PUBLIC ADMINISTRATION – GETTING HOOKED ON E-LEARNING

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ABSTRACT

The Department of Telematic Learning and Education Innovation (TLEI) is a service department at the University of Pretoria, which assists and supports academic staff in education innovation projects. One of the many delivery media offered in a flexible learning environment is online learning, using the learning management system (LMS) WebCT.

This article describes some of the opportunities offered by e-learning and considers how the learning theories of outcomes-based education and constructivism are accommodated by online learning. We consider some of the factors which contribute to the slow adoption of instructional technology by academic staff, as well as different categories of adopters along the adoption curve.

A case study is presented, which explores the ongoing collaboration between TLEI and the University's School for Public Management and Administration (SPMA). Since 1999, a journey of discovery and participation has materialised between the two parties. We review this journey in the context of e-learning and consider the exciting opportunities for future growth.

Keywords

e-learning   The design, development and delivery of technology enhanced learning experiences, using a variety of media such as web-based (online), interactive television broadcasting, video, or multimedia CD-Roms.

virtual classroom	An electronic, or online community of teacher, learners and/or tutors, incorporating interaction, communication, information sharing, student record keeping etc.
web-supported learning	Using a virtual classroom to support face-to-face and other teaching and learning situations, in a blended or mixed-mode learning model.
flexible learning	The creation of student-oriented teaching and learning environments, which allow the student flexibility in terms of programme entry and exit, delivery modes, time, place and pace of study.
adoption curve	The normal curve, showing different categories of those who adopt instructional technology.

Acronymns

ICTs	Information and Communication Technologies
ISP	Internet Service Provider
LMS	Learning Management System
MPA	Masters in Public Administration
OBE	Outcomes Based Education
SPMA	School of Public Management and Administration
TLEI	Department of Telematic Learning and Education Innovation
WebCT	Web Course Tools ®
WWW	Worldwide Web

INTRODUCTION

"There is nothing in this world constant, but inconstancy"
(Jonathan Swift, quoted by Rummler & Brache, 1995, p.1).

"Nowhere is faculty resistance to change so pronounced as it is in the activity of teaching."
(Maddux, Cummings & Torres-Rivera, 1999, p 43).

Strong words indeed, without even mention of the use of technology in teaching and learning. There are many and varied factors which contribute to the slow adoption of technology by academics, for example lack of resources, other priorities such as research and lack of efficient faculty support systems for instructional technology (Maddux *et al*, 1999).

This article explores the rate of adoption of technology by academics in a particular case study, which after a period of three years, turned out to be an example of a successful partnership between an academic department and a support department at a tertiary institution.

BACKGROUND

Education innovation is a key strategic initiative at the University of Pretoria (University of Pretoria, 2002). The Department of Telematic Learning and Education Innovation (TLEI) is a service department at the University, which assists and supports academic staff in education innovation projects.

At the University of Pretoria, as in other tertiary institutions globally, a great deal of attention has turned towards "e-education" or "e-learning". E-learning is an electronic extension of current contact teaching facilities, products and services. It provides an Internet-based platform that enables residential and remote learners and staff to access an integrated educational environment from anywhere in the world (Virtual Campus, 1998).

The aim of e-learning at the University of Pretoria is to improve the quality of educational processes and products, and to extend existing administration and teaching and learning functions through the application of various technologies. Through e-learning, the university hopes to offer increased flexibility of access and options to its clients. The trend is to offer fewer contact sessions – mainly for examinations, practical work, problem solving and human interaction which no technology can match and to supplement these with web-supported teaching and learning environments (Virtual Campus, 1998).

INTERNATIONAL CONTEXT

Online learning through the Internet and World Wide Web (WWW) is rapidly becoming an established practice in a number of educational institutions worldwide (Barker, 2002). Vehicles have proliferated to deliver course materials and to create active and collaborative learning experiences. Tertiary education faculties, matric teachers, and business trainers alike are turning to the World Wide Web as a vehicle to implement educational innovations (Khan, 1997; Owston, 1997). The Web is claimed to be one of the most powerful tools for providing lecturers and learners with necessary conditions for independent and interactive learning (Le, 1999).

E-learning is enabled via the WWW, through the appropriate integration of various information and communication technologies (ICTs). It may include a variety of delivery media, such as online learning, interactive multimedia, computer assisted assessment, interactive television and video-conferencing.

