017, is a successful collaboration between four international universities and local industry. Project AREND is a multinational, multidisciplinary, vertically integrated student aircraft design team, tasked to develop an unmanned aerial system (UAS) to prevent rhino poaching in the Kruger National Park. This fixed-wing aircraft will be capable of conducting remote surveillance of large park areas with diverse intelligence-gathering sensors, along with a network of ground sensors. Team AREND intends to provide a proactive technological solution to prevent poachers from meeting the rhinos.

Multiple undergraduate and postgraduate design and research projects in aircraft and sensor design and integration are derived from this strategy in order to develop a comprehensive design. This project allows for various engineering and interpersonal teaching and learning opportunities to better prepare the students for real-world challenges in their careers, and relies on local industries for mentorship and support. The students taking part in the AREND project had the unique opportunity to practise effectively communicating and managing key risks in a diverse team to complete the project successfully. Dr Smith's experience has been that the success of these projects lies as much in the students' engineering skill and reasoning abilities as it does in the softer skills like project, time and risk management and conflict resolution, for which this project is an ideal platform.

Project AREND relies on effective usage of hybrid teaching and learning tools. Online teaching platforms were used throughout the various aspects of the AREND project. All the information about the history of the projects and the outcomes from the work students completed are archived for new students. These documents are all live and are continually updated by the students involved.

Navigating teaching and learning in the present-day university classroom

Prof Tania Hanekom took the EBIT Robot Race technical team and a few of the top performing students with their self-navigating robot cars along to the 2017 Flexible Futures conference to demonstrate the outcomes of a hybrid strategy of teaching and learning. Standing in front of 100-odd faces across a spectrum of educators and education shareholders, one could sense an air of curiosity and anticipation.

The Race, as it is known among the students, was initiated in 2013 as one of a series of interventions for the third-year Microcontrollers module presented to the electrical, electronic and computer engineering students. Students have always found the module very challenging, as much ground needs to be covered in only a few months. The major challenge, however, is a steep upward journey along Bloom's taxonomy, where students need to develop insight into real-world problems and the ability to devise practical solutions to these. Making these solutions work as a rounded, demonstrable system requires not only a solid foundation in the theory and application of microcontrollers, but also an arsenal of soft skills such as time management, work ethic and a sense of responsibility towards peers and the community where graduates will one day practise as professional engineers.

The demonstration at the Flexible Futures conferences included a discussion on the rich variety of teaching and learning strategies employed in the module to provide an effective environment for students to learn and succeed. The approach includes highly-interactive online tutorial classes making use of the BlackBoard Collaborate platform; a sophisticated in-house-developed electronic grading system that provides rapid, accurate feedback on assessments; video and screen-shot tutorials on topics that students typically struggle with, and interactive face-to-face lectures where students are expected to participate in the thinking and programming exercises. Furthermore, the entire module is structured around the design and implementation of the robot car to place learning material and objectives within the context of an authentic real-world problem.

The Race

The key ingredients to success, however, are to be seen on the faces of the delegates, presenters and students flocking around the demonstration area: enthusiasm and excitement to teach and to learn and a fearlessness to step out of the ordinary into a world where teacher and student are frequently indistinguishable from one another.

Smart sustainable cities and transport

Making cities inclusive, safe, resilient and sustainable is Goal 11 of the Sustainable Development Goals and the basis of the New Urban Agenda to which South Africa is a signatory. Meeting these goals is the challenge for which EBIT students are being prepared through the theme of 'Smart sustainable cities and transport'.

While there are numerous definitions of what a smart city is, the definition by Caragliu, Del Bo and Nijkamp 2009[2] informs the approach: 'A city can be defined as "smart" when investments in human and social capital and traditional (transport) and modern (ICT) communication infrastructure fuel sustainable economic development and a high quality of life, with a wise management of natural resources, through participatory action and engagement'.

In the Departments of Architecture and Town and Regional Planning, a focus on developing design and planning solutions to real-world problems, informed by a thorough investigation of both social and ecological contexts, teaches students to engage critically with the problematique of complex systems such as modern cities. This approach, in turn, opens opportunities for larger research projects. For example, students routinely collect fine-grain visual and qualitative spatial data during field research through transect walks, participatory action research, community mapping and participatory GIS methodologies.

However, these data are collected on an ad hoc basis in many different formats. A current research project with Chalmers University of Technology, funded by the NRF/STINT programme, aims to develop a platform and methodological framework for the capture, maintenance and analysis of data points at street and neighbourhood scale, collected by students so that they become available for meta-analysis, spatial mapping and visualisation that can be used for the understanding of the spatial socio-economy of the city, the development of policy and identification of development interventions.

The Department of Civil and Industrial Engineering's activities in the smart transportation arena focuses on the active and continuous collection of transportation users' activities and experiences, infrastructure condition and user-infrastructure interaction. These studies support infrastructure owners' decisions regarding transportation service, and infrastructure provision and levels of service, with the objective of an optimised and economically efficient transportation system.

Students from the Department of Architecture taking temperature readings at Early Childhood Development Centres in Mamelodi.

Master's degree in big data science

An acute shortage of data scientists exists globally and particularly in South Africa. To address this shortage in South Africa, the University of Pretoria developed a Master's Degree in Information Technology (MIT) with specialisation in big data science. The specialisation refers to two important fields of study: big data and data science. The phrase 'big data' refers to extremely large data sets of various types and from various sources that usually are characterised by the pace at which the data accumulate. These data need to be computationally analysed to reveal patterns, trends, and associations. Data science is the scientific investigation that employs innovative approaches and algorithms for analysing Big Data.

The MIT (Stream C: Big Data Science) degree is a multidisciplinary degree and spreads across a number of academic faculties and departments. The main objective of the degree is to produce postgraduate students with the skills to apply machine learning, statistical learning and deep learning techniques to analyse data. Hands-on experience is gained in big data technologies and platforms such as Python, Spark, Hadoop, streaming, data fusion and distributed file systems as well as data sources such as social media, sensor data, audio, and video. In addition, students are exposed to ethical considerations when working with big data.

This degree in big data science requires a minimum of two years' part-time study and must be completed in a maximum of three years. The curriculum comprises 180 credits, half of which are core and elective modules. The other half is a research-based mini-dissertation. A key feature of the curriculum is a capstone project, which makes the theoretical big data and data science knowledge gained in the programme operational in the real-world. These projects are proposed by industry and academic partners and require close mentorship from these partners.

A hybrid mode of delivery is followed. The introductory module is offered online, providing students with video-recorded lectures. For each module, instructors facilitate discussions in face-to-face classes. Assignments proportional to the number of credits are assigned to each module and have to be completed between the monthly contact sessions. Assignments can be based on individual or group activities, such as writing reports and participating in online discussions.

With its first intake in 2017, interest in the degree exceeded expectations, with over 130 applications. Only 40 students were accepted for 2017.

Community-based Project module: Applying knowledge in the community

The Community-based Project module (code: JCP) in EBIT is unique in South Africa in terms of scope and management and the fact that it is a macro community engagement course owing to the substantial number of enrolled students and projects. In 2017 more than 1 800 students worked at over 500 community sites of learning. Students achieve and demonstrate learning outcomes relevant to their degree and receive credits towards the degree. JCP is a compulsory undergraduate course, so all students must do it before they graduate. The primary objectives of the JCP course are to expose students in groups to real-life challenges to allow them to have a beneficial impact on society. Through the module, students gain increased awareness of their social responsibilities as critical citizens and come to understand how they can employ their newly-acquired knowledge for the improvement of the community they serve. Students must learn to work collaboratively in a multidisciplinary and multilingual environment, applying various life skills such as communication, interpersonal, technological and leadership skills. Through their projects, the students must become aware of and cultivate personal, social and cultural values.

The project-orientated course must be completed within the allocated 80 hours to earn the eight credits. Students must do at least 40 hours of fieldwork. After that, they need to reflect on their experiences through various reflective assignments, including a final presentation, reflective video and report.

The module is offered on an open-ended and project-orientated basis.

Projects include international projects in five African countries and countries on other continents, but mostly fall within a 20 kilometre radius of the Hatfield Campus. Students prefer projects such as teaching computer skills, designing, developing and uploading websites for non-profit organisations, helping secondary school learners with Mathematics and Physical Sciences, renovating and building projects and participating in animal-related projects. Students are encouraged to work in diverse teams but may work alone, depending on the nature of the projects.

Dr Martina Jordaan

The success of the module is reflected in the positive feedback from alumni, the communities and students. The module received recognition in the form of an Education Innovation Award from the University of Pretoria in 2006. It was also a finalist for the Talloires Network McJannet Prize in 2010 and won the Excellence Award of the National Marketing Advancement and Communication in Education (MACE) in the category, 'Integrated campaigns/projects' and subcategory, 'Social responsibility citizenship development' in 2014. In 2015, the lecturer, Dr Martina Jordaan, was the first recipient of the University of Pretoria's Community Engagement Award. In 2016 the module received the University Education for Transformative Leadership in Africa Mini-Grant and in 2017 it was a finalist for the Global Engineers Deans Council Airbus Diversity Award.

Dr Jordaan has also served as an adjudicator for the McJannet Award and received a grant from the Talloires Network for the module. She has been active in the University's engagement with the University Social Responsibility Network (USRN), attending international meetings, organising a USRN visit to UP and helping to set up a USRN website for UP by providing relevant content.

[2] Caragliu, A; Del Bo, C & Nijkamp, P. 2009. Smart cities in Europe. *Serie Research Memoranda 0048*. VU University Amsterdam, Faculty of Economics, Business Administration and Econometrics.

Faculty of Health Sciences

The teaching and learning achievements in the Faculty of Health Sciences in 2017 focused on developing leadership capacity and linking education to research for both staff and students.

Cyan Brown MBCHB VI at the Gradstar awards

Ashleigh Sent MBCHB VI receives a Merck Lumineries award at a function in Cairo

Charne Janse van Rensburg MBCHB V, winner of a SAWIP fellowship

Health Sciences students take the lead

The students of the Faculty of Health Sciences demonstrated innovation and leadership in 2017 – clearly indicating that the future of health in South Africa is in good hands. Final-year MBChB students Cyan Brown and Ashleigh Sent both won prestigious awards – Cyan was in the national top ten of the Gradstar Awards that identify students with the potential to excel in the workplace; Ashleigh was the winner of an international Merck Diabetes Award for 2017 and received a scholarship to study for a postgraduate diploma in diabetes in 2018 through the University of South Wales. Another high achiever was MBChB V student Charne Janse van Rensburg, who was selected for the South Africa-Washington International Programme that aims to inspire, develop and support diverse new generations of emerging South African leaders to be active in bringing about social and economic transformation and justice within a sustainable democracy. Ms Janse van Rensburg is particularly interested in the relationship between IT and medicine and is a founding member of the Technology for Health special interest group for the Public Health Association of South Africa.

Several first-year students were also recognised as high achievers in 2017. The NSTF Brilliants Programme identifies the most outstanding first-year students studying in science, medicine or engineering in the country. A male and female student are selected from each province based on their Mathematics and science scores in the NSC examinations. Tovhowani Mulovhedzi from Limpopo and Danique Visser from Northern Cape, both in MBChB I, were honoured at the NSTF awards dinner. Tovhowani was further recognised when she received one of three bursaries for outstanding black female students from Afrocentric Health. The other awards were made to her classmates, both also from Limpopo, Maggie Ramela and Risuna Rivombo. Said Tovhowani on behalf of the three: 'Education is key in achieving true economic emancipation. Advancement in the health sector will hopefully be achieved if the youth, particularly from the poorer communities, have the means to improve their prospects.'

Ms Grace Khoza, AfroCentric Group Executive Director of Group Marketing and Corporate Affairs congratulates bursary recipients Maggie Ramela, Risuna Rivombo and Tovhowani Mulovhedzi seen here with Prof Mike Sategke (HOD Nuclear Medicine) and Deputy Dean Prof Dianne Manning

'If you can't explain it simply, you don't understand it well enough' (Albert Einstein). This was the basis of the 2017 Soapbox at the Faculty Day coordinated by the Tuks Undergraduate Research Forum (TURF), using an adapted version of the 'Thesis in 3 minutes' (www.thesisin3.com; https://www.youtube.com/watch?v=QfrUCg1S7vk).

Health Sciences students from TURF (Tuks Undergraduate Research Forum) pitching their research ideas in a Soapbox event at the Faculty Day

It was an opportunity for undergraduate and postgraduate students to present their research study or idea/concept in three minutes without using PowerPoint slides. Students were encouraged to use any other materials and were provided with a flipchart with markers and a table. There were 18 presentations in total with students representing medicine, radiography, occupational therapy and nutrition. The winner was Ephraim Ritshuri and his group (BRad III) for their project 'Collimation on neontal chest x-rays'. The range and quality of the projects were impressive. Commendations were made to Maxine Wing (MBChB III) for 'Talking mats: a form of augmentative and alternative communication (AAC)', which uses pictographic cards to communicate with patients, Langutani Nyamandi (BRad III) for 'A quantitative study to determine the use of radiopaque anatomical markers by radiographers at SBAH', and Michiel Koortzen (MBChB III) for 'The perceptions and expectations of final-year medical students of clinical associates'.

TURF was created to support the research experience of undergraduate students by enhancing their research-related competencies as specified by the Health Professions Council of South Africa (HPCSA) and ultimately create a sustainable platform in the Faculty of Health Sciences for students to participate in research. It serves as a voluntary bridge from compulsory undergraduate curricular modules into a more advanced research arena and caters for all undergraduate students in the faculty with an interest in research or with previous research experience. Academic staff, including postgraduate students, participate in a mentorship capacity. Currently, TURF is supported by five medical students under the leadership of senior lecturer in Public Health Medicine, Dr Astrid Turner.

Another very successful student-led academic activity in 2017 was the South African Student Surgical Society Symposium hosted by the Tuks Surgical Society and attended by delegates from across the country. The organising committee consisted of 20 medical students from second to fourth year led by the symposium co-convenors, Rütger van Gruting and Chené Bester. The programme included plenary speakers, student presentations, workshops where students could practise their surgical skills, debates and a surgical quiz competition. During a community outreach visit to the People Upliftment Programme (PopUp) at Salvokop, delegates made contributions including measuring blood pressure and glucose levels and providing HIV counselling.

Faculty members embrace teaching innovation and education research

Many UP staff members made significant contributions to the professionalisation and scholarship of teaching in the health professions during 2017. The faculty award for excellence in teaching and learning in 2017 was made to Physiotherapy senior lecturer Dr Karien Mostert in the School of Healthcare Sciences. She has demonstrated her dedication, excellence and leadership in teaching over a number of years, and in her PhD she developed a 'Kaleidoscope' model for advancing professionalism in physiotherapy. She is also an important contributor to community engagement in her department and the School of Healthcare Sciences. The award was made for her submission entitled 'Curriculum development: from clinical expert to well-rounded healthcare professional - from physiotherapy to inter-professional member'. An adjudicator for the award commented on Dr Mostert's motivation for selecting a service-learning model to develop accountability in healthcare professionals. The goals of the project were clearly defined, specific and well-aligned with the attributes of ethics and professionalism. Through student follow-ups, assignments, community engagement, presentations and reflection at different levels of training, the goals of the project were accessible and measurable. The use of appropriate, systematic instructional material was evident through implementation of different models including the Six-step for Curriculum development and Knowledge-to-Action.

