

Calibrating Online Teaching in an Undergraduate Unit in Early Childhood

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ABSTRACT

Information technology has become central in flexible learning in view of the paradigm shifts occurring in delivery of teaching and learning materials, as well as the vast numbers of distance education students, both in Australia and overseas to whom such experiences need to be made accessible in the most pedagogically sound ways. This report presents the development of the delivery of an undergraduate unit from a traditional to online and student-managed format. Findings of the survey support the efficacy of web-supported learning, which has evolved into a student-managed learning system over the reported successive applications in teaching of a core undergraduate unit at IEC.

Based on this experience and supported with the presented results, it is argued that IT offers not only supportable, but potentially very positive teaching and learning outcomes, provided that the process is seen as a flexible one by the teaching teams. Careful attention to student feedback, giving conceptually sound pedagogy priority over the use of IT for its own sake, and reviewing, reflecting and revising such experiences appear to be at the heart of the matter: online learning and teaching may have been the tempting flavour of the decade; it can be the heart of quality in teaching in the new millennium.

Keywords: Information Technology, web-supported learning, Australia Macquarie University, Student-managed learning

BACKGROUND

Information technology has become central in flexible learning in view of the paradigm shifts occurring in delivery of teaching and learning materials, as well as the vast numbers of distance education students, both in Australia and overseas to whom such experiences need to be made accessible in the most pedagogically sound ways. This report presents the development of the delivery of an undergraduate unit from a traditional to online and student-managed format.

Student-managed (autonomous) learning espouses to give the learner the responsibility for choosing and understanding the relevance of some key variables in construction of knowledge. These include: the purpose of the unit, its content, the role of the teachers, monitoring of their progress, the criteria and mode of assessment, the location, pace and style of delivery, the learning styles, and access to resources (Stephenson, 1999). These attributes were carefully integrated to the planning and delivery of the unit (see below). As self-regulated learners can systematically use metacognitive, motivational and behavioural strategies to achieve academic goals, and are said to be effective learners (Zimmerman, 1990; Butler & Winne, 1995), the teaching/learning objectives and strategies of the unit were also inspired by these principles. Effective and efficient learning has also

shown to be dependent upon the continual interaction of the students' content and strategy knowledge (Alexander & Judy, 1988); thus presenting the unit an online learning environment with students having choices and responsibilities to make the right decisions in construction of their learning appeared to be pedagogically sound practice.

A significant benefit of web-supported learning is the flexibility of access, and maintaining parity between the learning experiences of internally versus externally-enrolled university students, particularly appropriate for diverse populations of students such as those at the Institute of Early Childhood (IEC), Macquarie University: nearly half of our students are enrolled in external units, more than half are in part- or full-time employment, and nearly a quarter are mature-age students with multiple university, work and family responsibilities. Flexibility in delivery allows students to access learning materials on- as well as off-campus, as well as at other locations such as work or a library, and within time frames to accommodate to their own needs. The IT-based communication facilities allow the students ongoing and immediate access to their peers and teachers, a feature which is crucial for external students. Perhaps the most outstanding benefits are indeed realised for the externally-enrolled students through the flexible delivery of learning materials and communications: with such "seamless delivery" their learning experiences are comparable in content and communications to those who are enrolled internally; they no longer feel isolated and disenfranchised as distance students; they are immersed in highly motivational and contextualised learning experiences. The flexibility of access in times and modes to suit their life circumstances increases the likelihood that these units are of successful experiences for them and encourages student enrollment and, thereby, decreases their attrition from the program.

These benefits and desired educational outcomes prompted the construction and delivery of the core unit ECH 213 in a IT-supported format, supported by the Macquarie University Vice Chancellor's Development Grant. The project was developed and implemented through close collaboration with and assistance from the Centre for Flexible Learning. Following the formal evaluation and with ample student feedback at the end of its first-time delivery, it was calibrated to suit student needs better and offered in a similar web-supported format in the subsequent year.

