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Back to List of papers

Designing WebCDs : A Low Cost Option to Enhance Learning and Interaction

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Abstract

Candidates of Southern Cross University's Doctor of Business Administration are a unique group. Demands by these senior executives for flexibility of delivery and portability of courseware has been the recent impetus for course redesign. Informed by a student survey and expressed needs of staff, instructional designers focused on a low cost hybrid model for delivery of study resources.

A collection of Web linked CDROMs have been designed to utilise advantages of online interaction while storing high resolution video materials without limitations of bandwidth and unwieldy download times. Enhancements to teaching, learning and assessment approaches are discussed.

Introduction

As instructional designers at Southern Cross University (SCU), our tasks this year have included design and development of support materials for the Doctor of Business Administration (DBA) for flexible delivery. Initial investigations of the student group and staff in the program indicated several unique characteristics to be considered.

Firstly, DBA candidates are predominantly senior executives employed around Australia and SEAsia. For many, English is their second language. Their motivations for undertaking a doctoral award are pragmatic and often employer sponsored i.e. due to very busy schedules, they want to gain a higher degree through application of knowledge and skills within the context of their professional fields. At the outset of the 1997 academic year, a survey of candidates indicated above average access to networked computer technologies with all having internet access and only one respondent having no access to a CDROM drive (25% response rate). Due to candidates' high level of international travel, a preference was indicated for compact and portable study packages.

Secondly, the DBA staff have displayed a great deal of flexibility by supplementing traditional distance education postal packages with phone, fax, email and regular presentations of seminars at centres around Australia and in SEAsia. Doctoral candidates have been well served by direct interaction with supervisors and for those able to attend seminars, interaction among peers has proved to be extremely useful. This scheme of course delivery however, represents a significant drain on the School's budget and staff time, and has not always met candidates' needs for flexibility, portability and access to resources.

Decisions for WebCD as delivery media were thus informed by orientation to candidates' and staff needs. Overarching instructional design decisions about use of WebCD technologies for teaching, learning and assessment were informed by principles of resource-based and self-directed learning. Development of courseware has occurred in tandem with development of academic teaching staff in readiness for optimising opportunities inherent in combining internet and

CDROM technologies.

DBA Courseware

The 18-unit DBA program at SCU consists of 6 coursework units (including a double unit in research issues and methods), a 2-unit research monograph for publication, and a 10-unit thesis (of 50,000 words). It is completed in 6 trimesters, full-time or 9 trimesters, part-time. Fast tracking is possible through advanced standing accreditation and by negotiation with DBA program director.

Enrolment forms are mailed to prospective candidates and payment processed by conventional means. At present, courseware is delivered by local and international post and includes a ring binder containing study guide and supplementary readings; prescribed texts; brochures detailing course information such as phone, fax and email contacts, timetable and venues for on-site seminars. Newsletters are posted each trimester with university and DBA program news of interest.

Apart from the face-to-face and mediated support strategies mentioned, candidates are encouraged to be self-directed in their program, using coursework units as constructive building blocks towards final thesis presentation. Assessment tasks (research outputs) are applied in nature and tailored by candidates to suit the focus of their thesis. Speedy feedback is provided via email or fax.

Rationales for design decisions for courseware redevelopment led to enhancement of:

- portability
- flexibility
- interactivity, and
- access to resources.

The result is a Website linked from SCU's Graduate College of Management homepage, supplemented by 6 unit-based discussion lists and 7 CDROMs - a compact package of courseware with capacity to facilitate interaction between a widespread cohort of candidates and staff (including adjunct staff around Australia and invited guests from overseas), among candidates, and among participants in an open access forum which also provides general course information and news.

Informing WebCD Design

Self-direction, constructivism and the conversational framework

As with the majority of distance students, DBA candidates are adults for whom quality learning occurs through personal involvement (Candy, 1991) and facilitation of reflection through dialogue and interaction significantly enhances the experience of learning (Evans & Nation, 1989).

Recent theories on social development of knowledge embrace principles of self-directed learning encapsulated by Candy (1991) as well as constructivist, post-modern and critical paradigms of learning (Ramsden, 1992; Jonassen et al, 1995). Laurillard's (1993) 'conversational framework' illustrates succinctly the fundamentals of academic dialogue essential for learning to take place. She identifies discursive, adaptive, interactive and reflective attributes of a range of educational media to determine which can support the conversational framework and aid the learning process (Laurillard, 1993: 103-105).

In the case of WebCD, online dialogue is asynchronous, links between the courseware on CDROM and discussion on WWW are explicit and within the learners' control. DBA candidates thus assume direction over meaning and knowledge thus constructed from the courseware and 'conversation'. Candidates are prompted to actively negotiate meanings in relation to their own learning contexts and research interests. Content is useful only to the extent that it informs their research activities.

