

Enhancing the learning outcome of university distance education: an Australian perspective

Jeff Cooke

Senior Lecturer in Information Systems, Central Queensland University, Rockhampton, Australia

Irene Veach

Faculty of Business Administrative Executive, Central Queensland University, Rockhampton, Australia

States that Central Queensland University (CQU) is one of seven universities authorized by the Australian government as a provider of distance education. Lack of affordable network infrastructure over vast areas of Australia currently requires that paper-based study material be emphasized. At CQU, the Division of Distance and Continuing Education (DDCE) is responsible for the production and initial distribution of learning materials and student/lecturer paper-based interface management, e.g. tracking of assignments and response timeliness, a quality issue. Study material content is the responsibility of the lecturer, with quality reviews being performed by the originating faculty departments. Integration of the Internet into unit delivery is being trialed in ad hoc ways by various lecturers, particularly in the Business Faculty. Forms a progress report of one such pilot programme in a post-graduate information systems offering. With respect to the QIP, a revised unit assessment survey was conducted. Preliminary indications are that the innovative utilization of the Internet reported may be a significant substitute for traditional paper-based delivery while providing a superior learning environment much preferred by students. Additionally, lecturers find it far more efficient to maintain the relevance of perishable material in courses, especially those which are information system or information technology-based.

International Journal of
Educational Management
11/5 [1997] 203-208

© MCB University Press
[ISSN 0951-354X]

Background

Traditional delivery of distance education at Central Queensland University (CQU) has revolved around a very mature and highly-honed structure developed over several years. The learning "package" typically consisted of, but was not limited to, the following materials:

- Unit Profile;
- Study Guide;
- resource book of readings;
- references to appropriate journals and books; and
- all integrated with a set textbook.

Development of the content and integrating links of this package begins and ends with the lecturer in charge of the unit. The process of this development is managed by the Division of Distance and Continuing Education (DDCE) according to a common structure which has been professionally developed utilizing generally accepted learning methods and models (DDCE, 1997). Quality assurance of the process itself is excellent, as evidenced by the steady improvement in ratings (currently middle third) achieved in the biannual Australian Tertiary Education Quality reviews (Committee for Quality Assurance in Higher Education, 1995).

Paper-based unit feedback is explicitly solicited from each student as a quality mechanism which is used to adjust future offerings in unit content, form, and substance. These unit feedback surveys are a component of the quality improvement programme (QIP), but frequently are received too late for the lecturer to effect change in the very next production of the study material package.

It is our judgement that the current paper-based model of distance education course delivery as exhibited/practised at CQU has evolved to a plateau unlikely to be improved on.

Evolutionary forces

The amount of data and the associated processing thereof to produce an information product is growing at an ever increasing rate. It has been stated (Synnott, 1987) that the

amount (new) of world information generated is doubling every five years. At this pace it is no wonder that many so-called information societies are overwhelmed by the choice, staggered by the amount, and confused at the real conflict of facts.

In some university courses, distance education material is judged partly on the quantity of high quality paper-based material. This may include voluminous readings, sometimes encompassing two volumes of reproduced, appropriately copyright acknowledged, material. This is in addition to set readings in the prescribed text. The reading workload using this distance education model is considerable, albeit precisely metered and objectively probed via lecturer-developed questions and answers at regular way points in the learning cycle. Students were then encouraged to perform the (lecturer) provided self-assessment with respect to their grasp of the paper-based material. Clearly students were required to read and absorb a great deal of information. In the distance education mode, there was no direct student-student interaction unless a teleconference was performed or a workshop scheduled. Either of these activities were voluntary, and usually resulted in very poor participation rates. Furthermore, student-lecturer interaction was typically accomplished, albeit on rare ad hoc instances, by students phoning the lecturer, post mail, or e-mail in those instances where students had access.

Customer-driven business requirements are also changing. Intensified global competition has increased the pressure on business to respond quicker and develop new and innovative ways to compete successfully in the marketplace. Business process re-engineering (Turban *et al.*, 1996) has become a frequent solution to these increased pressures.

