Courseware design and development program: Providing professional development and project experience

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The Courseware Design and Development Program enables academics to participate in a program that integrates a major curriculum development project along with professional development. In its short history, the Courseware Design and Development Program has demonstrated itself to be a sustainable model. It is a model that fulfils a role of encouraging innovation in teaching and learning using technology. The integration of professional development and project development seems to appeal to otherwise busy academics as there are concrete goals and positive outcomes.

Keywords: Professional development, courseware development, learn by doing

Background

In 1996, the Teaching and Learning (Multimedia and Educational Technologies) Committee (TALMET) was established at the University of Melbourne. Its major objective was to advise the university's Academic Board on the most effective ways to expand the use of technology to enhance the quality of teaching and learning. From 1997 to 2002 nearly $10,000,000 of the university's central funds were directed towards development and implementation of over 200 projects through the TALMET Committee.

In 2002, the TALMET Committee's funding of projects was severely curtailed, and multimedia funding was encouraged to become 'normalised' within faculties. This also raised the question: How could innovative and exemplary uses of technology in teaching still be encouraged when the previous mechanism for that encouragement (the TALMET grants) was being phased out? In answering this question, the Teaching, Learning and Research Support Department saw the opportunity to establish a replacement grant scheme that incorporated an integrated professional development scheme for academics involved in the design of technologically enhanced coursework.

In 2003, with supplementary funds from the university's Planning and Budget Committee, the Teaching, Learning and Research Support Department (TeLaRS) established the Courseware Design and Development Program (CDDP) to continue university-wide support of major curriculum transformation projects and to incorporate additional professional development in the program.

Rationale for the CDDP

The Courseware Design and Development Program has two aims:

- To develop discipline specific courseware that students find engaging and that encourages deep learning.
- To assist academic staff to critically reflect on the teaching of their discipline and with the exploration of innovative ways of teaching and assessing using multimedia and communication technologies.

The first aim is usually addressed through the development of courseware in a collaborative project environment. In a sense it is no great departure from the approach taken in TALMET funded projects, although closer collaboration in the application process has yielded certain benefits which will be elaborated further below. The second aim is a new, additional element that makes explicit a tacit process that was occurring in the TALMET funded project era.

The Australian Vice-Chancellors' Committee (1993) in its *Guidelines for Effective University Teaching* notes that university teachers need to exhibit personal growth and self evaluation in their own professional activities, including teaching: "As university teachers, staff need to acquire and develop knowledge and understanding of a wide range of teaching and assessment methods and of the principles which underlie student learning." How can lecturers develop an understanding of a wide range of teaching methods and principles of learning given the added pressures of research, publishing and administration?

The AVCC's guidelines also note that heads of department have an obligation to "encourage the collaborative development of courses and subjects, and investigations of innovative ways of teaching and assessing, by making available time and resources of individuals and teams". (Australian Vice-Chancellors' Committee, 1993)

The Courseware Design and Development Program attempts to fill this need by providing a collaborative development environment where academics can learn about teaching with technology. For the academics, this is very much a "learn by doing" approach. As Nichani has noted: "There is a well known fact that the people who learn the most in an e-learning design process are the instructional designers or the learning designers themselves! Why? Because they spend most of the design phase trying to make sense of the messy information they collected earlier…." (Nichani, 2004). In the Courseware Design and Development Program, the subject lecturer shares the responsibility in creating the learning design with the educational designer from TeLaRS. As the courseware is co-designed with and by the academics they are able to be in the position of learning about their subject in different ways, and exploring new aspects of teaching and learning. One positive by-product is that a number of the grant recipients who have worked with TeLaRS have since been recognised for their teaching excellence through university awards and the like.

Another aim of the program is that academic participants also become part of the community of practice of practitioners using online and multimedia to enhance teaching and learning across the whole university (See Lave & Wenger, 1991). Lecturing staff have made contact with other academic staff from quite different disciplines, as reported in CDDP professional development session feedback surveys.

Overview of the CDDP

The Courseware Design and Development Program enables academics to participate in a program that integrates a major curriculum development project along with professional development. The Teaching, Learning and Research Support Department, through its Courseware Development Services section, works with selected academics to develop exemplar curriculum projects aimed at transforming teaching and learning through the application of multimedia and educational technologies.

