The challenge of providing a truly flexible and totally online postgraduate program

~~~~~&☙~~~~~

Ian W. Gaynor and Stephen R. Kessell
Science and Mathematics Education Centre
Curtin University of Technology

This dilemma paper outlines briefly the rationale, content, delivery, and outcomes of the postgraduate learning technology programs offered by the Science and Mathematics Education Centre at Curtin University.

These courses show both educators and tertiary academics how to use Information and Communications Technologies (ICT) effectively in their classrooms and their professional lives (while also encouraging a paradigm shift in teaching styles). The tertiary version additionally shows lecturers how to build and manage online courses, and integrate appropriate educational technology, effectively. Both versions are taught totally online via the WWW and CD-ROM.

The 800 students (from twelve countries) see the courses' extreme flexibility and range of options as major attractions. All courses are promoted as "start when you are ready, proceed at your own pace, select options useful to you, and finish when you finish". Additionally the courses serve both the northern and southern hemisphere academic years and seven time zones.

The implementation of such courses, within the confines of traditional university structures, timetables, procedures, staffing arrangements, administrative systems and reporting processes, poses some very real administrative dilemmas, in addition to student management, assessment and technical challenges.

The presentation will examine several of these issues, including:

- *Operating within "traditional" university administrative structures;*
- *Managing out-of-synch enrolments and student progress;*
- *Creating assessment that is appropriate to such a wide range of student backgrounds;*
- *Supporting a very diverse audience by attempting "to be all things to all people";*
- *Keeping students "on track" while allowing them to study the materials most relevant to their needs;*
- *Supporting students with different types and vintages of hardware and software, and/or poor / unreliable / expensive WWW access;*
- *Providing timely feedback, encouraging those who get lost and/or overwhelmed, and "gathering in the lost sheep"; and*
- *Supporting students when and where THEY want to study (evenings, weekends, outside regular semesters).*

Introduction

This paper outlines briefly the rationale, content, mechanisms of delivery, and outcomes of the postgraduate online learning technology programs offered by the Science and Mathematics Education Centre (SMEC) at Curtin University. It then discusses a range of administrative, technical, pedagogical and policy issues (the "dilemma") that arise when highly flexible online courses operate within a traditional university structure.

Programs offered include:

> Graduate Certificate in Learning Technologies (K - 12);
> Graduate Certificate in Learning Technologies (Tertiary);
> Short Course in Learning Technologies (K - 12); and
> Short Course in Learning Technologies (Tertiary).

Postgraduate students can also use units from these programs as electives in masters and professional doctorate degrees. "The programs grew from a worldwide desire to equip educators with the skills and confidence to include appropriate Information and Communications Technologies (ICT) / Learning Technologies (LT) into day-to-day instructional practice" (Kessell and Gaynor 2001: p. 49).

A recommendation by the International Federation of Information Processing (IFIP) Professional Group PG6.1, "Virtual Universities and Virtual Campuses" (meeting at the World Conference on Computers in Education, Copenhagen, July 2001, and reporting to UNESCO) described the programs as "world examples" of "fully-developed, online learning" programs. [http://www.wcce2001.dk/conference/professional_groups.htm#6]

Overview of the program

The learning technology programs offered focus on the development of technical skills and more importantly the exploration, practice and reflection of the pedagogical issues that promote the effective integration of learning technologies into classroom practice. "Learning Technologies" refer to the use of Information and Communication Technology (ICT) in the teaching and learning process; they are the various forms of information technology (IT) which are used to improve student learning.

In this context Learning Technologies involves:

- integration of IT into teaching and learning;

- developing and enhancing teacher competencies in appropriate IT;

- student access to electronic educational resources (hardware, software and networked multimedia); and

- school infrastructure and connectivity.
    (Kessell and Gaynor 2001: p. 50).

The on-line learning technology programs were founded as postgraduate degrees that would:

- meet the needs of all K-12 and tertiary educators regardless of prior IT experience;
- cater to educators starting at different times, proceeding at different rates, and thus finishing at different times; and
- be taught totally *via* the WWW and CD-ROMS, and thus requiring no campus attendance.

An overriding concern in the creation and delivery of the course has been to meet the needs of educators with diverse backgrounds, IT skills, teaching areas and teaching responsibilities. Teachers from K-tertiary clearly have different needs in terms of training and skill development. The traditional in-service, professional development programme or academic course has little hope of meeting such outcomes: they are usually out of context or not matched to the participants' needs. A modular, interactive, non-linear multimedia course, provided on the World Wide Web and CD-ROM, can (Graham and others 2000, 2001; Kessell 2000a, 2000b; *cf.* Bennett, Priest and Macpherson 1999).