Business as well as student customers must work smarter rather than harder. Increasingly this means being better informed with the requisite quantity and quality of information to do their job. A strategy to meet market needs is different from one which exceeds market needs. An appropriate balance in resource expenditure is required in each case in order to produce the desired output. Outputs, whether they be product or service,

need this balance. Time becomes an increasingly valued commodity and must be judiciously apportioned to address the most critical factors for success.

We are all experiencing, to a greater or lesser extent, information overload. More than focus is required. Relevance, particularly in the information systems arena, is even more important, with the view that information is becoming more susceptible to a "use by date".

Potential student and lecturer impacts

We assert that heavy reliance on paper-based learning material can become a limiting factor in the learning process. Today's competitive environment puts increased pressure on students to be very selective in their time utilization. Many times students accomplish this by excising over 80 per cent of the reading material, especially if a psychological threshold of "too much" is reached on the opening of a multi-kilogram study material package. This in addition to a set text!

Lecturers too are time pressured. The lead time for revision, update, or complete rewrite of the distance education package continues to increase. In fact, over the last three years the average lead time required for production of unit material at CQU has increased from one semester to over two semesters. This is in spite of the fact that more word-processing resource and technology standardization has been applied to the production process. Not only has the production lead time become longer, increased quantities of available information requires increased lecturer time to research and develop quality updates and revisions. This is particularly true in the disciplines requiring a significant information systems or information technology component. Moreover, few lecturers would disagree that units in information systems require constant attention in order to ensure their relevance. However, as unit material production lead times lengthen, it becomes more difficult to maintain currency, relevance, and requisite quality of the distance education product. A new approach is required.

Trial solution of an enhanced learning package

Trial solution

A trial solution addressing these evolutionary forces and alleviating potential student and lecturer time compression was piloted in 1995/1996. The centrepiece of this trial was

the design of a new distance education "package" which integrates with the Internet. An evolutionary rather than a revolutionary approach was taken, realizing that too great a change from the highly developed paper-based model was imprudent. The package now integrates three major items.

First, a single text eschewing the thrust of the unit is chosen which is no more than 18 months older than the semester in which the unit will be offered. This practically translates into a text book with a latest print date being within one year of the offering. This is important, not only for relevance in an information science-related discipline, but also from an image point of view. Over 95 per cent of our mature age postgraduate students (customers) are currently employed, or on educational leave from a business or government enterprise. Perception of the relevance of learning material is many times equated to the dates associated with each piece of the integrated package. In particular, journal and text references are considered very perishable. We believe that addressing this relevance factor is an important consideration in course marketing.

Second, a single Unit Profile was developed which addresses both the on-campus as well as the distance education student's participative learning requirements. The Unit Profile contains:

- 1 the lecturer's introduction and statement of learning objectives;
- 2 the assessment criteria;
- 3 assignment requirements and exam structure;
- 4 the weekly schedule;
- 5 Internet proficiency requirements (e.g. instructions about the use of a "list manager" and how to subscribe to it; and
- 6 the required format and associated process by which weekly class interaction is to be accomplished via the MIS (management impact statement) and the EMIS (electronic management impact statement, adapted from the MIS of Reynolds, (1992)).

Item 5 is particularly important because it lays out the requirement to have Internet access, including a compliance statement to that effect electronically transmitted to the lecturer *before* close of business (cob) on Friday of week 1. Since the weekly schedule requires the submittal of an EMIS, compliance must not be delayed. This weekly EMIS (Appendix 2) assignment is in addition to set readings from the prescribed text book. Items 5 and 6 are new to the CQU Faculty of Business distance education process, and, the weekly schedule now contains an assessable

participation requirement centring on the MIS or EMIS. This is also new.

