

2004

TELEMATIC LEARNING &
EDUCATION INNOVATION
shaping the future

Annual Report

"Don't forget our
contact details!"

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Publication date: 1 July 2005



UNIVERSITY OF PRETORIA



Vision

To establish excellence in education at the University of Pretoria (UP).

Mission

The Department of Telematic Learning and Education Innovation (TLEI) takes the lead, facilitates and actively participates in actions aimed at education innovation, with a focus on establishing a flexible learning environment in order to address the educational needs of its clients.

Strategic objectives for 2003 to 2005

1. To occupy a leading position in terms of educational excellence (both within TLEI and UP). This means that TLEI should contribute to the improved effectiveness and efficiency of activities associated with curriculum development, assessment and facilitation of learning in faculties; that educational excellence is promoted in the policy documents of the University of Pretoria; and that senior decision-makers are influenced accordingly.
2. To occupy a leading position in South Africa in terms of the use of information and communication technology in education. This implies continuous adaptation and renewal in terms of e-learning systems, educational technology and new media.
3. To support undergraduate modules at UP by using appropriate information and communication technology. This includes other means of support using information and communication technology (for example, assessment, multimedia, administrative support, simulations, process models, etc).
4. To make taught postgraduate programmes available to students in the web environment.
5. To successfully apply appropriate e-learning systems in e-learning and m-learning environments integrating relevant communication and delivery technologies, such as Internet Protocol (IP) conference, video-streaming and synchronous web software.
6. To train UP staff in, inter alia, curriculum development, assessment, learning facilitation, e-learning facilitation and web-supported education.
7. To supply appropriate educational technology in meeting venues, together with sufficient maintenance and effective support.



8. To deliver quality support to off-campus students: tutor services, examination services and logistical services.
9. To align and optimise support infrastructures in order to enable faculties to lower student attrition rates and raise graduation rates, taking into account the circumstances in faculties and the maintenance of standards
10. To extend the strategic positioning of TLEI by optimising it as a Department, its services and strategic value. This includes communicating the impact TLEI has on the core business of the University.
11. To accomplish continued organisational and system development within TLEI. This includes internal quality assurance.
12. To create a work environment within which TLEI human resources can effectively deliver services, are able to excel and to develop on a personal level.
13. To further diversity within TLEI and reach diversity targets for 2006.
14. To support strategic international initiatives in terms of consultation and training in education innovation, paying specific attention to Africa.
15. To continually underpin and renew TLEI activities by targeted action research, keeping up with the latest international developments and tendencies.

Note: The above strategic objectives are being pursued in addition to the normal support service activities rendered by TLEI, such as educational consultation, instructional design, graphic, video and other related services.

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Content



The University of Pretoria is devoted to quality education achieved through continuous education innovation. The enhancement of student learning towards the creation of the innovation generation is a key strategic driver. The University has embraced the challenges and opportunities provided by rapid changes in technological and educational environments.



Some highlights of 2004

Changes in our environment and society inevitably lead to changes in our approaches to educational practice. Some of the factors influencing the continual renewal of educational practice are developments in information and communication technology (ICT), the commercialisation and globalisation of education, social changes and the pursuit of quality.

Like all innovative organisations, the University of Pretoria (UP) conducts ongoing research and development work with regard to its own processes and products. The Department of Telematic Learning and Education Innovation (TLEI) offers expertise and experience in the fields of innovative teaching and assessment practice, the optimal use of ICT in higher education, the provision of modern technology in classrooms and other learning spaces, as well as the integration of visual and audio stimuli in the didactic process, all of which enhance teaching and learning experiences. This annual reflection offers the opportunity to thank all staff members in TLEI sincerely for their creativity, hard work and commitment to pursuing the vision and mission of the department. Their efforts are appreciated by management and the clients they serve.

The University needs to maintain the momentum of these initiatives, to ensure that all aspects of education innovation are continuously addressed. Educational productivity should increase, which in turn demands that educational processes become more effective and efficient. There should be clear improvements in the throughput, retention, graduation and dropout rates of all student cohorts. The challenge is not only to invent, develop or identify better, cheaper and faster processes, but also to progress from being good to becoming great.

- The Department biennially presents Education Innovation Awards to individual lecturers or groups of lecturers within the University. These are staff members who have made innovative contributions in the areas of the facilitation of learning, curriculum development, assessment, management of the learning environment or the use of electronic media.
- A new framework for the evaluation of teaching quality was developed and submitted to academic management structures for discussion and approval. Seven generic teaching competencies were identified together with criteria formulated for the different appointment levels, as well as for outstanding achievers. For the first time at UP this framework will provide a foundation for the effective management and evaluation of teaching quality, based on a system of self-review and peer review.
- In order to prepare for future institutional audits by the Higher Education Quality Committee (HEQC), the Department embarked on a voluntary self-evaluation exercise in October 2004, in conjunction with the Academic Information Service (AIS). Internal task teams evaluated their activities, from which a comprehensive self-evaluation report was produced. The Department's level of service delivery was evaluated by two external experts, Prof Derek Law from the University of Strathclyde, Scotland and Prof Margaret Orr from the University of the Witwatersrand, Johannesburg. Their comprehensive report included commendations for areas of excellence and recommendations for improvement in other areas.

- Academic staff training was successfully conducted. Approximately 469 lecturers completed education induction and assessment courses, and 239 staff members attended courses on web-supported learning.
- Various initiatives were undertaken to enhance teaching quality at UP. Two such projects were the investigation of problems associated with teaching large classes and the improvement of the quality of study guides.
- The growth in the use of the learning management system (WebCT) continued. Web support was provided to 26 576 students in 1 601 modules across a variety of academic programmes. The student and lecturer portals were further upgraded during 2004.
- The continued growth caused concern that the current WebCT Campus Edition is not scalable to meet the needs of current or future growth. During the first half of 2004 a task team evaluated various options for further development and sustainability of the e-learning platform. It was recommended that the best solution would be to convert to the enterprise system WebCT Vista.
- M-learning (mobile learning) is a natural extension of e-learning and has the potential to make learning even more widely available and accessible than in existing e-learning environments. Good progress was made with regard to several m-learning pilot projects.
- The e-portfolio system will create a digital record of a learner's achievements. Substantial progress was made with this project during 2004. Integration testing is planned for May/June 2005 and the project will be rolled out across the entire campus in July 2005.
- Computer-supported assessment or testing increased during the year under review to 125 768 opportunities. In this way, the principle of continuous assessment of students is applied without drastically increasing the administrative and skills load that accompanies it.
- A task team investigated a variety of possible testing systems that could be purchased in order to replace the current computer-based testing system. No "off the shelf" system was available that met all the needs of users. A local company was tasked to develop a system according to UP's specifications. The first draft of the system was installed on the UP server in November 2004. Implementation is planned for the second semester of 2005.
- Seven multimedia projects were completed during 2004, including a substantial update to the CD-Rom for students who have a WebCT course.
- The Department participated in a project in collaboration with the AIS to eradicate plagiarism. The aim of the project is to sensitise academics to plagiarism and to make them aware of the extent of the problem. The team participated in the evaluation of software that can trace such offences.
- A number of action research and development projects were undertaken. In collaboration with other academic and support service role players, the student attrition project

- developed into a University-wide study success project. Other action research projects and activities during 2004 included student feedback from undergraduate and postgraduate students, redesigning and improving student feedback surveys and new educational media and technologies.
- Educational technology plays an important part in the University's strategy to educate the innovation generation. A number of initiatives were undertaken to promote and sustain the use of educational technology.
- A significant number (21 875) of students graduated from the partnership programmes with external providers. Support structures and services were introduced during 2004 to improve the success rate of pipeline students as far as possible.
- Off-campus student support was provided in a number of ways. Service points for interactive television broadcasts, video facilities, tests and examinations were provided. Off-campus examinations were arranged for 2 200 students.
- The University of Pretoria has been using interactive television (ITV) as a teaching support medium since 1994. A dedicated satellite channel (the TeleTuks satellite channel) was implemented in 1997 to provide ITV through digital satellite television (DSTV). Due to a number of factors, the University Executive decided to close the TeleTuks satellite channel at the end of 2004.
- The University has for several years been involved in upgrading the quality of teaching and learning in schools through the TeleTuks Schools Community Service Project. During 2004 school level subjects were broadcast to 89 schools with sponsored equipment. For business reasons, the TeleTuks Schools Project was phased out and closed down at the end of 2004. However, the University will continue with alternative projects aimed at the development of teachers and teaching quality in schools.
- In times of decreased funding and budget limitations, it is vitally important for a department such as TLEI to be able to produce evidence of the impact of its services on improved teaching and learning at the University. This is no easy task, since many of its services focus on change management, relationship building and ongoing support to academic staff, which is seldom measurable. A research project was initiated in 2004 to examine return on investment (ROI) from both a human and business performance perspective. Various models are being investigated.

Prof J A Boon
Director: Telematic Learning and Education Innovation
20 May 2005

education innovation

The University of Pretoria strives to be a leader in higher education that is recognised internationally for academic excellence.

Establishing education excellence at UP is the driving force behind the Department of Telematic Learning and Education Innovation (TLEI).

This is a significant challenge due to the fact that the education environment has been transformed by changes in the teaching and learning environment over the past few years, together with developments in the field of information and communication technology (ICT).

To encourage innovation, the University needs to create appropriate structures for new ideas to be debated, piloted and evaluated. For this reason, all faculties have instituted education innovation committees, developed education innovation plans and appointed education innovation managers.