Program content, options and delivery

The learning technologies courses from SMEC are delivered totally *via* the WWW (and mirrored on multi-platform CD-ROMs); no classroom attendance is required. Each course:

- is self-paced and self-selected – educators study the materials that suit them, at a pace that suits them, and at times that suit them from a core set of teaching modules and optional study streams;
- emphasizes the *just in time* approach to acquisition of IT skills;
- demands extensive synchronous and asynchronous, on-line communications with other students and the teaching staff;
- is assessed by what educators do (rather than what they know); and
- promotes the practice of the teacher actively researching the integration and use of learning technologies

Detailed information on content, options, and elective streams are available in the companion article in these Proceedings (Kessell and Gaynor 2002), and at: http://learnt.smec.curtin.edu.au/

The on-line course materials are "packaged" using the Course Management System (CMS) WebCT [http://www.webct.com/]. A CMS provides both the framework and "utilities" that facilitate a student-centred, interactive access (Ansorge and Cooley 2001).

As all students enrolled in the programme are external students (currently from 12 countries), the provision of a comprehensive and after-hours "Help Desk" is essential. This academic and technical support is accessible by email, bulletin board posting, and telephone, from 8 am to midnight, 363 days a year.

The course structure promotes online interaction between students and lecturers, and amongst the students themselves; several assessment items have been structured to promote and recognise online discussion tasks, to encourage online mentoring, and to use structured electronic professional portfolios. The expanded online collaborative learning environment

encourages a dynamic, active, and supportive learning experience which has proved to be beneficial for all participants.

Implementation issues

Two fundamental issues in the provision of online learning are the mode of learning and level of flexibility. We classify an online unit of study as "fully developed" if completion of the unit can be accomplished:

- with no on-campus or face-to-face teaching;

- solely *via* electronic study materials (WWW and/or CD-ROM);

- with all communications with staff and peers conducted online; and

- with no requirement for paper or library based materials.

We classify an online unit of study as "totally flexible" if completion of the unit can be accomplished:

- at a pace that suits the individual student;

- on a timetable (meaning entry and exit dates) that suits students from either hemisphere;

- by employing learning styles and materials that suit individuals with diverse backgrounds and expectations; and

- by adjusting the sequence of study, type of assessment and demonstration of mastery to meet diverse expectations and needs.

Therefore the creation and delivery of a "fully developed, totally flexible" online learning program place much greater demands on staff and resources than does the more common "WWW supplementation" of existing face-to-face and/or paper-based "distance education" units. Let us examine some of these issues by identifying each with brief explanation of the associated problem and how they have been addressed.

Operating within "traditional" university administrative structures

Traditional universities have rigid, inflexible "start and stop dates" (of term, semester, examinations…); most also have strict deadlines for enrolment, withdrawal, submission of assessment, and completion. All of these work against truly flexible learning, and can significantly disadvantage students from other (international) academic systems and/or the "other hemisphere".

In contrast, the Learning Technologies online enrolment system allows new students to start the course within 24 hours of submitting their enrolment; this has been an extremely successful strategy for the program. How should we treat the student who wishes to start mid-semester?

Managing out-of-synch enrolments and student progress

The simple answer to that question is: Either we deny the flexibility we promise, or we "break the rules", and allow students to start the course before they are enrolled officially. Very few "take the CDs and run.", but many – particularly from the Middle East and Northern Hemisphere – undertake study at a time more suitable to them.

This approach leads to many "incomplete" and/or "deferred" grades at end of the "official semester", and requires the use of efficient student management systems.

A more serious problem arose when Curtin's central WebCT facility adopted a new method for creating students accounts, from the central student database. While such a procedure streamlined greatly the provision of access to regular, in-synch, enrolled students, it would have precluded totally our offering of "not for academic credit" versions of our units, and thus required the instant "cancellation" of more than 200 students!

As a result, we were forced to acquire our own WebCT server. In hindsight, this was an excellent move that has offered our students many advantages, but at the time it stretched our resources (human and financial) to the limit.

Creating assessment that is appropriate to such a wide range of student backgrounds
How does one create assessment appropriate for pre-primary, primary, secondary and tertiary teachers, for those who teach different subjects, for those with very different backgrounds in IT, and for principals, teacher-librarians, and the like? One would suggest the short answer to be: With great difficulty !

Fortunately, this "dilemma" turned into an advantage… We created many generic assignments, such as "review five WWW sites suitable to what you teach", "review three CD-ROMs suitable to what you teach", and "create a multimedia portfolio that would be useful to your students". Two years later, our WWW site and CDs boast some brilliant work done by teachers enrolled in the course.

There is, however, the ongoing issue (and related staff time) of creating – adjusting – fine-tuning assessment to meet the meets of diverse students.

Supporting a very diverse audience by attempting "to be all things to all people"
Our students maintain that we have done this successfully, by creating, for virtually every module and component of the course, a set of "mandatory" materials and a set of "optional extra" resources (Kessell and Gaynor 2001). Most of the courses also contain a range of optional "streams" or "minors". This approach to course design has lead to large units that place huge demands on the academic resources who design, create and maintain them. Truly flexible learning can also place unreasonable expectations on the submission of assessment items and official completion rates.