Dialogue and Discussion Lists

Social interaction is vital for deep learning because students develop intellectual models which enable them to construct their own meanings, and interaction promotes participation in the social construction of shared reality. It increases student involvement and highlights the relevance of learning. It enables the education process to be student-centered, less prescriptive, more dynamic and rewarding.

Laurillard (1993) stresses that for learning to occur dialogue **must** take place, even if in the students' mind, there has to be a conversational framework which allows apprehending the structure of academic discourse, integrating parts of the process, action, feedback and reflection (Laurillard, 1993: 71). The DBA solution to provision of these mathemagenic activities allows asynchronous dialogue through Web based discussion lists, which features time for reflection by all subscribed prior to responding. US based authors of prescribed texts and adjunct staff from around Australia have agreed to contribute to discussion and collaborate in the learning experience. The key to best practice on these discussion lists will lie in the negotiation and setting of meaningful task goals (Wild & Omari, 1996).

In addition, 'dialogue' is created between candidates and the world of electronic resources by pointers to an array of databases and international sites considered of relevance. This resource pool will expand as candidates give feedback on sites of special value and interest.

Open, Online and Resource Based Learning

The WWW makes accessible a wide range of international resources for examination and critique. Monitoring state of the art innovations, trends and emerging issues can be done from the desktop, case study methods of teaching and learning simply rely on bookmarking the browser (Slay, 1997). Overseas scholars and experts in the field can be invited to participate in (password protected) discussion lists thereby contributing first hand their unique international perspective. Dialogue is thus broadened to admit a range of discourses, not just that of the teacher or the educational institution.

Although self-direction had been encouraged of DBA candidates, to date the provision of face-to-face seminars around the Australian-SEAsian region conveyed an assurance of teacher based support rather than resource based support and we have sought to address this in light of the program's doctoral status. In keeping with a general move in distance education, the dominant instructional design methods in this project have supported a shift in emphasis from teacher led instruction towards resource based learning. The imperative for personal appearances is diminished and the scope for open learning is considerably enhanced in the context of having the world at your fingertips (Bates, 1995).

Practice in using the WWW as a resource for learning leads to acquisition of skills in 'speed reading, skimming information to extract meaning and relevance' (Slay, 1997). Web literacy develops when students construct personal links to resources, lists and databases and can be considered as interaction and reflective service in professional contexts. As discipline aligned sites proliferate, graduates can increasingly be expected to identify appropriate resources, create and present information for delivery in this medium (HREF1).

Hyperlinks and Navigation

One feature of the WWW whereby connections are designed within and between documents and associated resource sites, and which adds functionality not previously available in print, is termed hypertext. Hypertext is concerned with 'relationship management, information structuring and navigation' (Rama et al., 1997). However, the construction of knowledge is not simply a result of building associations and providing management tools, but develops from students perceiving the meaning of associations. Hypertext links need therefore to be explicitly purposeful, utilise media only to enhance the narrative and overall, are best kept to a minimum (Wild & Omari, 1996).

Initial evaluations of web-based courseware have shown students' responses to hypertext offers 'greater control and focus (as compared to traditional printed material)' (Brack, 1996), higher level of student involvement, greater interactivity resulting in improved learning, and learning which is constructive or generative in nature (Rama et al., 1997).

Construction of the DBA interface has been mindful of the needs of candidates and staff. Though networked through workplace resources, most users have beginning skills in Web navigation and experience of hypertext. Interface design has been kept simple, navigation by links or buttons is both explicit and purposeful i.e. internal links though abundant for course information are sparingly structured within study guide content; links from CDROM to WWW are characteristic yet seamless; external links to online journals or discipline related resources are grouped.

Multimedia

The term 'multimedia' refers to integration of several different media into one delivery format e.g. audio, video, text, graphics and sound can be put together on CDROM or WWW. However, in the WWW environment where these media components are linked with hypertext, the term 'hypermedia' is applied. Where hypermedia poses problem-based scenarios or can itself be interrogated, it is called 'interactive hypermedia'. An excellent example of this is 'Investigating Lake Iluka' educational CDROM where students review hypothetical case study material in order to work through problem based scenarios and construct their own knowledge in environmental management (IMM Pty Ltd).

It is clear that multimedia (used here as an umbrella term) adds richness to content. However, while its educational

effectiveness is still being evaluated (Adam & Wilson, 1997), appropriate application of multimedia seems to be the key to its success and decisions based upon pedagogies rather than technology capabilities ensure a greater degree of effectiveness.

For the DBA project, interactive hypermedia was not considered necessary. Doctoral candidates, being employed in key positions of responsibility, are not needing to test their competencies in a simulated situation, but rather require a good network of like minded peers with whom to conduct expert discourse. For DBA candidates, learning in context arises directly from a well structured research question to be addressed through the thesis.