Dr Karien Mostert

Further evidence of the quality of the work in Dr Mostert's PhD is that the physiotherapy department of at least one other South African university (UWC) has adopted her Kaleidoscope model for developing professional attributes at that institution. The reviewer concluded that Dr Mostert is a 'well-qualified practitioner, a distinct lecturer and an innovative researcher'.

Tuks students hosted the South African Student Surgical Society Symposium

Also in the School of Healthcare Sciences, Dr Shirley Mogale (Nursing Sciences) is driving innovation in teaching and learning with an NRF Knowledge Fields Grant. Dr Mogale is building capacity in hybrid learning among post-basic nursing students and also received a merit award for teaching and learning in the School of Healthcare Sciences for her work in this area.

Dr Jack Boulet (centre), guest facilitator at the Faculty Teaching and Learning Symposium with Deputy Dean Prof Dianne Manning (left) and Public Health lecturer Ms Lizeka Napoles (right)

The faculty made significant contributions to health professions education at a national and international level. Eleven staff members of the Faculty presented and/or offered workshops at the annual conference of the South African Association for Health Educationalists (SAAHE): Prof Rhena Delport, Prof Corne Postma, Dr Emmanuel Matsebatlela, Dr Ellenore Meyer, Dr Karien Mostert, Dr Marietjie van Rooyen, Dr Liz Wolvaardt, Ms Mable Kekana, Ms Corne Nel and Ms Michelle Janse van Rensburg. The topics of their presentations included professional ethics, community engagement and community service, mentorship and the student experiences, innovative pedagogy and curriculum renewal, public health, and inter-professional learning. The Department of Family Medicine also showcased the Aitahealth™ mobile data collection solution that is used to collect household health data and is key to the use of technology in department's flagship Community Oriented Primary Care programme partnering with the City of Tshwane.

The Deputy Dean: Teaching and Learning, Prof Dianne Manning, was a presenter at the annual conference of the network Towards Unity for Health in Tunisia and was an invited plenary speaker at the Academic Forum of the Liaoning Medical Association in Shenyang, China where she was appointed as an invited Professor of the China Medical University. She was also a plenary speaker at the Council of Higher Education-DHET symposium on Enhancing Academics as University Teachers and has been leading a national inter-institutional project on health professions education supported by a DHET Teaching Development Collaboration Grant, which includes 12 senior academics at nine universities.

Once again, a number of UP staff made important contributions in 2017 to health professions education as honorary faculty members of SAFRI, the Sub-Saharan Regional Institute of the Foundation for International Medical Education and Research (FAIMER). Furthermore, of the 16 fellows selected from across sub-Saharan Africa for the 2017 cohort of the programme, four were from UP, thus advancing teaching, research and leadership capacity in the faculty.

The annual Faculty Teaching and Learning Symposium further strengthened the faculty commitment to capacity development for education research. Dr Jack Boulet, Director of Research at FAIMER in Philadelphia, USA, facilitated a successful interactive workshop attended by 50 faculty members.

Faculty members discussing education research strategies at the Teaching and Learning Symposium: Craig Grobbelaar, Mable Kekana, Liz Wolvaardt, Astrid Turner and Prashilla Soma

Dr Werner Cordier with his students

Gamification for teaching came of age in the faculty, with several different technologies being showcased by three very enthusiastic young staff members. Dr Werner Cordier of Pharmacology and Ms Clarisa Sutherland of Anatomy received 2017 teaching awards in the category of Emerging Teachers for their innovative contributions in this area. Ms Sutherland was also awarded the second prize at the Flexible Futures conference for her 'Great Amazing Human Race' game. In this game, students of Human Anthropology are required to find QR code clues hidden around the Hatfield Campus and use the results to enhance their understanding of the theories of human development. Dr Cordier's game, 'The Mysterious Maladies of the Morrisons' introduces pharmacology students in the B Oral Hygiene programme to a fictional family whose ailments they follow over a period of weeks. Working in teams to solve problems, the students learn about the treatment options for the family and participate in a quiz using an audience response system. A research project to investigate the impact of the game indicates that students developed significantly enhanced intrinsic motivation. Ms Hafsa Essop, a lecturer in Radiography, has also successfully engaged students with her 'Game of Bones' board game for learning radiographic anatomy.


Clarisa Sutherland


Hafsa Essop

New learning spaces highlight technology

Two major projects were completed in the faculty during 2017. The opening of the newly refurbished and upgraded Basic Medical Sciences and Dentistry library by the Faculty of Health Sciences Library Manager, Kabelo Nzima, emphasised the important shift from piles of dusty books to a bright, welcoming, high-tech environment well aligned with the focus on hybrid learning. This new learning space is a welcome addition to the developments on the South Prinshof Campus, complementing the new Tswelopele Building. The expansion of the library was planned to incorporate the print collection, meet the increasing technological needs of students and facilitate the future role of the library. In his official address, Prof Tiaan de Jager, Dean of the faculty, emphasised that libraries are important cornerstones of a healthy community and that the upgraded library not only addresses the needs of students, but also provides an intellectual space where staff and students can think, plan, work and excel.

This library is a world-class facility and part of the master plan to upgrade facilities on the Prinshof Campus. Mr Robert Moropa, UP Library Director, reminded the guests that the opening of this library takes place at a time when libraries need to break with their traditional role. He applauded the designers of the library, who used natural light, soundproofed the discussion rooms and accommodated the need for collaborative spaces with the inclusion of the unique feature of the balcony, where students will have Wi-Fi access and be able to sit and work and even enjoy lunch.

Another recently completed flagship installation was the upgraded and enlarged Clinical Skills Laboratory. This essential learning space is now the largest skills training facility in Africa and provides training to approximately 3 000 undergraduate and 200 postgraduate students. The simulated clinical learning environment uses human patient simulators, full-scale high fidelity mannequins and task-trainers. Director of the laboratory, Prof Rena Delport, explains that the aims for effective skills training are fivefold: assure authentic and autonomous skills acquisition; establish a quality-assured blended learning approach across time and environment; increase the effectiveness, validity and reliability of assessment using a surveillance system; improve teaching practice and scholarship; and standardise and harmonise the teaching of skills in the faculty.

To this end, the step-up skills facility was expanded to cater for the specific needs of the different professional programmes in the School of Healthcare Sciences – Nursing, Physiotherapy, Radiography, Occupational Therapy and Dietetics. The new environment provides these disciplines with a competitive advantage and was pre-empted by curricular evolution aimed at addressing national and workplace needs as well as technological advances. The facility has been designed to maximise mobility of resources and multipurpose use of the venues while creating authentic spaces simulating the workplace environment. The design encourages small-group work and voluntary practice for skills mastery in all five disciplines, independently or collaboratively.

The new postgraduate training laboratory for surgical disciplines is a technically advanced simulated learning environment for the attainment of core skills in diagnosis and management using an ultrasound simulation trainer and laparoscopic training simulator. The theatre environment adds to the authenticity of the laparoscopic training. The mechanical-hydraulic theatre tables, with standard anaesthetic accessories, allow universal positioning of the patients for specific laparoscopic techniques. Mannequins with appropriate attributes enrich the learning experience, and training is guided by an instructor and by video support.

The skills laboratory has been further enhanced by a state-of -the-art electronic platform included to support teaching and assessment of undergraduate medical and clinical associate students. The implementation of a video management system, integrated with the UP learning management system (*clickUP*), as well as the security access control afford the possibility for asynchronous assessment in high-stakes examinations. Not only does this make it possible to improve the quality of the assessment but students can receive timely and personalised feedback from formative and summative encounters. Prof Delport sums up the benefits: 'This solution contributes to skills mastery, despite time and space constraints, lessens the administrative and teaching load, and allows the students to take control of their learning'.

Faculty of Humanities

At the core of the faculty's mission is the education and training of highly competent, enquiring and critically-minded students, and high-quality research that makes a difference. The 2017 Times Higher Education university subject ranking places arts and humanities at UP in the top 251–300 bracket worldwide. Prof Vasu Reddy, Dean of the faculty, notes that 'This achievement recognises the powerful and potent contribution made by staff, students and alumni in both creative and scholarly terms to living in one of the most diverse and exciting societies in the world. Even better when this happens in the capital city, within a world-class university where we delve into our past by looking into our future'.

Performance: As Night Falls, choreographed by Nicola Haskins
Actors: Missy Mguiire and Mdu Nhlap

Teaching excellence recognised

Each year the Teaching and Learning Committee (TLC) of the Faculty of Humanities invites nominations for the Teaching Excellence Awards. Although the intention is to make one award, in 2017 the panel made the decision that all three nominees, each dealing with a distinct classroom practice, were worthy of recognition. The first prize was awarded to Dr Fraser McNeill (Department of Archaeology and Anthropology), and a second prize (for which additional funding was sourced) was shared between Dr Kerstin Tönsing (Centre for Augmentative and Alternative Communication), and Dr Hanli Stapela (Department of Music). Brief profiles are given of the teaching strategies of each winner.

Dr Fraser McNeill

Dr Kerstin Tönsing

Dr Hanli Stapela

Ways of understanding

Dr Fraser McNeill, who was awarded the first prize for teaching excellence, is passionate about his discipline. He believes that teaching anthropology should equip students with 'an intellectual tool kit' through which they can develop an understanding of the world around them, how different perspectives intersect, and the contexts through which such perspectives have emerged.

Student numbers in the Introduction to Social Anthropology first-year course have grown rapidly to an intake of over 400 students, feeding through to larger numbers in the second and third year, and a strong pipeline for postgraduate studies. His great enthusiasm, teaching style, and the positive evaluations received from students and peers alike no doubt have contributed to this growth in numbers.

He writes that effective teaching must be research-driven and that students respond extremely positively when engaging with content that has been published by the lecturer (of course, in balance with other readings). This removes the intimidation students often experience in confronting academic texts and, in anthropology, with its method of participant observation, makes it possible for students to 'get to know' the characters, which brings readings to life in a way that allows the lecturer to introduce ethnographic theory in innovative ways.

Each lecture typically outlines the ethnographic and theoretical context of the readings ascribed, enticing students to 'learn by reading', thereby moving their taken-for-granted views and lived experiences into the realm of ethnographic theory and anthropological analysis. His fluency in Tshivenda, a language spoken in the northern part of South Africa's Limpopo province, makes it possible for him to interweave indigenous concepts into lecture content and to sustain a relaxed and engaging atmosphere in class.

Teaching professionals working in the field of disability

Dr Kerstin Tönsing was awarded the joint second prize for teaching excellence. She has taught modules in the honours and master's programmes offered by the Centre for Augmentative and Alternative Communication (CAAC), aimed at professionals working in the field of disability. In 2017 she taught a 30-credit module in two master's programmes. She is described as 'an accomplished, highly skilled and passionate learning facilitator who is deliberate about facilitating postgraduate students' development as academics and professionals', and in a peer evaluation, as 'one of those lecturers who is clearly in the right place at the right time'.

Her teaching philosophy is underpinned by a student-centred, learning-focused approach that aligns with what has been termed 'networked learning' and the establishment of 'communities of enquiry'. She writes that a community of practice is established in an intensive week-long contact period at the beginning of modules to allow for the development of a climate of openness and trust that is necessary for reflective discourse to develop. Furthermore, the exploration, integration, and application of content is achieved through the presentation of 'triggering events' (e.g., presentations by people with disabilities, controversial imagery or news report), followed by guided reflection. New insights are

expanded through the discussion of readings and application to specific cases.

The community is further strengthened through asynchronous online written discussions, each running over the course of a week, that are used to deepen the level of critical reflection and evaluation of current theory, practice and research in the field. The facilitator poses questions online to guide students' discussion, and formative group and individual feedback are provided at the end of each weekly cycle. Summative assessment takes the form of case-based assignments, with further feedback provided to students. In turn, feedback received from students and the external examiner is used to adjust teaching and assessment from year to year.

Bridging the divide: Classical voice training and performance

Dr Hanli Stapela in the Department of Music was awarded the joint second prize for teaching excellence. She was appointed to a newly created post in 2012 to develop an integrated and specialised programme for the training of classical singing students. She writes that she wanted to establish 'a programme of excellence that can stand with dignity alongside any international training centre of its kind', and is now recognised among her peers for having achieved this, and more.

Dr Stapela came to teaching from the performance world. She was an international opera singer for 25 years, and a lifelong performing artist. She notes that the dynamic of one-on-one teaching interaction is symbiotic and synergistic, requiring of her to be an expert yet flexible and creative facilitator who makes it possible for students to find their distinct voice. Her extensive reading on the latest research and developments in the field of vocal methodology and teaching methods shaped her carefully designed, outward-spiralling curriculum, extending from a focus on the individual to peer support and expert input (via

Production: uMabatha
Actors: Mabatha (Macbeth), Thabane Khuzwayo and Kamadonsela (Lady Macbeth), Indi Mguqulwa
Photo: Spiro Schoeman

master classes) and, at minimum, one stage production and two concerts per year. The performances form part of an authentic assessment protocol for all students. In a discipline where many believe that there is no place for hybrid learning, she has also introduced a dedicated YouTube channel for the purpose of demonstrating the fundamentals of vocal technique, and designed a *clickUP* course for students to study repertoire and to be assessed online.

It is said that her appointment has significantly changed the face of classical singing at UP: enrolments at undergraduate and postgraduate levels have increased dramatically, the Singing Methodology and Classical Singing curricula have been redesigned, and new performing opportunities for students have been created.

The crux of curriculum transformation

The Department of English is motivated by two impulses: they would like all their students to feel heard and affirmed in their time with them but they also want each student to feel unsettled and challenged by a good number of the texts and approaches they encounter.

Prof Molly Brown, Head of the English Department, writes that this is the 'crux of the curriculum transformation process', which by its very nature is not a limited (or limiting) project but needs to reflect continual critical engagement with students, pedagogical approaches, canon formation and both foundational practices and new developments in the discipline. The department was guided in 2017 by a framework developed by the Faculty of Humanities which specifies four drivers in curriculum transformation.

Much of the department's teaching highlights the 'situatedness' or social context of authors within particular times and spaces, and the ways in which this shapes their creative expression. Until two years ago, the curriculum was weighted towards British literature, but new appointments with expertise in African contemporary world literature have made it possible for the department to move towards syllabi that both engage with foundational texts, and retrieve or foreground previously marginalised narratives. In 2017 half of both the first- and second-year syllabi were devoted to African and post-colonial texts that speak directly to ideas of colonialism and negritude. The third-year and honours prescribed resources are also currently under review, with the intention of introducing new texts backed by accessible and contemporary critical readings.

The department strives to present epistemological diversity through a range of texts, grouped in such a way that the contingencies of temporal and cultural location are exposed in relation to the study of other works that either share or undermine such influences. In 2017, the department decided to juxtapose eighteenth-century slave poetry with satires by established British writers, and Achebe with Conrad in the first-year course. The new approach was also foregrounded and emphasised in the third year, when different theoretical approaches were made explicit. For instance, a detailed study of the formation of the Romantic canon was used to illustrate how ideas about value are established, and it was decided to introduce Sundiata, a traditional epic from Mali, into the 310 module to foreground theories of orality and narrative.