Keeping students "on track" while allowing them to study the materials most relevant to their needs
We have learned that many students have difficulty coping with an extremely flexible course structure, and some "get lost" along the way. At the students' suggestion, we now provide an optional "week by week" timetable.

Diverse students, representing many different educational systems and cultures, demand the delivery of a modular, interactive, non-linear multimedia course using a student centred approach. While a fully developed online course meets their requirements, the academic management and maintenance costs are high.

Supporting students with different types and vintages of hardware and software, and/or poor / unreliable / expensive WWW access

We devoted very significant resources to allow students to test their WWW browsers, plug-ins, and similar, and we also provide a "downloads" CD-ROM to ensure a common software base. We also have to maintain multiple hardware and operating systems platforms, as well as extended Help Desk hours.

The timely provision of technical support is, in our view, essential to the courses' success. However, this places greater demands on all staff, be they clerical, technical or academic. The costs of employing server management and project management skills also had to be met.

Many of our isolated and remote students have WWW access that is slow, unreliable, expensive, or all of the above. The provision of a "mirror" of all course materials on multi-platform CD-ROMs is thus essential.

Providing timely feedback, encouraging those who get lost and/or overwhelmed, and "gathering in the lost sheep"

Because virtually all of our students are mature age working educators, work is completed, and submitted, at unusual times. Timely feedback and assessment is essential, and improves the University's access to markets that would normally be inaccessible or cost prohibitive.

We review and update our learning materials regularly; we perform a major revamp of the WWW site and all CDs at least every 6 months, while small changes, including timely readings and the repair of broken links, are done daily. Updating poses problems, however, as there are always "students in progress".

Supporting students when and where THEY want to study (evenings, weekends, outside regular semesters)

A "9 to 5 on business days, keeping Perth time" Help Desk would be of little use to most of our students. That comment applies not only to students in North America or the Middle East, but the typical Western Australian teacher who studies evenings and weekends. Out after-hours Help Desk (available until midnight, every day of the year except Christmas and New Years Eve) is praised by our students, but places a huge burden on staff.

Where to from here?

The provision of effective, fully developed and truly flexible online learning places significant burdens upon a university's administration, academic staff and technical staff. We suggest that the true cost and "overheads" have been underestimated by many. While the more efficient and effective management of resources may be part of the solution, it is not reasonable to ask staff to work (unpaid) extended hours, week after week.

Our work has demonstrated that university systems need to recognise the very different types of online learning, and distinguish very clearly between the "WWW supplementation" of existing courses and the provision of fully-online, flexible course delivery (and its resource implications). Finally, we wonder if existing universities' policies and structures can accommodate the overheads that arise when "fully developed, totally flexible" online learning is provided.

References

Ansorge, C. and Cooley, N. (2001, March/April) The Role of Education Faculty in Choosing Web-based Course Management Systems: An Interview with Nancy Cooley. *The Technology Source*. Retrieved November 15, 2001, from http://horizon.unc.edu/TS/default.asp?show=article&id=846

Bennett, S., Priest, A. and Macpherson, C. (1999) Learning about online learning: An approach to staff development for university teachers. [Electronic version] *Australian Journal of Educational Technology* 15(3), 207-221. http://www.ascilite.org.au/ajet/ajet15/bennett.html

Graham, C., Cagiltay, K., Craner, J., Lim, B., & Duffy, T. M. (2000) Teaching in a Web-based distance learning environment: An evaluation summary based on four courses. Center for Research on Learning and Technology Technical Report No. 13-00. Indiana University Bloomington. Retrieved November 10, 2001, from http://crlt.indiana.edu/publications/crlt00-13.pdf

Graham, C,. Cagiltay, K., Lim, B. Craner, J. and Duffy, T.M. (2001, March April) Seven Principles of Effective Teaching: A Practical Lens for Evaluating Online Courses. *The Technology Source*, Retrieved November 16, 2001, from http://horizon.unc.edu/TS/default.asp?show=article&id=839

Kessell, S.R. (2000, July/August) Creating a Web-based Learning Technologies Degree for K-12 Teachers. *The Technology Source*, Retrieved November 15, 2001, from http://horizon.unc.edu/TS/default.asp?show=article&id=790

Kessell, S.R. (2000) Teaching learning technologies to K-12 teachers in outback Australia. Paper presented at the International Conference on Learning with Technology, Temple University, Philadelphia. Retrieved November 22, 2001, from http://l2l.org/iclt/2000/papers/190a.pdf

Kessell, S.R. and Gaynor, I.W. (2001) Providing information and communication technology (ICT) instruction via the WWW and CD-ROM: A case history. Proc. Education without Borders Conf. (T. Kamali, J. Metzner and L. Bornstein, eds.): 49-59. Abu Dhabi, United Arab Emirates, March. Retrieved November 22, 2001 from http://learnt.smec.curtin.edu.au/sections/information/publications/reading03.html