There are two 'intakes' to the program each year, with projects beginning at the start of each semester. Each project proceeds over an eighteen month period in three broad phases, each lasting about a semester:

1. Requirements – academics work with an educational designer, graphic designer, programmer, and other media staff to design the learning experience 'on paper'.
2. Development – The 'paper design' is transformed into the appropriate media by the CDS project team members using content provided by the discipline specialist (the academic). This period also includes user trials.
3. Implementation – the learning experience is delivered to students and evaluation takes place.

Application and selection

Projects are selected on the basis of a competitive two step application process. An 'Expression of Interest' is first lodged, then selected applicants are invited to submit a 'Full Application'. The application and selection process is managed by CDS in consultation with each faculty multimedia coordinator to ensure that the proposals conform to faculty needs and directions. There are two application rounds per year.

Integrated professional development activities

The integrated professional development activities consist of the following sessions and consultations:

1. An initial *Concept Development* session is undertaken by those wanting to lodge an 'Expression of Interest' in the Courseware Design and Development Program.
2. The Full Application process is supported by individual consultation with CDS staff to assist with developing further detail in the learning design and estimating a budget.
3. A further *Project Processes* session is conducted for successful applicants to prepare them for the design and development process.
4. Academics receive ongoing professional development as a part of the progression of the project. This is very much 'learn by doing', but it is also learning from others in the project team with regard to pedagogical concerns (educational designers), visual communication (graphic designers), interactive functionality (software developers), and media-specific issues (media specialists).

Progress

In Round 1 2003, four expressions of interest were lodged and three were selected to proceed to the full application stage. They were from the faculties of Education, Veterinary Science and the School of Graduate Studies. All were selected to begin their projects in Semester 1, 2003. Eight participants attended a *Project Processes* professional development session to orient them to their new projects. An online forum was set up for the attendees to allow feedback comments and questions arising from the session, and to provide them with the experience of using an online discussion system.

Round 2, 2003 received much wider publicity. A *Concept Development* professional development session was held for 13 participants. Nine expressions of interest were received in late March. They were from Medicine (3), Law (2), Education (2), Science (1), and the Arts Faculty (1). They were evaluated in consultation with faculty multimedia coordinators and six proposals were invited to proceed to the 'Full Application' stage - Medicine (1), Law (2), Education (2), and Arts(1). The invited applicants consulted with CDS educational design staff to elicit more learning design details and to help estimate costs for the proposals. Full applications were submitted and they were evaluated in consultation with faculty multimedia coordinators. Four were selected to proceed (Medicine, Law, Education, and Arts). A second Law project was selected as a DVD video project, subject to supplementary funding from the faculty. A professional development session on *Project Processes* took place and 13 people attended. Attendees included one multimedia coordinator, several learning resources staff and the program participants (academics). The four new projects began at the start of Semester 2, 2003.

The Round 1, 2004 application process included a professional session on *Concept Development* to support the 'Expression of Interest' stage - 15 people attended. Thirteen 'Expressions of Interest' were then lodged, of which 10 proceeded to the full application stage. They were from Arts, Economics & Commerce, Education, Engineering, Medicine, Dentistry and Health Sciences (MDHS), Science, and Veterinary Science. Six were selected to begin their projects in Semester 1, 2004, and one selected to begin in Semester 2, 2004. A *Project Processes* professional development session was held in February 2004, with eight people attending.

Round 2, 2004 included a *Concept Development* professional development session with 14 people attending. Ten 'Expressions of Interest' were received in April. They were from Arts (2), Economics & Commerce (1), the Institute of Land and Food Resources - ILFR (1), MDHS (5), and Science (1). These were evaluated in consultation with faculty multimedia coordinators and six proposals were invited to proceed to the 'Full Application' stage - Arts, Economics & Commerce, ILFR, MDHS (2), and Science. The invited applicants consulted with CDS educational design staff on the details and costs of the proposals. Full applications were submitted and evaluated in consultation with faculty multimedia coordinators. Five were selected from Arts, Economics & Commerce, ILFR, Medicine, and Science. A professional development session on *Project Processes* took place in June for Round 2 participants, with seven people attending. Four new projects and one previously selected project began at the start of Semester 2, 2004. One new project will begin in Semester 1, 2005.

Table 1 provides a listing of successful projects for Round 1-2004 as an indicative guide to the nature of the projects undertaken.