In 2016, the Department of English, in collaboration with the Department of Library Services, initiated a 'Meet Your Writers' series of monthly events featuring South African novelists and poets. The events are structured to provide writers with an opportunity to read from their work and interact with the audience. In 2017, the series hosted seven authors: Fred Khumalo, Siphiwo Mahala, David Nnanna Ikpo, Nape 'a Motana, Ekow Duker, Lesego Rampolokeng and Bronwyn Law-Viljoen.

Initially designed for students and lecturers in Humanities, the series now attracts a broader audience. Feedback received suggests that bringing literature alive in this way has created excitement about local literary culture and exposed students to new authors and texts. The events have also helped to show that books and writing belong to everyone and 'speak in many different voices'.

The department prides itself on its teaching and lecturers are very concerned with finding ways to compensate for the problems students experience in relation to the massive numbers in undergraduate classes. The delivery of first-year courses was completely redesigned in 2016 to provide two mass lectures and one smaller discussion period per week. Weekly worksheets are posted and submitted online before the discussion class where questions are debated and the topic is further explored. *ClickUP* is used for sharing learning materials, and also for the provision of e-tutorials. In second year, lecturers have begun to use clickers to test understanding, promote engagement and monitor attendance. The effectiveness of this learning tool is being assessed with a view to improving lecturers' skills and expanding the initiative. All of this was consolidated in 2017 when the department also redesigned its tutorial programme to allow students to benefit more from small-group discussions, to form learning communities and to get individual support where needed.

Research is an essential component of the courses and students write their first research essay at the end of first year. The department would like to prepare undergraduate students for research more effectively by giving them more frequent opportunities for extended writing and also, perhaps, by introducing research options in third year, but the high student to staff ratio makes this difficult. However, attempts are being made to find creative solutions to the problem.

An institutional culture of openness and critical reflection is an integral component of departmental culture. Even in first-year discussion groups, students are encouraged to question texts and are rewarded for innovative thinking, provided that their ideas are backed by appropriate source material or textual observation. In different terms, critical thinking and the ability to interrogate textual assumptions lie at the core of the discipline and will continue to do so since this also defines the nature of the academic project.

Production: uMabatha

Learning and drama production

The Department of Drama aims at developing artist-scholars who can engage in diverse domains of the performing arts, education and media sectors, and who are active and responsible citizens, operating in a South African context of multiple realities. Embodied learning experiences, practice and theory are tied together through critical reflexivity as a transformative praxis. In doing so, the subjectivities of both student and teacher are celebrated, constantly positioned and repositioned, in relation to the learning content. Various projects and performances (about ten per year) create learning spaces for students at different year levels. As examples, the applied drama/theatre modules overtly place drama/theatre in the service of social justice, while the art festival Kopanong provides students with the opportunity to engage with the festivalisation of the South African Theatre landscape and diverse communities of people coming together to celebrate the transformative power of the performing arts.

The #MustFall movements coinciding with the 400th anniversary of Shakespeare's death in 2016 served as impetus to experiment with Shakespeare (as a central marker of the Western canon) and the decolonising impulse. The Department of Drama staged *The Merchant and Veronica, DCoriolanus* and a multicultural reinterpretation of Welcome Msomi's 1970/1 *uMabatha* (performed both in 2016 and 2017). Professor Marie-Heleen Coetzee, Acting Head of the Department of Drama, writes that these artistic experiments 'offer an invitation continually to engage with revisionist impulses and understandings of the entanglement of artistic products, histories, power, ideologies, and contexts that compel us to recognise possibilities for change. They challenge director and students alike to harness their South African identities and the power of theatre to shape a "glocally" relevant artistic voice'.

Teaching Development Studies: Responding to community and national needs

Development Studies is a diverse and multidisciplinary field concerned with the well-being of people and, flowing from that, a commitment to development policies and practices. At the University of Pretoria, Development Studies is a growth field within the Faculty of Humanities, attracting students from diverse backgrounds within South Africa, regionally and internationally.

Prof Vusi Thebe in the Department of Anthropology and Archaeology coordinates the postgraduate Development Studies programme at the University of Pretoria and continuously strives to enhance its profile through the enrolment of international students into the BSocSciHons, MSocSci and PhD programmes; cutting edge research, and research outputs on 'Former migrant labour economies, agrarian and societal transformation and livelihood dynamics'. In 2017, he received the Faculty of Humanities' Researcher of the Year award (Established Researcher category) after publishing ten papers in ISI journals of +0.5 impact factor. His teaching and supervision mirror his extensive research on the dynamics of former migrant labour societies, changing relationships to land and work, and how such changes intersect with state institutions and policy. He says that his academic work is driven by a commitment to the empowerment of people and communities who are 'often invisible in the eyes of policy-makers'. Dr Thebe teaches on the master's degree programme and supervises a number of postgraduate students. He writes that in an era of development imperatives, the field of study has gained renewed impetus and relevance. This is seen, for example, in the growing number of postgraduate students enrolled at UP, which in part is a reflection of national, regional and international frameworks that have served as catalysts for action: South Africa's National Development Plan 2030, the African Union Agenda 2063, and the United Nations Sustainable Development Goals 2030.


Prof Vusi Thebe

Postgraduate students enrolled in the master's programme typically come from a range of undergraduate disciplines, and are either already working in public-sector, non-governmental, or philanthropic organisations, or would like to pursue careers in the broad field of development. It is in this respect that the programme is structured to bridge the divides between theory, practice and policy, and to respond to the social needs of the country and the region, while at the same time making an impact on our immediate community. A central thrust is that students become key actors in their learning and in the practice of development. This is done through a student-initiated organisation, the UP Development Studies Student Organisation (DSO), which has become the practical and outreach arm of the Development Studies programme.

Students generate ideas about projects that target local communities, and seek partnerships with agencies to run collaborative projects. In this manner, they contribute to development initiatives and prepare themselves for meaningful careers. At the same time, they engage with urgent and complex issues confronting communities, and develop a sound understanding of development problems and of the possibility for meaningful contributions to solutions and change.

Teaching African history in a time of transformation

Dr Glen Ncube in the Department of Historical and Heritage Studies teaches a module on the modern history of Africa, and an advanced honours-level module on the continent's history. He also co-teaches a third-year module on the history of globalisation, diversity and change.

In the context of debates about curriculum transformation, in 2017, he started teaching these modules in ways that help young South African students not only to make connections between the histories of their country and the continent but also to be aware of the continent's location in the world's global pasts. Given South Africa's histories of racial division, isolation and problematic notions of exceptionalism, the histories of Africa and the globe are core components of a transforming historical studies curriculum at the University of Pretoria, a process that predates Dr Ncube's arrival at the University over two years ago.

Knowing that teaching aspects of the African past and its fraught legacies is a challenging affair, especially with great student diversity in classrooms, he creates opportunities for students to express their most difficult ideas and opinions through, for instance, anonymous worksheets. These are then used in class to facilitate the discussion of difficult topics (such as the divisive issue of the impact of colonialism on Africa) in ways that challenge any lingering prejudices, where these exist. He has also started experimenting with role-play, which challenges students to put themselves in the shoes of the historical actors so that they can understand those actors' decisions and actions in context. Such activities help students to think of themselves not only as 'arm-chair' critics but also as active decision-makers who are at all times faced with a variety of options and possibilities.

For Dr Ncube, one of the major highlights of his teaching innovations in 2017 was the publication by *The Conversation*, in May 2017, of a paper he co-authored with his honours students after an exciting class discussion about the past, present and future of African history: 'African history is a discipline on the rise – and one that raises many questions' (https://theconversation.com/african-history-is-a-discipline-on-the-rise-and-one-that-raises-many-questions-74459). This achievement illustrated the immense possibilities of student-centred learning, an entrenched strategy in the Department of Historical and Heritage Studies.

World History on Film

World History on Film is a year-long elective for the honours degree in History, coordinated and presented by Dr Nisa Paleker from the Department of Historical and Heritage studies. The module is guided by, and engages with, notions such as the 'post-literate' (more visually-oriented) society, public history and the greater reach and accessibility of the medium of film. On the one hand, film as history provides an alternative to Hollywood histories, which often fail the test of academic rigour and historical complexity. On the other, it reaches a far wider audience that remains beyond the reach of the academic journal article or monograph. Historians cannot, therefore, ignore the medium but have to equip themselves with the necessary methodological tools to engage with film.


Dr Nisa Paleker filming with students

In the first semester, the module focus is on the theoretical debates of film as history, visual literacy and semiotics. Guided by the principles of student-centred learning, and greater academic rigour demanded by graduate studies, classes are conducted as seminars where students have to prepare brief presentations that require semiotic analyses of filmic texts. They are encouraged to engage with film as a historical text rather than as a source of historical information only.

The theoretical considerations of the first semester are then built into the practical component, where students have to research and produce a short documentary film on a historical topic – allowing them to give form to theory and critically reflect on the production of historical texts. As apprentice historians, students are also encouraged to develop a different skill set usually not associated with the discipline of History. This includes, among other things, visual literacy, film composition and filming and editing techniques, as well as interviewing techniques.

Up until 2017, students had produced short documentaries on an array of topics including the history of jazz in Tshwane, the evolving meaning of Church Square as a public space, and the evolution of student protests in South Africa.

Jazz Studies at UP

The Jazz Studies programme in the Department of Music, established in 2016, has elevated the music offerings at UP to be on par with university music programmes across South Africa and, indeed, the world.

Prof Mageshen Naidoo, director of the Jazz Studies programme, writes that jazz music has become one of the most important and enduring art forms. While familiar to many, its identity is closely tied to the historically oppressed as a legitimate form of expression through which aspirations and hopes are acknowledged, reaffirmed, mobilised, developed and represented. In South Africa, this history has been well documented, and there are numerous legendary jazz musicians and role models from whom students can learn, as is the case elsewhere in Africa, and in contexts such as the United States and Latin America. Prof Naidoo is an internationally celebrated jazz musician who is in an ideal position to mentor students within this broader milieu.

The Jazz Studies programme forms part of the BMus degree. Students who wish to follow Jazz Studies elect modules focusing on their principle instrument, jazz improvisation and jazz ensemble, with jazz history and theory taken as core modules by all students. Specialisation starts in the third year and hones in on repertoire, stylistic considerations, instrumental technique, recital pieces of contrasting styles, and collaborative practice and performance.

There is a growing number of students taking the Jazz Studies programme, and a steady interest from students at other institutions to further their jazz studies at UP. In October 2017, the programme received further impetus when the Faculty of Humanities hosted an International Jazz Symposium that brought together academics, jazz educators and musicians from across South Africa, and from the United States and Canada. The symposium concluded with a highly successful jazz concert that featured students alongside national and international artists, and also a performance by local school students from the Eersterust community.

Embedding practices

The tutor system in the Faculty of Humanities remains one of the best established and most rewarding student support initiatives in the faculty. Driven by a strong team of departmental tutor coordinators, and with over 300 tutors having supported the faculty in 2017, tutoring practices have become deeply embedded in the daily work of departments. An example is the pioneering online tutorials introduced by Susan Haskins in the Department of Ancient Languages and Cultures.

A related but slightly different intervention is the online learning communities established in the Department of Psychology in 2017. The department was selected as host, since it has the largest enrolment of first-year Humanities' students. These online communities provide students with a virtual space to communicate with peers and engage with academic texts beyond the lecture halls – serving as an intervention to strengthen academic performance and, importantly, social cohesion. Of the 1 417 students registered for the first-year Psychology course SLK120 in 2017, a total of 1 239 enrolled in the six groups (spanning three campuses), guided by 13 facilitators. Sonja Mostert, who coordinates the system, creates weekly activities on *clickUP*, which typically include mini-tests, interactive questions for discussion on current topics, reading of applicable articles, helpful video material, and fact sheets to help students study for upcoming tests. Practice tests and memorandums are also available to guide students in preparing for their semester tests. Student feedback shows learning communities to be valuable in preparing for semester tests, and in their development of an understanding of different perspectives in the field of psychology.

With the appointment of a second faculty student advisor in 2017, it was possible to expand efforts to look after the well-being of students. Thembi Barnabas was joined by Siya Jinoyi and together they have done great work, reaching over one thousand students through a combination of workshops and individual consultations.

Prof Mageshen Naidoo

Sonja Mostert with tutors/students

Peer learning

Teaching and learning discussion forums bring lecturers together to discuss specific curriculum issues. Of the six events held in 2017, three were specifically designed to give academics the opportunity to learn from one another's practices. For example, the session held in October 2017, 'Examples of curriculum transformation', focused on bridging the divide between theory and practice. Three lecturers presented their curriculum transformation efforts: Ms Vangile Bingma (Sociology), Dr Chris Broodryk (Drama), and Dr Alecia Samuels (Centre for Alternative and Augmentative Communication). Their presentations were followed by comment from two discussants, and group discussion. Influenced by a commitment to social justice, Vangile Bingma deliberately designs her Sociology module to be relevant and accessible to students by aligning content with the profile of students enrolled. She also invites students to become co-designers of the curriculum by asking them to submit questions they would want to have addressed. She builds on these by interspersing students' quest for understanding to explain concepts, or to start discussions. Chris Broodryk discussed ways in which the Department of Drama, over a number of years, has changed its curricula to be contextually relevant, while Alecia Samuels brought the needs of students with disabilities to the fore.

Based on ongoing departmental innovation, improvement in the support given, as well as faculty-wide research, departments have developed and refined workable needs-based support models that have contributed to students' well-being and success.

Dr Chris Broodryk, Dr Alecia Samuels and Dr Nisa Paleker

Faculty of Law

The Faculty of Law focused on transformation of the curriculum to a large extent in 2017, although hybrid teaching remained at the forefront of developments as well.

A winning approach to the teaching of Tax Law

Dr Carika Fritz was the recipient of the Faculty of Law's teaching excellence award in 2017. She notes that her teaching philosophy is best illustrated by Dewey's statement, '[t]he aim of education should be to teach us rather how to think than what to think – rather to improve our minds, so as to enable us to think for ourselves, than to load the memory with thoughts of other men'.

Dr Fritz believes that a teacher's responsibility is to facilitate learning. Her approach in reaching this objective is firstly to inspire and arouse curiosity regarding the modules that she teaches. She believes that undergraduate students specifically should first understand how and why a particular field of law developed; why it is still relevant in modern society, and most importantly, in the South African socio-economic landscape; where it fits in, and how it interrelates with other fields of law. Illustrating the necessity of studying the subject and how students can identify therewith goes a long way towards igniting enthusiasm for the subject matter. She insists that students should first grasp the importance of the module and be able to identify with it before acquiring a basic knowledge of the fundamental principles of the specific field. This is necessary in order to provide a foundation from which a lecturer can facilitate a process that will hopefully lead to independent, analytical and critical thinking – the ultimate aims of the teaching and learning process.

Dr Fritz is convinced that innovative modes of teaching and learning and various forms thereof should be employed. This enriches the learning experience and ensures that students' interest in the subject is maintained for the duration of the course. Also, she thinks that students should be assessed in as many different ways as possible in order to test understanding and application. She therefore invests in hybrid learning and, for instance, makes use of narrated PowerPoint, Prezi, online tests, research assignments and formative as well as summative sit-down tests.


Dr Carika Fritz

As the legal field, practice and academia focus on problem-solving, Dr Fritz relies on an inquiry-led approach. As such she strives to equip students with the necessary skills to be able to find the solutions themselves. Furthermore, her assessments reflect real-life scenarios where problems do not present themselves according to learning units. Therefore, the assessments integrate several aspects into one question.