Learning management systems (LMS) have emerged as one of many software systems available to deliver online learning. They are designed with a view to enabling enriched interactive educational communication on the Web, and to offer enhanced support to instructors and learners as they use the Internet as a medium for learning. The University of Pretoria makes use of a LMS called WebCT (Web Course Tools). WebCT offers the following functionality (WebCT, 2002):

- provides access to information and resources
- establishes online learning communities and
- enables assessment, student tracking, self-paced learning and off-campus access.

E-learning brings new problems to the fore, especially with regard to the adoption of new technology by academic staff. Some of the issues affecting the slow adoption of technology are discussed later in this article.

NATIONAL CONTEXT

Online learning promotes both outcomes-based education (OBE) and constructivism. These learning theories and their links with online learning are discussed in more detail below.

Spady (1994) states that outcomes-based education

> "means clearly focusing and organising everything in an educational system around what is essential for all students to be able to do successfully at the end of their learning experiences. This means starting with a clear picture of what is important for students to be able to do, then organizing curriculum, instruction and assessment to make sure this learning ultimately happens"

> (Spady, 1994, p.1).

According to Gultig (1997), the main principles underlying OBE are:

- lifelong learning
- flexible education and training structures
- the integration and transfer of learning and
- the need to teach towards critical, cross-field and specific outcomes.

Online learning lends itself to OBE in that it is an approach that requires learners and lecturers to focus their attention on the desired end results of learning (the skills learners are to acquire), and the teaching and learning processes that will guide the learners to these end results (Geyser, 1999). The focus is less on the teacher as instructor, and

more on the teacher as *facilitator*. With the emphasis on *active learner-involvement,* the learner becomes the *creator* or *producer of knowledge*. These ideas are well supported by the medium of online learning, which encourages a learner-centred philosophy. Learners need to take responsibility for their own learning and for the knowledge and skills they are to acquire. This philosophy implies changing roles for both lecturers and students.

Online learning blends in very well with constructivism, as opposed to objectivism. These are two of the main approaches, or epistemologies of learning. A paradigm shift has taken place in the last decade, from an objectivist epistemology to a constructivist epistemology (Sims, 1998).

The constructivist epistemology reflects a position that knowledge is not independent of the learner, but is internally constructed by the learner as a way of attaching meaning to experiences (Cronin, 1997; Jonassen, Davidson, Collins, Campbell & Haag, 1995). It is a specific strategy of instruction that facilitates cognitive learning, in contrast to didactic, authoritarian teaching as evidenced in the objectivist epistemology, and is a learner-centred, rather than an instructor-centred approach.

A dominant characteristic of constructivist learning is collaboration among learners. In contrast to objectivist instructional theories, constructivist theories posit that it is through communication with others that learners construct meaning from their experiences (Miller & Miller, 1999). The importance of social negotiation in the learning process means that communication becomes critical. One of the main strengths of online learning is the array of communication tools it offers. Part of the role of the facilitator then becomes to encourage the development of online learning communities.
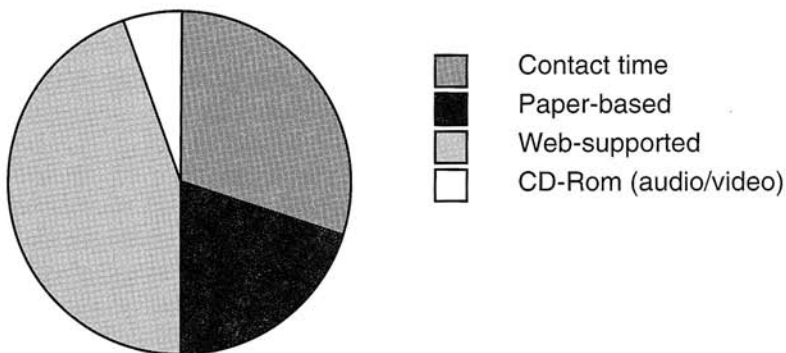
FLEXIBLE LEARNING

F lexible learning encompasses a range of electronic and face-to-face delivery mechanisms and support systems, using appropriate, cost-effective combinations of ICTs.

This article focuses on web-supported learning, as one delivery option in a flexible learning model. The terms 'web-supported learning' and 'online learning' are used interchangeably and imply the use of the Internet to enhance and support learning. The phrases 'technology-enhanced learning' or 'internet-based distance learning' are also sometimes used (American Federation of Teachers, 2000).

We use the term 'web-supported' as opposed to 'web-based' learning, since the learning model under consideration is a flexible one with a regular component of contact time. The proportions indicated in Figure 1 are suggestions only and may vary for each learn-

ing programme, depending on the needs and abilities of the student and the preferences of the lecturer.

