

Tools of the trade: Learning technologies for distance learners

Paula E Williams

Open Training Education Network (OTEN) TAFE NSW

How can we make best use of information and communication technologies to support distance students? What are the features and functions of an effective learning support site? This paper will discuss some of the outcomes of the 2005 review of the OTEN Learning Support (OLS) site and also explore sustainable applications of new learning technologies that can enhance and engage distance learners. The exploration of new learning technologies in tandem with the review is critical to ensure seamless integration of new online application tools. These include: social software; mobile devices such as PDAs and smart phones, eJournaling and online assessment tools. This paper will first address the evolutionary stages relevant to educational institutions from the transformation to the convergence stages as identified by PricewaterhouseCoopers (Katz,2000). From understanding the transition stages we will examine where we are now and where we are going in the use of technology to enhance and support learning.

Introduction

As we move forward in the 21st century change will continue to accelerate and challenge us. Convergence of technologies will increase convenience, expand capabilities, raise expectations and lower costs. Learning and communication technologies will rapidly converge cell phones, computers, land-lines, mobile systems, satellite and cable, into a unified system that will dramatically expand both capabilities and convenience for accessing education.

Today's students have been described as having an 'information age' mindset, being Millennials or members of the Net Generation. While this portrayal of generational learning styles can be oversimplified, the technology and media used by children during their formative years do have an influence on how they learn, as do the media used by adults. However, technology is no more static than people. The internet is a constantly evolving infrastructure that now supports many media, including disparate applications. (Dede, 2005)

Background

The Open Training and Education Network (OTEN) is Australia's largest distance education provider, offering 250 courses to over 38,000 students. Students studying by distance education face many challenges, and educational technologies can be a critical tool for addressing these. The OTEN Learning Support (OLS) site was established in April 2002 to help meet these challenges. Integrated with OTEN's student administration and management system (SAM), the OLS site provides students with a personalised system for access to learning support and administrative information. Initially it was designed to enable teachers to provide additional learning support material to their students, such as FAQs, links, helpdesk information and practice assessment

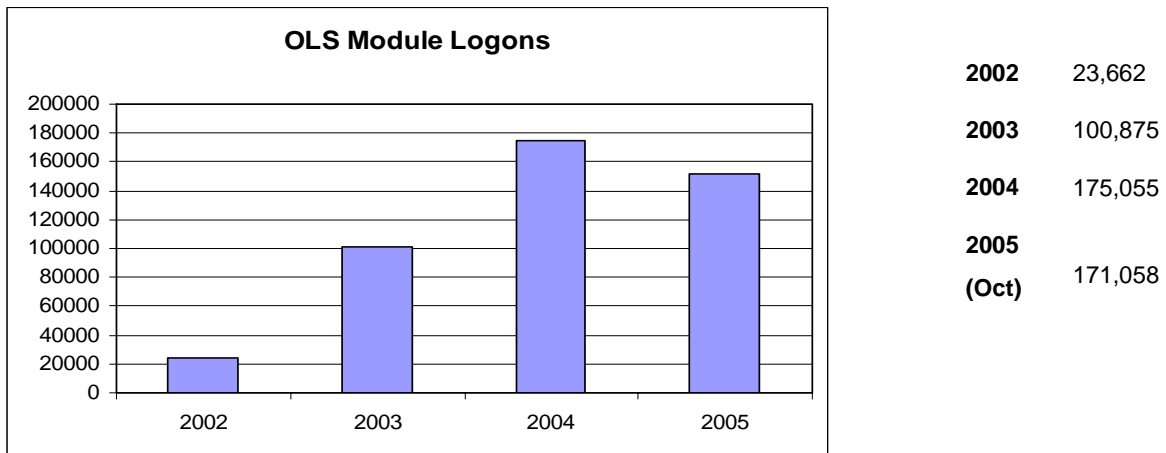
events, as well as providing a means of communication with OTEN's teachers and other students. Within three years, the OLS has expanded with a range of additional learning tools and features that have been developed in house or purchased from commercial vendors. These tools were added to enhance the capability of the site, including improvements in student administration services, communication, online assignment submission and links to online learningware for students.