Table 1: Successful project applications round 1-2004

Project	Name	Dept	Faculty	TeLaRS contribution (estimated)
Virtual veterinary cardiorespiratory medicine (VVCRM)	Dr Russell W Mitten, Dr Steven A Holloway	Veterinary Science	Veterinary Science	$32,050
Using multimedia experiences to internationalise the Masters of Human Resource Management.	Professor Carol Kulik, Catherine Maguire	Management	Economics and Commerce	$30,250
E-learning in practical classes	Arianne Dantas, Sophie Ping	Physiology	Medicine, Dentistry and Health Sciences	$30,250
Holistic Aboriginal health practice: Multimedia problem based learning - towards a partnership approach	Dr William Genat, Shaun Ewen	Public Health	Medicine, Dentistry and Health Sciences	$30,000
Multimedia student education support tools in engineering analysis	Dr Marcus Brazil, Assoc Prof Doreen Thomas	Electrical and Electronic Engineering	Engineering	$31,350
Cultural diversity and early childhood learning environments	Assoc Prof Glenda MacNaughton	Learning and Educational Development	Education	$30,000
Understanding dilutions: A vital skill for the biological sciences	Dr Jane Ward	Pharmacology	Medicine, Dentistry and Health Sciences	$30,000

Program review

Application and selection process

As noted above, projects are selected on the basis of a competitive two step application process. An 'Expression of Interest' is lodged first then selected applicants are invited to submit a 'Full Application'. The application and selection process is managed by CDS in consultation with each faculty multimedia coordinator.

An important part of the design of the program is to incorporate two intakes per year. It is designed to create two 'cohorts' of academics beginning their projects at the start of semester 1 and semester 2 respectively. This affords the opportunity to run professional development sessions that assist academics with the development of their ideas, project orientation, with the added benefit of coming together from across the university to network and gain mutual support.

The introduction of the new program in 2003 meant that publicity and consultation for Round 1-2003 was truncated and some faculties were not able to lodge a submission. The result was that only 3 projects were selected in the first round.

Publicity for Round 2-2003 was undertaken via an Internet website, via email publicity and through consultation with faculty multimedia coordinators. As a result of consultation, the dates and deadlines lines for Round 2-2003 applications were synchronised much more appropriately with faculty and departmental calendars. This resulted in an improved application rate.

The selection rounds in 2004 seemed to normalise into a pattern of about 12 expressions of interest with around 6 projects selected. Some of the applications were withdrawn during the application process and others were not selected – mainly due to the strength of field.

A significant proportion of the applications have been from the Faculty of Medicine, Dentistry, and Health Sciences Faculty (eg. 5 MDHS from 10 total in Round 2-2004). This has required careful consultation with the faculty's Biomedical Multimedia Unit, Online Learning Unit, and Multimedia Coordinator to ensure CDS works with these other units in a complementary manner. Some project ideas solicited through the CDDP scheme have been taken up by the faculty units, while others have been served through the CDDP.

The Educational Design Group of CDS considered the desirability and impact of the two stage application process and found that, although there was quite an administrative workload in the two stage model, the model does have some advantages over simpler models or a 'service level agreement' approach:

1. An online 'Expression of Interest' stage does not place too heavy a burden on academic staff workloads and can therefore elicit a good number of ideas.
2. CDS staff are involved through the application stages, especially in assisting academics with the framing of project details and budgets prior to full application submission. This results in educationally stronger proposals and much more realistic budgets compared with the TALMET process where sometimes minimal consultation occurred prior to application submission.
3. Efficiencies are gained in that much of the concept framing transpires in the full application stage, with the result that projects get off to an accelerated start. This is preferable to the situation with TALMET funded projects which were very slow to get off the ground, and academics often had to rethink their ideas once the project had actually begun.

The application process also assists in the enhancement of a closer working relationship between CDS and the faculties.

Quantity of projects

In the first year of the program (2003), seven projects commenced, with an additional project being undertaken on a 50% funding arrangement with the relevant faculty. The projects were from six faculties and CDS has contributed staff time to the value of $231,764.

It is important to acknowledge that 2003 represented the phasing in of the CDDP scheme. The complete CDS project portfolio consists of: Projects initiated under the previous TALMET funding model that are tailing off ('legacy' projects); Melbourne-Monash Grant projects that are still being administered by the TaLMET committee; CDDP projects; Projects that are fully charged. Fully charged projects could be financed from grant funds that academics have been able to secure from external funding bodies or from internal sources such as the Arts IT Committee grant scheme. Academics need to feel that there is a source of expertise on campus that is available to them to work on projects should they receive grant funds. This can act as an incentive to apply for external grants.