The next step is to encourage innovative teaching and learning practices. This includes curriculum design, assessment and learning facilitation. An Education Innovation Workgroup, comprising the education innovation managers and education consultants, coordinates all the education innovation initiatives at the University. A University-wide education innovation plan was developed and accepted by Senate in May 2003. The plan focuses on the following strategies and categories: change management, research and development of higher education, education policy, throughput rates, performance management, lecturer support, incentives, training of lecturers, assistant lecturers and tutors, optimising e-learning environments and academic product development.

Presenting modules in flexible and/or e-learning mode is a logical development in order to enhance learning. A total of 1 601 modules



(847 undergraduate and 754 postgraduate) were supported by online components (WebCT). This number is increasing steadily.

New educational approaches

Universities are constantly being subjected to renewal because of:

- technological and social changes;
- new educational approaches;
- an increase in the importance of open and flexible learning;
- the digitisation of information and communication media;
- commercialisation and globalisation of higher education; and
- the pursuit of quality.

The focus is shifting from teaching and the transfer of knowledge, to learning and the facilitation of learning processes, supported by appropriate educational ICT. Learning communities will freely tap into dynamic global knowledge and participate in learning projects that focus on the development of skills, such as problem solving and the reconfiguration of knowledge instead of

the traditional mastering of subject content. The lecturer is the leader in the learning process: the coach, the mentor who creates stimulating learning environments within which learning can thrive.

Higher education should be flexible and UP has risen to this challenge of transformation. Its new educational approach is based on a technology-enhanced flexible learning (telematic education) paradigm. This approach takes international trends in education innovation into account, while addressing the needs of a developing southern Africa through appropriate technology-enhanced delivery systems.

E-learning is provided via the worldwide web (WWW) and through the appropriate integration of various information and communication technologies such as interactive multimedia, computer-based assessment, interactive television and video-conferencing and modern educational technology in classrooms.

Educational practice at UP is continually innovated through various projects and initiatives based on change management principles and aimed at a constant renewal of educational processes such as curriculum, the facilitation of learning and assessment practices. Specially designed training courses in assessment,

educational media (classroom tools for face-to-face teaching), facilitation of online learning, curriculum, web-supported teaching (using WebCT) and an education induction course for newly appointed academic staff, play a very important role in transforming teaching and learning practices.

The Department undertakes to implement its mission in a manner that takes into account the needs, knowledge, skills and attitudes of its clients, namely academic staff and students, as well as external clients and stakeholders.

The Department is committed to the delivery of services, products and systems that embrace the principles of:

- fitness for purpose;
- client satisfaction;
- cost effectiveness;
- defined standards;
- negotiated time frames; and
- continuous improvement of the Department's processes and functions.



Educational Consultancy supports the University's academic staff members (full-time and part-time) in their efforts to pursue excellence in all aspects of teaching and learning. Educational consultants work with individual staff members and departments to improve the quality of teaching and learning throughout the University.

Educational consultants perform a range of activities and services, including:

- the provision of a campus-wide consultation service addressing the needs of lecturers, departments and faculties within a flexible learning environment;
- the facilitation of academic programme development aimed at establishing international competitiveness;
- the facilitation of the development of quality teaching practices by lecturers, departments and faculties; and
- the evaluation of teaching practices, learning materials and documentation at the request of lecturers in an effort to promote educational quality.

The educational research activities include:

- researching best practices that inform the cutting edge of international teaching trends;
- disseminating relevant information with respect to flexible learning opportunities; and
- conducting applied research associated with specific education projects.

Training involves:

- developing and implementing relevant training programmes to enable academics to create and maintain a flexible learning environment for students;
- promoting academic development (curriculum development, teaching and learning development);
- presenting education induction programmes for newly appointed lecturers and junior academic staff members;
- assisting in the training of tutors and teaching assistants in faculties;
- presenting an assessment training programme for lecturers; and
- conducting various faculty-specific training opportunities.

Education Innovation Awards

The University of Pretoria promotes teaching quality and values teaching performance. Exceptional educational achievements are recognised by annually awarding two prestigious Chancellor Awards for Excellence in Teaching.



The Department biennially presents Education Innovation Awards to individual lecturers or groups of lecturers within the University. Staff who contribute to education innovation through innovative teaching products and/or processes are recognised in one of the following areas: the facilitation of learning, curriculum development, assessment, management of the learning environment or the use of electronic media. Laureate Awards for exceptional contributions were presented to Prof Ernie Heath (Tourism Management), Mr Felix le Roux (Construction Economics), Prof Wilhelm Leuschner and Prof Johan Hanekom (Electrical, Electronic and Computer Engineering) and Prof Ina Treadwell (Skills Laboratory). Sixteen nominees received certificates and fourteen received recognition for education innovation (see list on p25).

Education induction programme

The Department presents regular education induction programmes to newly appointed permanent lecturers. The programme introduces participants to the theory and skills relating to teaching responsibilities in higher education. The programme is aligned with the National Standards for Higher Education. It was presented three times during 2004 and was attended by 103 lecturers.

Training of junior staff members

Educational consultants provide training and support within faculties to prepare junior staff for their responsibilities as learning facilitators. During 2004, 158 junior lecturers and tutors from a variety of faculties attended customised training sessions.

Assessment workshops

The overall principles of assessment and the role of assessment in establishing deep learning and higher order thinking are examined during campus-wide training workshops in assessment practice. The programme is developed according to the framework laid down by the South African Qualifications Authority (SAQA) for accreditation purposes. Two assessment workshops were presented during 2004, which reached 35 academics.

Faculty-specific highlights

Health Sciences: In the School of Medicine an ongoing block-by-block audit was undertaken to evaluate the assessment practice in each block of the five-and-a-half year curriculum. For each block a survey of the assessment practice was undertaken and described. A report was written highlighting the strengths and weaknesses and recommendations were made for improvements. During 2004 four blocks and a special activity block were audited. In the School of Dentistry a Quality Assurance Committee was formed to undertake a thorough audit of the BChD curriculum against the accreditation criteria of the Health Professions Council of South Africa (HPCSA), in preparation for the HPCSA's accreditation visit in 2006.

Veterinary Science: The tutor training programme was revised and presented early in the year. Training sessions for staff were presented at Onderstepoort during the course of the year. Ongoing support was provided for lecturers preparing study guides, especially for postgraduate courses in the e-learning environment.

Law: The Faculty of Law underwent an external evaluation during 2004. This evaluation included the Faculty's teaching and assessment practice, for which thorough preparation and development was undertaken with the support of the TLEI education consultant.

Humanities: The Faculty of Humanities arranged an education innovation get-together early in 2004 during which Dr Amanda du Preez (Department of Visual Arts) and Dr Marius Oosthuizen (Department of Restorative Dentistry) made presentations on their innovative practice. Thirty staff members attended. An education innovation morning was held later in the year, during which several lecturers presented innovative practice to the 51 faculty members who attended. This event inspired lecturers to share ideas. A joint venture by the Faculty and TLEI made it possible for Ms Tara Turkington, a lecturer in the Department of Journalism at the Durban Institute of Technology, to visit and share her experience of facilitating learning by means of an online newspaper. Thirty-five delegates attended this presentation. In 2004 the Faculty embarked on two major research projects: an investigation into the feasibility of 14-week modules and an evaluation of the current tutor system.

Engineering, Built Environment and Information Technology: In early 2004, the heads of all departments decided to make the use of WebCT obligatory for all

undergraduate modules in the Faculty. The University was identified as the southern African representative of the Conceive-Design-Implement-Operate (CDIO) initiative, which seeks to reform engineering education. CDIO describes the product or system lifecycle for which professional engineers have responsibility. A number of leading engineering schools are collaborating in this initiative, including the Massachusetts Institute of Technology (MIT) in the USA and the Chalmers University of Technology in Sweden. The Engineering Council of South Africa (ECSA) has a similar approach and therefore only minor adjustments will be needed to embrace the CDIO initiative.

Education: The Faculty of Education focused on writing an assessment policy during 2004. Another major initiative was the compilation of assessment tools for evaluating students' teaching practice. There was noticeable growth in the number of lecturers embarking on the use of WebCT to support their academic modules.

Economic and Management Sciences: Three school education innovation managers (SEIMs) were appointed. Some progress was made towards the synergy needed in order to justify these positions due to the teaching and research obligations of the incumbents. There were various requests to coach teaching staff with low student ratings. Student feedback is but one instrument in the evaluation of teaching staff and such requests were handled with the necessary sensitivity. A direct result of this approach was to actively investigate possibilities for mentorship and mentoring to provide junior teaching staff with the necessary scaffolding and psychosocial support. It cannot be assumed that senior staff would be natural mentors to novice teachers/researchers or to junior staff, and therefore ways of improving this approach are being investigated.

Natural and Agricultural Sciences: TLEI participated in the process of welcoming and orienting staff from the Mamelodi Campus. Lecturers attended a briefing session at TLEI on the teaching model followed at the UP main campus. Some of these lecturers attended the induction programme presented by TLEI for newly appointed lecturers. Additional support was provided to Mamelodi staff in writing study guides in the appropriate format and in the practice of instructional design. Practicals within Animal Anatomy and Physiology (Animal and Wildlife Sciences) were revised to accommodate large groups. Dissections were videotaped and projected during the sessions, providing an opportunity for each student to observe the procedures closely. The video material will be used for future learning and assessment initiatives.

Theology: Dr Christo Lombaard was instrumental in ensuring that all Theology modules now have WebCT representation. During 2004 Prof Gert Steyn and Prof Yolanda Dreyer contributed positively to the education induction programme for newly appointed lecturers. The ongoing improvement of study guides is of utmost importance in the Faculty, since they are central to good facilitation and learning practice. Sample study guides were positively evaluated by experts in the field.

e-education

The core focus of e-education is the skillful and appropriate integration of various information and communication technologies, including the worldwide web (WWW), interactive multimedia delivered on CD-Rom and computer-assisted assessment.