Table1: OLS statistics

2004 statistics	2005 statistics as at 1/10/05
<ul style="list-style-type: none"> • Number of logons 175,055 • 11,000 assignments were submitted using the OLS. • 370 courses and over 1,300 modules have support pages 	<ul style="list-style-type: none"> • Number of logons 154,000 • 71,000 assignments were submitted using the OLS. • 370 courses and over 1,500 modules have support pages.

The OLS continues to grow as the major gateway for online student support. Since its inception in 2002 the OLS has attracted an increasing number of logons. In 2005 the site has received on average in excess of 20,000 student logons per month. In just under ten months from December 2004 the statistics show a significant increase in electronic assignment submissions, from 11,000 to 71,000.

Table 2: Module logons OLS



The trend of module logons since 2002 shows an increment of $\sim 80 \times 10^3$ per year. Based on this trend one could extrapolate a possible 250×10^3 expected logons by the end of this year in 2005.

At enrolment, students are asked to provide contact details, including email address and mobile phone number, if they wish to be contacted this way. The number of students supplying a mobile phone number on enrolment has increased steadily and is now double the 2001 figure. Equal numbers of students provided email and mobile in 2004. In 2005 the figures show that more enrolled students have supplied a mobile number than supplied an email address.

Table 3 : Mobile versus email usage

Year	No. Students	Email	%	Mobile	%
2005	24962	16948	68	17491	70
2004	36279	22758	63	22829	63
2003	33967	22426	66	16100	47
2002	33358	17766	53	12131	36
2001	31656	15601	49	9566	30

There appears to be a universal shift towards mobile devices with an increasing number of people now owning digital gadgets such as iPods and Smart phones, PDA's and WiFi digital cameras. This technological ownership will in the future have the potential to drive the preferred method of learning. To survive in the market educational institutions have to give clients - whether they are individuals or large corporations - what they want, when they want it, and where they want it (Wright, 2005). Interestingly, over the years, technology has seen considerable advances and the Open University has seized on this, not only as a means of dealing with increased volume and complexity but also for maintaining the cutting-edge in the field of distance education (Johnson, 2001).

In order to understand where the OLS is now, and where we are going, we need first to look at the continuing evolution of computers and telecommunications.

According to Gingrich (2001),

We are today starting to live through two patterns of change. The first is the enormous computer and communications revolution or the digital age. The second only now beginning to rise is the combination of the nanotechnology-biology-information revolution. These two curves will overlap. It is the overlapping period that we are just beginning to enter which can be described as the Age of Transitions.

Already OTEN is embracing a 'cultural shift' using outsourced tendering arrangements and external web hosting to complement expertise and resources. OTEN is journeying towards the convergent stage which is already evident in the education sector with TAFE and universities competing with local and off-shore providers (Turnbull & Gofers, 2003). This stage will be a 'blurring of market boundaries', and so, for OTEN organisational transformation, will also mean breaking down boundaries for the development of new relationships with stakeholders.

The Age of Transitions is a new and as yet unappreciated wave of change that will combine with the already remarkable pattern of change brought on by computers, communication, and the internet to create a continuing series of new breakthroughs, resulting in new goods and services. We will be constantly in transition as each new idea is succeeded by an even better one. This will be the Age of Transitions, and it will last for at least a half-century.

The Industrial Revolution and the Communications-Computer Revolution are both examples of the concept of the S-Curve (Gingrich, 2001). The S-curve depicts the evolution of technological change. Science and technology begin to accelerate slowly and then as knowledge and experience

accumulates, they grow much more rapidly. Finally once the field is matured the rate of change levels off. The resulting pattern looks like an S.

