Creating a collaborative environment for designing, developing, and implementing computer-facilitated learning

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Introduction

The use of computer-facilitated learning (CFL) in higher education is increasing because the nature of higher education itself is changing. Students with a more diverse academic backgrounds, interests, and motivation now undertake tertiary studies (Australian Vice Chancellors’ Committee, 1996). Until recently most CFL development focused on issues of the hardware and software tools, or the delivery platform, and the educational design of software has been given only limited consideration. However, we consider the most important factor in the development of any CFL is the educational design of the courseware. The Centre for Learning and Teaching Support (CeLTS) is undertaking a program to address the educational issues of developing pedagogically sound courseware. As part of this initiative, the Educational Development (EDG) and the computer-mediated learning (CML) groups of CeLTS are engaged in developing a series of courseware tools to:

- facilitate the design and development of pedagogically sound computer-based learning tools for academic courses; and
- simplify the development (for the academic) of such courseware.

This paper examines developing computer-facilitated learning from two perspectives. The first section provides an overview focussing on processes for designing pedagogically sound computer-based learning tools (CBLTs), and the second section provides one examplar.

Good educational design

The first issue is epistemological and pedagogical what paradigm of teaching and learning do you adopt for the design of your CFL learning tools? One of the constraints clearly established in CFL development is the range of specialist skills required to develop a large, complex CFL project. These include:

- experience in teaching and educational design (Bain & McNaught, 1996; Beaumont & Brusilovsky, 1995; Kennedy & McNaught, 1997; Laurillard, 1994a; Reeves, 1992b);
- video and audio skills;
- programming skills;
- extensive knowledge of the content domain;
- interface and graphical design;
- formative and summative evaluation (Alexander & Hedberg, 1994; Beattie, 1994; Laurillard, 1994b; McNaught, Whithear, & Browning, 1994; Reeves, 1992a); and
- project management (Phillips, 1997).

The difficulties arise because no individual has all of these skills and acquiring even a sub-set of them requires considerable investments in time and effort. Therefore, developing CFL requires a team approach as available in CeLTS. At CeLTS, there is a program being implemented to create a collaborative web-based environment that is able incorporate the skills and expertise of those required for the production of quality educational courseware. The software tool that has been selected to facilitate the collaborative process is Net Objects Team Fusion (NOTF). This particular software is one exemplar of an emerging trend in authoring systems (e.g., Spectra) designed specifically to support the team approach. All of these systems may be described as open in that they can incorporate components from other software authoring environments.

Templates

The NOTF environment is sufficiently adaptable to support the development of pedagogically sound templates to facilitate the creation of online courses. Templates have a number of advantages, including:

- cost-effectiveness;
- ease of use (without the requirement for programming skills);
- the ability to support a variety of content domains;
- support for large scale delivery; and
- specific evaluative strategies to ensure quality.
• a pedagogy of design which may not be appropriate for your particular learning needs; and
• may produce software which is difficult to maintain and update as courses and the requirements of students change.

At CeLTS, there is an ongoing effort to develop pedagogically sound templates to both engage the learner, and improve the development of online courses. The templates are being developed and customised to address specific learning outcomes in a variety of academic disciplines.

One example involves the development of a customisable online glossary system (COGS) for web-based courses. Lecturers developing on-line courses will be able to use COGS to author a glossary with the attributes required for their specific content domain. Students will able to search for terms from the subject homepage, or the navigational bar, by entering a search item in a web page to view glossary definitions and explanations.

While the primary purpose of the COGS will be to define terms students find problematic, it is envisaged that COGS could also be used to link a question (defined as a term) and its answer (defined as the term’s definition). COGS is designed to be more than a text based glossary, as in the traditional book-based version. COGS facilitates the inclusion of animations, graphics, and audiovisual resources to provide multiple perspectives of concepts and terms.

The development of educationally sound templates at CeLTS is facilitated and supported by being able to bring together the requisite skills required to implement large-scale CFL resources into academic curricula.

References