Instructional design

The Department of Telematic Learning and Education Innovation (TLEI) follows a team approach to instructional design. Together with the Department's educational consultants and academic staff members in the faculties, the instructional designers decide on the combination of instructional methodologies to be used within the flexible learning model. Once a project has been approved, a team is constituted, which is made up of a project leader (normally the programme coordinator), project manager, lecturer (subject matter expert), instructional designer, educational consultant, information specialist, graphic designer and other media experts. The instructional designer then designs, develops and delivers a range of learning materials, utilising the most effective media and technologies for the specific learning purpose.

Web-supported learning

Online learning via the Internet is one of the delivery modes used, where appropriate, in a flexible learning model. Traditional face-to-face classroom sessions are combined with online interaction, communication, learning facilitation and assessment activities. The philosophy is to use the Internet to optimise and support student learning.

The University implemented the Learning Management System WebCT in 1998 and continues to promote its support and expansion. During 2004 a task team evaluated the future growth prospects and sustainability of WebCT Campus Edition and recommended to the University Executive that the system be replaced by WebCT Vista.

Multimedia

Within the UP context, multimedia refers to the use of many different media (sound, graphics and animation, for example) within one programme to achieve a specific outcome. Such a programme is traditionally designed as a stand-alone programme distributed to students on CD-Rom. The content is usually a specific topic within a course or module and the multimedia product supplements and complements other modes of teaching.

The E-education team is experienced in developing different types of multimedia, including tutorials, simulations, case studies and collections of resources (usually visual). The aim is to make each programme as interactive as possible and to engage the user in active learning.

Seven multimedia projects were completed during 2004, including a substantial update to the CD-Rom for students who have a WebCT course. The design team continues to work on 22 large multimedia projects that are in development. After three years of intense development, TLEI completed one large multimedia project, developed in collaboration with Prof Margaretha Viljoen of the Department of Physiology. The unique features of this project include substantial use of animation to explain difficult concepts in Psycho-neuro-immunology. There are 47 animations in total, which are anything from one to five minutes in length. There is considerable interest in this interactive programme from other departments in the University.

The multimedia CD-Roms are increasingly being marketed and sold to other universities and groups, both nationally and internationally. The team approach with a wide diversity of specialists has made it possible to develop award-winning multimedia of a high standard.

E-testing

The University of Pretoria implemented e-testing during 1993. Since then e-testing has become an integral part of the assessment strategies of many academic departments. Well-equipped computer laboratories are available on the main campus, the Prinshof Campus (Health Sciences), Onderstepoort (Veterinary Science) and the Groenkloof Campus (Education).

During 2004 there was a slight increase in the number of computer-based tests presented in the computer laboratories on the different campuses. A total of 125 768 tests were presented and 56 departments were involved: 56 418 tests were presented on the main campus (Informatorium), 53 374 in the IT labs, 13 769 on the Prinshof Campus and 2 207 at Onderstepoort.

Lecturers incorporate e-testing as part of their assessment strategy because it saves marking time, while allowing large groups of students to be tested regularly. Marks are available as soon as the student completes the test and lecturers receive statistics on the questions to assist them in revising their tests regularly and improving the quality of assessment. The students are positive about this method of assessment, mainly because they receive the results and feedback immediately and because marking is objective.

Quality Management System (QMS)

The formal Quality Management System (QMS) for practitioners in TLEI was redesigned and updated. Procedures were reviewed and supporting documents were expanded, for example, a service level agreement for multimedia development was drafted. The system was registered with the European Quality Observatory (EQO), which is an online database of metadata relating to quality approaches in e-learning. This enhanced the generalisability and visibility of the TLEI system. During November 2004 TLEI was invited to present the system and its methodology to the South African Universities Vice-Chancellors Association (SAUVCA) Quality Managers Forum.

Staff training in WebCT

The Department presents various staff training programmes to equip lecturers to manage and facilitate courses in the online environment. All the courses are University of Pretoria priority courses, which implies that there is no cost to academic departments. The WebCT (Basic) High Impact Course is a one-day course offered ten times a year. Lecturers use the basic tools in WebCT and consider the basic principles of learning model design and online facilitation. The WebCT Intermediate Course is a one-day course offered five times a year, and the two-day advanced WebCT Designer Course is offered twice a year. The latter equips lecturers to become WebCT designers and so to assume full responsibility for the entire design and development exercise.

The Facilitation of E-learning Course is an introductory course on the planning and facilitation of e-learning and was developed towards the end of 2003, for rollout in 2004. The course is based on an experiential learning approach and has both online and face-to-face components. In this way, lecturers experience what it is like to be a student in the online environment. Participants have ample opportunity to practise the skills they need to facilitate learning online, share ideas with colleagues and develop their own preliminary plans for courses they plan to facilitate via the web.

In 2004 a total of 168 lecturers across all faculties attended the WebCT courses and 37 participated in the facilitation of e-learning course. Feedback from the participants was used to improve both content and delivery of the courses.

Student training in online learning

Student training and orientation is necessary to enable students to take full advantage of the online learning management platform. The Department offers two-hour student training sessions in WebCT, in which the new role of the online student is discussed and hands-on practice in accessing and using online courses is facilitated. The training is customised to focus on specific tools used in each online course. An innovation in 2004 was the design of a poster reflecting the parallel universes of the physical campus and the virtual campus. The poster is used in training sessions to assist students in understanding their virtual univers(ity). Further support for students is provided in the form of a student CD-Rom, which is distributed and sponsored by the Brainbooks bookstore on the main campus.

Client feedback

Quality management philosophy includes continuous improvement of processes and products, as well as measuring client satisfaction. During early 2004 a pilot project interviewed a small sample of lecturers who are regular WebCT users, to ascertain their levels of satisfaction with the medium and the service provided. Student satisfaction was measured at the end of each semester by means of the online WebCT experience survey.

At the end of 2004, 321 students completed the WebCT survey. A fairly high proportion of respondents (59%) have their own computer at home, but 50% of students find it difficult to access a computer on campus when they need one, in spite of the expansion of computer laboratories. Forty-five percent of students have difficulty or can never find a printer on campus when they need one (this statistic decreased favourably from 73% in 2003). Eighty-seven percent of respondents found the opportunities for 'anywhere, anytime' learning on the web to be convenient.

The feedback from the surveys indicates that students generally welcome the web-supported environment. They request more courses to be supported online and that lecturers should make better use of the functionality of the system.

educational technology

Services at satellite campuses

The Department provides core services on a decentralised basis to the satellite campuses. There is a team of 13 TLEI personnel at the Prinshof Campus (Health Sciences) and four staff members at Onderstepoort (Veterinary Science). Some support, currently limited to educational technology services, is also provided on the Groenkloof (Education) and Mamelodi campuses.

There are two outcomes of this decentralisation. Firstly, there is greater awareness of the services provided by TLEI, accompanied by a steady increase in requests for various services not previously utilised by staff on the satellite campuses. Secondly, lecturers appreciate not having to travel to the main campus in order to access services.

Project Office

A project management methodology is used to manage and direct the development services of E-education. A dedicated Project Office supports these project management processes. The Project Office is primarily responsible for all correspondence related to projects, the maintenance of the management information system and the electronic backup of all courseware.

Management reports are distributed to project leaders, deans of faculties and the University Executive, but any staff member interested in obtaining information about a specific project may approach the Project Office for a report. Information obtained from this system enables E-education to conduct strategic planning for the continued use of technology at UP.

During 2004 the processes within the Project Office were streamlined and re-aligned in conjunction with the E-support Office planned for 2005. The latter will provide technical support with respect to e-learning for lecturers and students, via a one-stop e-mail address.

Graphics, video and photography

The graphics, video and photography sections continue to provide specialised services to all the departments of the University. Thanks to the spectrum of technological options that are becoming available and also more affordable, visual and audio stimuli can be utilised in the didactic process to enhance learning. The Department's creative experts assist in capturing concepts in audio and/or visual forms, which range from watermark images and animations to voice-overs and other forms of sensory stimuli.

Graphic services include the design of pamphlets, brochures, advertisements, exhibition material, electronic presentations, posters, transparencies and slide shows, as well as the layout of reports and publications. Assistance with the provision of graphics for web sites, presentations, animations and course material, as well as the production of graphics for multimedia and WebCT courses is provided. In 2004 a poster that was designed and produced by staff of the Graphic Department, in conjunction with the subject expert, was selected as the winner at an international conference.

Photographs are used for instructional, research and promotional purposes and range from photographs of scientific equipment and specimens to portraiture. Digital photography is also done, which is used for both web and multimedia programmes. Key services offered include studio and location photography, copying of artwork, illustrations for books, duplication of slides, computer-generated slides, macro photography, stereo microscope photography, scanning of slides and photographs (digitising) and writing them to CD, manipulation and restoration of photographs, film processing (slides, colour and black-and-white negatives) and the production of photo-quality A4 and A3 prints on various grades and weights of paper. The formats include 35mm and 120 slides and negatives, in colour and black-and-white and digital images (Nikon D1) at 300dpi in *.tiff or *.jpg format.

Audio-visual services include video production, tape duplication services and the conversion of video to electronic format (MPEG), as well as the provision of sound recording and editing services. Services involved in a typical video production include script writing, filming, editing (video and audio) and duplicating the final product. Typical examples of where these services might be needed include promotional videos (product or service), information videos, educational videos and the filming of events.