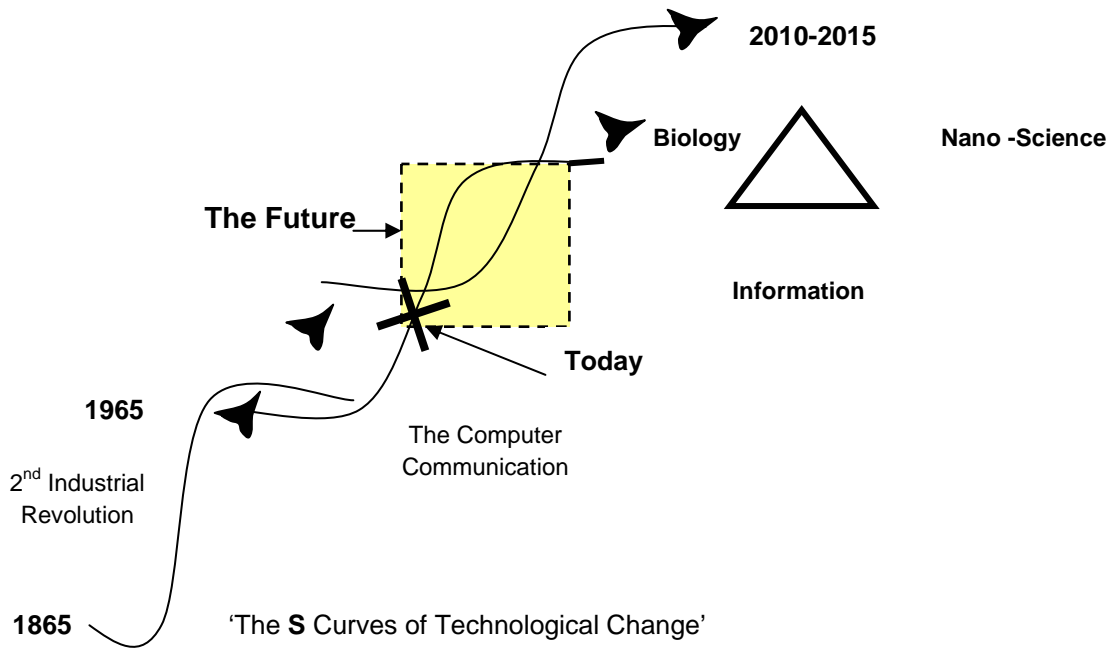


Figure 1: Age of Transitions

No society has ever had to deal with tools as massively powerful as those that are emerging now. The convergence of new learning technologies promises to realign our Nation's economic future (Roco *et al*, 2005).

As educators, how might we guide the emerging future? Caryl Oliver from the William Angliss Institute (SMH) states, 'There's so much technology out there but most is developed for business purposes. For education, we must explore, change and alter everything to see if it can work.' We have passed over the threshold where it is clear that these tools will be definitive shapers of economies and educational institutions.

As VET practitioners we need to raise the awareness so that we can be more productive and focus on enhancing teaching and learning for the development of improving human performance anywhere, anytime. We should now be investing in readiness for the educational changes to come changes that the Net Generation already accepts and expects. We may not have a generation or decades to foster national collaboration. We may only have a brief period, perhaps a few years, to raise awareness and coordinate our efforts at a national scale before serious global competitive challenges arise.

Daniel (2000), states:

The continuing development and extension of information and communication technology (ICT) will substantially change the modus of approach of The Open University over the next ten years. The Open University must engage with the use of ICT in a proactive and deliberate way so as to give our students the benefits of these developments and retain our leadership in the large-scale application of technology to higher education.

The 2005 Review of the OTEN Learning Support (OLS) Site

The review of the OLS in 2005 is addressing the challenges associated with providing greater online interactivity between teachers and learners, whilst fostering a more personalised and diverse learning experience. To this end the review includes an exploration of new learning technologies as '*tools of the trade*'. The use of new technologies to support educational delivery is no longer optional, but essential. The goal is to provide a sustainable learning support site which would best meet the needs of distance students including faster turnaround time for assignments; greater feedback on assessment; increased opportunities for communication with teachers and other students.

Two years ago OTEN took the integrated approach to e-business (Turnbull & Gofers, 2003). This journey led to the development of an e-business plan based on the four evolutionary stages (Katz & Oblinger, 2000).

These stages are:

- Presence
- Integration
- Transformation
- Convergence.

The transition from one stage to the next is not always clear cut, nor are the stages mutually exclusive. For example, an organisation can be at the integration stage but also involved in 'transformation type' activities.

