



FINAL REPORT FOR A 1997 NATIONAL TEACHING DEVELOPMENT GRANT (ORGANISATIONAL)

IDENTIFICATION

Name of Project Leader(s)

Professor John Hedberg, Professor of Education and Associate Dean, Faculty of Education
Professor Barry Harper, Professor of Education and Dean, Faculty of Education
Professor John Patterson, Professor of Education and Pro-Vice Chancellor (Operations)

Aleksander Subic, Lecturer in Mechanical Engineering
Dr. Turhan Coban, Lecturer in Mechanical Engineering
Gerald Bushnell, Lecturer in Mechanical Engineering
(Dr. Coban left the university during 1995)

Current Department and University Address

Professor John Hedberg
Associate Dean
Faculty of Education
University of Wollongong
Wollongong NSW 2522

Tel: 02 4221 3310
Fax: 02 4221 4657
E-Mail: john_hedberg@uow.edu.au

Project Title

Developing and Implementing a Flexible web-based Teaching/Learning Environment across
an entire academic organisational unit
(Flexible Learning Options for the Graduate School of Education coursework programs)

10 Key words or phrases that describe the project

Flexible Learning; Online Learning; Education Postgraduate Studies; Centre for Educational
Development and Interactive Resources (CEDIR)

2) Executive Summary

The project was originally conceived to build on the work of the Information Technology in Education Strengths of the Graduate School of Education which had produced three award winning CD-ROM products. Some subjects had been experimenting with online delivery through independent initiatives and a grant from the Centre for Educational Development and Interactive Resources (CEDIR) to Professor John Hedberg to develop and explore the development of a course using Videoconferencing and Development of an on-line computer mediated communications environment for teaching the postgraduate course *Implementation and Evaluation of Technology-Based Learning*. As part of this project, a series of on-line resources and performance support systems were developed to assist with the evaluation and implementation of technology-based learning. These formed the basis for early developments.

At the time there were eight areas of specialization of the Graduate School of Education, viz: Educational Leadership, TESOL, Language and Literacy, Information Technology in Education and Training, Adult Education, Special Education, Health and Physical Education and Early Childhood Education. In addition, there were several subjects in the general area of research methods that were designed to support the courses and prepare students to undertake research projects. The early adopters from this group were the IT, TESOL and Adult Education groupings. This was later followed by the Language and Qualitative Research Methods group. It was an interesting time of change as several issues were facing Graduate Schools.

- The Federal government was reducing subsidized funding for postgraduate student places.
- The Internet was a growing delivery medium with lower production costs than other technology solutions such as CD-ROM.
- Increasingly resources were being made available through the Internet.
- E-mail was becoming an increasingly popular communications medium between student and teacher.

The project worked with all staff teaching in the postgraduate program to convert some or all of their content into a form where it was supported by a web site and resources which were richer and not purely dependent traditional distance nor classroom based learning activities.

In the first year a project officer was employed and worked with early adopters who did not have technology skills. The project officer was a graduate of the IT in Education Masters program and so early sites were designed with a strong pedagogical focus to their learning activities. However at the same time the project officer was developing skills with the web site so considerable effort was expended to get personal skills developed. As the project proceeded the delivery platform has changed three times (a cause of angst for non technical staff!) and towards the end of the project additional staff were employed on regular Faculty budgets to support the increased dependence on technology, which has grown across the Faculty. By the end of the project there are 50 subjects on offer through the WebCT3 CML system. Most have selectively used elements of the options rather than slavishly employing a standard course format. Most importantly is the fact that while the grant was developed to provide postgraduate subjects in more variable and flexible ways, undergraduate subjects have also been developed in the later stages of the project. Now four years after the initial project approval, the early courses in IT have been revised 3 times, and several participants have devised new structures in which they can create professional links by student and teacher communities of practice.

Background to the Project

This project was initiated by Dr John Hedberg, who was at that time the Associate Dean of Education and head of the Graduate School of Education. The grant proposal was written as a collaboration with Dr Beverley Derewianka, then Senior Lecturer in Language Education and Dr Barry Harper then Associate Professor of Education in Science Education. The project was originally conceived to build on the work of the Information Technology in Education strengths of the Graduate School, which had produced three award winning CD-ROM products. Some subjects had been experimenting with online delivery through independent initiatives and a grant from the Centre for Educational Development and Interactive Resources (CEDIR) to Professor Hedberg to develop and explore the development of a course using Videoconferencing and Development of an on-line computer mediated communications environment for teaching the postgraduate course EDGI933 *Implementation and Evaluation of Technology-Based Learning*. As part of this project, a series of on-line resources and performance support systems were developed to assist with the evaluation and implementation of technology-based learning.