Dr Fritz's lecturing and assessments require students to think critically and be able to conduct research. In addition, applied competencies such as ethics and integrity, numeracy skills, information technology, problem-solving, self-management and collaboration, and the transferring of acquired knowledge are also required to complete the relevant module successfully.

The curriculum transformation framework and Property Law

A series of innovations to address a complex range of issues associated with curriculum transformation comes from Property Law (SAR 310), presented by Dr Gustav Muller. The four UP drivers in curriculum transformation will be highlighted in the discussion.

The history of property law must be understood before addressing how it is taught to contemporary students in light of the South African Constitution. Responsiveness to social context is the key driver.

Property law has rightfully earned itself the unfortunate reputation of being concerned with wealth, power and exclusion because it places a disproportionate focus on formal and stable legal relationships with property. In addition, ownership was assigned a definition that highlighted its absoluteness and affirmed the right to claim back one's property from whoever possesses it as the most important ownership entitlement. This entitlement to evict was based on the assumption that it is normal for a landowner to be allowed exclusive and undisturbed possession of his or her property. It follows that, once ownership has been proved, it will be regarded as superior to all other conflicting interests. In the case of evictions, the ability to exclude unlawful occupiers was protected because this ability leads to greater security and autonomy for the owner.

During apartheid, courts found stable legal meaning in the South African doctrinal tradition that entitles a private owner to exclude others from his or her property and to enforce this right against others. The result was that evictions from land occurred without any regard for the personal circumstances of the unlawful occupiers because these considerations were simply not deemed relevant. As a result, the challenge for property law in a post-apartheid context is to roll back the ways in which property law and theory were manipulated for a less wholesome purpose in search of a theory that supports precariousness, poverty (or poverty-perpetuated) positions and inclusion/sharing.

A significant challenge is to teach section 25 of the Constitution to young and impressionable minds who have been told that a non-existing policy guideline (the so-called willing buyer-willing seller principle) and the duty to pay market-related compensation are the only reasons for the slow pace of land reform. It appears that many students miss the following considerations:

- the actual operation of expropriation as an original mode of acquisition (in other words, not requiring the cooperation from the previous owner);

- the exercise of an extra-ordinary government power (eminent domain);
- the duty to pay 'just and equitable' compensation (which can amount to zero rands according to Nthlabati v Fick); and
- the possible impact of a constitutional amendment to other property, like pensions (think of State Capture to support Eskom and SAA, and Steinhoff).

How can the teaching of Property Law ensure epistemological diversity? Property Law is part of Private Law and as such has a strong common law (Roman-Dutch and English law) focus. This historical fact of colonial conquest makes comparison with countries like the Netherlands (post-1795), the rest of continental Europe (especially Germany, France, and Belgium), England, Scotland and the United States of America (especially Louisiana State Law and New York State Law) exceptionally easy and of immense value. Put differently, comparison with countries from Latin America and Asia is very difficult, not only because of different legal families but also because the information is presented in Spanish, Portuguese, and Mandarin. There are, however, vast similarities between South African, Namibian, Zimbabwean and Zambian Property Law.

Dr Muller and his colleague Dr Brits have worked on the renewal of pedagogy and classroom practice. They moved away from a classroom practice of four lectures per week, where they essentially conducted monologues, to include at least one class discussion per week where they engaged in a 'flipped classroom' or worked through problem questions by adopting an apprenticeship teaching and learning perspective (think William Smith teaching Mathematics on SABC). Furthermore, 'I intend to use narrated MS PowerPoint slides more, and to enhance my skills through the use of Prezi to enhance the hybrid delivery of the programme', Dr Muller explains.

Dr Muller believes that Property Law lends itself rather uniquely to the use of maps and diagrams to illustrate property relationships and craft assessments over a broad range of learning levels (from knowledge, to comprehension, application, analysis and perhaps even synthesis, according to Bloom's


Dr Gustav Muller

taxonomy). Dr Muller states: 'I run a tutorial programme in the module, over ten weeks, where we focus on problem-solving and critical literacy. We also work very hard on crafting tutorial learning outcomes and assessment questions that progress from NQF level 6 (Law of Succession with Prof van der Linde and Prof Schoeman-Malan in the second semester of second year) to NQF level 7 (Law of Delict with Prof Boezaart and Prof Schoeman in the second semester of third year)'.

'I make a point of placing property law in a Janus-like position – linking back to modules completed earlier in the curriculum and linking forward to modules that will still be done in the curriculum', he says, 'a teaching strategy generally understood to be sound. It links to what students already know and helps them to see where a particular module fits into the whole programme'.

He plans to move away from two semester tests in 2018 to an assessment approach that comprises one semester test (40%), one semester assignment (40%), tutorial submission and problem-solving (20%).

He takes great pride in drafting new questions every year. He plans his assessments in advance using the semester plan as a guide and indicating different questions for different assessments in different colours. This approach ensures that he assesses the whole of the curriculum; maintains equal standards of difficulty; does not fall into the rut of only asking questions about topics that he likes and remains accountable and transparent. He says, 'I use people in my questions who are broadly representative of South Africa's racial, gender and age composition, against the backdrop of contemporary social problems like gambling, poverty, changed circumstances and conditions, student protests, environmental concerns, and indebtedness'.

Another way in which he makes the curriculum relevant is by emphasising links with computer science, physics, health science, botany, agriculture, engineering and construction, banking, retirement and estate planning. Multi- and inter-disciplinary approaches to teaching and learning assist graduates to deal with the complexity of the workplace but also open up innovative avenues for research in postgraduate study.

In 2017 he developed an early warning system for struggling students that he wants to implement in 2018.

An institutional culture of openness and critical reflection can be developed by increasing the diversity of the staff complement. In seeking to move the demographic profile of the academic staff, Dr Muller believes that 'it serves no purpose in poaching black academics from other universities to boost our targets for transformation of staff racial diversity. Put differently, we are simply moving a finite number of chess pieces around on the chess board'. He maintains that if the University's aim is to achieve genuine transformation of staff racial diversity in an intellectually honest and ethical manner, the following should be done: appoint promising young black academics with an LLM, LLD or postdoc fellowship from other universities, if such an appointment will not deplete their staff complement or interfere with succession plans there, or grow our own timber by identifying promising undergraduate students who can be mentored into the academe through dedicated accelerated programmes. He, for instance, has sourced CVs of the former kind of candidates for his own discipline and presented them to his head of department.

In the spirit of open and critically reflective inquiry-led teaching and learning, Dr Muller has shared his research on the use of interdicts, which has strong, spoliation-like remedies at its core, by almost all public universities in South Africa, with his students. 'In this research I argue that these interdicts: (a) close down space for democratic expression; and (b) tend to default to exclusion of students from campus, or in exceptional circumstances, grant access on strict terms'.


Prof Hermie Coetzee and Prof Nick Huls

Insolvency Law and constitutional and socio-economic transformation

Prof Hermie Coetzee and Prof Melanie Roestoff teach Insolvency Law 310. Their approach to teaching and the facilitation of learning in the undergraduate Insolvency Law course, which focuses on natural person insolvency, remains in a perpetual state of flux because the socio-economic circumstances within which the subject is taught and learnt continuously evolve.

Although the principles governing the subject have remained more or less the same for approximately 82 years (the Insolvency Act was enacted in 1936), the socio-economic circumstances within which Insolvency Law applies have changed dramatically. This is due to, among other things, the fact that we now have the benefit of a constitutional dispensation. Also, the modern world is heavily reliant on credit, something that was not as pertinent nearly a century ago. In fact, the catchphrase, 'if you cannot buy it in cash, you cannot afford it', commonly applied during the time of the Insolvency Act's promulgation.

Nevertheless, the reality is that South Africa's archaic insolvency laws need to deal with the fallouts of a modern credit-driven society, namely the increasing number of insolvent or over-indebted individuals, even though they were never designed for these debtors. In fact, our system is still focused on and skewed towards the interests of creditors. Despite the world-wide 'fresh start' trend that is intended to assist all honest but unfortunate debtors to become productive citizens once again, many insolvent South Africans are excluded from any form of debt relief. Such debtors are excluded as they do not have income or assets that can be distributed to creditors.

Owing to the position sketched above, it would be unconscionable merely to teach and facilitate the learning of the black letter law of insolvency as was done 82 years ago without sensitising students to the fact that the principles underlying a good insolvency system should or could be used as tools to spur both constitutional and socio-economic transformation. A well-devised insolvency structure would boost the economy and contribute to the alleviation of poverty, albeit indirectly.

Consequently, the lecturers encourage their students to think critically about the principles that are taught and learnt and their relevance to the country's modern needs. As the Insolvency Law module, or rather the system, does not function in isolation, students are also expected to question and debate aspects of the course from a law and economics and law and sociology perspective. In the latter instance, the department is fortunate to have one of the foremost international scholars in the field as a guest lecturer. However, students are alerted to the fact that one needs to know the current system very well before one is in a position to question it. The lecturers encourage and respect diverging views, not least because they put them in a position to once again re-evaluate their own stance.

The Law Clinic's game

The Law Clinic and the Department for Education Innovation are developing a prototype HTML5 game to teach certain skills through simulation.

At present, the game is used to orientate students around the Law Clinic and its procedures. A cartoon style is used but in such a way that the clinic is immediately recognisable.

This style allows students to become familiar with the surroundings and the layout of the clinic even before physically attending it for the first time. When they visit the clinic in person, another orientation session is done, where they move around and physically go through the procedures in person. At this stage, students are already somewhat familiar with the environment, so it helps to prevent information overload

and it makes it easier for the student to assimilate the information and ask for clarification where needed.

When the game is used for orientation and procedures, it also allows students to go back at any time and review said procedures in a visually engaging and interactive manner. In addition to the written materials students used to get, this approach ensures that students cannot only read and understand how something should work but also see how it works in practice. Neuroscience research shows that people understand visual elements more quickly than text and remember them longer.

The platform is designed to be expandable. The eventual goal is to be able to recreate full case studies and simulations; court room procedures and strategy, crime scene investigations and even research where applicable. To this end, a cartoon style is used, allowing for the creation both of recognisable real-world locations and fictional locations where appropriate, without jarring changes in presentation.

The advantages of using the HTLM5 platform is that the game can essentially be run through computers, tablets and cell phones using any modern web browser. No audio is included and the game style is such that the bandwidth requirements are minimised, allowing students to review or interact with the programme without being bound to a location.

The programme would also, in principle, be capable of expansion to include work from various subjects, and even cooperation scenarios from different subjects simultaneously. In addition to teaching and practice, the programme can also be used for assessment purposes and marks can be incorporated directly into *clickUP*.

Freedom of expression, access to information and the safety of journalists: Centre for Human Rights MOOC

The Centre for Human Rights, Faculty of Law, and the United Nations Educational Scientific and Cultural Organisation (UNESCO) developed a massive open online course (MOOC) on the International and African Legal Framework on Freedom of Expression, Access to Information and the Safety of Journalists. This was the first MOOC that the Centre had developed and presented.

The MOOC ran from 13 November to 18 December 2017. Enrolment was free of charge and, after the successful completion of all the modules, participants received a certificate.

The aim of the MOOC was to allow judges, other judicial officers, lawyers, journalists, bloggers, students and any other interested persons to learn more about the right to freedom of expression, its legal frameworks, challenges to free speech in the digital age, access to information and the safety of journalists, especially in an African context.

The course, consisting of five modules, was led by experts in the field of human rights and freedom of expression, and included: Prof Frans Viljoen, Director of the Centre for Human Rights; Commissioner Pansy Tlakula, Former Chairperson of the African Commission on Human and Peoples' Rights and Special Rapporteur on Freedom of Expression and Access to Information in Africa; Justice Ben Kioko, Vice President of the African Court on Human and Peoples' Rights; and Mr Frank La Rue, Assistant Director-General of Communication and Information, UNESCO.

The MOOC followed a three-day judicial training for judges from across Africa, hosted by the Centre for Human Rights in collaboration with UNESCO. The training, which focused on freedom of expression, access to information and the safety of journalists, took place from 23 to 25 October 2017. In attendance were senior judges from Cameroon, Ethiopia, The Gambia, Ghana, Guinea, Nigeria, Mauritania, Mozambique, South Africa, South Sudan, Tanzania, Uganda and Zambia. The Economic Community of West African States (ECOWAS) Community of Court of Justice was also represented. From South Africa were Justice Mandisa Maya, the President of the Supreme Court of Appeal, and Justice Baratang Mocumie, also of the Supreme Court of Appeal.

Addressing local, global and complex problems through the transformation of the Environmental Law curriculum

Environmental Law (OMR 410), a final-year elective taught by Ms Melanie Murcott, seeks to be responsive to the four drivers for curriculum transformation identified by the University through its stakeholder-led process and wide consultation.

Environmental Law lends itself to being taught with reference to social context because environmental problems are global and complex. They arise from human behaviour and the law is one of the drivers of human behaviour. It is from this perspective that the course is presented. All the law is discussed and reflected upon from the perspective of whether it is an effective and appropriate response to pressing environmental, social and economic problems (all of which are intertwined). Students are asked to engage with whether and to what extent particular environmental laws are responsive to South Africa's project of transformative constitutionalism by addressing social injustices. Emphasis is placed on the fact that environmental hardships are experienced most by the poor and vulnerable, both in South Africa and globally. Students are urged to be, and asked to consider whether the law is, innovative, imaginative and insurgent.

Students are encouraged to engage with the environments in which they exist and to recognise that the environment creates the conditions for social justice to occur. One way in which the course seeks to achieve this is by requiring the students to capture and submit, weekly, photographs from their lived experiences that are reflective of the environmental law issues they are grappling with in class that week. Students ultimately produce a portfolio of their best photographs with written reflections on the work covered in class as their assignment for the course. Environmental NGOs (legal and activist) play an important role in the course, co-presenting lectures, assisting with field trips and adjudicating a photograph competition (designed to stimulate interest in the photograph submissions required by the course). Students are also encouraged to attend screenings of films about pressing environmental issues (such as the screening of *Unearthed*, which concerns fracking in the Karoo). In 2018, one of the issues to be addressed will be the law's response to the Cape Town drought, which links to climate change. Students will be asked to grapple with the social and economic issues that arise from this environmental phenomenon.

Ms Murcott has ensured epistemological diversity by challenging the hegemony of Western ideas and paradigms, by encouraging students to question the virtue of capitalism and bringing to the fore the links between neo-liberal capitalism and environmental degradation. To the extent that the law sustains a neoliberal capitalist worldview that furthers environmental harm and social inequality, the students are asked to consider alternative approaches, including drawing on indigenous communities' approaches to environmental management.

Epistemological diversity is also encouraged by requiring students to engage with sources from various disciplines (social science, natural science and law).

Students are required to watch YouTube videos that illustrate the viewpoints of vulnerable communities impacted by various environmental problems.

Guest lecturers, including activists from NGOs such as the Endangered Wildlife Trust and the Federation for a Sustainable Environment, introduce students to different experiences and worldviews.