Figure 1: Mix of delivery media for a flexible learning model

- ▨ Contact time
- ◼ Paper-based
- ▨ Web-supported
- ☐ CD-Rom (audio/video)

Note that web-supported learning is only one component of the blend of various delivery media offered in flexible learning.

THE VIRTUAL CLASSROOM

The Virtual Classroom refers to an electronic "classroom" which students and lecturers access through the Internet. Prerequisites therefore, are a computer with a modem and a link to the Internet through an Internet Service Provider (ISP). Lecturers generally have such access from their offices, and it is preferable for students to organize such access from their homes and/or work places. If students live close enough to the University, they can make use of various computer laboratories on campus, which are dedicated to the use of WebCT, currently the software package used to establish virtual classrooms.

The virtual classroom is much more powerful than simply a web site, such as we are used to finding on the Internet when we search for information. The electronic classroom can provide almost all the same features and activities that one has come to expect in a traditional classroom situation. We say "almost all", because the one feature that is not possible to offer online, just as in traditional distance education, is the presentation of high stakes tests and examinations. These need to be conducted in an examination centre under examination conditions.

Virtual classrooms are particularly powerful as far as communication is concerned. Standard Internet tools such as discussions, e-mail, and chat are included in WebCT for lecturers and students to use as they choose. This has improved communication drasti-

cally in comparison to traditional distance education. The discussion and e-mail tools support asynchronous communication (which takes place at different times, at the convenience of the user), while the chat tool supports synchronous communication (which takes place in real time). These communication tools are flexible, efficient, widely accessible (using standard desktop computers and phone lines) and are capable of supporting enhanced interactivity.

SLOW ADOPTION OF TECHNOLOGY-ENHANCED TEACHING AND LEARNING

Why is it that academics at institutions of higher learning see the need for change, and even dabble in the use of electronic media, but often fail to embrace technology in teaching and learning? Champions and enthusiasts there are, and have been since the days of mainframe computer-based education in the early 1980's (Delpierre, 1991). However, there are many and varied inhibiting factors which contribute to the relatively slow adoption of instructional technology, as can be seen from the discussion which follows.

Schifter (2000) carried out a survey to measure the extent of motivators and inhibitors for participation of academic staff in distance education. She found that determining what factors deter academics from participating in distance education appears to be easier than determining what motivates them. She categorized the inhibiting factors into four groups:

- resistance to change
- lack of resources
- lack of rewards and
- revised role for academic staff members.

Perhaps the most significant resource that is lacking, is time. Some professors say they simply do not have the time, nor the opportunity, to learn the new tricks of the Internet (Young, 1997).

Viljoen presented his views on what problems may contribute to the fact that only 10% of lecturers at his institution are involved in computer-assisted education. His opinion is that there are four factors: belief, time, know-how and confidence, in that order:

- **Belief:** Academics are not easily convinced that their traditional ways could be improved.

- **Time:** Most academics simply do not have the time to learn new tricks, amongst heavy teaching loads, administrative duties, improving throughput figures and securing their jobs.

- **Know-how:** When one starts delving into instructional technology, one realises the limitations of one's expertise.

- **Confidence:** "If by some miraculous intervention, you happen to surmount the previous three obstacles and learn something about instructional design for computer-assisted education, you know that you know even less than you knew before" (Viljoen, 2002; online discussion forum).

Cornell reports on a 1998 article in the Orlando Sentinel headlined "Internet classes irritate faculty". The report found that part of the concern of professors was that using the Internet for instructional delivery was leading to a loss of control and ownership of their courses (Cornell, 1999).

Cornell refers to the findings of a 1998 survey administered by Dziuban and Moskal to 38 faculty members teaching web-based courses at the University of Central Florida. 58% of respondents felt that there was an increased workload in using technology to teach at a distance, resulting from:

- searching for existing resources
- re-engineering instructional materials
- developing new instructional materials
- redesigning student activities and assignments
- reconsidering assessment strategies
- administering online courses
- facilitating online learning and
- communicating with students electronically (Cornell, 1999).

In the same survey, positive comments from faculty members about web-based or media-enhanced instruction covered topics such as enhanced student interaction, increased flexibility for students and teachers, continual self-improvement, perception of the instructor as a facilitator and more responsibility demonstrated by students (Cornell, 1999). One of the most encouraging findings was that, when asked if they would be willing to teach another web-based course in the future, 76% of the faculty members responded positively (Cornell, 1999).