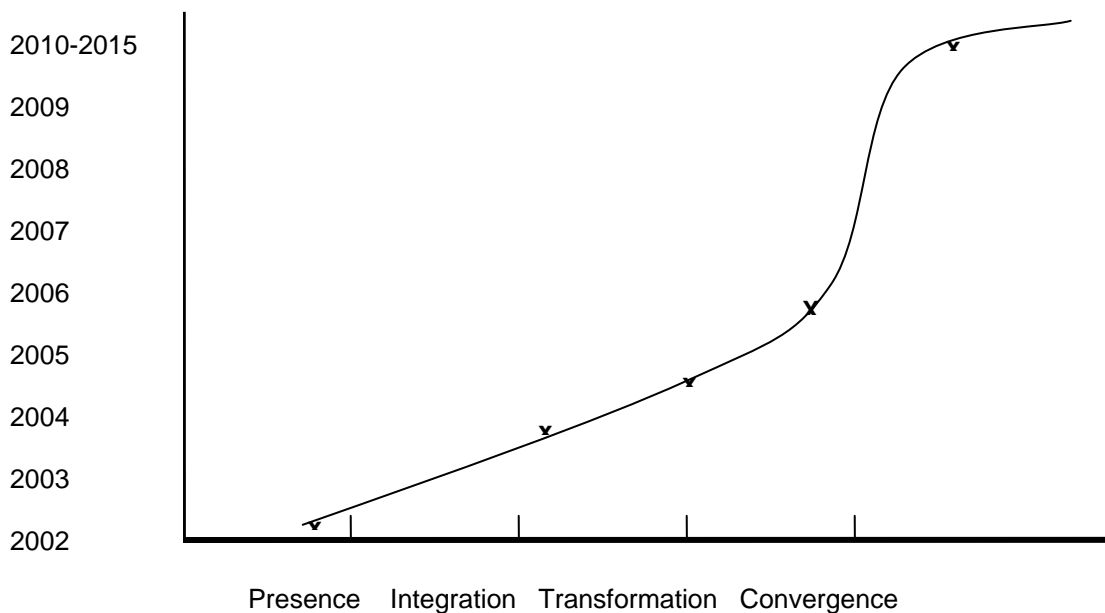


Figure 2: S curve

The S-curve for OTEN is just at the point of entering the 'Convergence Stage', that is the coming together of consumer electronics, information technology, telecommunications and e-business. At the same time one foot is still in the transformation stage, researching the numerous learning

technologies or '*tools of the trade*' with the intention of implementing and converging these systems in a seamless and easy to access process online.

Breaking down the boundaries

The key to OTEN's sustainability is the need to go beyond the boundaries by developing different and new relationships with other stakeholders. Formal mechanisms to promote major breakthroughs can be extremely effective, notably the development of partnerships between government and commercial organisations.

One of OTEN's convergence strategies is delivering customised enterprise or industry-based certification training solutions with a range of diverse partners such as:

- Coles-Myer
- NSW Fire Brigade
- NSW Health Department
- NSW Yachting Federation
- Commonwealth Department of Education Science and Training.

OTEN is also working with commercial organisations such as Telstra and Optus, and with others like Hewlett-Packard, Palm Os and Red Oxygen to assist with the numerous mLearning trials.

Table 4: OTEN's commercial partnerships

Commercial Organisation	Projects
Optus	OTEN' s SMS Trials (April – Sept 2005)
Hewlett Packard (IPAQ600 series) x10	PDA's for evidence based assessment at ICVET conference (Sept 2005)
Palm Os with GPS x 6	PDA's for Youth Ambassadors S-E Asia
Red Oxygen P/L	SMS Trials (2004)

Feedback from interviews with OTEN teachers indicates that they want more training and awareness about new learning technologies for teaching and learning. They want more 'hands-on' workshops to discover innovative ways of developing support material in their specialised field of practice.

The need for OTEN to identify new learning technologies that merit further exploration and evaluation is apparent. OTEN has created a Teaching and Learning Technologies Forum to disseminate new learning technologies across OTEN and provide training and support to teachers. Currently OTEN is evaluating the following learning technologies for potential application and convergence on the OLS site:

Table 5 : Products evaluated

Virtual Community Tools	Interwise, Elluminate, Didasko, Captivate, Moodle, Audacity, Centra
Digital Presentation Tools	PhotoStory 3, Moviemaker
Online Assessment Tools	Questionmark, KnowledgePresenter, Vetassess
Collaborative Tools	Janison Forum, Chit Chat
Social Software Tools	Wikis, Blogging, Moblogging
eNote Taking Tools	Plone, ejournals, OneNote, Clipmark, Viewlet
Audio Tools	Podcasting, Mp3, Player, Audio Navigator
Mobile Devices SMS/MMS Trials	iPAQ600 HP PDA's, Smart Phones

The new learning technology tools are explored and evaluated based on the criteria below