The three staff teaching in the IT in Education and Training Area had been experimenting with online developments and teaching courses specifically aimed at developing the skills in online delivery in their students. This was used as the initial model for the development of other courses which required a flexible component. The TESOL and Language areas had been involved in the development of several courses through PAGE which had funded videotapes and the production of print-based materials to support courses, which originally had a broadcast component. One of the language areas in particular had developed a special workshop program “Frameworks” which had received both national and international recognition especially in North America for its innovative pedagogy. The IT subjects had over the previous three years slowly developed a series of web pages to provide basic resources and information for students in several subjects. In particular the examination of online and videoconferencing in one subject EDGI933 had identified that the task was to reconceptualize the underlying pedagogy rather than accept the transference from traditional taught and attended classes to other forms of learning activity delivery through technology.

At the time there were eight areas of specialization of the Graduate School of Education, viz: Educational Leadership, TESOL, Language and Literacy, Information Technology in Education and Training, Adult Education, Special Education, Health and Physical Education and Early Childhood Education. In addition, there were several subjects in the general area of research methods that were designed to support the courses and prepare students to undertake research projects. The early adopters from this group were the IT, TESOL and Adult Education groupings, this was later followed by the Language and Qualitative Research Methods. It was an interesting time of change as several issues were facing the Graduate School of Education.

- The Federal government was reducing subsidized funding for postgraduate student places.
- Postgraduate numbers which had been growing in terms of the specialisations offered by the Faculty of Education at the University of Wollongong were being threatened by increasing fees.
- Student catchment for the University had been growing with increasingly more students travelling from other regions of Sydney to attend some of the unique offerings of the Graduate School.
- The Internet was a growing delivery medium with lower production costs than other technology solutions such as CD-ROM.

- Increasingly resources were being made available through the Internet.
- E-mail was becoming an increasingly popular communications medium between student and teacher.

3) Justification and Educational Rationale

The project sought to specifically address the potential loss of students in a time where they were being asked to pay full-fees for their postgraduate education. While numbers in the postgraduate program had been slowly growing over the previous three years, there was a concern that the decline in numbers in full fee courses over those which were offered under a HECS fee structure could prove disastrous for a small Graduate School at a regional university. Broadly the project was conceived at stopping the decline in graduate student numbers. In terms of pedagogy, the Graduate School had an active research group focussed upon the application of technology to teaching and learning (Research Centre for Interactive Learning Environments, RILE) and many of the people in this group were the early adopters of the use of Internet based technologies in their teaching.

Target Student Group

At the beginning there were approximately 30 students per year studying in the IT in education and training specialisation, another 25 were undertaking studies in Literacy and TESOL mainly using traditional correspondence print techniques. At the completion of the project at the postgraduate level there is in excess of 150 students using the flexible courses in some of their studies. At the undergraduate level most students will have some component of their course each year which require Internet and web-based support. This means that many of the 800 pre-service students of the faculty have some contact with this form of learning. These undergraduate numbers are effectively bonus additions due to the interest and challenge that the project has had for other staff in the Faculty who were not all teaching in the Graduate Programs.

Technical Soundness

The mix between what learning activities are provided by each part is an interesting saga in itself. During the period of this project the technology passed through several variations and versions. When the project began, the Faculty of Education possessed one web server which was being used in an experimental basis for two or three subjects within the IT in Education specialization. The central supported software was at this early stage TopClass, a CML package which while providing a great visual interface and discussion section required separate entry of students and duplication of the web site to be employed in teaching. A few staff from the IT specialization tried to do some interactive activities but in the course of a first use, a central committee was set up to evaluate what should be done with central provision. A decision was made in middle 1998 to adopt WebCT and this became the focus of the development activity in later course delivery. The move reduced some of the technical cleverness and innovativeness in some of the web pages but it did increase stability and automate the movement of students to the subject via the student records system. Unfortunately compared with the early page development and easy setting up on the Faculty's web server this system required passwords and a "clunky" method of uploading and placing files. The staff required considerable support to ensure that the files carried the correct names and were placed in the correct directory area. This task might have been easier if they had been used to Unix operating systems but coming from Macintosh Platforms this proved a tricky concept to master.