Renewal of pedagogy and classroom practices have been enabled by the adoption of a hybrid approach to learning. Each week on *clickUP* students are presented with graphics, videos and a brief write-up of the key points to be discussed in class, in addition to scholarly readings. Students are required to prepare a brief written reaction each week to the issues, referencing scholarly readings to substantiate their viewpoints. Students are required to submit a portfolio of these reactions as well as the photographs (mentioned above) as their assignment for the course. Students are given feedback on their draft reactions during the course of the semester to enable them to improve their drafts and their writing skills generally.

Assessment occurs through an assignment and an open-book examination. The questions are designed in such a way that the answers require analysis rather than repetition of legal sources. Students are required to read the law independently. The focus of classes is to engage critically with the law and link it to environmental, social and economic issues.

At least one class per year is taught online through a narrated PowerPoint presentation rather than a lecture.

Students are encouraged to participate in a discussion board on *clickUP* before some classes (which they can do anonymously) so as to express their views on key issues raised by the readings for that week.

Environmental Law has not properly engaged thus far with the driver, 'An institutional culture of openness and critical reflection'. Although there is an attempt to encourage students to be innovative, imaginative and insurgent, and to adopt a highly critical approach to the law, Ms Murcott states: 'I have not been deliberate about exposing subliminal practices of a hidden curriculum. Instead, I have designed a new curriculum that pursues South Africa's project of transformative constitutionalism very explicitly throughout the course. One way in which the course is transformative is that it asks about, and exposes up front, apartheid's impact on South Africa's environment and whether the law has been responsive to that impact'.

Faculty of Natural and Agricultural Sciences

The teaching and learning achievements in NAS in 2017 focused on teaching excellence, hybrid learning and authentic learning experiences related to work-readiness.

Awards for teaching

SACI medal awarded to Dr Lynne Pilcher

Dr Lynne Pilcher from the Department of Chemistry was awarded the Chemistry Education Medal by the South African Chemical Institute (SACI) in 2017. This is a national award and the highest discipline-specific recognition for a contribution to education in the discipline. The award is made to a member of the institute who has made an outstanding contribution to chemical education, as judged by the person's published work in the previous five years.

Nick de Beer recognised as best first-year lecturer in NAS

Nick de Beer

'A true epitome of a good and inspiring lecturer' and 'he always brings excitement to the class and shows a lot of determination and passion for his subject.' These were just two of the comments made by the students who voted Mr Nick de Beer, lecturer in Chemistry, as the best first-year lecturer in NAS on 1 December 2017.

This annual award is fully student-driven. It was initiated by the Faculty's student house, NATHouse, in 2016 to recognise the extra effort that the first-year lecturers put into their teaching and learning activities. According to Dr Quenton Kritzinger, guardian of NATHouse, 'their efforts are really appreciated by the students and this award serves as an encouragement for the lecturers'.

Hybrid learning

High-quality videos of small size have a big online impact

Dr Janet van Niekerk, a young lecturer in Statistics, implemented a new online lecturing system to replace one of her weekly lectures with a virtual lecture, complete with sound and visuals of herself as the teacher, her teaching materials and her writing board. She used free software called APowersoft to record high-quality videos that are enriched with visual references to the textbook and other electronic content. The software has a built-in editing functionality and accommodates input from a webcam, which can be used to capture demonstrations or writing on a board. This system can be used efficiently to replace a contact lecture with an online lecture, but also much more. She routinely creates short videos to provide timely feedback on many different kinds of formative assessment, something that is difficult to fit in during the normal lecturing schedule. The possibilities are endless.

Using videos as online lectures is nothing new. But a unique online lecturing system that uses high-quality videos of a very small size, which can be streamed or downloaded, together with a feedback platform on *clickUP*, is a 'game-changer', according to Dr Van Niekerk.

The case in South Africa is different from most countries, as many UP students do not have Internet access from home or maybe very limited access with a small amount of data. So, although videos have been used internationally, UP cannot just adopt that strategy since a large number of students will be severely disadvantaged through a system where videos are used that require a lot of data. Live-streaming of lectures is also not an ideal option for South Africa since most students cannot participate in the live lecture owing to Internet inaccessibility, deficient hardware, extensive travelling time or other reasons.

In this age of technology-driven systems, lecturers cannot be ignorant of the fact that the students are also part of this phenomenon. If lecturers teach in the same way they taught a couple of years ago, they are failing their students. Dr Van Niekerk contends: 'It is our responsibility as teachers to adapt to our students in such a way that we can actively engage them and teach them in a way that is natural for them, especially at a first-year level. Our students are millennials and sit in large classes, [a situation] which begs for innovative practices'. This belief is also evident in the University's move towards a hybrid learning environment.

Dr Janet van Niekerk

Development of app saves time and supports hybrid learning

Dr Carel Oosthuizen, together with instructional designers from EI, developed a custom-made app for the subject Animal Diversity that dramatically decreases the number of hours required for the lecturer and the demonstrators to be physically involved in the practical.


Dr Carel Oosthuizen

Students from four faculties and 30 different degree programmes are enrolled in this first-year, second-semester module. A wide range of teaching and learning principles are used to ensure overall success of the students in this module. These include the use of peer instruction, an audience response system (clickers), online classes, in-class videos and continuous assessment. Owing to an increase in student numbers, each practical session was initially repeated nine times during a two-week period, with each practical session scheduled for three hours. Five new practical sessions and a practical examination were recently introduced as part of the practical component of the module. A reduction in financial resources necessitated finding alternative modes of instruction that do not decrease, but build on, the high standard of the module content.

In 2017 an app called Discovering Animal Diversity was created that contained the practical content. It allows each student to work through all the content at his or her own pace while completing a pre-practical assignment through *clickUP*. Students are then required to attend a compulsory one-hour session where questions about the practical content are discussed. During this time, students also have the opportunity to peruse the museum exhibition in the laboratory, where various animal specimens with additional information are on display. As one student commented on the survey conducted: 'I like to prepare the work on my own time and at my own pace. I prefer the one-hour practical'.

Each practical session is facilitated by a number of postgraduate students who assist students and answer their questions. The app proved to be very successful in conveying the content before each session and it dramatically decreased the number of hours required for the lecturer and the demonstrators to be physically involved in the practical. Another student said: 'I prefer to work through the content on my own, and when I do not understand I can refer to my textbook or, when I have practical, I can ask a tutor. Having practical for only one hour also gives me two extra hours that I can use to do practical preparation or online assignments'.

Every year the faculty student organisation, NATHouse, runs a campaign to nominate and vote for the best first-year lecturer in the faculty. Dr Oosthuizen was the first winner in 2016.

Work-readiness

Community-based service learning in Geoinformatics prepares students for the workplace

Giving back to the community while applying knowledge and learning soft skills such as solving group conflict might sound like a mouthful. This is, however, not the case in Geoinformatics, where students are privileged to acquire soft skills such as learning to manage group conflict while simultaneously having an opportunity to give back to the community.

The final-year project module for geoinformatics (also known as geographic information science or GISc) is run by Dr Victoria Rautenbach. The module gives students the opportunity to complete a project from start to finish in which one or more of the studied techniques of data acquisition and processing are used to produce an output of geographically referenced information. To facilitate this, they rely on a community-based service learning approach in an informal settlement in the east of Mamelodi, called Alaska.

For their final-year project, the students have to map an informal settlement and implement a web solution for a problem they identified, such as assisting emergency services to reach their destinations by mapping the routes in the Alaska community. Through this project, students experience the entire project lifecycle from data acquisition to presentation of their final results in an easy-to-understand format, while at the same time having the opportunity to put into practice GISc knowledge and skills acquired in individual modules.

The number of students in the project module varies from 15 to 25 students per year. This allows for a more interactive class environment. Students work in teams, which effectively creates a social learning space for the acquisition of soft skills, such as teamwork, communication, time management and emotional

Discovering Animal Diversity app

Dr Victoria Rautenbach

intelligence. This approach provides the students with a glimpse into the working environment and how to solve conflicts within the group to ensure that a successful product is delivered in the end.

The community engagement provides the students with an increased sense of social responsibility and an awareness of the importance of it in their future career. The students have also expressed their great sense of accomplishment after the module, not only by mapping the informal settlement but being able to give back through activities with the children at the local school, such as a map competition. The experience of the lecturer and students in 2017 indicated that incorporating community-based service learning into the Geoinformatics curriculum promotes the development of work-readiness skills by the students.

Development of short media items assists technology transfer to small-scale farmers in sub-Saharan Africa

The opportunity to make a 'real-world' impact through creative ideas is very exciting. Students from the course Sustainable Crop Production and Agroclimatology are tasked to create media items (video, podcast, narrated slideshow, simple app, etc.) on specific aspects of crop production that are aimed at technology transfer to small-scale growers in sub-Saharan Africa. The idea is that the items can then be shared easily with actual farmers, for example, via WhatsApp. The project is the result of a collaboration between Dr Michael van der Laan in NAS and Dr Ina Louw in Education Innovation.

Sub-Saharan Africa is the only region in the world where food production per capita is not increasing, resulting in prevailing food security issues. More households are actually declining into poverty than are escaping it. Among other things, provision of technical assistance and support to farmers is sorely needed to improve the situation, but it has proven to be extremely challenging so far in this part of the world. The National Development Plan (2011) states that to 'promote technological advances, developing countries should invest in education for youth, … and should ensure that knowledge is shared as widely as possible across society'.

With platforms such as YouTube, there is the possibility of reaching millions of people. Considering that students receive subsidised education, there is also the added motivation of being able to give back to society. Students come from all over the country to study agriculture at UP and may, therefore, have unique skills and knowledge in addressing the challenges in communicating with small-scale farmers from different rural areas, many of whom have limited education. Students not only learn how to implement their course work in everyday life but are also exposed to the effective use of technology in communication and the learning of new skills such as time management and teamwork, which they will go on to apply in the workplace.

General enthusiasm in the study was perceived to be high in 2017 and most students took the project very seriously. Highlights include the concept of 'Dot Farming', which uses symbols only to communicate better farming practices, and a project where students showed disadvantaged communities how to build their own greenhouses from cheap materials. The department will now make a video compilation of the best contributions for advertising purposes. Good contributions will also be posted on Facebook regularly (https://www.facebook.com/Ingesta-Farming-for-the-Future-530650287278629/), on a page created by the students themselves, called 'Ingesta: Farming for the Future'.

Students showing a local community how to make a do-it-yourself greenhouse'

Ways in which the media products that the students created can be used for technology transfer to small-scale farmers operating within South Africa's newly established 'Agri-parks' will also be investigated as part of a new Water Research Commission project that was recently awarded to the University.

Innovation key in preparing culinary entrepreneurs for the workplace

Prof Gerrie du Rand provides an opportunity where students are told they are allowed to make mistakes, where innovation is the buzzword and a 'new way of doing' is the challenge. The subject (Recipe Development and Standardisation) is a key innovation in culinary art and science and prepares students for amazing jobs in the culinary industry.

Prof Gerrie du Rand with culinary entrepreneurs

Consumer-led product development is used as a model to design and develop products that meet the needs of consumers following the process of recipe development and standardisation.

Innovation in the food and beverage industry is what is needed to meet the challenges and choices food and beverage companies are facing. Food consumption and consumer preferences are becoming more sophisticated and diverse as consumers aspire to higher-quality food experiences. Consumers are more food-literate and technology has made information more readily accessible than before. This has led to heightened consumer expectations from food and beverage companies and in turn an increasingly competitive structure in the food and beverage industry, where innovation opportunities abound.

Students have 14 weeks to develop a product according to a brief from industry partners: e.g. Spar, Delonghi, Kenwood, Braun and Gronut. Some of the projects completed in the last few years included in-house-developed fat-replacers, African green leafy vegetables (from the Experimental Farm) and crocodile meat. A Blueprint project approach is followed, where student compile a visual exposition of the process they apply to develop their products using equipment and appliances from industry partners. The process starts with the brief from the industry partner, where the consumer, client and product are identified. A trend analysis is done to determine both local and international culinary trends. Only then is a possible conceptual product identified. Students complete a comprehensive literature review before finally creating their products in the newly refurbished state-of-the-art food laboratories in the Department of Consumer and Food Science.

The next phase consists of trial and error, and often frustration, in getting a product perfect to meet the needs of the consumer and the demands of the industry partner. Triple-testing is the phrase used once the recipe is perfect and the product top-notch. The students then upscale the recipe to meet the demands of a product ready for market, which must be labelled, branded and sold – the perfect mini entrepreneurial opportunity for the class.

The real excitement comes when these newly developed products are professionally styled for food photography, at which point many a food-stylist-in-the-making is discovered. Finally, a presentation is delivered to the industry partners and parents to showcase what the 'new way of doing' achieved. The occasion is planned, presented and executed entirely by the student group. This is the day when the students can review their accomplishments and know that they will be ready for the world of work. Many of our graduates find amazing job opportunities using the array of skills and knowledge acquired in this course.

Faculty of Theology and Religion

A triple century for teaching and learning in 2017

In 2017 the Faculty of Theology and Religion celebrated its centenary. It was a year of festivities since there was much to celebrate. What started in 1917 with only two lecturers and two students, a hundred years later had become a faculty that is ranked by its peers as among the top 100 in the world.

The year 2017 was a triple century for the faculty, however. Why? It was ranked among the top 100 theology faculties world-wide on the QS ranking and, as such, is the most highly placed faculty in the University. From a hybrid teaching and learning perspective, in 2017 the faculty for the first time had a 100% representation of modules on *clickUP*. The faculty has tradition yet uses the affordances of modern technology and is highly respected internationally.

The faculty strives to deliver to the local and global workplace graduates who can function independently and confidently as individuals; have intellectual curiosity and an inquiry-led approach to knowledge; are emerging or established leaders in a profession; act as team players; creatively provide solutions for current and future-orientated challenges, and have a sense of social responsibility, respect for human rights and exhibit informed civic, cultural and environmental awareness. Students are invited to engage with lecturers, and are encouraged to respect diverse values, beliefs, talents, backgrounds, needs (including special needs), goals, and previous educational experiences.

Reflecting on 100 years of contributing graduates to South African society

Curriculum change

The faculty's first official curriculum was implemented on 5 March 1919. The BA consisted of three years of study. At the first-year level, the curriculum consisted of Latin, Greek, Dutch or English and Natural Sciences or Sociology of History. For the second year, the prescribed modules were Greek, with Latin, Dutch or English, Psychology, Philosophy (Logic) and an introductory course in Hebrew. The final year consisted of Greek, Hebrew, Ethics and the Principles and History of Metaphysics. The BD had to be taken after the completion of the BA and included Old and New Testament, Christian Ethics, Biblical Theology, History of Religions, and Psychology of Religion as compulsory subjects. In the fifth and final year, Old and New Testament Exegesis were taken, with Church History, the History of the Creeds of the Church, and Christian Apologetics. In 1922, the curriculum was extended to six years of study. For the sixth year, the added modules were Old and New Testament Exegesis, Church History, the History of the Creeds of the Church, with Systematic Theology, Philosophy of Religions, Sociology and Ethics being added. A research essay was also expected in any discipline that was offered in the BD.

Incredibly, 58 years elapsed before this curriculum was for the first time revisited. On 20 March 1980, a few interesting decisions in this regard were taken. First, for the fourth and fifth years of study, a maximum of 800 reading pages were to be prescribed in each of the six disciplines. Second, attention was to be given to the way in which modules were taught. Third, lecturers were expected to write an introduction to each discipline and assessment was to take place by means of written and oral tests.