The proportion of CDDP projects has increased over time as 'legacy' projects have been completed and new CDDP projects have been taken on. However there will always be a proportion of projects that are fully charged in order to service those academics who have been successful in obtaining external grants.

Through two application rounds in 2004, a total of twelve projects have been selected. Six of these commenced in semester 1 2004 and five will commence in semester 2, with one being deferred until semester 1, 2005. The twelve projects are from eight different faculties and CDS has contributed, or will contribute, staff time to the value of $365,150 (Estimated).

Quality and nature of projects

Internal Courseware Development Services project quality control measures provide for: the production and peer review of a "Learning Design Requirements" document; formative evaluation; software trials; and then evaluation at implementation. The first of the CDDP projects are approaching the completion of their implementation, but evaluation of them is only in-process at the present time. However some initial observations on the program are possible:

- The standard of applications has been very high, with sound educational uses of technology proposed and realistic budgets included.
- The professional development sessions have assisted greatly with the preparation of academics for the project, and projects have progressed very quickly in the initial periods because of the careful preparation.
- The academics participating in the program are very committed, and the project teams are very cohesive.
- The program's aim of being more strategically aligned with the faculties can be demonstrated by the nature of several projects. The 'Case Study' system being developed with Veterinary Science is

designed to be widely applicable across the faculty but can also be used in other areas of the university. A collaborative learning and submission system being developed with MDHS will have broader university uses too.

- The program also aims to encourage grass roots initiatives from individual academics and the original guidelines encouraged people new to the innovative use of technology to apply. Those guidelines were found to be too restrictive and were amended in subsequent rounds to encourage applications from any individual academics. What we are now finding is that the program is a great vehicle for people who have developed innovative educational experiences with CDS previously, and who want to extend those materials or make them available to the 'outside' world through commercialisation. There is a maturity in approach of these 'second generation' academics that enables us to regard the initial implementation as a prototype and the next implementation as a more sophisticated and robust product suitable for broader distribution and use. An example of that approach is the extension of the 'Virtual Print Room' project into the 'Curatorial Careers' project.

Professional development aspects

An important aim of the Courseware Design and Development Program is to integrate professional development along with a major curriculum development project. The professional development sessions aim to inform and engage academics on technology and pedagogy matters, and provide a forum for networking between academics across projects and faculties.

As noted above, the professional development consists of: An initial *Concept Development* session to support the 'Expression of Interest' stage; the 'Full Application' process is supported by individual consultation with CDS staff; a *Project Processes* session prepares participants for the project itself; academics receive ongoing professional development as a part of the natural progression of the project.

Through feedback surveys collected after each session, the *Concept Development* and *Project Processes* sessions have been deemed very successful. The participants have been very positive about the sessions, and the attendance has been very good given the extreme time demands placed on academics. The participants' feedback comments from the surveys are overwhelmingly positive and appreciative. As some of the comments show, our aim of encouraging networking seems to be working too:

> I thought the session was very useful as a way of beginning a new network of people working with online courseware and design. I have already made contact with someone from the group, and felt comfortable doing so because I had met the person. I think this network will be a good resource for the future.

> I also thought the session achieved bringing to the fore a sense of partnership between our team and CDS which is great...it makes the project exciting knowing we will be working with very experienced experts.

> It was very helpful and I think having the other projects discussed helps broaden the scope. It is often so that exposure to different things leads to a new way of approaching your own problems. The main benefit though is to focus on setting milestones and not letting things go "off the burner". This is the death of many good intentions I find. It actually is an act of will sometimes to make sure milestones are kept. Having the process defined therefore is really important so that progress can be monitored and analysed. Specifics such as SRS, IP etc can then be treated as individual hurdles to jump before getting carried away with what you want to put in your teaching for example.

Individual consultations that support the 'Full Application' stage have been successful in eliciting strong project ideas and more realistic budgets when compared with the TALMET funded projects.

A further endorsement of the program was provided by the university's Centre for Studies in Higher Education (CSHE). In 2004, the CSHE introduced a Graduate Certificate in Higher Education for academic staff and one component of the course is a curriculum project. The Centre has made an in principle endorsement that an academic can credit aspects of their CDDP project to the project of the Graduate Certificate.