Administrative Convenience

This grant was instrumental in giving some impetus to skill development beyond the few staff who had embraced the application of technologies to postgraduate learning. Initially it provided a person to support those who were moving into the marriage of flexible learning and the application of technology for the first time. In fact in one course as the skills of the first project officer grew so did a series of interesting interactions and unfolding development of a learning sequence. Unfortunately, this excellent example was to fall apart when the courses had to move to a new web server (WebCT) where the CGI scripts were no longer operational. In the first year, a web server and software was procured and the courses as individual web pages with a password attached were developed. The central unit initially developed a central course support system in TopClass which was not adopted by this project because within 12 months this was replaced by WebCT version 1.3. Early in the process it was noted that either system required technical expertise to develop and maintain the support. Often a hybrid format was devised so that simple html pages were stored on the Faculty Web Server while the formal course pages, subject outline and discussion forums were hosted with the main University WebCT Server. This link was not the most effective, as it required two passwords as students moved from one to the other.

Organisational Acceptance

During the project as has been mentioned, a project officer was employed to undertake several tasks. In the first stage of the project the project officer worked on a one on one basis with interested staff. Several workshops were run for small groups of the Faculty but individual subjects were developed with a key person and often with a slightly more experienced academic who had already produced a site. As the project developed, more individual ownership occurred and most academic staff took their own initiative and worked by themselves and with an ad hoc series of support sessions on particular software products. Three years into the project it was decided to employ a technical and network manager whose role is to support the movement into more sophisticated databases of resources. At the end of the project databases of resources had been devised for the IT in Education and Training specialization and separate Educational Strategic Development Fund grant had been obtained from the University by some Physical Education and Health Academics to set up an active community site based on the work the final year BEd students were undertaking and links with the professional teacher community in their discipline.

At a more informal level, it is interesting to hear staff room conversation about how someone has implemented a particular idea using the ever-changing technology. When you hear non-technical staff talking about the difference in format of graphics such as JPEG and GIF and making sense then you know that the discourse and integration into several members of the academic staff has occurred.

Evaluation

Perhaps the best form of evaluation is that fact that the initial project was confined to a small group of courses within the Graduate School, and in spite of this narrow list the full list now numbers in excess of 50 subjects with at least something on line and available to both undergraduate and postgraduate students. Notable are several deviations that have arisen in the past two years. One project extends the community concept and has combined the links and communications possibilities of the web with the needs of later year undergraduate students who wish to make links with their professional group in the schools. In particular, the link to teaching materials and resources produced by the student teachers and their professional colleagues.

Of the 56 courses (subjects) on line in some form approximately 34%(19) are undergraduate. Several issues are worthy of additional research. There is an increasing demand by students at all levels to have access to most resources on line. In fact many academics have expressed concern that the attendance at formal lectures has declined and only 30% are attending. This however, should be seen in light of the fact that most students have a part time job to support themselves while studying. Several estimates have been made but some are as high as 80% for undergraduate students, and the number of fulltime postgraduates is about 1-2% in Education and all of these are either tutoring part time or have scholarship support. Overall the satisfaction and feedback from students is that they appreciate the opportunity to study in a part time and flexible online strategy, but they still enjoy and would prefer to attend some classes where they can share and make personal contacts with other students. For postgraduate students this contact is certainly at a time when they are reviewing their career options and several are making changes in their skill set and what might be a more exciting set of options for the future.

4) Dissemination

A report on the project was delivered at the National Teaching Seminar in Canberra October 1999. A list of publications arising from the project; or based on the outcomes of the project.

Harper, B., Hedberg, J. G., Bennett, S., & Lockyer, L. (2000). *The On-Line Experience: A Review of the State of Australian On-line Education and Training Practices*. Adelaide: National Council for Vocational Education Research.

Hedberg, J. G. (2001). The On-line and Digital Experience: Reassuring higher-order learning outcomes. In L. R. Vandervert, L. V. Shavinina, and R. A. Cornell (Eds.) *Provocative and Do-Able Futures for CyberEducation: Leadership for the Cutting-Edge*. (pp. 219-236.). New York: Mary Ann Liebert Publications

Hedberg, J. G. Brown, C., Larkin, J. L. & Agostinho, S. (2001). Designing practical web sites for interactive training. In B. H. Khan (Ed.) *Web-Based Training* Englewood Cliffs, NJ: Educational Technology Publications, Chp 27.

Hedberg, J. G. Brown, C., & Arrighi, M. (1997). Interactive Multimedia and Web-Based Learning: Similarities and Differences. In B. Khan (Ed.) *Web-Based Instruction* Englewood Cliffs, NJ: Educational Technology Publications, pp 47-58.