Traditionally, this core unit, ECH 213 Development Difference and Disability was delivered to internal students through eleven weeks of two-hour lectures, plus a one-hour tutorial. External students received a unit outline, unit materials and came to one-day compulsory on-campus school (OCS).

In its first year of online delivery, the unit catered to 120 students, 55 of whom were externally enrolled. This unit was the first at IEC to be trialed in a substantially extensive web-supported delivery mode. In its second year, the total number of enrolled students was 135, with 48 distance students. These successive trials and their evaluations will be summarised below.

The initial flexible learning package for ECH 213 employed multiple technologies, such as weekly face-to-face (audiotaped) lectures, a text book, as well as the web-support. The web site contained course information, clearly identified goals and objectives for the unit, a unit outline pacing the learning activities for the semester, a description of the assessment activities, an extensive reference list for further reading and internet resources, as well as the curriculum content, including tutorial exercises, self-assessment tasks in the form of a quiz or a case study, as well as weekly lecture outlines. The tutorial sessions were essentially replaced by the teaching and learning activities downloaded to the web, which interfaced with the weekly plan in delivery of lectures. The web site also offered communication facilities: the equivalent of each tutorial group constituted a FORUM on the bulletin board, with a tutor in charge of all six such forums. E-mail facilities were available for personal communication between students and/or their teachers.

In its first year, the major assessment was a group project on a case study and the final exam. The only addition to the already existing format was the weekly self-assessment tasks, weighing 10%: these were a multiple-choice quiz, and questions posed after a web-appended case study, one for each (alternating) teaching week. New applications were web-based tutorial groups, and on-campus session for those external students who were not on the web. The communication facilities were mainly used as an option to comment on the tutorial tasks and reflective questions (10% weight).

ISSUES AND PROBLEMS ENCOUNTERED

The major issue encountered related to the concerns surrounding access and technical problems by the students. It appeared that the infrastructure at the University did not always adequately support web-based learning, particularly in ease of on-line access. Other issues which were reported or observed were the following:

- Some students felt that the face-to-face contact in tutorials was preferable to being on the web and communicating electronically. However, it should also be noted that of the 80 students initially enrolled internally, about 20 chose to transfer to being an external student, forfeiting the face-to-face lectures.
- Bulletin board communications appeared to be more process of delivery oriented; it would have been desirable to see more content-related discussions among students.

REVISED APPLICATIONS

It was thus apparent that the unit content and student assessments needed re-visiting and re-formatting in order to engage the students in content-rich comments, rather than mainly procedural inquiries. Furthermore, a degree of face-to-face content which was accessible in the traditional delivery mode needed to be maintained.

In its second year of delivery, based on the collective experience and reflection of staff and students, the following amendments occurred:

- The web-supported delivery was maintained. On it, students are still able to access to unit outline, a list of staff and students, weekly events including weekly lecture notes and weekly tutorial activities; and communication facilities including e-mail and bulletin boards. Lecture outlines are made available prior to the lecture so that students are free download it and to listen to the lectures attentively and make their own additions as necessary.
- A new assessment task is for them to write a reflective journal each week framed by the tutorial tasks and guiding questions to be put on the web bulletin board. This exercise has proven most effective and has generated discussion and construction of argument beyond our expectations.
- Lectures are now being digitally recorded and are made available online to students within a day of the lecture delivery; Centre for Open Education still mails the lecture tapes fortnightly as a back-up measure.
- Face-to-face tutorials are maintained fortnightly for internal students. Those students who come are usually few in number and tend to be the highly motivated ones; the caliber of the tutorials has made teaching and learning a very rewarding experience for all. Other students whose needs are met with the tutorial materials made available to them online choose not to attend regularly.
- On campus school (OCS) is compulsory for all external students and serves to maintain the personal and face-to-face aspects of teaching and learning. Those students who were not online by this time (7 out of the 49 in the second year) were provided with extra training and support to encourage flexible learning.
- Graphic images from the student/staff IDs have been added to the site, making interactions and communications more "real" and personal, particularly for external students.
- The assessment tasks for the unit are modified in its current delivery.