Third, the Study Guide provides complete detail on form, content, and the integrative process required for executing the weekly MIS (utilized by on-campus students) or EMIS (utilized by distance education students). The form (e.g. format) and content of the EMIS is similar to that of the MIS. The major difference between the two is that the MIS is focused on the prescribed textbook chapter for the week, with the requirement for it to be developed utilizing Microsoft Power Point and presented in front of the class through an Epson 3000 projector. The on-campus face-to-face class participation and topic integration discussion is maximized because all students are interacting in a real time exchange. The lecturer facilitates this process and encourages lateral thinking excursions by injecting appropriate “what-if” scenarios. Albeit the presentations are focused, no two classes are the same because this format does not restrict the outcome a priori.

Students are encouraged to focus their EMIS on current information system or information technology topics, particularly those which have no particularly clear solution path. Examples include, but may not be limited to, societies’ access to information, censorship, copyright and proprietary intellectual issues, electronic commerce and governments’ desire to apply transborder taxes, etc. The distance education electronic “face-to-face” class participation and topic integration discussion is maximized because all students are interacting through a seamless electronic interface exchanging ideas in “near” real time. By “near” real time we specifically mean that the student assigned to find and develop the topic(s) for the week places his/her researched work on the list processor for “broadcast” to all students by cob Wednesday. All other students must comment by offering brief, yet insightfully developed constructive criticism and/or “what-if” responses by Sunday evening for that week’s presentation. The students themselves fuel and facilitate this process by injecting appropriate “what-if” scenarios and providing thoughtful judgements based on actual experience, beliefs, or observation. This encourages additional lateral thinking excursions which usually results in very provocative outcomes. Albeit the weekly EMIS presentation had a particular view based on the value structure, experience, and observations of the initial focused effort of the student assigned for the week, subsequent class participation and differences of view almost guarantee

lively and thoughtful responses with the weekly conclusion not known a priori!

The Unit Profile and Study Guide for unit 21608 together now consists of 24 pages. This is a considerable reduction from the 142 pages in 1995. Furthermore, the book of readings characteristic of the paper-based version of this unit delivered in 1995 has been eliminated and replaced with the EMIS/MIS requirement. For unit 21608, this has resulted in the elimination of two volumes containing 440 pages. The form and content of the Study Guide has been changed completely.

Distance education enhanced package

Process delivery mechanism

In order to manage the unit 21608 distance education delivery process, the Majordomo list processor (Chapman, 1992) is used for managing the list established exclusively for the students of this unit. Majordomo is an automated list management programme “which frees the lecturer from dealing with most of the administrivia usually associated with managing mailing lists such as adding users, dropping users, etc.” (Chapman, 1992).

EMIS development procedure

The EMIS is the mechanism which encapsulates the procedure by which all students get involved in selecting and commenting on current topics of the day. Topics must be obtained from Internet sources (a preliminary list of Universal Record Locator (URL) addresses are provided in the Unit Profile to get the student started) and are required to be relevant to the theme of the unit. The unit theme and additional guidance are explicitly supplied in the paper-based Unit Profile and Study Guide. There are no other restrictions.

The lecturer produces a student responsibility list from the CQU Student Records System for each week in the semester. For each week a particular student is assigned responsibility to seek out three information science (systems or technology) topics with a potential enterprise management impact. Each of these articles should not exceed one screen (24 lines) of text. The student then cuts and pastes the selected article, along with its source and “publication” date, to a newly composed e-mail in preparation for transmission to the unit electronic class list. The student then exercises critical thinking skills by addressing the important point of the article, by incorporating his/her views and then extrapolates them to a reasonable future scenario. This student-prepared management impact summary incorporates analysis

according to each presenter's particular knowledge, experience, background, and value structure. The framework for this EMIS follows that of Turban *et al.* (1996) (Study Guide explains) and is required to be within the framework of either re-engineering, global perspective, technology, or other. Appendix 2 is a reproduction of the EMIS instructions excerpted from the 21608 Study Guide for II/96.

Results

After two semesters' operation in the trial mode, with fine tuning of both the Unit Profile and the associated Study Guide, it appears that several benefits/improvements have been achieved.

First, full participation students achieve a greatly enhanced learning experience more closely aligned to a seminar-type environment. Interaction is greatly increased. Since interaction is all electronic, and void of visual (e.g. face-to-face) queues, comments are more freely provided, albeit in a respectful and thoughtful manner. Written responses demonstrate a great deal of thought and very careful crafting. Appendix 1 reports the student survey comments addressing this aspect.