Goonetilake, S., Ferry, B., & Hedberg, J. G. (2000). Developing internet-based study materials as novice web-designers: Experiences of twelve Sri-Lankan Teacher Educators, *Indian Journal of Open Learning*, 9(3), 319-338.

Hedberg, J. G. & Corrent-Agostinho, S., (2000). Creating a postgraduate virtual community: Assessment drives learning, *Educational Media. International*, 37(2), 83-90.

Corrent-Agostinho, S., Hedberg, J. G., & Lefoe, G. (1998). Constructing Problems in a Web-Based Learning Environment, *Educational Media. International*, 35(3), 173-180.

Corrent-Agostinho, S., & Hedberg, J. (1998). Creating a postgraduate virtual community: Issues for authors and students as authors. Paper presented at Open Learning Australia Virtual Conference: "Online Development: issues for authors and students", March 16- 27, 1998. Available URL: <http://www.ola.edu.au/virtcon/> [Accessed: March 1998] [Accessed: May 1998 as archived site]

Agostinho, S., Lefoe, G. & Hedberg, J. G., (1997) *Online Collaboration for Learning: A case study of a postgraduate course* Proceedings of AUSWEB97 The third Australian World Wide Web Conference, July 5-7, Lismore: Southern Cross University URL. <http://ausweb.scu.edu.au/proceedings/agostinho/paper.html>.

Corrent-Agostinho, S. & Hedberg J. G. (2000). Radical Constructivism and Beyond The Information Given: Emergent Models from a Postgraduate Web-based Course. In J. Bourdeau and R. Heller (Eds.) *Proceedings of ED-MEDIA 2000: World Conference On Educational Multimedia, Hypermedia & Telecommunications*. Montreal, Canada, June 26 - July 1, 2000, pp209-214

Corrent-Agostinho, S., & Hedberg, J. (1998). Creating a postgraduate virtual community: Issues for authors and students as authors. Paper presented at Open Learning Australia Virtual Conference: "Online Development: issues for authors and students", March 16-27, 1998. Available URL: <http://www.ola.edu.au/virtcon/> [Accessed: March 1998] [Accessed: May 1998 as archived site]

Hedberg, J. G., Harper, B. M. & Corrent-Agostinho, S. (1998). Creating a postgraduate virtual community: issues for authors and students as authors. Presentation to AUC Academic Conference Flexible Learning: Exploring the myths and realities. Melbourne: University of Melbourne, September 27-30th, 1998. p19.

Hedberg J. G. (2000). Online Education and Training Practices. Keynote Presentation to Working together—Reducing the Risk, Access Literacy Conference, Moore Theological College, Sydney University, December 8th, 2000.

Hedberg J. G. (2000). The Digital Experience: Creating On-line Communities. Keynote Presentation to Philippine Centres for Educational Media Conference, Makati City, Manila, Philippines, November 23rd-24th, 2000.

Hedberg J. G., (2000). Creating a Postgraduate Virtual Community: Assessment drives learning! Presentation to the City University of Hong Kong, May 8th, 2000.

Hedberg J. G., (2000). The On-line and Digital Experience: What works and what's needed? Presentation to the University of Science and Technology, Hong Kong, October 13th, 2000.

Hedberg, J. G. (1999). Designing Interactive Learning Environments. Keynote at the 2nd Asian Conference on Computers in Education, Singapore, October 13-4th, 1999.

*Hedberg, J. G. (1998). Changing learning strategies with interactive multimedia. Keynote at the Hong Kong Association for Educational Communications and Technology, Hong Kong, May 16th, 1998.

Hedberg, J. G. (1998). Educational Futures On-line. Keynote at the On-line Australia Regional Summit, Mackay, Qld, October 13-4th, 1998.

Hedberg, J. G. (1997). Design for Effective Flexible Learning. Presentation at OTEN Educational Technology Current Developments Series, Strathfield, October 22nd, 1997.

5) Appendices

i. Contact Details

Contact for further Information

Professor John Hedberg

Associate Dean

Faculty of Education

University of Wollongong

Wollongong NSW 2522

Telephone 02 4221 3310

Fax 02 4221 4657

Email john_hedberg@uow.edu.au

Project Working Group

Hedberg, John, Professor of Education, Associate Dean of Education

Derewianka, Beverley, Associate Professor of Education (on Leave)

Harper, Barry, Professor of Education, Director, Digital Media Centre, Office of the Pro-Vice Chancellor (Research)

ii. Resources Produced

Some resources can be viewed at <http://webct-s1.uow.edu.au/webct/public/home.pl> and other older web sites. Access can be provided on request.