- There are two quizzes totaling 20% given in weeks 6 and 12, in tutorial times for internal students, and in OCS for externals, with the second quiz being mailed out to them. Weekly reflective journal is weighted 10%.
- Their major assignment (30%) is a choice of a parent interview and analysis within a family-centred intervention model, or an electronic data based research on the state of the art developments on a condition or intervention.
- The group assignment case study is transformed as a final examination task; the students are provided with the four-part question they are expected to address in their unit outline. The actual case study is chosen from the five case studies they are given in tutorials during in alternating weeks during the semester, on all of which they spend some time analysing and reflecting.
- The final examination also includes three short essay questions (chosen out of six options), and the students are allowed one 'cheat sheet' for their use during the examination. This device is incorporated to encourage them to systematise their studies at the end of the semester, as the questions they are expected to answer rely much more on their skills of critical thinking than factual regurgitation.

In short, in response to student evaluations in its first year of online delivery, the unit was re-designed to be a flexible learning package to better suit students needs and learning styles: all students receive the same materials every week and participate in the same assessment tasks. Although they are encouraged and self-select to be on the web, the unit delivery does not disadvantage those students who are not, as they are sent hard-copies of web materials every week. Students have the option of choosing an applied or a theoretical piece of assessment, the expected form of which is prescribed in the unit outline, but the selection of the topic (the content) is student selected.. They may choose traditional models of delivery with tutorials and OCS, or do their entire learning on the web, or choose a combination of the two. Thus, the students are treated as adult learners who are self-motivated to learn and achieve. While the content is mostly prescribed as it is a core unit, the mode of delivery is entirely flexible and encourages student-managed learning.

The formal evaluation results of the teaching / learning experiences achieved for these two applicat are presented below;

FORMAL EVALUATIONS OF ECH 213

The criteria which are used in analysing the anticipated benefits included the following: Having at least 80% of the externally enrolled students in targeted units using the web contents and communications facilities: access is assessed with respect to who the users are, how frequently and from where they access the materials; unit site access logs are analysed. Over 90% of the student were on the web over both years; use time varied from a total of 28 minutes to 23 hours 47 minutes per student over the semester.

Staff workload issues, and availability of the necessary resources for preparation and maintenance of on-line materials are evaluated with time logs and focus groups. The staff buy-out time of six hours in the semester compensated for the preparation of the web-supported delivery; actual student contact hours were found to be similar to allotted loadings in traditional modes of teaching.

Usability of the on-line materials and the proper working order of the links, communication facilities and navigation are evaluated through observations, user access logs and feedback forms.

Learning benefits which are evaluated by survey and on-line evaluation results which indicate degrees of satisfaction with, and improved learning and teaching outcomes from students. The last two criteria as assessed by formal evaluations are summarised below.

RESULTS

The usability and learning benefits evaluation data was collected through the Macquarie University Student Evaluation Teaching Subjects (SETS) questionnaire, as well as by the custom-designed On-line Survey Report by CFL. A total of 115 students responded in the first year, and 108 students responded in the second year. These results are presented in Table: 1; they indicate a clear shift towards better learning/teaching outcomes in the second year of applications. Some salient features that emerged from the evaluation results are highlighted below:

- Student competencies in access and navigation of the web site seem to have increased, an expected experience effect within the same cohort, and perhaps an effect attributable to general increase of web skills from one year to the next in different cohorts.
- Similarly, student training needs on access and use of the web site seem to indicate a substantial decrease (26% vs. 8%).
- Optional face-to-face tutorials appeared to make a significant impact on student satisfaction: while web-only tutorials were rated at 39% as being satisfactory or better, this rating increased to 61% with the optional face-to-face contact.
- Similarly, student satisfaction on the dimension of interacting with fellow students on the web doubled (28% vs. 61%) as their assignments were asked to be placed on the web bulletin board and as they were invited comment on each others' work.
- Finally, there appeared to be a significant positive shift in student attitudes towards the quality of web-supported learning experiences as the units offered more student choice and increased the opportunities for interactions: overall learning experience was rated as being good and excellent at 51% initially, rising to 85% subsequently.
- In looking forward to other units being presented in similar formats, expressions of this desire increased from 40% to 67%.
- Students responses derived from their final reflective journal entry on the bulletin board supported improved student satisfaction as well. Although they were not asked to make evaluative comments for the unit, the teaching style employed by staff, or the mode of delivery as a guiding question of the tutorial task, 79 students (60%) made a comment referring to these issues.

Their comments ranged from acknowledgment of a benefit from web-supported learning, to excellence in teaching and learning in web-supported delivery.

Table: 1

Pooled student positive responses (Strongly agree and Agree; SA+A) versus negative responses (Disagree and Strongly disagree; D+SD), and the value mean, where 5= Strongly agree, 3= Neutral to 1= Strongly disagree for ECH 213, compared in 1999 and 2000 based on the on-line survey of students.

	First Year; n=115			Second Year; n=105		
	SA+A	D+SD	Mean	SA+A	D+SD	Mean
I was able to find my way easily around the web site	74%	10%	3.8	82%	3%	4.2
Links to course materials are always in working order.	63%	16%	3.6	82%	6%	4.1
Training offered on campus for the web site was sufficient.	58%	4%	3.6	49%	5%	3.8
My computer skills were good enough for web-based learning.	79%	9%	3.9	89%	4%	4.2
Face-to-face, telephone and computer communications met my needs for staff assistance.	39%	29%	3	78%	7%	4.1

Compared to traditional tutorials, I was better able to interact through the web.	28%	30%	2.9	61%	8%	3.7
Accessing lecture notes prior to the lecture was helpful.	83%	2%	4.4	95%	0%	4.7
How would you rate the contents and quality of web materials (excellent-v. poor)	84%	6%	4.1	95%	0%	4.6
How would you rate the overall web-based learning experience in this unit? "	51%	21%	3.4	85%	4%	4.2
I would like to see more units delivered on a web-supported format.	40%	33%	3	67%	9%	3.9

RESULTING EDUCATIONAL BENEFITS AND CONCLUSIONS

The following principal educational benefits seem to have been attained through the web-supported delivery of the unit in its evolving applications:

- Creation of parity between internal and external students in the content of the learning materials as well as their delivery;
- Flexibility of access for all students as well as teaching staff;
- Enriched content of tutorial materials, with many more resources presented;
- Student engagement in highly motivational materials, scaffolded by on-line communications and peer tutoring observed frequently in propagation of relevant information, problem solving, and support;
- Increase in student confidence and skills in IT-supported learning and resourcing.

It is reasonable to assume that the mode of delivery of content to the learners, and the extent to which the delivery is flexible such that they can make decisions to suit their needs in constructing their content knowledge are likely to impact learning outcomes. Web-supported learning experiences may be constructed to allow for such a platform of student-managed learning of academic content and support within the Macquarie University context (Gosper & Rich, 1998).

These findings support the efficacy of web-supported learning, which has evolved into a student-managed learning system over the reported successive applications in teaching of a core undergraduate unit at IEC. Based on this experience and supported with the presented results, it is argued that IT offers not only supportable, but potentially very positive teaching and learning outcomes, provided that the process is seen as a flexible one by the teaching teams.

Careful attention to student feedback, giving conceptually sound pedagogy priority over the use of IT for its own sake, and reviewing, reflecting and revising such experiences appear to be at the heart of the matter: online learning and teaching may have been the tempting flavour of the decade; it can be the heart of quality in teaching in the new millennium.

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