Table 6: Evaluation criteria

OTEN	Students
<ul style="list-style-type: none"> • Scalability • Cost effectiveness • Accessibility • Synchronous/asynchronous or both • Interoperability with OLS 	<ul style="list-style-type: none"> • Bandwidth • Cost for Students • Any special software • CD options • Accessibility

This year OTEN conducted four trials in the use of SMS and MMS to investigate whether students benefit by this alternative way of communicating. The trials have demonstrated how emerging mobile phone technologies present opportunities for OTEN to extend traditional services to enhance:

- **Information dissemination** - SMS reminders of critical dates such as exams and assessments
- **Motivation** - SMS prompts to engage learners with their studies and offer support with their learning
- **Delivery** - Facilitating evidence-based assessment by the sending and receiving of content using SMS/MMS technology in conjunction with the internet.

At the end of the day, engagement, challenge and context continue to be critical components of learning regardless of the delivery method (Wright, 2005).

Conclusion

OTEN must continue to adopt innovative approaches to make education relevant and accessible to all learners nationally and internationally. One of OTEN's students said in support of SMS trials:

I was thrilled to get an SMS from OTEN to ask how I was going with my studies and to offer more help with my learning... OTEN is really on the ball.

This paper gives an overview of how the OLS is a core part of OTEN's support strategy. As it continues to develop, it is important that we ensure a robust and sustainable system. This will include implementation of strategies and technologies that provide personalised learning. Researching, trialing and evaluating appropriate technologies for future integration on the OLS is critical to success.

Already, new socio-economic trends have arisen along with new and emerging technologies. This will require change to educational curricula, workforce skills, new teaching and learning models, and as consequence business strategy models. We are on the threshold of the most exciting time of innovation and rapid change that the education and training arena has ever witnessed.

Copyright © 2005 Williams, P. The author assigns to ODLAA and educational non-profit institutions a nonexclusive license to use this document for personal use and in courses of instruction provided that the article is used in full and this copyright statement is reproduced. The author also grants to ODLAA a nonexclusive license to publish this document in electronic or print form within ODLAA publications and/or the world wide web. Any other usage is prohibited without the express permission of the author.

References

- Daniel, J. (2000). The e-university investment (Open University Internal Paper). In A.Tait, & R. Mills (Eds.) (2003). *Rethinking learner support in distance education: Change and continuity in an international context*. Routledge Falmer Studies in Distance Education.
- Dede, C. (2005). Planning for neomillennial learning styles: Implications for investments in technology and faculty. *Educause Quarterly*, 28 (1), Retrieved 5 October 2005 at <http://educause.edu/LibraryDetailPage/666?ID=EQM0511>
- Gingrich, N. (2001). Vision for the converging technologies. In M. Roco & W. Bainbridge (2005). *Converging technologies for improving human performance: Nanotechnology, biotechnology, information technology and cognitive science*. (pp.37-55). Kluwer Academic Publishers,
- Johnson, M. & Barrett,C. (2000). Addressing the learning skills needs of students at a distance: A dual medium approach. In A. Tait, & R. Mills (Eds.) (2003). *Rethinking learner support in distance education: Change and continuity in an international context*. (Chapter 4). Routledge Falmer Studies in Distance Education.
- Katz, R and Oblinger, D. (2000). *The 'E' is for everything: e-commerce,e-business and e-learning in higher education*, Educause Leadership Strategies No. 2. California: Jossey-Bass.
- Oliver, C (2005). College's course material soon to be all in hand. *Sydney Morning Herald*, 13 September, p. 38. <http://www.angliss.vic.edu.au>
- Roco, M. & Bainbridge, W. (2005). *Converging technologies for improving human performance: Nanotechnology, biotechnology, information technology and cognitive science*. Vision for the Converging Technologies, Kluwer Academic pp.37-55

- Tait, A. & Mills, R. (Eds.) (2003). *Rethinking learner support in distance education: Change and continuity in an international context*. Routledge Falmer Studies in Distance Education
- Turnbull, L. & Gofers, A. (2003). Evolving to e-business: The journey so far. Educause Conference 2003, Adelaide, Australia, pp.6-8
- Wright, R. (2005) TAFE gets the e-learning formula right. *Business Strategy Australasia*, Issue 4: October 2005. Retrieved 5 October 2005 at <http://www.bsanz.com/pastissue/article.asp?art=24958&issue=132&ftitle=Executive+Education>