	<i>Postgraduate Subjects</i>	
	<i>Research Methodology and Project Subjects</i>	
Number	Title	Description
EDGZ901	Advanced Qualitative Research Methods	Full subject
EDGA903	Minor Project (IT in Education and Training –HK)	Online Support
EDGA900	Research Methods (IT in Education and Training –HK)	Full Subject
EDGA900	Research Methods	Online Support (in development on campus)
	<i>Information Technology in Education and Training</i>	
Number	Title	Description
EDGI911/2	Information Technology in Education and Training	Full subject (Hybrid CD-ROM)
EDGI913/4	Instructional Strategies and Authoring	Full subject (Hybrid CD-ROM)
EDGI931/2	Interactive Multimedia in Education	Full subject
EDGI933/4	Implementation and Evaluation of Technology Based Learning	Full subject (Hybrid CD-ROM)
EDGL915	Information Technology and Educational Leadership	Full Subject
EDGI955/6	Research in Learning Environments	Full Subject
	<i>Adult Education and Training</i>	
Number	Title	Description
EDGH911/2	Instructional Design	Full subject
EDGH917	Issues in Adult Education	Full subject
EDGH921	Evaluation and Assessment	Full subject
EDGH923	Learning Strategies and Communication	Full subject
EDGH931/2	Psychology of Adult Learning	Full subject
EDGH940	Adult Career Development	Full subject (Hybrid CD-ROM)
EDGH942	Career Development and the Organization	Full subject (Hybrid CD-ROM)
EDGH944	Career Development with Clients	Full subject (Hybrid CD-ROM)
EDGA806	Project and Practicum	Online Support
	<i>Educational Leadership</i>	
Number	Title	Description
EDGL911	Leadership of Curriculum and Instruction	Online Support
EDGL915	Information Technology and Educational Leadership	Full subject
	<i>Literacy</i>	
Number	Title	Description
EDGA959	Adult Literacy	Online Support
EDGA971	Assessment and Evaluation of Language and Literacy	Online Support
EDGR911	Teaching Reading	Full Subject

	<i>Special Education</i>	
Number	Title	Description
EDGS912	Contemporary Perspectives Education of Students with Diverse Needs	Online Support
EDGS916	Models of Behaviour Management	Online Support
EDGS917	Programming for Behaviour Management	Online Support
EDGS918	Approaches to Reading Difficulties: Theories and Strategies	Online Support
EDGS919	Reading Difficulties: Program Design and Implementation	Online Support
	<i>Teaching English to Speakers of Other Languages (TESOL)</i>	
Number	Title	Description
EDGA970	Language and Literacy Development	Online Support
EDGA976	Text and Context	Online Support
EDGA981	Second Language Literacy	Online Support
EDGA983	Assessment in TESOL	Online Support
EDGA984	Language and Learning in TESOL	Online Support
EDGA903	Minor Project (TESOL)	Online Support
	<i>Graduate Diploma Subjects</i>	
EDGA802	Technology in Pedagogy Subject	Online Support
	<i>Undergraduate Subjects</i>	
Number	Title	Description
EDIT102	Information Technology for Learning	Full Subject
EDIT407	Information Technology in Education and Training	Full subject
EDIT409	Developing Interactive Learning Environments	Full subject
EDUE313	Interactive Multimedia by Design	Full subject
EDUE314	Interactivity and the Web	Full subject
EDUE317	English Language: Examining Learners' Problems	Online Support
EDUF111	Education I: Child Growth and Development	Online Support
EDUL230	Education Language	Online Support
EDUL240	Materials and Technology in Second Language Teaching	Online Support
EDUL330	Practicum or Project in Second Language Teaching	Online Support
EDUP144	Health and Health Behaviour	Full Subject
EDUP368	Fitness Assessment and Exercise Preparation	Online Support
EDUP435	First Aid and Sports Medicine	Online Support
EDUP451	Advanced Teaching Learning Studies in Physical and Health Education	Full Subject
EDUP453	Professional Studies in Physical and Health Education	Online Support
EDUS333	Science and Technology Education (K-6)	Online Support
EDUT301	Research Methods	Full subject
EDUT302	Curriculum and Pedagogy III	Full subject
EDUT422	Reflective Practice	Online Support