THE THEORETICAL UNDERPINNINGS OF A LEARNING DESIGN PROJECT

by **Leanne Cameron**

ACU National University, Sydney, Australia

Leanne.Cameron @ acu.edu.au

Abstract

In the "Implementing Effective Learning Designs" project a framework and design guidelines were created to provide a comprehensive scaffold to assist academics in the development of inspiring learning design examples and supportive activities. Learning design templates were developed that can be used by academic staff to tailor exemplary examples to meet particular requirements, whilst providing them with the underlying pedagogical principals involved in the learning design. The implementation of learning designs was also explored and barriers identified to their widespread adoption and ways of overcoming these. This paper outlines the theoretical underpinnings that supported the project.

Keywords: LAMS, contextualised learning design, genetics, ethics.

Background

The expansion, restructuring and refinancing of the Higher Education sector in recent years has meant that classes are not only larger but quite diversified in terms of student ability, motivation and cultural background (Biggs, 2003). This change has created an atmosphere where some lecturers are rethinking their teaching approaches and are seeking out what is known about facilitating effective learning. This is the challenge this project addressed by creating and refining a range of learning designs to allow for easy adoption and adaptation by other educators.

Although academics have always been teachers, a number of researchers point out that it is not always regarded as their core business (Laurillard, 2002; Gibbs, 2003; Knight, 2004; Ramsden, 2003). Biggs' research (2003) demonstrated the first priority for many was to keep up with developments in their content discipline and to contribute to them through research. He observed that developing teaching expertise takes second place in the university environment: a set of priorities dictated as much by institutional structures and reward systems as by individual choice. Therefore a tool that provides an improved teaching and learning result without requiring the academics to fully immerse themselves in another area of study (ie education) may be very useful in this environment.

Making student learning a high priority at a time of increasing student diversity places much more responsibility on the academics. It also implies that the academic staff must know something about student learning, and what makes it possible (Laurillard, 2002). In 2003 Gibbs reported that most academic staff were less sophisticated as teachers than as researchers and even the best teachers were often gifted amateurs rather than rigorous professionals with any knowledge of the literature. Without any co-ordinated tool designed to address this issue, quality teaching at the higher education level can still be inconsistent.

Toohey (2002) proposes that exploring new models of learning design is the only realistic way to handle these pressures and maintain current standards. There is an opportunity to bring together the need to rethink higher education provision with what is known about encouraging effective learning so as to produce learning designs which offer greater possibilities than some of the current solutions.

Expert teaching at university level requires mastering a variety of teaching techniques and being able to encourage most students to use the higher cognitive level processes that higher ability students use spontaneously. Therefore, to be effective, academic staff needs to draw upon different strategies, approaches and theories - not just traditional ones. Hence, the scaffolded learning designs showcased in this project needed to be able to accommodate a variety of approaches to learning, different modes of delivery and a range of key principles of effective teaching in higher education and adult learning. Additionally, academic staff report that their academic disciplines exerted the strongest influence on their course planning (Stark, 2000). This suggested that any learning activity planning tool may need to provide subject-specific advice, and so a generic solution (one size fits all) that cannot be easily modified, was unlikely to be universally successful. Hence we developed a number of discipline-specific learning designs.

In this project it was demonstrated that scaffolded learning designs can serve as pedagogical frameworks to support academic staff in creating new learning experiences, with the lecturer adapting the learning design, specifying the particular activities and choosing or creating the resources and supports needed to suit his/her students (Bennett et al, 2004).

Methodology employed

The project employed a design-based research methodology (Reeves, Herrington & Oliver, 2005) which involves a flexible, iterative process as follows:

Phase 1:

1. Analysed the learning design research literature determining needs and opportunities for application of learning designs in the participating universities, by researchers, educational developers and teaching staff.
2. Developed the Phase 1 design solution that identified the needs for learning design development with a planner and guides to using existing learning designs.
3. Implemented Phase 1 planning tool and guides in participating universities.
4. Evaluated outcomes for staff and students from the Phase 1 implementation.
5. Reviewed Phase 1 project outcomes. Research aims and further design and development for Phase 2 were developed.