Second, a more concise distance education package which greatly reduces the amount of paper-based material has been achieved. This results in a much shortened lead time for changes, updates, or rewrites with respect to the DDCE production schedule. The "perishability" of the package has been reduced.

Third, lecturers are able to delay the choice of textbook in order to accommodate the setting of the best available textbook which may also be the most recent.

Conclusions

It is our judgement that information systems learning from an enterprise management view is enhanced by integrating the communication (e-mail) capability provided by the Internet with paper-based material. Furthermore, development of a balanced integration of electronic and paper-based material as a distance education package is recommended for consideration by other disciplines.

Additional improvements in the development of quality distance education "packages" may be expected as Internet browsers, complete with search engines, become more readily available through Internet access providers. Currently, rural Australia and other less populated areas of the world are not economically well served in this regard.

References

- Chapman, B. (1992), *Majordomo Mailing List Manager*, version 1.92.
- Committee for Quality Assurance in Higher Education (1995), *Report on 1994 Quality*, Vol. I, March, p. 14.
- Division of Distance and Continuing Education (1997), *Creating Materials for Flexible Learning*, Central Queensland University Press.
- Reynolds (1992), *Information Systems for Managers*, West Publishing, St Paul, MN.
- Synnott, W.R. (1987), *The Information Weapon*, John Wiley & Sons, New York, NY.
- Turban, E., Mclean, E. and Wetherbe, J. (1996), *Information Technology for Management*, John Wiley & Sons, New York, NY.

Appendix 1. Survey results

Student feedback was generally very positive and there was reasonable consensus that the weekly MIS and EMIS achieved a greatly enhanced learning outcome. A significant number of students made positive comments about the interaction and synergy outcomes via the MIS (internal students) and EMIS (distance education students). The following quotes come directly from student unit evaluations:

- I like the electronic interaction between students and lecturer.
- The EMIS are very good. I enjoyed the variety of comments, the differing viewpoints and approaches to topics. This has shown me (*sic* how) to value and explore the breadth of understanding available, and what can emerge from a research team. Each person brings something new to the session, as long as they are not fettered by too tight a definition of what to learn and how to respond.
- Lack of criticism and a time and place for humour among the serious considerations.
- Overall this subject has helped to (slowly!) develop a "business perspective" to issues, as well as an IT one or my own personal ideas. The discussion taking place between students emphasized the different viewpoints on topics.
- I believe that the EMIS format gives distance education students a far greater opportunity to participate in a manner more similar to actual classroom conditions. The format encourages participation and interaction between students.
- As a distance education student it is interesting to read the responses of other students to the weekly assessment questions.
- Opportunity to get better acquainted with the net and its possibilities.
- E-mail between myself and the other students has been pleasant and entertaining, and quite different from any other form of contact I have experienced.

Appendix 2. Study guide (excerpted), unit 21608, Information Systems Management

This Study Guide is a component of the study package for 21608 Information Systems Management.

The complete study package contains ...

- Unit Profile
- Study Guide (this document)
- Internet addresses (contained in the Unit Profile) required by all students in order to effect unit compliance

and has been specifically developed by Jeff Cooke for a CQU course of study.

This production of the 21608 Study Guide will provide a new and improved learning experience congruent with the explosion of information and technology available via the Internet. It requires a level of student discipline which is regularly and consistently applied. Previous support to the Australian in-country and overseas distance education information technology student consisted of voluminous printed material. The material in such a package quickly became outdated and increasingly more difficult to produce and maintain. Information is like vegetables ... it is perishable. In order to keep within the information technology "use by date", this unit requires each student to accomplish an/a:

- 1 weekly interaction with the Internet, WWW, appropriate printed material, or all three to obtain current information for presentation or to contribute to weekly presentations by providing constructive feedback electronically or class comment directly;
- 2 analysis, integration and presentation of the information obtained electronically and/or from printed material according to a weekly schedule explained in this Study Guide;
- 3 presentation of an analysis in a manner outlined in this Study Guide and in the appropriate format for peer review, comment, and constructive feedback.