Tape duplication services include making multiple VHS copies from VHS, DV, DVCam, Betamax, Video8, Hi-8, Betacam and U-matic, as well as conversions from NTSC VHS to PAL VHS and from PAL to NTSC. Multiple copies from audio cassettes are also made. Conversions of video to MPEG include the digitisation of video footage for use in multimedia programmes, PowerPoint presentations and for the web.

Sound recording and editing services cover general sound recording, voice recording, the recording of audio onto CD, transferring LP records onto CD and the writing of all recordings to CD.

Advances in technology make it possible to include increasingly sophisticated multimedia (video, sound, animation, digital photographs, complex graphic images) in learning material provided to students. This promotes visual literacy and enhances the learning experience.

To enable the University to provide education for the innovation generation and to make the University of Pretoria the university of choice, educational technology on all the campuses of the University should be of the highest standard and always in proper working condition.



To achieve this, the following initiatives were undertaken in 2004:

- ☞ A number of lecture halls were upgraded and equipped with fixed data projecting facilities. State of the art audio-visual and control systems were installed in the new Law Building for use from January 2005. A total of 125 lecture halls are equipped with fixed mounted data projectors (35 new installations during 2004). The total number of portable data projectors made available to departments is 223 (65 during 2004).
- ☞ The Educational Technology One Stop Service that was introduced during the last quarter of 2003 is fully operational and lecturers are able to request assistance or report technology that does not work properly via telephone or e-mail.
- ☞ Videoconferencing facilities were provided for 32 hours and 145 hours of academic course material were broadcast live via satellite to students. Studio productions amounted to 61 hours.
- ☞ Research and development in the field of educational technology and communication technologies is essential for education innovation and effective teaching and learning in the new knowledge economy. The new research and development function in the Educational Technology Division piloted its first projects in 2004:

- ☞ an electronic loan service and asset control system with bar code scanning (final stage of completion);
- ☞ a pocket PC experiment; and
- ☞ an Interwrite Schoolpad experiment for wireless audiovisual presentations.

The m-learning (mobile learning) project is described under *New initiatives in 2004*. New projects envisaged for 2005 are, amongst others, desktop videoconferencing, broadband wireless communication, voice over internet protocol (VoIP) and netmeeting/internet messaging.

The University of Pretoria began using interactive television (ITV) as a teaching support medium in 1994. A dedicated satellite channel was implemented in 1997 to provide ITV through digital satellite television (DSTV). This was called the TeleTuks satellite channel. Due to a number of factors, including the high cost of more than R2.8 million per annum, the low frequency of use by academic departments (only two departments in 2003/4) and the University's budget constraints because of the new State funding framework, the University Executive decided to close the TeleTuks satellite channel at the end of 2004.

off-campus support & partnerships

The University of Pretoria has established service points to provide access to information, administrative services, tests and examination opportunities for off-campus students.



UP service points

The Department does not have any established regional learning centres in the true sense of the word, but it manages UP service points in Pretoria, Witbank, Nelspruit, Polokwane, Mmabatho and Rustenburg. The following services are provided:

- ☞ administrative support (enquiries, applications, courier services, photocopies, e-mail, fax, etc) with a facilitator on site;
- ☞ tests and examinations;
- ☞ video viewing facilities; and
- ☞ occasional tutorials on request.

Venues are hired from higher education institutions such as Unisa, the Tshwane University of Technology (TUT) and some of the Further Education and Training Colleges.

Off-campus examinations

Postgraduate students are not all able to be on campus as full-time students and an increasing number apply to write examinations nearer to their home and workplace. In the light of closer partnerships between tertiary institutions, off-campus examination logistics have become a collaborative enterprise between UP, TUT and Unisa. The MEM, MPM, MBA, BCom (Aviation) and MCom (Taxation) programmes, programmes of the Centre for Augmentative and Alternative Communication (CAAC) and the departments of Social Work, Nursing, African Languages and Afrikaans, make use of the off-campus examination infrastructure.

Decentralised off-campus examinations (both national and international) increased as shown in the table:

2000	2002	2003	2004
798	1 274	2 191	2 317

Discontinuation of partnerships with external providers

The teach-out agreements were managed in such a way that all the students of the University that had enrolled during the partnership period were provided with sufficient learning opportunities and services to complete their studies successfully by 31 December 2005. Additional support structures and services were introduced during 2003 and 2004 to improve the success rate of pipeline students as far as possible. A significant number (21 875) of students graduated from these partnership programmes up to December 2004.

community, service

The University has for several years been involved in upgrading the quality of teaching and learning in schools through the TeleTuks School Project.



The TeleTuks Schools Project broadcasts school level subjects on weekday afternoons to 89 schools (with sponsored equipment) in Mpumalanga, Limpopo, Northwest and Gauteng. The average daily attendance at these schools for the broadcasts was approximately 2 300. Week-long winter and spring schools were also broadcast during June and September. All schools in southern Africa that are equipped with a satellite dish and decoder could receive the broadcasts.

Appropriate information, supplemented by information literacy programmes, contributed to the success of students. The national average matric pass rate since the introduction of the TeleTuks ITV programmes to schools improved as shown in the table:

2000	2001	2002	2003
51%	62%	67%	68%

There were two major reasons why the TeleTuks Schools Project was phased out and closed down at the end of 2004. The first was that other private providers of broadcasts and materials to schools,

like Mindset and Liberty Life, were overwhelming the market. Mindset, for example, had more than 750 schools in their broadcast programmes by mid-2004. The amount of resources and funding that Mindset has at its disposal makes it the preferred supplier. The second reason was that the TeleTuks Schools Project was dependent on the TeleTuks satellite channel, which was phased out at the end of 2004.

As part of its community service programme, the University will continue with alternative projects aimed at the development of teachers and teaching quality in schools. The Faculty of Education is investigating a joint project, in collaboration with Mindset, for the in-service training and development of teachers regarding the use of educational media and video materials to enhance classroom teaching.

action research

The importance of research and development in higher education is evident. Changes in the higher education environment, combined with the fact that education innovation needs to be based on educational research, have emphasised this need.



Since the establishment of the Department, the staff members of Telematic Learning and Education Innovation (TLEI) have become increasingly involved in education-related research projects of a diverse nature. The Unit for Action Research and Development has the following responsibilities:

- Task-specific research within TLEI: internal activities that typically form part of this focus include identifying, prioritising and coordinating focal research areas relevant to TLEI; promoting, supporting, facilitating and coordinating research projects in TLEI; and taking responsibility for special research projects on behalf of TLEI.
- Proactive and reactive University-wide action research aimed at the promotion of quality educational processes and products.

Intra-departmental coordination of research activities

Action Research and Development has become a household activity in TLEI. Several projects are registered and active. These projects are either directed towards the enhancement of TLEI-related support functions, processes and products, or aimed at broader institutional development.

Study success

The year under review was characterised by an evolving awareness of the strategic importance of study success (student attrition, retention and throughput rates), with particular reference to undergraduate education. This was amplified by changes in the State subsidy formula for the financing of higher education. A number of projects that were originally initiated as stand-alone action research projects gradually converged to form key elements of a coherent strategic plan to address study success in respect of the University's primary client: its students. This led to strategic collaboration between TLEI and other key roleplayers such as the Bureau for Institutional Research and Planning (BIRAP), the Department of Management Services, the Client Service Centre (CSC) and Student Support Services. Research in several TLEI focus areas benefited from this collaboration.

Study success profiles were developed for each faculty and a number of consistent trends were identified. These profiles were segmented according to school, department and programme,

and included analyses at module level. The identification of risk modules (those with a significantly higher attrition and lower pass rates) led to some in-depth qualitative action research in the respective faculties in an attempt to identify potential reasons for these trends. In a number of faculties more context-specific research, based on these profiles, was initiated. This included semester versus module studies in the Faculty of Humanities and a comparison between different norms for student selection in the School of Dentistry.

The study success research was presented at an international higher education conference (*Improving University Teaching*, in Berne, Switzerland). The research was also brought to the attention of the Committee of Vice-Principals. A high-level task group was subsequently commissioned to develop a study success strategy for the University as a whole during 2005.

Towards an assessment policy

A literature research project on assessment policies in higher education institutions was completed during the year under review. The research benchmarked best practices included in institution-wide assessment policies in leading international higher education institutions. A framework was completed within which such a policy could be developed for the University.

Student feedback on the quality of education

The framework for the evaluation of teaching quality that was developed in 2003 was expanded with the completion of a student feedback evaluation mechanism to enhance the quality of teaching presented at the University. Research focused on two areas:

- (undergraduate education in the contact scenario); and
- the development of feedback mechanisms on the quality of practical training.

The second phase of the evaluation of the performance of the current student feedback questionnaire was completed in 2004. The results of the research conducted in 2003, in which a factor analysis of a stratified sample of student responses was completed, led to the adaptation of the questionnaire. New questionnaire items were designed to replace those that had been identified as inadequate. The 54-item instrument that evolved from this stage, was subjected to an innovative two-way translation exercise to ensure that the instrument was interpreted in an equivalent manner by both English and Afrikaans speaking students. The relative importance of each item in measuring teaching quality was then determined through a stratified sample of English and Afrikaans speaking students, as well as the Education Innovation Committee (based on the principle of a 'Circle of Wise People', representing lecturers). These inputs were superimposed and educational specialists revised the items and excluded certain items based on their educational contribution. The result was a 30-item instrument. This research project will be completed in 2005, following a repeat factor analysis of the shorter version of the instrument.