It appears then, that there are very real and daunting factors which may discourage academic staff from venturing into the field of instructional technology, but that when they do, they quickly become 'hooked' and realise that the initial time demands pay instructional dividends for both teachers and students in the long term.

THE ADOPTION CURVE

Moore (1999) identified five stages apparent in the process of innovation adoption and categorized participants from innovators (champions) to laggards, as can be seen in Figure 3 and the summary below.

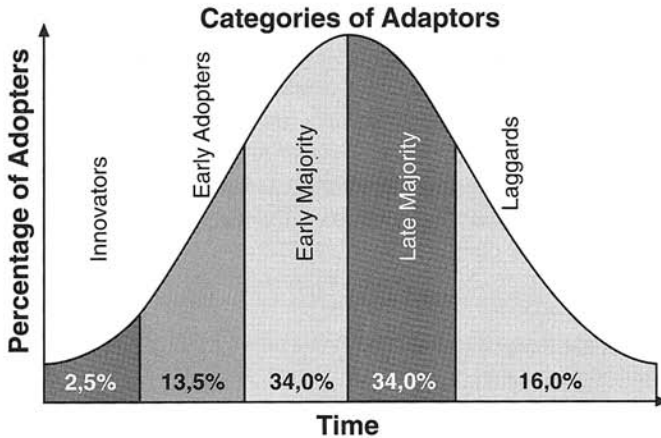*Figure 2: The adoption curve* (Source: Moore, 1999)

Figure 2 shows the different categories of induviduals adopting an innovation such as instructional technology

- **Innovators:** 2.5% of the population. They are generally younger and are keen to try out new products and ideas.

- **Early adopters:** 13.5% of the population. They tend to be opinion leaders, builders, creators and visionaries.

- **Early majority:** 34% of the population. They follow with deliberate willingness, but don't lead.

- **Late majority:** 34% of the population. They tend to be sceptical and uncomfortable with handling high technology.

- **Laggards:** 16% of the population. They are traditionalists and when they adopt technology or a particular product, it may already have been superseded by something else.

Hopper describes the two extreme attitudes of faculty members as follows:

> *"Faculty perceive the technology imperative and may be persuaded to take action, but find themselves unprepared professionally and without effective leadership. Faculty responses vary from head-in-the-sand entrenchment behind the traditions of the academy, to frenetic acquisition and implementation of instructional technology"*
>
> *(Hopper, 1999, p.50).*

In the case study described below, we suggest that the School of Public Management and Administration (SPMA) at the University of Pretoria is currently entering the 'early majority' stage of the adoption curve. In the race towards the effective use of technology in education, the baton has now been grasped by the SPMA, in that lecturers are taking the initiative to enhance their courses with the aid of technology.

It appears that the main factors which had inhibited their adoption of technology were, as Viljoen (2002) suggests, belief and time. Lack of awareness of the capabilities of the technology may also have played a role.

CASE STUDY: SPMA

The School of Public Management and Administration (SPMA) at the University of Pretoria is a leader in Public Administration and Management not only in South Africa, but also in Africa (University of Pretoria, 2001). The School offers programmes that are competitive on a global scale, yet have local relevance. Their success results from their commitment to excellence in higher education, which is thoroughly embedded in research and innovation.

The varied opportunities offered by the Internet have inspired the lecturers in the School to try new and innovative ways of delivering course content and facilitating learning. They are now exploring not only web-supported learning, but other types of internet tools, such as e-groups. Such list servers make it possible to include national stakeholders and international experts in online discussions, without having to arrange special guest access to password-protected WebCT courses.

Synchronous audio lectures and discussion groups have been pioneered using CentraOne software, in collaboration with the University of Michigan and other partner institutions, both in the USA and in South Africa. Another project is the collaboration with Gonzaga University, in which lectures are videotaped at both institutions and are made available in electronic format, downloadable from the Internet, for students from both universities.

In what follows, we focus on the SPMA's use of online learning and the mutually supportive partnership between SPMA and TLEI, the University's support department.

The SPMA currently has three e-learning projects under development, for the following study programmes:

- Honours in Public Administration
- Masters in Public Administration (MPA)
- PhD in Public Affairs.

These projects make use of web-supported learning, using WebCT. With the help and support of instructional designers in TLEI, lecturers in the School adapt WebCT to suit their unique teaching and learning situation. Hence no two courses look or function alike. Lecturers select different tools to suit their individual needs and preference, depending on the learning situation and the target population of students involved.