To add variety and to customise the study resources, video format was chosen using both tape and Quicktime clips for CDROM. Introductions by academic staff on scheduling thesis completion, searching various library databases and choosing research methodologies are available to candidates as 60 minute video presentations. In addition, Quicktime clips are included on each CDROM to detail assessment requirements and significant principles for each unit. These media enhancements were not uploaded to the WWW site to avoid problems of limited bandwidth and slow download.

Group Learning and Cogenerative Learning

Another way of supporting self-directed learning, is the inclusion of group learning options - helping students to help themselves. Participation via discussion lists is a group option for DBA candidates. Scott et al. (1997) showed that the most liked aspects of working in virtual teams (online) were learning internet technology and working with people from other places. In their research, attention to course structure and access to technical support were seen to be the main drawbacks. Providing partitioned structure on CDROM and incentives for online participation such as peer review and rapid feedback from a diversity of sources is the aim of DBA's WebCD format. Technical support remains the domain of internet service providers, including SCU's IT department for candidates with local accounts.

Wood (1993) summarises predictors of success for computer mediated activities as:

- familiarity with technology
- interest in networking
- commitment to the value of group work
- sufficient time, both online and offline to consider inputs prior to responding.

In the case of DBA program, teaching and learning strategies adapted for WebCD courseware are, as yet, a little unfamiliar to staff and candidates. Staff development for online teaching has begun through information exchange in local seminars and online workshops. Adjunct staff will benefit from professional development as knowledge is 'cogenerated' by core staff and candidates in the course of the forthcoming academic year (Wildman, 1996). It is anticipated that shared commitment to group work will be engendered through active and informed moderation of discussion list activity. Candidates who create their own Web based resource collections and share these with peers and staff will be cogenerating knowledge and enhancing courseware for the future.

Additional incentives for active particpitation in online discussion appear in the first double unit on research methods where case study materials form the basis for open reflection towards small assessment tasks. Plans to coordinate online peer review of research monographs are being developed for the future.

New Opportunities for Assessment

WebCD course delivery promises a vast range of innovations in teaching and learning, but especially in assessment. As mentioned, collaborative projects, peer review, self and peer assessment can be facilitated by computer mediated technologies and closely audited to ensure academic rigour (Wildman, 1996).

Although current literature on online methods of assessment presents some examples of multiple choice tests and discipline based skills testing (Jones, 1996; Adam & Wilson, 1997), assessment of higher order skills such as exposition of principles and argument through online techniques is still in its early days and not without its difficulties, be they at policy, administration or academic levels.

Suffice to say that the potential is there for the exploration in new forms of assessment which optimise the benefits of the online learning community.

Portable resources not teachers

WebCD has been designed for DBA candidates as a compact and portable way of accessing courseware and participating

in discussion with peers and subject experts. The design enables a reconsideration of the amount of materials posted in the mail and number of personal visits by staff to centres around the Australian and SEAsian region.

As the course continues in its new format, candidates' needs are likely to change (Evans, 1994) and a reassessment of appropriate delivery for flexibility will be necessary.

Costs

Unlike multimedia developments in the past, the design of courseware for flexible delivery in the DBA program has been achieved at a cost comparable to the initial outlay for print based development. Additionally, since the digital structure has now been created, amendments, updates and additions will be less costly and time consuming in future.

Containment of development costs was achieved by designing interaction for the online environment and utilising the vast storage capacity of CDROMs for video enhancements. Complex models of information delivery are not appropriate in this doctoral program, since much of the learning experience is negotiated and applied according to candidates' needs.

Evaluation Proposals

The current development project will be completed by the end of January 1998. Some trialing of individual discussion lists is taking place in third trimester 1997 to pilot new teaching, learning and assessment strategies. In the course of first trimester next year, candidates and staff will be requested to submit online evaluations on several critical issues such as:

- does the new design improve candidates' performance and professional practice?
- how effective is the WebCD design in promoting self-directed learning?
- how effective is the WebCD design in promoting resource-based learning?
- how effective is the network of staff (SCU based, adjunct staff and invited overseas scholars) in meeting the overall teaching goals?
- candidates' and staff responses to collaboration versus independent learning?
- sufficient and timely technical support from SCU? local provider?
- cultural similarity/differences barrier to effective participation/learning?

Conclusion

This WebCD initiative enhances learning in a number of important ways:

- It increases opportunities for learners to engage in self-directed resource acquisition and learning which meets their own research needs and encourages skills in lifelong learning.
- Enhances interactions at the level of teacher-learner, learner-learner and learner-other and thereby promotes a constructivist approach by the making and sharing of meanings.
- Considerably expands options and methods of assessment which are dynamic and flexible.

The CD component is a useful additional element as it enables:

- Greater portability of study for busy professionals
- Capacity to easily access video materials which are integral to the program
- Less travel by busy staff members.
- As we have indicated, the initiative is in an early phase of development. We anticipate considerable further development as candidates' and staff experiences with the technology and pedagogy are realised.

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Back to List of papers

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