In the 1990s, the only real attention given to teaching and learning was that the faculty decided to offer additional undergraduate programmes. In 1995 the BA (Theol) degree was added to the faculty's offering of programmes, followed by the Diploma in Theology in 1998.

Since 2008, teaching and learning in the faculty have received much attention. To ensure that the faculty provides an excellent, inquiry-led and cost-effective undergraduate education that is responsive to the local context and has both national and international recognition and standing, it was decided in 2008 to revise the curricula of its different programmes. The three important reasons for the revision were (1) the changed environment of theological training, (2) the special needs of first-year students and (3) the need to prepare for the introduction of the new Higher Education Qualifications Sub-Framework. Recurriculation took place in 2009 and in 2010 the new curricula of the BTh and BA (Theol) programmes were introduced, followed in 2011 by the Diploma in Theology. All programmes now consisted of semester modules. Focusing on first-year students, two first-year orientation modules were offered to ease students' transition from high school to university. Six interdisciplinary modules were also introduced to promote the integration of the different theological disciplines and a number of new modules were introduced to give attention to the African and South African contexts and to African and Third World theologies.

In 2017, for the first time, the faculty offered the new Postgraduate Diplomas in Theology and Theology and Ministry. These two new diplomas replaced the old MPhil programme and the second year of the old MDiv programme.

2017 saw the beginning of a multi-year process by which the curricula of the Faculty will again be transformed. Two workshops were held, both focusing on transforming the curricula in the faculty. At the first workshop the focus was on the curriculum in the faculty as a whole and at the second workshop the different departments gave reports on transformation that has already taken place and what further transformation can be implemented.

Student success

Since 2011 the faculty has worked to consolidate its student support model using orientation, advising and tutoring – particularly for first-year students.

First, in 2011 first-year students, in addition to the general orientation provided by the University, also received faculty-related orientation during the week before the academic year started.

Second, high-risk first-year modules were identified and a new approach towards the teaching of first-years was introduced. This included empathy with first-year students; lecturers who are supportive and approachable, placing an emphasis on class attendance; the abandoning of academic social Darwinism ('sink or swim') in favour of a brain plasticity approach more in line with contemporary neuroscience research; working on the margins of the class, and helping students to develop interest in the subject of their modules and adopt specific learning habits and a general, positive attitude towards their studies. Furthermore, for the first time, continuous assessment was introduced.

Attention was also given to study skills – how to manage time, how to proceed with modules successfully, and how to take notes and use additional resources. With the help of the faculty student advisor (FSA), students were equipped with skills in time management, study methods, language proficiency and adapting to the challenges of the university environment.

In adherence to the language policy of the University in presenting undergraduate modules, and to promote the greater integration of students of different races and cultures in the classroom, interpretation services were used in two fundamental first-year modules.

Finally, a decision was taken to appoint tutors to assist students with high-risk modules and investigate the viability of providing mentoring for all theological students as soon as funds were available.

In 2012 the faculty, for the first time, identified its high-impact modules. Also in 2012, the new comprehensive and effective blended teaching and learning model, used since 2010 (encompassing traditional teaching, the use of multimedia and e-learning), was aligned with an enquiry-led teaching model.

What is more, in 2013, the faculty focused an enquiry-led curriculum with a blended approach to teaching and learning within a resource-rich environment. The curricula were also tweaked to contribute to a unique set of graduate attributes. The main focus of these changes was the promotion of deep learning.

The overall pass rate in the faculty has stabilised at around 84%; the mentor and tutor systems are running well and most lecturers are using a hybrid learning approach as the main teaching and learning strategy. The approaches being used are active, hybrid and require self-directed learning. The teaching delivery methods used are face-to-face lectures, discussions and debates in class, essay-writing, and structured lectures using PowerPoint presentations and video clips. Note-taking by students is also promoted as an important teaching and learning method.

Excellence in teaching

Prof Willem Fourie

Prof Willem Fourie received the award for excellence in teaching in 2017. As guardian of House Theology, Prof Fourie established a portfolio for teaching and learning in the House, a decision that resulted in a comprehensive mentor system in the faculty directed at first-year students. He says: 'My role was basically to support students to support one another. The Faculty House Committee did most of the work and set up a first-year mentoring/monitoring system'. He adds: 'Contemporary leadership theory confirms that leadership is not about heroic personality traits but about collective transformational practices, based on a collectively constructed and shared vision. Providing support to others is therefore an expression of leadership'.

100% online

The Faculty Plan on Teaching and Learning for 2011 stated that serious attention should be given in the years ahead to the implementation of a more comprehensive, effective and hybrid teaching and learning model that encompasses traditional teaching, the use of multimedia and e-learning. Sometimes slowly, sometimes dramatically, the number of undergraduate modules that were *clickUP*-based increased until, in 2017, the goal of 100% was achieved. The scale of the improvement in the use of the online environment is shown by the percentage of modules with an online *clickUP* presence in 2008 (16,1%) and in 2017 (100%).

The faculty is now prepared to assist contemporary students to reach their full potential using a variety of complementary in-class and online approaches.

Is the use of *clickUP* worthwhile? Does it lead to deeper learning? Students certainly seem to think so:

'I have found *clickUP* to be highly useful as we are now in a technologically advanced society where everyone is reliant on the use of technology for pretty much everything. I myself am highly dependent on the Internet and as a result find *clickUP* highly useful as info of my lectures is all uploaded there, so if I miss out something in class I can easily recap on my own. *ClickUP* also creates platform for independent study and enables me to upload assignments and do online tests from wherever I am, which saves me time as I do not have to travel to campus just to hand in an assignment. I am highly grateful for the great amount of convenience that *clickUP* provides me with.'

'*ClickUP* is tremendously helpful. As a student, it enables me to receive notifications from the lecturers and allows me to not only be prepared for class but also … to stay on track with the work that is expected of me. It is available 24/7 and it categorises the different work for different modules. It encourages support in notifying students when the tutorial classes are and therefore takes one step further to help students achieve their goals.'

Faculty of Veterinary Science

The teaching and learning achievements in the Faculty of Veterinary Science in 2017 focused on maintaining excellence in teaching, learning and student support in the face of a dramatic growth in registrations.

Recognising Teaching Excellence

Prof Leith Meyer: Lecturer of the Year award

Prof Meyer teaches Pharmacology. He acknowledges that the subject 'can be very bland and hard as there are thousands of drug names and facts that a student needs to remember'. In third year, students do not yet have any clinical experience to provide context for this information. His teaching approach thus tries to compensate for this situation. He and fellow lecturers structure courses so that for each section key information is first introduced and then students prepare for the next lecture (a five-mark test ensures that they prepare) so that they can have a meaningful discussion on the remaining information. They centre the learning around discussing basic clinical cases, which helps the students to apply the knowledge that they have just learnt. Prof Meyer believes that this approach keeps the students continuously engaged, but is probably not the only contributor to success. The approach is holistic, focusing on motivation and non-cognitive factors as well as academic content. Prof Meyer explains: 'Engaging students at a level that is casual but professional (we treat each other as colleagues) shows them that academics are also human. Too often they are told that they are stupid and don't have the right attributes to be a vet, but I like to encourage them and let them each know that they have the ability to become great vets. I remind them that this only comes with hard work, but they also need to have a balanced life and they need to have fun and enjoy student life. I'm always amazed and encouraged to see how well some students do, considering all the adverse circumstances that surround them'.

Dr Christine Steyn: Junior Lecturer of the Year award

Dr Christine Steyn qualified as a vet in 2009 and worked in private practice for a while, where one of her favourite duties was to supervise high school learners and university students during their elective or 'shadow' weeks. Since starting to teach anatomy at the faculty in 2014, she has always tried to convey the relevance and real-life application of such a foundational subject to her students. She associates easily with students and is very patient as she remembers what it was like being a student herself. She readily shares her own student, work and life experiences in the hope that students may benefit from them. During her time as an undergraduate student at Onderstepoort, she often used self-invented mnemonics and now she uses these same tools when teaching. Her favourite part of the day, and something she will never get tired of, is when she is explaining a difficult concept and she can suddenly see the 'Aha!' moment in her students' eyes. The faculty is justly proud of its graduate.

Dr Charlie Boucher: Diploma in Veterinary Nursing, Lecturer of the Year award

It is good when a lecturer can say: 'I thoroughly enjoy lecturing to the veterinary nurses during their first and second years at Onderstepoort'. This passion for one's subject is often noted by students as a characteristic of the best lecturers. The fact that veterinary nurses play an invaluable role within the veterinary profession is becoming more and more recognised, not only within the private practice sector, but also within industry, academia and community services. Dr Boucher states: 'Veterinary nurses have such a love for animals and a passion for their career that it makes lecturing easy! Most of my students have a real desire to learn and become the best nurses they possibly can'. The classes are relatively small when compared to the veterinary students, which enables the lectures to be interactive and personal. Dr Boucher makes a conscious effort to keep his lectures as practical as possible and to focus on the relevant and applicable aspects of students' training. Where possible, the students also discuss case studies that they are actively involved with during their hospital rotations. Dr Boucher concludes: 'For someone who has been in the profession for quite some time, it is a breath of fresh air to see how motivated and passionate these students are in their vocation'.


Prof Leith Meyer


Dr Christine Steyn


Dr Charlie Boucher

Onderstepoort Skills Laboratory: 'Day One' competencies

Veterinary clinical teaching has changed dramatically worldwide over the last decade. Increasing student numbers, the focus on practical skills at the time of graduation and animal welfare issues have led to the development of veterinary simulators and models that are used to teach clinical skills to veterinary and veterinary nursing students. Other aspects that have affected veterinary education worldwide (and similarly, medical education) are increased specialisation by veterinary academics; increased service expectations by farmers and animal owners; research and other demands on faculty members' time; as well as a shift from more knowledge-based theoretical veterinary undergraduate courses to courses that produce veterinary graduates who are competent in the expected 'Day One' clinical skills and competencies. Veterinarians are expected to perform many procedures immediately upon graduation with little or no supervision, as is indicated in national and international 'Day One' or 'Year One' competency lists (e.g., International Organisation for Animal Health, Royal College of Veterinary Surgeons, South African Veterinary Council). Developing competence in clinical skills is important but it is dependent on having had sufficient hands-on practice. Clinical skills laboratories offer many benefits such as student-centred learning and practice opportunities in a safe environment where there is no risk of harming animals.

Owing to these new demands, as well as the restrictions mentioned above, many veterinary skills laboratories have been established all over the world, including Africa. Clinical skills laboratories provide opportunities for students to learn on simulators and models in a safe environment and to supplement training with animals. The Faculty of Veterinary Science followed this world-wide trend and its veterinary skills laboratory was opened in 2015. It is managed by Dr Annett Annandale, who has also shared her research nationally and internationally on work done in the laboratory. Veterinary students are now able to practise a wide range of clinical skills on commercial, as well as in-house-produced veterinary training models.

In the veterinary and veterinary nursing curricula offered at the Faculty of Veterinary Science, the implementation of the skills laboratory is focused on the development of student confidence in their practical skills before they apply these skills in a real-life situation. Animal exposure is still considered the ultimate learning environment for veterinary and veterinary nursing students, and the skills laboratory is used to complement that rather than replace it. The new veterinary nursing degree was accredited by the Council for Higher Education in 2017.

The skills laboratory creates an empowering learning environment that gives students the opportunity to develop a self-directed attitude towards learning, while motivation is encouraged through laboratory access to students in their own time. Appropriate learning support at individual stations is provided through step-by-step instruction manuals as well as QR code-linked YouTube videos showing the procedures, ensuring students can learn from different media. Immediate feedback during the model use ensures optimisation of the learning experience. Students are able to engage with the learning resources in a way that enables them to achieve practical competence. The skills laboratory gives students enough space to learn at their own pace and in their own sequence. The possibility of repeated practice to become proficient and competent through access to models and supporting learning resources, helps students to improve and maintain their clinical skills' level.

The Onderstepoort skills laboratory further provides an ideal centre for the scholarship of teaching and learning (SoTL) within the faculty. It has established itself as the centre of excellence in veterinary education in Africa, with a number of research publications originating directly from the skills laboratory or indirectly from the faculty. The skills laboratory also hosts international meetings on veterinary education where these and other research results and implementations of the international veterinary curriculum are discussed. The laboratory hosted the International Veterinary Simulation in Teaching (InVEST) conference in March 2017, with 70 delegates from 15 countries attending and sharing new ideas about the use of simulation in veterinary teaching with world-leading experts. Apart from InVEST, very successful teaching and learning workshops were hosted for veterinary educators from the Southern African Development Community (SADC) in 2017.

The skills laboratory supports the University's education philosophy of promoting teaching excellence within a resource-rich environment, in a hybrid learning paradigm.

The Onderstepoort skills laboratory

The skills laboratory enables students to practise their practical skills repeatedly on simulators and models in a stress-free environment before their first exposure to live animals. This ensures competent students who can encounter their first real patients more confidently.

Compared to previous years, the skills laboratory added value to student teaching in 2017 by significantly increasing the practicals offered and by making numerous new stations and models available to students.

Onderstepoort Feedlot Challenge: Fun-filled learning

The Feedlot Challenge celebrated a decade of successful presentation of this project in 2017. This milestone was celebrated with the purchase of a high-tech feed mixer wagon and the construction of a brand new state-of-the art cattle feedlot on the Onderstepoort campus, with a capacity of 200 calves. The facility will also be used for research projects in future.

But what is the Feedlot Challenge? It is a unique, competition-based form of experiential training that was conceptualised and started in 2007 by the current Deputy Dean for Teaching and Learning, Prof Dietmar Holm. It is now coordinated by Dr Takula Tshuma.

The basic structure of the Feedlot Challenge has remained the same and is based on a live simulation of a beef feedlot with groups of students experiencing the entire production system, from the auction where calves are bought to marketing of top-quality beef. More than 2 000 veterinarians have competed in groups in the Onderstepoort Feedlot Challenge over the years and reported that it had a positive impact on their interest in, and understanding of, the production animal industry. The project, which is presented in the first semester of the fifth year of the BVSc programme, has attracted significant attention from the industry as well as from international academics.

Feed mixer wagon

The aims of the Onderstepoort Feedlot challenge include the following:

1. Stimulating students' interest in the production animal industry: The competitive nature of the OP Feedlot Challenge, with the anticipation of a reward at the end, has been a great way to stimulate interest in the subject. This is further supported by the use of social media for students to share their experiences. The intention is to help alleviate the current shortage of production animal veterinarians in the country.
2. Stimulating a culture of self-learning, peer instruction and critical scientific reasoning among students: This aim is achieved by allowing students to deal with day-to-day problems that are encountered at a feedlot operation. Students acquire knowledge by finding solutions from various sources and, in cases where they find conflicting information, they have to sift through it and choose the best approach for their situation. They work under the guidance of a clinician who plays the role of 'coach'. Students are allowed to make mistakes and to learn from them in a controlled environment. Lessons acquired in this way are memorable.
3. Developing soft skills such as leadership, teamwork, communication, business and management skills: The hands-on nature of the Onderstepoort Feedlot Challenge is a great opportunity to cover the covert curriculum that helps to develop a well-rounded graduate who is ready for work.
4. Improving the morale of veterinary students as they learn in a fun-filled and relaxed environment: Wellness of veterinary students is an international topic of discussion, and the Feedlot Challenge is a leading example of how physical activity and practical application of knowledge can be used to improve student wellness in a very demanding programme.