With respect to optimising and gaining feedback on the quality of practical training in relevant faculties, various initiatives enjoyed small but significant success during 2004. The context-specific nature of practical work in different disciplines prompted a shift from the design of a generic feedback instrument towards context-specific instruments in order to elicit useful feedback. The Department of Communication Pathology developed a feedback instrument and reconsidered its current practical programme during a workshop held on Spring Day in 2004. The scene was set in a number of other schools and departments to address this issue during 2005.

international collaboration

International competitiveness is one of the University's important strategic drivers. Interaction and collaboration at international level is therefore strongly encouraged. In this respect, the Department of Telematic Learning and Education Innovation (TLEI) is involved in a number of projects aimed at providing technical and educational support to the international academic community.



Imperial College, London

A scholarship programme and partnership development project is in place between the Imperial College London (UK) Distance Learning Programme (ICL-DLP), Wye Campus and the Department of Agricultural Economics, Extension and Rural Development (AEERD), University of Pretoria.

In December 2002, ICL-DLP signed an agreement with the Commonwealth Scholarship Commission (CSC) to provide Commonwealth scholarships by distance learning to eligible students. The agreement was based on a proposal submitted to the CSC by ICL-DLP in January 2002. In terms of the agreement, students from Commonwealth countries within the Southern Africa Development Community (SADC) were invited to apply for full scholarships to study an MSc offered by distance learning. The proposal also included partnership development arrangements with UP to provide local support to the scholarship programme.

Before the completion of the agreement in 2002, the project team carried out various informal and formal activities to put systems in place that would enable Commonwealth students from SADC countries to be recruited for the scholarships.

During the first year (2002) ICL-DLP, in collaboration with AEERD and TLEI, completed the marketing for the distance learning scholarships, as well as the administrative process of processing applications and selecting students. A large number of applications were received and reviewed. The CSC met in December 2002 and 23 scholarships were awarded. An online portal was designed and developed using open source software.

A pilot project was launched to evaluate the possible implementation of synchronous software to support communication between project team members and to extend the use of the portal. Synchronous software supports international collaboration towards furthering the CSC's aims of funding scholarships and developing strong international partnerships.

In order to sustain partnership development, the partners drew up a vision and mission statement and a strategy document in 2003. The document outlines how activities of the partners need to be resourced and scheduled for future collaboration. The partners envisage an accessible and truly international joint-study programme that reflects cultural diversity, builds capacity and enables students to learn and apply knowledge in their

workplace in order to address and solve development problems. Further scholarship support was received from the Commonwealth Scholarship Commission in 2003 and 2004, resulting in a further 50 scholarship students from the SADC region who would commence their studies in the 2004 and 2005 academic years.

In August 2004 staff members and learning technologists from both ICL-DLP and UP AEERD met for a three-day workshop in Pretoria to discuss further collaborative activities. This workshop identified possibilities for the joint development of a range of materials of potential benefit to both institutions and their students. During the workshop, scope was identified for expanding collaboration activities to include UP's Centre for Environmental Studies. The workshop consisted of presentations, discussions and working meetings, which involved different participants, depending on the subject of each session. For a few days prior to and following the workshop, members of ICL-DLP's learning technology team and UP's TLEI team worked together on further development of the beta version of the technology platform.

In early 2005 a fourth proposal will be submitted to the CSC for further scholarship awards and partnership support.

University of Bergen, Norway

The goal of the Norwegian Council for Higher Education's Programme for Development Research and Education (NUFU) is to further competence in research and higher education in developing countries. The University of Bergen, Norway, involved six universities in southern Africa in this project: the University of Namibia, the University of Botswana, the University of Zimbabwe, the University of Zululand, *Universidade Pedagógica* (Maputo, Mozambique) and the University of Pretoria (Faculty of Education and TLEI).

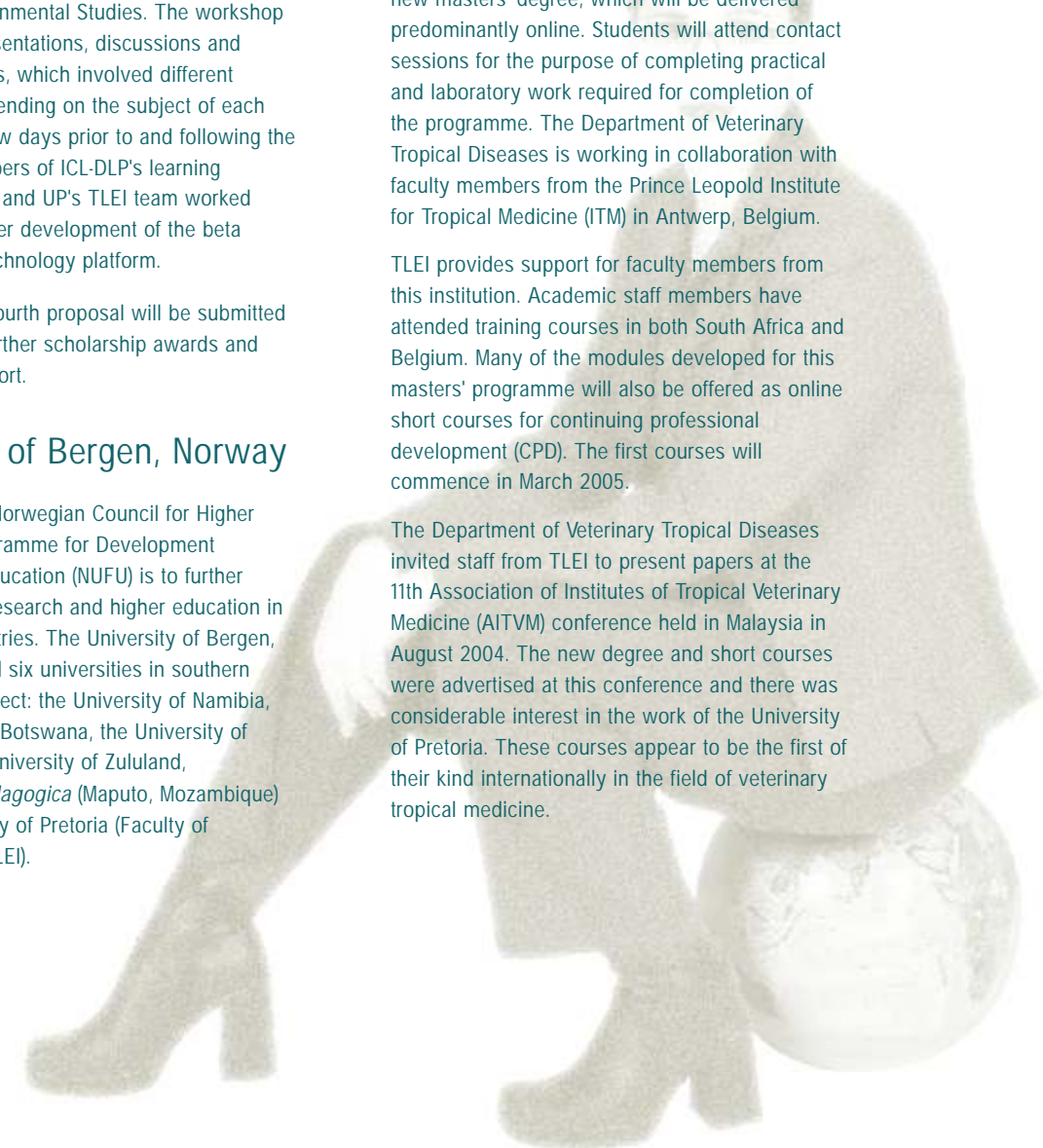
The aim of this project is to provide a discussion platform where doctoral students from the abovementioned universities can share ideas on their studies. By using the LUVIT learning management system, students can communicate with one another and, through cooperative learning, improve the quality of their studies.

Prince Leopold Institute for Tropical Medicine, Antwerp, Belgium

The Department has been involved in supporting the Department of Veterinary Tropical Diseases (Faculty of Veterinary Science) in developing a new masters' degree, which will be delivered predominantly online. Students will attend contact sessions for the purpose of completing practical and laboratory work required for completion of the programme. The Department of Veterinary Tropical Diseases is working in collaboration with faculty members from the Prince Leopold Institute for Tropical Medicine (ITM) in Antwerp, Belgium.

TLEI provides support for faculty members from this institution. Academic staff members have attended training courses in both South Africa and Belgium. Many of the modules developed for this masters' programme will also be offered as online short courses for continuing professional development (CPD). The first courses will commence in March 2005.

The Department of Veterinary Tropical Diseases invited staff from TLEI to present papers at the 11th Association of Institutes of Tropical Veterinary Medicine (AITVM) conference held in Malaysia in August 2004. The new degree and short courses were advertised at this conference and there was considerable interest in the work of the University of Pretoria. These courses appear to be the first of their kind internationally in the field of veterinary tropical medicine.



new initiatives in 2004

A number of new initiatives were launched within the various units of the Department of Telematic Learning and Innovation (TLEI) during 2004, which will contribute to promoting excellence in education at the University of Pretoria.



Education Innovation

Teaching large classes

Increasing class sizes in faculties and the resultant unmanageable lecturer:student ratios (second and third year classes of 700 to 900 in size) have led to much frustration and possible declines in quality in such teaching, learning and assessment situations. This project examines the teaching of large classes and the various techniques associated with it. One such technique, pioneered by Dr Richard Felder at the University of North Carolina in the USA, is that of active learning. His well documented and researched approach led TLEI to engage in a useful one hour video conference late in 2004. This was attended by 35 academic staff from five faculties.

Research writing

Various requests were received to facilitate research writing and support was given to postgraduate students as well as to research supervisors. It is expected that the need to support research writing will continue to grow.