Phase 2:

1. The theoretical framework revised and more fully developed.
2. Outcomes disseminated through workshops at other universities.
3. The planning tool and guides refined for Phase 2 based on critical needs from Phase 1 evaluation.
4. Phase 2 implemented in the participating universities and information was and online support provided for the wider group of interested adopters (some international).
5. Outcomes evaluated for staff and students from Phase 2 implementation.
6. Project outcomes reviewed. Further dissemination workshops offered at a range of universities, conference papers, journal articles and promotion of software tools and guides.

Early versions of several templates (eg, role play, open questions for lectures, Predict – Observe – Explain) and accompanying advice were trialled progressively with students in a Masters course in Education. Following feedback on each new template presented to students, subsequent template structures reflected the input of students on improved design for adoption and use. The combined lessons of this iterative development process were then used in a second Masters course in the School of Education to test the newly evolved advice structures with a different group of students. Student feedback on the revised advice structures and templates was positive, and included suggestions for further refinements, which were implemented in a range of new templates developed by the project team in the final phase of the project.

Student evaluation and extensive peer review was undertaken by our Reference Group and academics well regarded in the field of Learning Design at both a national and

international level. The project's concepts, premises, methods and early prototypes have been evaluated by researchers from around the world – many of whom are working on similar projects. An external evaluator was employed to formally evaluate the project.

The way forward – structured guidance

Ramsden (2003) found that academic staff look for support with their teaching for a number of reasons. They may be concerned about their students' performance, they may want some reassurance about their teaching techniques, or they might want to try an innovation. Some academic staff do not know how to start improving their teaching, are often overwhelmed by the field's complexity, and they ask for a simple solution that will quickly solve all their difficulties.

Depending on the infrastructure provided by their institution, help may be on hand in the form of professional development staff but as each university tries to do more with less, often the availability of help is limited, if it can be offered at all. Stark's research (2000) found that most university academic staff do not avail themselves of expert assistance when planning courses even if it is readily available and rarely read educational literature. They relied on their own ad hoc observations because they did not find the information available to them about learning and teaching meaningful. As a result, these academics were attempting the complex and challenging task of effective teaching with no training nor were they intending to make any formal attempt to develop their teaching skills in the short term. This is not an isolated incident and similar findings have been reported elsewhere (Knight, 2004). This project arose out of this need for alternative methods of support for these academic staff.

Sharing learning designs, resources and methods used by others have been trialled successfully at a number of universities. Members of our Project Team have worked with two examples of this approach. The Learning Design Template Project at Queensland University of Technology (Heathcote, 2006) provided academic staff with templates that embedded pedagogical principals, eg problem-based learning, critical thinking. The Online Course Templates Project from the University of New South Wales (McAlpine & Allen, 2007) produced templates based on specific learning designs that were developed to support courses. Both these projects were successfully piloted.

Additionally, academic staff may also have access to external example designs such as those provided on the 'Learning Designs' website at the University of Wollongong (Oliver, Harper, Hedberg, Wills & Agostinho, 2002), the LAMS Community (http://www.lamscommunity.org) or the Technology-Supported Learning Database developed

by Ron Oliver at ECU (http://aragorn.scca.ecu.edu.au/tsldb/). However, Goodyear (2005) notes that the resources available to university academic staff for learning design are not of a consistent quality, are difficult to locate in relation to a particular pedagogical framework, and are not constructed in such a way that they capture and distil the practical implications of research-based knowledge and nor do they accommodate the iterative nature of design practice. This project addressed these gaps by widening the audience for existing learning designs beyond the original, specific institutions and disciplines by creating and implementing templates and advice in a simple to use and flexible learning activity planning tool that guides teaching staff through the learning design process.