Presentation instructions for distance education students

The requirements are very similar to those for on-campus students except for the modifications required to achieve the same results electronically. Specifically, the following instructions apply:

Developing weekly Electronic Material Impact Summary (EMIS)

Commencing week 2 and each week thereafter through and including week 13, one or two students will be required to prepare an EMIS for the following week. The weekly assignment is determined from the class list

that I will supply electronically. (The student's attention is directed to paragraph 2 on page 7 of the Unit Profile which requires electronic compliance.)

The assigned presenter(s) choose an Internet e-mail or WWW source(s), and from this source(s) choose three current topics from which to summarize what you believe is the key point and present them electronically to the entire class via this unit's list server. These will be the three most important electronic articles in the weekly electronic source as you perceive them. Include in your electronic summary arguments for or against each article. Why do you believe the article is important? Categorize each article into one of the following categories:

- 1 global perspective;
- 2 emerging technology;
- 3 business process re-engineering; or
- 4 other.

Each (there are three) EMIS is limited to two electronic screens (24 lines each) for each article. One screen for re-displaying each article, and one screen for your analysis. This is a total of six screens.

I must stress that the relative importance of each point is determined individually by each presenter. You exercise judgement on the key points based on your knowledge, experience, skills, and value systems. In essence, you will have exercised critical thinking skills in making the assessment of how the material may impact you.

Some student presenters will tend to defer to the original author's or reporter's view as the default starting point, particularly when you have little or no skill or experience base on which to exercise professional judgement. However, students are encouraged to make judgements by synthesizing from a knowledge base being acquired as the unit progresses.

Employing this approach will give you the opportunity to build and exercise your electronic presentation and selling skills. These skills are particularly useful for individuals planning to be the future change agents and thought leaders in information systems management.

Overview of weekly class presentation format for distance education students

First, identify three electronic articles each of which fit within a typical VDU (visual display unit) screen (e.g. approximately 24 lines). Then copy and paste the electronic article into the body of your e-mail message. Explicitly identify each article, including its source. Your well-developed response or viewpoint (e.g. approximately 24 lines) follows

each pasted article. Clearly and explicitly identify *yourself* and *your* response so the reader is clear that this portion of the EMIS is your original work. Repeat this procedure for each of the electronic articles.

Send your work as an electronic message (again, there are three of these for each presenter) to the unit list processor (ULP, e.g. subject-21608 as designated in the Unit profile) NLT (no later than) cob (close of business) Wednesday. Any student may respond via the ULP and offer constructive criticism of your electronic “analysis report”. The class electronic feedback should be where additional ideas and extrapolative comments come out. Again, each piece of feedback must explicitly identify:

- 1 the student making the contribution; and
- 2 which of the three EMIS you are addressing.

It is a strict requirement that each student actively participate and contribute via the ULP NLT Sunday evening of that week’s presentation.

I must emphasize that the Majordomo list manager in OPEN list form (which is the parameter which I have set for this unit) does *not* identify the sender of any e-mail messages. This means that *each* contributor (e.g. weekly assigned student) and *every*

participator needs to identify in their reply who they are and which (1, 2, or 3) of the EMIS they are responding to. I will file electronic copies by week for ALL electronic traffic, for unit administration and Quality Improvement Program requirements.

The weekly presenter monitors and responds to this activity electronically as required until commencement of a new week on Monday, when the cycle repeats with a new presenter.

- Make it a personalized view. What is your point and why do you think that it is important? This may or may not correspond with the original author or reporter’s view that is expressed in the electronic material. Your view is what’s important here.
- The student presenter must employ a “professional” approach which makes it effortless for the reader to delineate between the article you have chosen and your response to and categorization of the electronic article. Amateurish, sloppy organization is prohibited.

Class electronic discussion – Limited to each week’s material and must be posted to the list server NLT 1800 Sunday at the close of each week. It is a strict requirement that each student actively participate and contribute.