Study guides

The quality of study guides is currently a strong focus and good progress was made with this project during 2004. This initiative will continue to be of high importance in the near future and guidelines will be developed further.

Students with special needs

A network of stakeholders was established with interests regarding students with special needs. These students and their lecturers need specialised support. This network includes role players from TLEI that are putting measures in place to support teaching staff to accommodate these students' special requirements in the teaching and learning environment.

Improving teaching and learning

The Department hosted a seminar in September 2004 on the topic Improving Teaching and Learning in the UK and SA. Delegates responded positively and left with insight into developments in the United Kingdom and a better understanding of strategies to improve teaching and learning in general. In addition, the Department collaborated with the Quality Unit at UP in developing educational criteria for the evaluation of academic modules.

Diversity

The Department initiated a Diversity Committee grounded on the principles of an inclusive community. Needs analyses were conducted.

This inclusive community project will be launched in 2005. A representative from UP's Employment Equity Office joined the founding committee. This project has much potential to assist faculties as well as TLEI in the way forward.

E-learning

E-learning systems training for support staff

One of the aims of TLEI is to support teaching at UP by means of information and communication technology. During April and May 2004, the role of academic support staff in academic departments was investigated. The focus was on the extent to which existing e-learning systems (Lecturers Online, Students Online and WebCT) are used by support staff to improve the effectiveness and efficiency of their student support activities.

Interviews were conducted with the support staff of two departments in the Faculty of Economic and Management Sciences. Processes were identified that could be improved by using the existing e-learning systems, while saving time and costs.

The need for an e-learning systems training course for academic support staff became evident. A curriculum was developed to cover all aspects of administrative functions in e-learning systems. This course is a UP priority course.

Collaboration with the Academic Information Service (AIS)

Several projects were undertaken in collaboration with the Academic Information Service (AIS) during the year under review:

- ☞ The project to eradicate plagiarism is aimed at sensitising academics to plagiarism and making them aware of the extent of the problem. The team participated in the evaluation of software that can trace such offences. Upon evaluation, it was decided to

recommend the web-based Turnitin software. Turnitin was tested within the University of Pretoria and met the necessary requirements, as laid down by the working group. The software is already being used in the School for Information Technology. Faculties are encouraged to budget for this software and to purchase the necessary licences.

- ☞ The AIS and TLEI took the initiative to establish and manage an institutional repository on behalf of the University. The project team took a number of decisions, specifically with regard to the identification of digital objects, meta-data standards, digitising standards, focus areas and suitable software.

E-portfolio

The e-portfolio system being developed will create a digital record of the learner's achievements. Substantial progress was made with regard to this project during 2004. The project (and system) was finally named the Electronic Student Academic Portfolio, known and referred to as eSAP. Development was outsourced to a private company. The entire project is being managed by the Department of Information Technology. TLEI and the Skills Laboratory, as representative of the Faculty of Health Sciences, have also been heavily involved. The project development has been divided into three phases. Phase 1 includes creating comments for use during assessment, development and use of rubrics, creating and using groups, setting up assignments (this function has many sub-functions) and the assessment of assignments. The development of each function has followed a strict cycle of initial development, first round of user testing, refinement and more user testing. Integration testing is planned for May/June 2005 and the project will be rolled out across the entire campus in July 2005. Challenges for 2005 include the development and rollout of the training needed to use the system.

UmFundi

The current computer-based testing system used by UP, Question Mark Designer, is somewhat outdated and has various constraints. A task team investigated a variety of possible testing systems that could be purchased in order to replace it. No "off the shelf" system was available that met all the needs of the users from the different faculties, especially the Faculty of Health Sciences. An extensive list of requirements, based on the needs of the users and an in-depth literature review, was developed. It was decided to contract a local company, Intoweb Design, to develop the system according to these specifications.

The first draft of umFundi was installed on the UP server on 18 November 2004. Comprehensive testing is planned for the first three months of 2005, including functional testing, de-bugging, security testing and stress testing. Implementation of umFundi as the official testing system of the University is planned for the second semester of 2005. Other higher educational institutions such as Medunsa and the University of Johannesburg are interested in this system, since UP is regarded as one of the leaders in the use of computer-based testing.

Electronic Comprehensive Patient Care and Education System

The Electronic Comprehensive Patient Care and Education System (eCPCEs) will replace the School of Dentistry's paper-based, standardised student training protocol for patient clinical examination, diagnosis and treatment planning. The development team, comprising the Department of Restorative Dentistry, TLEI and a development company, Executive Connections International (Pty) Ltd, continued to work hard during 2004 to complete the system. End-user testing will take place in 2005. The Department of Restorative Dentistry's application for the funding of computers in the clinical laboratory was successful, bringing the dream of using

technology to assist with clinical education and training a step closer. TLEI and the Department of Information Technology assisted the Department of Restorative Dentistry in examining a series of options for installing appropriate hardware. By the time the electronic system is complete, a new computer should be installed at each dental chair in the ward.

Synchronous software

There is a growing need for lecturers on campus to support postgraduate students with synchronous software. Synchronous software enables tertiary educational institutions to meet, teach and train live online, regardless of geographic location, bandwidth or operating system.

Live internet classes complement (and in many ways simulate) an actual classroom, as students are able to interact with lecturers and peers, whether in a campus computer laboratory, off-campus residence or office. By utilising synchronous software, TLEI hopes to enable postgraduate students to access and participate in their academic programmes anywhere, anytime, while eliminating commuting, avoiding residency requirements and saving costs by using virtual libraries.

An evaluation committee was formed in 2004 to evaluate locally supported synchronous software packages and to present recommendations to TLEI's Management Committee. The evaluation committee includes personnel from certain academic departments, TLEI and the Department of Information Technology. The software packages Centra, Interwise and HorizonLive Wimba were evaluated.

Two academic departments made extensive use of the trial software during 2004:

- ☞ The Department of Taxation (Faculty of Economic and Management Sciences) explored the possibilities of using HorizonLive Wimba for postgraduate students.

- ☞ The Centre for Business Ethics (Graduate School of Management) used Centra to present an MPhil module in International Business Ethics.

It is evident that synchronous software can support international collaboration in many ways and even save costs. The evaluation of synchronous software will continue in 2005.

Educational Technology

M-learning pilot projects

Mobile learning (m-learning) is a natural extension of e-learning and has the potential to make learning even more widely available and accessible than in existing e-learning environments. The role that communication and interaction play in the learning process is a critical success factor. M-learning offers opportunities to optimise interaction between lecturers and learners, among learners and among members of communities of practice (COPs). Wireless and mobile technologies also make it possible to provide learning opportunities to learners that are either without infrastructure for access (for example, rural learners) or continually on the move (for example, business professionals).

Good progress was made with several m-learning pilot projects:

- ☞ The use of cell phones and especially SMSs in three of the Faculty of Education's paper-based distance learning programmes was expanded during 2004 to include academic support and not only administrative support as during 2003.
- ☞ The use of personal digital assistants (PDAs) in the clinical assessment of medical students in the Faculty of Health Sciences has been very successful with positive results.
- ☞ The use of laptops and PDAs in a wireless network environment for postgraduate students in the Faculty of Engineering, Built

Environment and Information Technology is in progress.

The SMS project in the three paper-based distance learning programmes of the Faculty of Education BEd (Hons), ACE (Education Management) and ACE (Special Education Needs) is a world first. Support is offered to students in rural areas where there is little or no access to e-learning. Although less than 1,5% of the students have access to the Internet, more than 98% of them own mobile phones.

This pilot project provides an example of how mobile technologies may be successfully used to provide learning support to rural distance learning students in Africa, especially because these students do not have access to the Internet. Few people thought that e-learning would have an impact in rural areas. The infrastructure is sometimes so poor in these areas that the nearest post office can be more than 60 kilometres away. M-learning has brought e-learning to the rural communities of Africa - to learners that only a few years ago would never have imagined being e-learners. Africa is leapfrogging from an unwired, minimal e-learning infrastructure to a wireless m-learning infrastructure.

Action Research

Towards a programme for the training of postgraduate supervisors

The completion indices for all postgraduate programmes were determined during the year under review. This confirmed the concerns of many faculties. The result was the inclusion into the Skills Development Plan of a programme to train newly appointed lecturers in postgraduate supervision. Negotiations to design, develop and implement such a training programme were initiated. An experimental questionnaire on the quality of the postgraduate study experience will be launched on the web in 2005.

reports

International conference presentations

Brown, TH. (2004). The role of m-learning in the future of e-learning in Africa. Paper delivered at the ICDE-2004 Conference, Hong Kong, China, 18 to 21 February.

Brown, TH. (2004). Chairperson: EDEN (European Distance Education Network) research workshop: From Conventional to Open, Distance and e-learning. Oldenburg, Germany, 4 to 6 March.

Brown, TH. & Jordaan, AJJ. (2004). Towards a model for m-learning in Africa. Paper delivered at the African Virtual University ICT Heads Conference, Kigali, Rwanda, 22 to 23 March.

Brown, TH. (2004). Exploring future learning paradigms: Will m-learning survive? Keynote address delivered at the MLEARN 2004 conference, Bracciano, Italy, 5 to 6 July.

Brown, TH. (2004). The state of mobile learning research in Africa. Invited presentation at the Mobile Learning Research Symposium, Edmonton, Alberta, Canada, 5 to 7 December.

Brown, TH. (2004). Some thoughts on the future of m-learning. Invited guest lecture at the University of Alberta, Edmonton, Alberta, Canada, 7 December.

Delpert, R. (2004). Determinants and effects of CMC in Information Science learning. Online Educa Berlin, Berlin, Germany, 1 to 3 December.