Relationship with faculties

The Courseware Design and Development Program has brought CDS into a much closer working relationship with the faculties through their multimedia coordinators. We have been able to tailor the approach according to individual faculty needs and avoid the 'one size fits all' solution.

Table 2: Application rates by faculty

Faculty	Expressions of interest	Full application submitted	Full application successful
Architecture, Building & Planning	0	0	0
Arts	5	4	2
Economics & Commerce	2	2	2
Education	5	4	3
Engineering	1	1	1
ILFR	1	1	1
Law	2	2	2
Medicine, Dentistry & Health Sciences	13	6	5
Music	0	0	0
Science	3	2	1
School of Graduate Studies	1	1	1
Veterinary Science	2	2	2
Totals	35	25	20

As Table 2 shows, all faculties except Music and Architecture are working closely with CDS through the program already. Architecture is committed to sponsoring projects in future rounds. The Faculty of Music has not engaged with the program to date. They are a smaller faculty with face to face teaching as their priority. One particular faculty has requested a tailored workshop targeting their staff to assist with their preparation of project ideas and CDDP applications. It would seem that competition between faculties for places is leading to new initiatives and closer working relations.

Discussion

Wilson and Stacy's analysis of varied forms of supporting academics who use innovative teaching and learning, especially online and multimedia, identified several processes such as accredited courses, staff development online and localised peer support (Wilson and Stacey 2004). The University of Melbourne's CDDP program goes further than 'localised peer support' as described. It provides substantial funding to enable teachers to develop products that will impact significantly on their teaching and learning. The program offers space for academics to reflect on their practice and the support of a team of educational and technical staff to help design and develop innovative products to their particular specification.

The process of considering applications is not straightforward. A number of factors are taken into consideration, including:

- Track record of effective teaching and learning using technology by academics;
- Equity across diverse faculties in accessing common resources;
- The need to support innovation;
- Supporting lone individuals versus whole of team approaches; and
- Strategic directions of the University and faculties.

These factors are evaluated together with the strength and depth of the initial expression of interest, and consequent application. Some rejected applications can be redirected to more appropriate sources. For example straight video production could take place to build resources that might later be included in a larger product.

The 'left in the cupboard' syndrome that sometimes plagues technology innovation is not evident in the CDDP grant scheme, as funding is only allocated to self identified academics: with a project in mind, who can demonstrate departmental support, and are committed to integrating the resources into their teaching. Word of mouth has been a powerful mode of communicating the value of the program. Successful project leaders showcase their finished products and strategies at the annual METTLE

(internal University of Melbourne) conference. Applications are submitted with previous experience of the CDDP being nominated as a motivating factor. This can be seen in the higher numbers of applications from Law, Vet Science, and Economics and Commerce. With additional iterations of the program special attention will be given to support applications from departments without a track record of success in TALMET or CDDP grant applications. For example the Round 1 application for 2005 has elicited an application from the relatively small Faculty of Music.

The close working relationship with the faculty based multimedia coordinators also ensures that strategic directions for faculties and schools are addressed. High numbers of applications from large, well resourced faculties are discussed with the multimedia coordinators and prioritised according to their recommendations. In the case of Medicine for example, this has meant that significant developments of strategic importance (for example specialist continuing professional development for rural and regional health workers) are undertaken by the faculty based Biomedical Multimedia Unit (BMU), while smaller projects are picked up by the CDDP.

Overall there is increasing reliance by faculties on the CDDP grants for the development of resources and environments that support continuing professional education, rather than undergraduate course support.

In its short history, the Courseware Design and Development Program has demonstrated itself to be a sustainable model. It is a model that fulfils a role of encouraging innovation in teaching and learning using technology. Integrated professional development and project development seems to appeal to otherwise busy academics as there are concrete goals and outcomes. Previous attempts at stand alone professional development sessions in the use of technology in teaching have met with poor attendances. The CDDP sessions are comparatively well attended and the Educational Design Group is already finding that the sophistication of the knowledge of the attendees is increasing.

Looking to the future, two of the key challenges for the CDDP are:

- To improve evaluation methods relating to both the project outcomes (student learning) and the satisfaction of academic participants in the program; and
- To identify a form of ongoing support for further enhancements and embellishments of first generation products once they have left the womb of the project life cycle. Ease of updating, modification, and extension is an important consideration that must be addressed.

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