Student assessment for academic purposes contains some interesting innovations and is done in the following manner:

1. Each student in the group receives a specific task in the production system of the feedlot to be responsible for and report on. The student has to research his/her task and find ways to improve his/her group's chance of winning in innovative ways and using up-to-date knowledge. The student has to write a report in a very specific format (abstract format with references) and feedback is provided by the instructor to guide students. This assessment method provides the opportunity to improve professional communication through scientific writing skills and forms the core of the assessment in the Onderstepoort Feedlot Challenge.
2. In order to represent the practical contribution of each student, peer assessment is done by other students in the group. Owing to the pedagogical design of the project, this is the only way that the contribution of each group member can be accurately estimated. These scores are entered into a spreadsheet designed to rule out bias and deviations in peer assessment and to provide the relative practical contribution of each student within the group. The scores are normalised to the average of the academic score within the group.

Student group evaluation for the purpose of winning the competition is done separately from the academic component and remains the driving force behind the success of the Onderstepoort Feedlot Challenge:

1. Relevant feedlot production results for the different groups are monitored and reported regularly on a website throughout the Challenge. At the conclusion of the project, these data are analysed and discussed with an external panel of expert feedlot consultants (veterinarians), and the students are given feedback on their conclusions. The focus is on food security by means of economical production outcomes.
2. The panel of experts also attends presentations by the student groups and considers the evidence of experiential learning that took place within each group, which contributes to the scoring that determines the winner. Animal ethics are also considered by the panel.

The success of the Feedlot Challenge is heavily dependent on the enthusiasm of students, support from industry, the dedication of staff members at the Faculty of Veterinary Science and external consultants/experts.

At the end of the challenge, students are competent and confident in handling and examining animals. The challenge allows them to learn these practical skills in a relaxed, informal environment. Students are exposed to a wide range of learning opportunities, from the auction, through feeding and taking care of the animals, all the way to their exposure to food quality and safety issues in the abattoir. In this way, they get a chance to put together all the pieces of information that were acquired earlier on, in a practical way.

Facebook page: OPFeedlotChallenge

Website: www.opfeedlotchallenge.co.za

Mamelodi Campus

The Mamelodi Campus has been offering the BSc and BCom Extended Programmes since 2008. They offer foundation provision to students in addition to other coursework. Owing to the success of the programmes over the past decade, the campus is investigating areas for further improvement from an institutional, curriculum and student perspective. The objective is to ensure that students who commence their studies via this academic pathway graduate in the minimum time.

Curricular innovations

Interdisciplinary, community-based learning

In a continuous effort to help students see the inter- and transdisciplinary links between their subjects, and the relevance of their subjects to the real world, the LST team at Mamelodi participated in a collaborative community-based project (with partners in Business Studies, Statistics, and the Graduate School of Technology Management) with the aim of empowering students to resolve a real-world problem in the Mamelodi community, using the academic resources and knowledge at their disposal. Currently, approximately 40% of the campus's students are participating in this project. Dr Ilse Fouché, Ms Salome Pretorius, Prof Alex Antonites and the Dean, Prof Nthabiseng Ogude, are involved in the project. In future, they hope to roll the project out to include more subjects and all of the students on the Mamelodi Campus.

All students (approximately 360) in the Foundation Programme who have both Business Management and Statistics as subjects (all students have Academic Literacy -LST- as a subject) participate in the community-based project built around the Sustainable Development Goals (SDGs) formulated by the United Nations. The lecturers in the three subjects develop topics that address aspects of all three subjects. Students are required to design, draft, administer to a relevant population and analyse a questionnaire. These data, along with a literature review and an application of the knowledge gained in Business Management, are used towards solving a management-related problem that is aligned to the SDGs at an Early Childhood Development centre. The end result is a case-study report. A collaborative project guide has been developed so that one unified project is presented to students, explaining how the three subjects collaborate, and what their responsibilities and areas of focus are.

In addition to this, the Graduate School of Technology Management (housed in EBIT) will come on board by assigning one postgraduate Project Management student or one volunteer from the PMI (Project Management Institute) to each group of five first-year students. These Project Management volunteers will head the management of the project, which the small group of students choose, and will mentor the students to ensure that the project comes to fruition. This mentoring and management will be accredited by the PMI as professional development units (PDUs), with one hour of mentoring being equivalent to one PDU.

The advantages stemming from this collaborative community-based project are manifold. First, students have to integrate the outcomes of three different subjects into a single assignment, the academic outcome of which will be a 20-page case-study report for each group of five students by the end of the year (with various smaller deliverables throughout the year). Second, students will experience the real-life applicability of their subjects by solving a real community-based problem, thus contributing, if only in a small way, to community upliftment. Third, Extended Programme students will be exposed to the principles of project management (a mainstream subject in their second year) and will gain from the experience of senior students or junior professionals in the field. Fourth, volunteers from the PMI will gain PDUs for their part in these community outreach projects, and simultaneously contribute to community development in an under-resourced area. Finally, foundation-year students will have fewer assignments to work on (where in the past, students had to submit an assignment for each subject, one assignment will now be submitted for three subjects), thus allowing them to engage more meaningfully with the content matter, hopefully leading to deeper learning.

Furthermore, with this collaborative project, the staff involved aim to create a model that could ultimately be used as an example of how multiple disciplines, and students at various levels (undergraduate and postgraduate), could be integrated into a project that could both consolidate student knowledge and at the same time create relevant social impact in the immediate community.

Interdisciplinary, community-based learning

Learning theory and the foundations of Chemistry

Christine Mundy has been the module coordinator for the Chemistry module presented on the Mamelodi Campus since 2016. Approximately 500 students take this module in their first year of study; therefore, it is imperative to provide a solid academic basis for students who plan to continue to do a BSc, BEng, medical or veterinary degree.

Ms Mundy's approach to teaching and learning is founded on the pursuit of understanding how learning takes place in the mind of the student. Cognitive load theory provides the framework for understanding the cognitive architecture of the student. Simply put, is there space for thinking and processing in the mind of the student and how do we maximise this? As part of her doctoral studies, Ms Mundy challenged herself to design teaching materials and approaches that are cognitively inclusive for all novice students.

This is in line with pedagogical transformation in that the campus strives to 'meet the students were they are', acknowledging the challenges of English as a second language and acknowledging

that students may not be fully prepared for tertiary education (whether they find themselves on an extended programme or not). The perfect student seldom arrives at university: the lecturers play a crucial part by doing all that they can to help students mature academically and reach their full potential.

Notably, in the laboratory, a novel, scaffolded approach is currently being developed: this is not the cook-book laboratory of old or the in-vogue inquiry-based laboratory. Simplified instruments and methodologies, scaffolded by LabOrganisers, may be the way forward for novice STEM students. The first in this series is the Mini Spec, where students build and use their own photo spectrometer. Additionally, students are encouraged to take this low-cost portable device home, into the communities from which they have come, exposing the community to authentic *in situ* science.

Aware of the fact that students often experience a very high cognitive load when grasping the essentials, Ms Mundy developed a series of short YouTube videos to explain the basic concepts of the first-year programme. By combining audio and visual stimuli with the structured codes of cognitive load theory, she enabled the students to consolidate these concepts for themselves. The success of this innovative strategy is reflected in the students' results and confidence, as well as the passion they have developed for this subject.

Advocate Michael Matlapeng, an Exco and founder member of YASCOM addressing Alumni at the Inaugural Mamelodi Campus Alumni Launch

Mr Griffiths Makgoreetsa, Chairman of the Alumni Club Mamelodi Campus addressing the Alumni at the Inaugural Launch

Research into student experience and success

In an effort to improve the student experience in extended programmes, the Dean, Prof Nthabiseng Ogude; the Head: Academic Programmes, Dr J Mwambakana; and the Student Advisor, Ms Ida Meyer, have been conducting research that elicits experiences from students who self-identify with this pathway and who have developed attributes that enabled them to overcome the erroneous perception that the extended programmes are second-class.

Five dominant themes appear to contribute to students' progress and persistence in their studies, and simultaneously enable them to overcome the apparent stigma that emerged during the interviews. These are (i) sense of family and belonging, (ii) peer mentoring and support networks, (iii) coping with failure and self-efficacy, (iv) the underdog phenomenon, self-motivation and support for mainstream students, and (v) the student advising model.

Student narratives are given below from some of the themes:

Sense of family and belonging

The interviews revealed that students become part of a family, the University of Pretoria family.

S6: The lecturers, student-support staff and students were all part of the caring family. It made [me] positive and helped me to focus when the rest of the world was caving in – like when my mother died.

S1: If you think about how you go to Mamelodi – and most of us feel like this – it's the end of the world. But then you have people who pick you up, and you go home and you motivate yourself, then when you meet a challenge, it's no more a challenge. It's like, 'Okay, I can do this.' I can do whatever I put [my mind] to.

S2: Some of them [lecturers] still know me by name when they see me walking on Hatfield. They like, 'How is it going? Are you still doing well?' It's so nice to know that you come from a family or a community that still cares about you even after you've left the place.

Coping with failure and self-efficacy

Literature studies indicate that students in extended programmes experience obstacles that include a constant feeling of failure for not being admitted into mainstream programmes. Inability to cope with failure is an established major reason for dropout. Students in this study managed failure well and, more importantly, did not allow it to define them.

S1: A big one for me personally was learning how to handle failure, which you do not learn in school because everything is about your marks. Secondly, once you get to university, you learn you will fail at least one test, and if you don't know how to pick yourself up ...

S7: I take failure in my stride, and I can use it when I speak to people that I failed this and this, but that wasn't what defined me. It's what I did after that defined who I am.

Mamelodi Campus gave Student S7 the platform to realise that it is acceptable to begin again and to adopt a new approach in order to succeed.

The underdog phenomenon and self-motivation

It is evident that there were times when the students felt that they were not in a good position to achieve success. They were at a disadvantage and their chances were minimal. The students also acknowledged that, initially, they were defensive about their position and always felt obliged to explain their placement at the Mamelodi Campus.

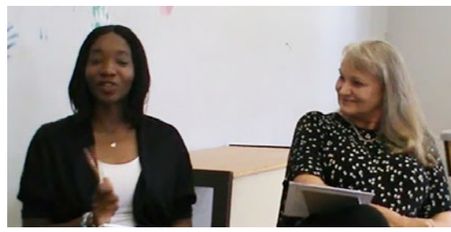
S2: No one expects success from an underdog ... you kind of have that underdog title when you go into Mamelodi Campus 'cos many people look down on you ... You are said to be in Grade 13! If you ever find yourself being seen as an underdog, say you're an intern. Or another challenge when you are in the mainstream, you can say, 'But I was once an underdog, and I've done it before and I've overcome'.

S8: So when you are seen as an underdog, that self-motivation comes from within to say, 'I've done that. I've conquered it. So what's this that lies ahead ... can be done'.

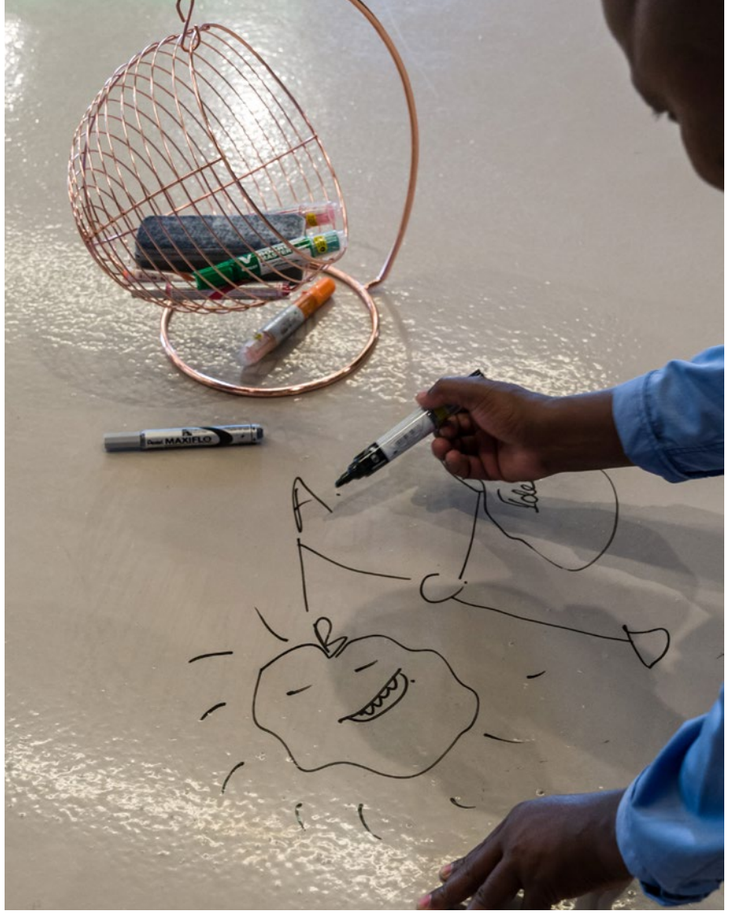
Further research is proposed to determine other attributes that alumni developed in the curricular and non-curricular components of the programme. These benefits can be reinforced to enable resilience and progression for a larger number of students.

Launch of the UP Mamelodi Alumni with Prof Duncan, Prof Ogude, Prof Lubuma and Prof Oberholster

Student Interviews: David Waleng, Kholofelo Moremi, Griffiths Makgareetsa, Parvani Govender



Student Interview: Benedicta Swalarsk-Parry and Ms Ida Meyer



Gordon Institute of Business Science

In May 2017 the annual UK Financial Times Executive Education rankings, a global benchmark for providers of executive education, once again ranked GIBS as the top South African and African business school. This is the 14th year running that GIBS has been ranked among the top business schools worldwide. In October 2017 the MBA was ranked among the top 100 globally in the prestigious Financial Times Executive MBA Rankings, placing 87th. GIBS is the only business school in Africa to appear in this ranking.

GIBS Ranked in top 100 worldwide for Executive MBA

UP's business school contributes significantly to high-level management and leadership skills for individuals and industries in South Africa. GIBS offers generic and tailored short learning programmes as well as formal programmes up to doctoral level.

881 GIBS registration

88% GIBS completion rate PGDip and master's

657 GIBS graduation

Academic programmes and student success

The academic programme team manages five Postgraduate Diploma in General Management groups, one Postgraduate Diploma in Business Administration group and five Master of Business Administration groups. In 2017, the applications for the programmes were very good, with a high number of acceptances and a diverse mix of students. For the Postgraduate Diploma in General Management, Part Time and Modular, there was 42% female representation, with the MBA achieving 41% female representation. GIBS has also been aware of the need to increase the race demographics across all academic programmes and is proud to have achieved 47% black participation in 2017. This number increases to 68% should other race groups be added, with the exception of the white and other demographics.