Du Plessis, GI. (2004). Segmenting the origins of student attrition: from institution to module. Improving University Teaching, Bern, Switzerland, 12 to 16 July.

Freysen, JB. (2004). M-Learning: An educational perspective. MLEARN 2004, Rome, Italy, 5 to 6 July.

Jordaan, AJJ. (2004). Striving towards international academic and e-learning collaboration: An evaluation of a South African experience, TEDC 2004, Joensuu, Finland, 30 August to 1 September.

Le Roux, I. (2004). The contribution of e-learning to individualisation at a residential university, EADTU Conference, Heerlen, The Netherlands, 21 to 23 October.

Le Roux, I. (2004). A collaborative e-learning project between South Africa and Sweden: The South African perspective, Online Educa, Berlin, Germany.

Mostert, E. (2004). A Multimedia make-over: Plants poisonous to livestock, Ed-Media World Conference on Educational Multimedia, Hypermedia & Telecommunications, Lugano, Switzerland, 21 to 26 June.

Mostert, E. (2004). Paradigm shifts in veterinary tropical medicine education: Course development for online delivery - A case study, 11th International Conference AITV/16th VAM Congress, Kuala Lumpur, Malaysia, 23 to 27 August.

Pickworth, GE. (2004). Summative assessment of knowledge using MCQs in an undergraduate medical curriculum: attempting to promote deep rather than surface approaches to learning, EARLI Assessment Conference, Bergen, Norway, 23 to 25 June.



Pickworth, GE. (2004). The dilemma of student attendance of learning opportunities, 11th biannual International Ottawa Conference on Medical Education, Barcelona, Spain, 6 to 8 July.

Pretorius, GJ. (2004). Objective testing in an e-learning environment: A comparison between two systems, Ed-Media Conference on Educational Multimedia, Hypermedia & Telecommunications, Lugano, Switzerland, 21 to 26 June.

Strehler, A. (2004). Paradigm shifts in veterinary tropical medicine education: Preparing faculty to teach in the online environment - A case study, 11th International Conference AITV/16th VAM Congress, Kuala Lumpur, Malaysia, 23 to 27 August.

International workshop presentations

Le Roux, I & Strehler, A. (2004). Managing E-learning in Higher Education. By invitation of CARNet, Zagreb, Croatia.

Strehler, A & Le Roux, I. (2004). Facilitation of Online Learning. By invitation of CARNet, Zagreb, Croatia.

National conference presentations

Boyd, LG & Fresen, JW. (2004). Quality Promotion and Capacity Development - could they come to the aid of weary academics? Fotim QA Conference, Johannesburg, 23 to 25 June.

Boyd, LG & Fresen, JW. (2004). Caught in the Web of Quality, SAUVCA Quality Managers Forum, Johannesburg, 12 November.

Brown, TH. (2004). Is m-learning the future of e-learning? Exploring future learning paradigms. Invited lecture at the MUTI Seminar, Pretoria, 17 September.

Brown, TH. (2004). Beyond constructivism? The role of ICTs in future learning paradigms. Keynote address delivered at the NADEOSA Conference, Johannesburg, 25 to 26 August.

Delpert, R. (2004). Homocysteine: How does this relate to diabetes and vascular disease? 44th Annual Congress of The Federation of South African Societies of Pathology, Stellenbosch, 4 to 7 July.

Delpert, R, Le Roux, I & Vermaak, WJH. (2004). Using objective assessment within postgraduate Chemical Pathology programmes, 44th Annual congress of the Federation of South African Societies of Pathology, Stellenbosch, 4 to 7 July.

Fresen, JW. (2004). Quality management in e-learning, The Marcus Evans E-Learning Conference, Johannesburg, 5 to 7 May.

Fresen, JW. (2004). Quality assurance of web-supported learning: Processes, products and services, 6th ZA-WWW 2004 conference, Johannesburg, 1 to 3 September.

Hefer, HA. (2004). Instructional graphics and learning styles, WebCT User's Forum, Stellenbosch, 5 to 6 April.

Jordaan, AJJ. (2004). Using Web support to facilitate a masters programme in wildlife management, CITTE 2004 Conference, Cape Town, 1 to 3 September.

Jordaan, AJJ. (2004). The use of WebCT to facilitate a postgraduate program, WebCT User's Forum, Stellenbosch, 5 to 6 April.

Jordaan, AJJ. (2004). Expanding E-Learning: University of Pretoria's Experience, WebCT E-Seminar, Pretoria, 17 September.

Le Roux, I. (2004). Integrating campus systems, WebCT Users Conference, Stellenbosch, 5 to 6 April.

Le Roux, I. (2004). E-Learning possibilities for Internal Auditors, 8th Southern African Internal Audit Conference, Johannesburg, 16 to 18 August.

Le Roux, I. (2004). Teaching and learning innovations at the University of Pretoria, Qualification Africa, Pretoria, 14 to 16 September.

Le Roux, I. (2004). Expanding E-Learning: University of Pretoria's Experience, WebCT E-Seminar, Pretoria, 17 September.

Mostert, E. (2004). Paradigm shifts in veterinary tropical medicine education: Course development for online delivery - A case study, Faculty of Veterinary Science - Faculty Day, Pretoria, 13 September.

Pretorius, GJ. (2004). Lecturers' use of the Quiz Tool in WebCT, 6th ZA-WWW 2004 conference, Johannesburg, 1 to 3 September.

Strehler, A. (2004). Training for facilitation of online learning, WebCT User's Forum, Stellenbosch, South Africa, 5 to 6 April.

Strehler, A. (2004). Paradigm shifts in veterinary tropical medicine education: Preparing faculty to teach in the online environment - A case study, Faculty of Veterinary Science - Faculty Day, Pretoria, 13 September.

Visits to international universities/ institutions

Boon, JA. E-Competence. University of Dortmund, Dortmund, Germany.

Boon, JA. Collaboration. University of Twente, Twente Enschede, The Netherlands.

Boon, JA. Investigate management structures for e-learning, academic information services and IT. University of Stellenbosch, Stellenbosch, South Africa.

Boon, JA. Investigate management structures for e-learning, academic information services and IT. Glasgow, University of Strathclyde, United Kingdom.

Boon, JA. Management Frontiers international Study, Investigate e-learning and academic information services Program. Geneva, Austria.

Freysen, JB. Investigate community service on ICT by postgraduate students in collaboration with Microsoft. Karlsruhe, Karlsruhe, Germany.

Freysen, JB. To investigate the use of educational technology on tertiary level. Freie Universitat Berlin, Berlin, Germany.

Freysen, JB. Possible collaboration and investigation of e-learning projects. Heerlen, Open University of the Netherlands, The Netherlands.

Jordaan, AJJ. Visit as part of collaboration project. Imperial College London, Wye, United Kingdom.

Le Roux, I. Investigate the implementation of WebCT Vista. City University of London, London, United Kingdom.

Le Roux, I. Investigate the implementation of WebCT Vista. University of Surrey, Guildford, United Kingdom.

Steyn, AB. Investigate the possibilities and implications of UP's role as the Africa representative for the CDIO [Conceive, Design, Implement, Operate] initiative. The US Naval Academy, Annapolis, MD.

Steyn, AB. Visiting Professor on invitation as part of the UNESCO International Institute for Capacity Building in Africa initiative to establish a master's degree in the use of ICT in education. Makerere University, Kampala, Uganda.

Publications

Boyd, LG & Fresen, JW. (2004). Quality Promotion and Capacity Development - could they come to the aid of weary South African academics? South African Journal of Higher Education, 18(2), 5-15.

Brown, TH. (2004). The role of m-learning in the future of e-learning in Africa. In: Distance Education and Technology: Issues and Practice, 473, 197-216, Open University of Hong Kong Press.

Craig, IK, Xia, X & Venter, JW. (2004). Introducing HIV/AIDS Education into the Electrical Engineering Curriculum at the University of Pretoria. IEEE Transactions on Education, 47(1), 65-73.

Du Plessis, M & Boon, JA. (2004). Knowledge management in e-Business and customer relationship management: South African case study findings. International Journal of Information Management, 24, 73-86.

Lazenby, K, Harding, AF, Le Roux, I & Engelbrecht, JC. (2004). Blended learning in undergraduate mathematics at the University of Pretoria. To appear in C. J. Bonk & C.R. Graham (Eds.), Handbook of blended learning environments: Global perspectives, local designs. San Francisco, CA: Pfeiffer Publishing.

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Zawacki, O, Mr. Centre for Distance Education, University of Oldenburg, Germany

Zulu, N, Ms. Quality Assurance Co-ordinator, University of the Witwatersrand, South Africa

Education Innovation Awards 2004

A CD-Rom containing video clips of the nominees and their education innovations is available from Dr Rhena Delport (Tel: 420-3500).