The programmes are not yet fully available online, since the development has been phased in since 1999 and is still continuing.

SPMA'S ONLINE COURSES

Honours

The Honours programme is aimed at equipping candidates for academic careers, mid-career and senior management in the Public Sector. It attracts students from different South African provinces as well as from Lesotho and Swaziland (University of Pretoria, 2001). Since 2001, two modules have been available online.

MPA

The Masters programme in Public Administration aims to enable managers in the public sector to perform their managerial function effectively, irrespective of their undergraduate study. The MPA-degree is an internationally accepted post-graduate qualification that has a management-orientated approach. The degree attracts students from South Africa as well as from Cameroon, Nigeria, Sumalia, Sudan, Lesotho, Swaziland, Ethiopia, Malawi and Cameroon (University of Pretoria, 2001).

The development of the modules for the Masters degree is now complete, after initially having only two modules online. The remaining seven modules will be presented on the Web as from 2003. These modules were all developed towards the end of 2002 after meeting with the lecturers and encouraging them to provide us with their content for

those modules not yet online. After these meetings, lecturers saw the potential of online learning and moved up in the adoption curve.

PhD

The PhD programmes in Public Affairs aim to equip candidates for leadership and governance in the public sector. They attract students from all over Africa as well as from abroad. Currently students are from South Africa, Britain, Morocco, Zimbabwe, Namibia, Botswana and Nigeria (University of Pretoria, 2001).

Progress in getting the modules on the Web for the PhD has been slow. An innovator (champion) in the School emerged early and his course was the first to be placed on WebCT in 2000. Prior to this he placed his content on the School's home page and designed his own bulletin board to communicate with his students. He has taken the role of project leader in the School, and is responsible for encouraging the other lecturers to participate in the project.

In 2003 a second compulsory module, entitled "Leadership, Governance and Public Policy", will be available online. Two elective courses, to be accessed via a programme-wide "portal" or umbrella communication facility remain to be developed on the Web.

Figure 3 shows the increase in the number of SPMA courses available online from 2000 to 2003. It is exciting to see that the number of courses going online more than doubled from 2002 to 2003.

Figure 3: Cumulative increase in SPMA courses on WebCT

Number of modules on WebCT
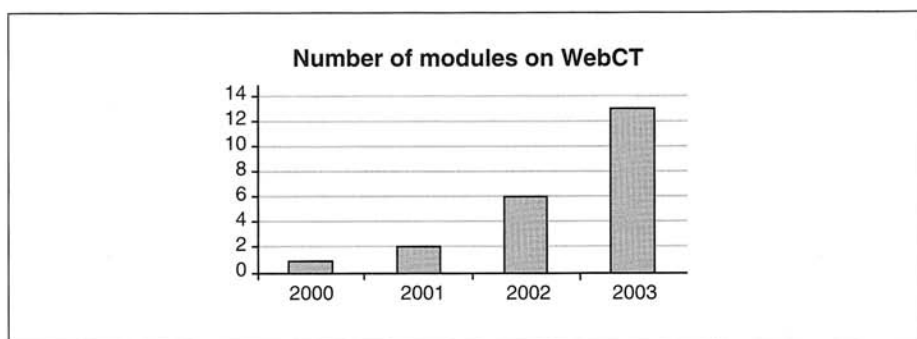
CONCLUSION

I t is significant that the problems anticipated by staff with regard to embracing instructional technology are not new. Fears of faculty becoming redundant, concerns about lack of resources and resistance to educational innovation have been evident since the days of traditional mainframe CBT and indeed even since the advent of radio and television.

The one guiding factor or shining light that we should hold aloft is that good pedagogy remains good pedagogy regardless of the tools, media or technology at our disposal. The enthusiasts, champions and innovators among us find ways and means of overcoming barriers. The increased use of instructional technology by academics leads to a changing role, not only for students and lecturers, but also for institutional service departments. The case study described in this article found that after facilitating the progress of lecturers along the adoption curve, support departments such as TLEI can in future become less involved in the process of championing e-learning, and focus rather on consultation, development and training of staff and students.

This article has described some of the opportunities offered by e-learning, as well as the adoption of technology in the School of Public Management and Administration at the University of Pretoria. The School has successfully advanced along the adoption curve, despite initial reasons for slow adoption of technology by lecturers.

It has been an exciting journey of discovery as the two parties have collaborated and grown and we look forward to continued collaboration in the near future. The road ahead has many unknowns, but promises to pose stimulating and exciting opportunities as we come to accept that the only certainty ahead, is change.

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