The doctoral programme manages three groups: post-proposal students (29), proposal development students (35) and students attending a type of bridging course, the PGDip in Business Studies (24). These students are a balance of national and international. During both the proposal and post-proposal phases, students have to present their work-in-progress to a faculty member and fellow students three times during the course of the year. Plenary sessions on research skills as well as individualised tutoring are offered. The proposal is sent to a Research Quality Committee (RQC) for approval. This committee consists of five research-active professors and serves as an additional resource for supervisors and students alike. If accepted, the proposal is presented to the doctoral community. For post-proposal doctoral candidates, the thesis is submitted to the RQC for scrutiny before being sent out for examination. Paper writing workshops are offered to GIBS staff, research associates and doctoral students, and attendance at doctoral consortia is strongly encouraged. A sense of community is developed through attendance at bi-monthly campus weeks as well as various team-building activities.

Three new programmes commenced in 2017: a full-time Postgraduate Diploma in Business Administration, designed to prime young graduates for the workplace; a new MPhil in International Business and a PGDip focused on research skills. The latter diploma assists students who are not sure if they want to enter research and students who are keen to do research but who lack research training (e.g., because they have an international MBA without any research component). The PGDip focuses on research methods in business science. Smaller groups of 10 to 12 students work on thematically defined topics and the scaffolded approach effectively helps to develop a 30-page proposal. The programme achieved an 89% completion rate for the 2017 cohort.

Besides academic success, graduates of GIBS go on to make UP proud, winning awards as well as scholarships/fellowships and being appointed to executive positions in a range of South African and international businesses and industries.

A new space at GIBS

Chris Gibbons writes: '"Space, the final frontier", begins the monologue that opens every episode of *Star Trek*. But for educators, including the team at GIBS, space is far more than a frontier. It's a place or a time or a platform or a blank canvas, in which, during which or on which learning can take place. And if that sounds very broad, it's meant to be. Called Co.Central, it's GIBS' new, flexible, modernist learning space (launched in July 2017)'.

Gill Cross, who looks after Co.Central and was responsible for its design and development, does not have an official title. When pressed, she describes herself as its 'innovator and chief agitator', but she is very clear about its purpose. It acts as a means for educators to rethink the way they do things but also as a space where anything can happen. 'Anything that you can envisage the client doing in there, we could do for you', says Cross. Her analogy has nothing to do with *Star Trek* and everything to do with art.

She continues: 'Like an exhibiting artist in an art gallery, the space takes on

the qualities of the artist's work that's being exhibited there. I see it very much as a gallery space where we can curate anything a client would need and augment GIBS as a creative brand'.

Cross notes that education itself is changing. 'It's becoming far more democratised in terms of the way people want to learn and consume education, and the types of experiences they want to have. They want to be a part of co-creating that. And that looks back into the 'Co' part of Co.Central.'

People, she says, want to be in charge of their own learning journeys, particularly if that journey is non-academic or less formal. Co.Central gives them the spaces and tools to let them become what they want to become, she explains, noting that this also forces academics and lecturers to carry on being relevant. 'We have a space that's almost like a meme for us. There's no longer a front-of-class in the empty box, so what do we do? Well, we can't do very traditional, transmission-based lecturing anymore, so what else can we do? We need to provoke those sorts of questions in our faculty.'

Co.Central

Cross agrees that Co.Central contains elements of theatre. 'When we looked at the space, we looked at how you would enter it, and both doors have been designed with an almost *camera obscura* feel, with double mesh on the doors, so you can't quite see what's in the space until you open it.'

There is also ambient lighting that changes colours and mood lighting that can be adjusted, along with a Wi-Fi-based projection system that is technology agnostic, allowing participants to stream video direct from their cellphones.

Along with sight and sound, touch, taste and smell are also catered for, with brightly lit emoji boards as you enter the facility – press the right emoji to show exactly how you are feeling – and then follow the smell to where a barista is waiting to offer you either a very exotic cup of freshly brewed coffee or a bespoke tea.

'It fires up different parts of your brain', says Cross, 'and, depending on whether you want a tea that picks you up with a lot of hydration in it – a tea bomb – or a tea that's more calming like camomile, it plays into that sense of creating your own journey and experience in this space'.

But Cross is quick to dispel the notion that this is 'a high-tech innovation space – it's not. It's a far more fluid, highly ambient space that is flexible. No 3D printers or CTC machines!'.

Co.Central was designed by Local Studio, a 'young architectural practice ... that works in the Beirut of Johannesburg', where, Cross says, 'they take mostly social housing development projects and want to use architecture to connect people to space and with each other. I like their philosophy of taking old buildings in Hillbrow and making them into multipurpose spaces. They're problem-solvers'.

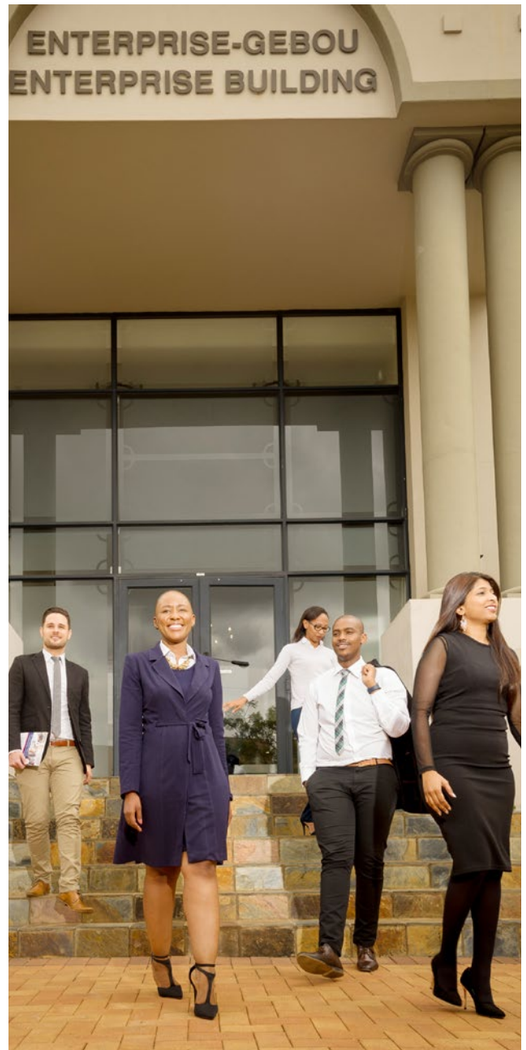
So what does Cross think might emerge from Co.Central? 'Hopefully things I'd never imagined, and hopefully it takes on a life of its own in terms of its being used in ways we had never thought. I'd like to start having different dialogues with very different people in the space. We could also start having curated events about arts and culture there.'

'We're hoping that clients who use the space – for things like ideation sessions or hackathons, perhaps? – also get a sense of, wow, this is a space where we can actually start thinking and behaving differently. It becomes a synonym for "business unusual at GIBS" and it contributes towards differentiating GIBS as a creative, progressive brand. We can offer "business school of the future" stuff right here, right now.'

Or, to borrow once again from *Star Trek*, Co.Central is a space that allows students and faculty "to boldly go where no one has gone before".

For more info, see https://youtu.be/1YpcQi-GbUM; to download a brochure, go to https://www.gibs.co.za/Documents/Gibs_Co.Central.pdf or email co-central@gibs.co.za.

Enterprises University of Pretoria



Shifting Knowledge to Insight

The University of Pretoria has played a profound part in the history of South Africa for more than 100 years and boasts a lasting legacy that endures through a cluster of innovative and multidisciplinary training and research solutions provided through Enterprises University of Pretoria (Enterprises UP).

Enterprises UP offers the best possible training solutions to organisations and individuals through career-focused short courses and training programmes that provide proactive, relevant responses to the skills development needs identified in various industry sectors, places of work, communities, the country, and beyond.

Today's dynamic and ambitious professionals appreciate the importance of improving their specific areas of expertise swiftly so that their knowledge-base can remain relevant and up to date. It also means that they constantly require easy access to best-practice bodies of knowledge in their industry. This is where professional online development programmes become increasingly important.

Enterprises UP is cultivating its professional development offering by encapsulating real-time engagement, developing hybrid possibilities, and meeting an ever-growing demand for online learning with a range of online training interventions. These include, among others, open education resources (OERs), online short courses, open (free) online courses and online continuing professional development (CPD).

Professional online development (POD)

Many professionals struggle to find the time to attend formal training sessions but would still like to continue honing their knowledge and skills. As part of the University of Pretoria's professional online development (POD) offering, our courses provide professionals with an integrated, online learning environment that not only optimises global participation, but also takes advantage of the lifelong learning opportunities presented by UP's experts beyond the classroom.

Enterprises UP developed PODs for the benefit of the students and personnel at the University. These PODs offer free learning opportunities. The Ready for Work and Entrepreneurship PODs launched in 2017 are discussed under the 'Teaching priorities' section.

An online course on Northern Sotho enabled UP staff to develop basic competence in the language. It was successfully completed by a significant number of UP academics in 2016 and 2017. Staff and academic personnel are frequently urged to participate in this project in support of the University's commitment to multilingualism in a practical manner, and to assist the University in ensuring that at least 50% of its entire staff, academic personnel, and students have a basic understanding of Northern Sotho by 2021.

The module was adapted towards the end of 2017 for inclusion in the first-year students' online orientation programme, UPO.

What is the future of PODs? A particular focus area of 2018 will be the rapid development and the conversion of existing courses into a hybrid mode of delivery. Demand from clients for the hybrid teaching model was encouraging and resulted in the commission of a number of in-house projects to develop client-specific programmes during 2017.

Professionals need information delivered to them quickly and efficiently. Thus, one of the main focus areas of the Enterprises UP e-learning team is the development of micro-learning activities fit for CPD purposes. These short activities offer delegates opportunities to learn what, when and how they want. This 'just-in-time' online training will provide information instantaneously, foregoing the need for professionals having to wait for scheduled training programmes. Delegates can access CPD activities using the Enterprises University of Pretoria mobile application, a one-stop interactive information service, allowing delegates to complete these activities on their mobile devices.

Breaking the boundaries

Advanced debt review

In an effort to address identified industry- or sector-specific training needs, Enterprises UP's customised, in-house courses are geared towards organisations that need to upskill and develop the skills of their staff on the go. In 2017, Enterprises UP and the University of Pretoria's Law Clinic collaborated with a leading financial institution on the development of a blended learning solution in Advanced Debt Review – an industry first for the sector.

The flipped classroom instructional strategy was implemented for this project, intentionally shifting teaching to a delegate-centred model where face-to-face workshops explored topics in greater detail, while online technology was used to deliver content and present activities for pre- and post-workshop activities.

In preparation for a contact workshop, the programme participants were required to complete an online component of self-directed learning that comprised reading material, multimedia and content overviews with audio narration, animation and non-linear interaction.

Thereafter, participants attended that particular module's workshop, during which activities took place that included case study analysis, group discussions, problem-solving, and role-play activities.

Industry first

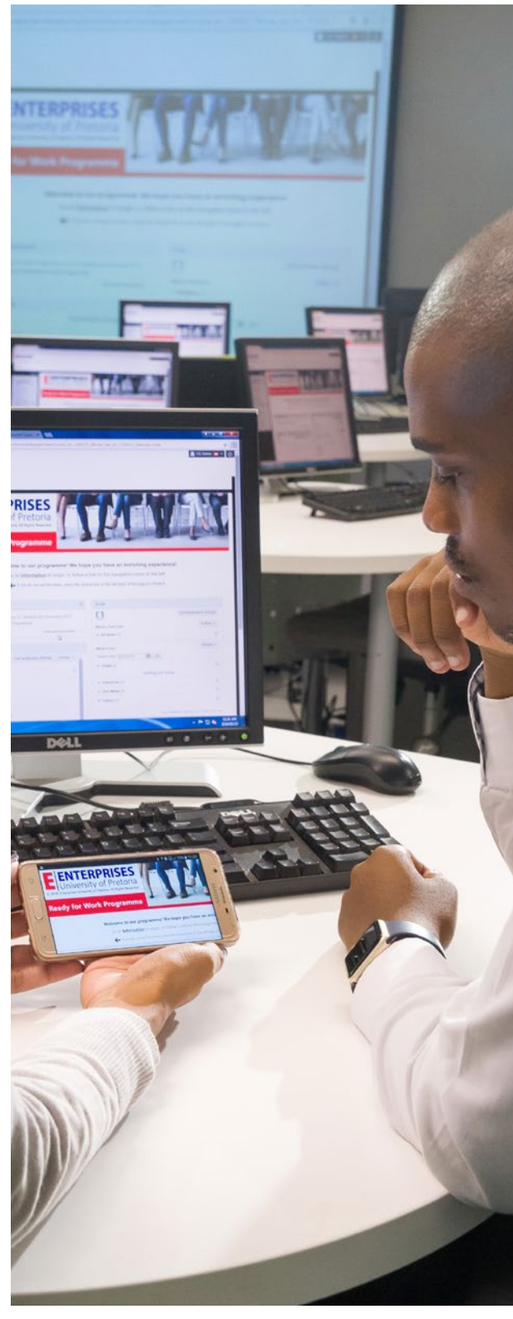
The National Credit Regulator (NCR) debt counsellor training

The National Credit Regulator's (NCR) responsibility includes the training of debt counsellors. The demand for such training is currently greater than the supply; therefore, an online solution was proposed and adopted by the NCR. Enterprises UP was the first provider in South Africa to develop and present the NCR Debt Counsellor Training online.

A self-paced learning approach was implemented and content processing took place at a pace set by the delegates, although proposed timelines were provided. All of the modules were designed to be completed without the presence of a facilitator and included comprehensive instructions and quizzes at the end of each module to gauge a delegate's progress and performance. Asynchronous correspondence allowed facilitators to address content-related questions.

The facilitators scheduled an optional face-to-face workshop, which delegates could attend if they needed clarification on complex concepts. The workshop also served as examination preparation.

This training solution was piloted in November 2017. In particular, it proved to be of great value to delegates who could not afford to be out of the office for extended periods.



Conclusion

Through planning and consultation, the teaching and learning portfolio achieved constructive alignment between the teaching and learning priorities for 2017 and the focus of the activities in faculties and support departments.

Curriculum transformation took centre stage.

The narratives show the emphasis on hybrid learning and its importance for student success while at university and then in the workplace.

The focus of innovation was on active student engagement for success and alternative methods of teaching and assessment.

In the best of cases, silos were broken down between faculties or between faculties working in what is considered a major 21st-century strategy – multidisciplinary teamwork.

A broad focus on community engagement saw students achieving learning outcomes at community sites of learning while community partners benefitted by the application of student knowledge and skills to solving problems. Community engagement and work-integrated learning contributed to the learning of soft skills and professional standards.

The free Ready for Work and Entrepreneurship professional online development programmes added a layer of preparedness for UP graduates, making them even more desirable as employees or employers/entrepreneurs.

What will our graduates emerge with? A set of graduate attributes that prepares them for the future in the workplace but also as entrepreneurs and life-long learners who are socially aware and responsible, who innovate, who solve problems using creative solutions and team work, and who are emerging leaders in their fields.

Graduates
13 734

91%
of students employed within 6 months of graduation

Acknowledgements

Editor
Prof Wendy Kilfoil
Director
Department for Education Innovation
University of Pretoria

Design of publication
Rita Dave
Graphic Designer
Department for Education Innovation
University of Pretoria

Photographs
Mariki Uitenweerde
Eyescapes

Project manager
Almero du Pisani
Head
Creative Studios & Communication Technology
Department for Education Innovation
University of Pretoria

Language editing
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ISBN 978-1-77592-167-7

University of Pretoria
Teaching and Learning Review 2017