Laureate awards:

Prof ET Heath. Department of Tourism Management. *The creation of an authentic learning environment.*

Mr F le Roux. Department of Construction Economics. *Community-based learning in a construction economy.*

Prof FW Leuschner & Prof JJ Hanekom. Department of Electrical, Electronic and Computer Engineering. *'Engineering' an innovative learning environment.*

Prof I Treadwell. Skills Laboratory. *Exciting assessment methods in the Health Sciences.*

Certificate for education innovation

Department of Anatomy (Prof JH Meiring). *The Anatomy Portal on WebCT - a rich learning environment.*

Ms AC Botha. The Department of Early Childhood Education. *Innovative and effective learning facilitation and assessment techniques.*

Prof CJ Botha & Prof E Venter. The Department of Para-clinical Sciences. *CD-Rom: Plants poisonous to livestock in Southern Africa.*

Department of Educational Psychology (Prof I Eloff & Mr CS du Preez). *Special Needs Education.*

Distance Education Unit of the Faculty of Education (Dr J Hendrikz). *Distance education for 7 000+ students in Education.*

Dr R Evans. Department of Social Studies. *Effective teaching and assessment within large classes.*

Ms YF Hartzler. Department Radiographic Sciences. *Cost effective assessment and learning in Radiography.*

Dr A Hattingh. Department of Curriculum Studies. *The Productive Learning Cultures Project.*

Ms D Heyns. Department of Arts, Languages and Human Movement Studies. *The creation of a unique learning environment for languages.*

Prof HB Klopper. Department of Mercantile Law. *Learning facilitation in an electronic learning environment.*

Mr TG Kotzé. Department of Marketing and Communication Management. *Innovative facilitation of learning in Research Methodology.*

Prof JH le Roux, Mr CJS Lombaard & Ms GG de Villiers. Department of Old Testament and the Telematic Section. *Learning facilitation in Theology.*

Dr PJ Pretorius. Department of Engineering and Technology Management. *Innovative use of WebCT Quizzes in Productions and Operations (/Service) Management.*

Messrs DE Raats & J de Ridder. Department of Biochemistry. *Summer and winter term practicals in Biochemistry.*

Ms RM Ramagoshi. Department of African Languages. *The creation of a vibrant and authentic learning environment.*

Dr JG White. Department of Community Dentistry. *Learning communication skills in Dentistry.*

Recognition of education innovation

The Bcur undergraduate lecturers (Ms CE van Velden). Department of Nursing Science. *Curriculum development and novel approaches to learning.*

Prof AS Bignaut. Department of Curriculum Studies. *Developing a taxonomy to investigate online learning.*

The Centre for Evaluation and Assessment (Prof SJ Howie). *A new masters' degree in Assessment and Quality Assurance.*

Prof JC Cronje. Department of Curriculum Studies. *Innovative practices in e-learning.*

Ms RC du Bruyn. Department of Community Dentistry. *Goal oriented assessment in Community Dentistry.*

Department of Mechanical and Aeronautical Engineering (Prof JP Meyer). *E-supported learning in Mechanical and Aeronautical Engineering.*

Dr CA Eksteen. Department of Physiotherapy. *Developments in Physiotherapy at UP.*

Dr AA Gildenhuis & Ms CE Kok. Department of Psychology. *PhD in Psychotherapy: The Virtual Institute.*

Prof JG Maree. Department of Curriculum Studies. *Using portfolios in narrative career counseling.*

Ms SR Ponielis & Mr J Pretorius. Department of Informatics. *Simulating an authentic organisational context to facilitate learning in Information Systems.*

Practical Law 400 (Mr FS Haupt). The University of Pretoria Law Clinic. *Authentic learning and Assessment.*

Dr F Robinson. Department of Occupational and Environmental Health. *Community-based learning and authentic assessment.*

Prof C Schutte. Department of Neurology. *Learning how to perform a neurological examination.*

Prof NC van Wyk & Ms SM Meyer. Department of Nursing Science. *The programme: Global Patterns of Health Problems and Health Hazards.*

Training provided

Course/Workshop	Times Presented	Total Participants	Number of participants per faculty									
			EDU	E&MS	HS	HUMAN	EBIT	LAW	N&AS	THEO	VET	OTHER
WebCT High Impact	11	104	5	32	12	6	14	1	20	0	3	11
WebCT Intermediate	4	30	0	7	4	0	8		5		1	5
Web Page Design	2	18	1	7	6	1	2		1			
WebCT Designer	2	16		2	1	1	3		4		3	2
Facilitation e-learning	3	37	2	10	2		9		1		3	10
Informal JIT e-learning sessions	8	34		4	2		27		1			
Education Induction (Afr)	1	33	4	9	3	2	7	2	5	1		
Education Induction (Eng)	2	67	7	3	19	7	11	2	8	1	9	
Assessment	2	35	22		13							
Educational media	1	18			18							
Objective assessment	4	20			16			4				
Audio-visual media	2	29			29							
Peer review	1	14			14							
Marking student work	2	17			17							
Improving lecturing skills	1	10			10							
OBE study guides	1	9	9									
Written assessment & rubrics	1	6	6									
Tutor guardians	1	8				8						
Study guides	1	3							3			
INNOVIL for CIL	1	29					29					
INNOVIL for CSc	1	13					13					
Education induction for junior lecturers	2	25					11	14				
Tutor training	6	133	18		35	29	16	18	17			
Total:		708	74	74	201	54	150	41	65	2	19	28

* EDU: Education E&MS: Economic and Management Sciences HS: Health Sciences HUMAN: Humanities EBIT: Engineering, the Built Environment and Information Technology LAW: Law N&AS: Natural and Agricultural Sciences THEO: Theology VET: Veterinary Science

Computer-based testing

	2003	2004
Number of tests created		
Main Campus	164	173
Health Sciences	126	137
Onderstepoort	21	25
Total	311	335
Tests completed by students		
Main Campus	110 515	109 792
Health Sciences	12 356	13 769
Onderstepoort	1 980	2 207
Total	124 851	125 768
Number of departments / groups		
Main Campus	20	33
Health Sciences	21	18
Onderstepoort	5	5
Total	46	56

Modules in WebCT

	2003	2004
Undergraduate UP modules:	391	847
Postgraduate UP modules:	675	754
CE at UP courses:	5	21
Number of students with access to WebCT:	21 200	26 576
Number of personnel with access to WebCT:	802	987
Number of departments involved:	86	95

Multimedia projects completed in 2004

Department	Title	Project Leader	Instructional Designer
TLEI	Student CD-ROM New version	Dr J Fresen	Johan Slabbert / Liana Venter
Physiology	Stress and Psycho-neuro-immunology (PNI)	Prof R Viljoen	Henriette Wolmarans / Gaby Pretorius
Physiology	Sports Vision Testing	Dr P du Toit	Kim Zimmerman / Anne Strehler
Family Medicine	Practice Management	Dr J Marx / Prof J Blitz	Henriette Wolmarans
Family Medicine	Family Oriented Patient Care	Dr M van Rooyen / Prof J Blitz	Henriette Wolmarans
Family Medicine	Philosophy	Dr M van Rooyen / Prof J Blitz	Erika de Bruyn
UP Archives	Reflections in Time - UP - 100 years on	Dr K Harris	Liana Vente

Schools participating in the TeleTuks Schools Project

Gauteng

Alexander Career Directed Centre
Amogelang Secondary School
Cornerstone College
CS Swart
DH Peta
Flavius Mareka
Gatang Comprehensive School
Geluksdal
Hlompnanang Senior Secondary School
Holy Trinity
Jafta Mahlangu
Makhosini Secondary School
Memezelo Secondary School
Phelindaba Secondary School
Prestige College
Ratanda Secondary School
Reitumentse Secondary School
Ribane Laka Secondary School
Rondebult Secondary School
Saulsridge Secondary School
Vlakfontein Technical College

Mpumalanga

Beestepan Agricultural High
Boleu High School
Dan Kutumela
Dlomodlomo Secondary School
Jacob Mdluli Secondary School
Kopanong Secondary School
Mphanama Comprehensive School
Seidet Centre
Silamba High
Sofunda Secondary School

North West

Bokamoso Secondary School
Holy Trinity (Winterveldt)
Mabopane High
Makgetse High School
Maths, Science, Commerce & Comprehensive Training
PHL Moraka High School
Ratshepo
Rustenburg Education College
Sekhululekile High School
Sekitla High School
Tshepagalang Secondary School

Limpopo

AB Makapan Secondary School
Bakenberg High School
Baropodi Community School
Bokamoso Secondary School
EDL Rampola
Giyani High School
Hoxani College
Hudson Ntsanwisi Secondary School
Lebowakgomo Commercial College
Leolo High School
Mabogopedi Secondary School
Magakala District Office
Mahwibitswane High School
Makikele Secondary School
Malamulele
Maphokwane Secondary School
Mapulaneng College
Maths, Science & Technical Education College

Matladi High School
Matome Malatji Secondary School
Mbilwi Secondary School
ME Makgato Secondary School
Mmatsela Secondary School
Mmiditsi Secondary School
Modjadji Community Centre
Modubatse High School
Mokone a Mabula
Mokopane College
Morokalebole Secondary School
Mphezulu
Nape a Ngwato
Naphuno College of Education
Nkateko
Orhovelani
Phagameng High School
Phala High School
Phatametsane Senior Secondary School
Phehelelo Secondary School
Relson Tshinane
Sekhukhune College
Seritarita Secondary School
Serokolo Secondary School
Soetfontein Community Centre
Tabudi Secondary School
Thasululo Learning Centre
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Maluleke RR [Mr]	Education Technology Assistant
Mohlapamafsi ME [Mr]	Education Technology Assistant
Muller JF [Mr]	Programmer
Ntjana TJ [Mr]	WebCT Assistant
Phalane JM [Mr]	Education Technology Assistant
Phofedi DS [Mr]	Special Worker
Rannzida NE [Mr]	Education Technology Assistant
Redelinghuys S [Mr]	Testing
Stegmann K [Miss]	Testing
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Van der Wath JG [Mr]	Testing



Executive Team



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EBIT, Natural and Agricultural Sciences,
Economic and Management Sciences
and Graduate School of Management



Operational Office



Logistics, off-campus
support and partnerships



Educational Support Team:
Education, Humanities, Law and Theology



Photographic Services



Educational Support Team:
Veterinary Science



Graphic Services
UP main campus



Educational Support Team:
Health Sciences



Action Research
+ Development



Support staff



Educational Technology