The Pedagogical Planner concept explained

The current range of teaching guidance tools, often referred to as "pedagogical planners", can be used for a variety of purposes:

- as step-by-step guidance to help practitioners make theoretically informed decisions about the development of learning activities and choice of appropriate tools and resources to undertake them;
- to inspire lecturers to adopt a new teaching strategy and support them in doing so (Falconer, Beetham, Oliver, Lockyer, & Littlejohn, 2007);
- to provide design ideas in a structured way — so that relations between design components are easy to understand (Goodyear, 2005);
- to combine a clear description of the learning design, and offer a rationale which bridges pedagogical philosophy, research-based evidence and experiential knowledge (Goodyear, 2005);
- as a database of existing learning activities and examples of good practice which can then be adapted and reused for different purposes (Goodyear, 2005);
- as a mechanism for abstracting good practice and metamodels for learning (Conole & Weller, 2007);
- to produce a runnable learning design intended for direct use by students (Falconer et al., 2007); or
- to encode the designs in such a way that it supports an iterative, fluid, process of design (Goodyear, 2005).

However, not all of the current pedagogical planners attempt to fulfil ALL the functions above: A number of planners are very specific and focused in their purpose;

however, they still perform a pedagogical planning function, despite their limited applications.

An overview of approaches to learning

It was important that that the planning tool used in this project was able to accommodate the variety of learning styles approaches and theories. The approach that a lecturer takes is likely to be based on what they know of learning theory and practice. This can be from their training or from talking to colleagues, as well as the professional know-how they have gained in the course of their career (Knight, 2004). Biggs (2003) suggests that theory makes them aware that there is a problem, and it helps to generate a solution to it. This is where many higher education lecturers are lacking; not in theories relating to their content discipline but in well-structured theories relating to teaching their discipline. This is where the activity planner has been most effective. Reflecting on their teaching and seeing what is wrong and how it may be improved, requires academics to have an explicit knowledge of the theory of teaching that the planner has been able to provide.

Discipline-specific knowledge

Lecturers report that their academic disciplines exerted the strongest influence on their course planning (Stark, 2000). The views lecturers held about the nature of their discipline are intricately linked with their beliefs about the purposes of education. Many lecturers felt that these disciplinary influences were strongly rooted in their own scholarly background and were especially dependent upon their preparation and their prior teaching experience. Discipline is the key predictor of classroom goals and beliefs about education while other factors have a much smaller influence.

It is important to understand that the general educational goals are determined through the specific subject content in which they are expressed (Ramsden, 2003). Stark (2000) found the importance of building on disciplinary orientations to support teaching improvement and of fostering understanding of disciplinary differences should not be under-estimated and that it often hampers curriculum committees in their work if they promote institution-wide generic principles. This suggested that a non-specific pedagogical planner (one size fits all) solution that cannot be easily modified, was unlikely to be successful.

Laurillard (2002) found discipline variations in the way lecturers prefer to arrange content parallel their educational beliefs and view of their discipline. Lecturers of History and Fine Arts were different from others in that they placed more emphasis on arranging content

according to the way their field is structured, and the vocational fields of Nursing, Business, and Education placed slightly more emphasis on students' vocation need.

However, lecturers need to know more than their subject. They need to know the ways it can come to be understood, the ways it can be misunderstood, what counts as understanding and they need to know how students experience the subject. The way the subject is taught is driven primarily by lecturers' beliefs or by the commonly agreed consensus within an academic discipline about what constitutes valid knowledge in the subject area (Bates & Poole, 2003). The nature of knowledge centres on the question of how we know what we know.

Lecturers' disciplinary socialisation and their current beliefs about the fields they teach influence how they plan courses as well as how they teach them (Stark, 2000). This illustrates that learning design is not a science but a creative act linked to lecturer thinking that must be examined contextually. Even within a discipline, it has been found there may be a need to approach the same subject in different ways to meet the learning needs of all students (Cook, 2006). Hard-pure disciplines (such as subjects like Math and Physics) tend to make relatively less use of collaborative tools.

Whilst other groups highlight e-portfolios and other reflective technology as key tools, Natural Sciences and Math also make relatively less use of such tools. Soft-pure subjects (e.g., English and Art) value communicating effectively using different modes of expression and also use wikis to encourage shared knowledge-building and active research. Cook (2006) suggests it may be that Math and Physics make relatively less use of discussions because of the subject nature, or because the design of the learning does not provide room for discussion. He poses the question: Are the differences between subjects because there are fundamental differences in the disciplines or just the ways the learning approaches have been embedded over time?

The use of e-learning

The role of a pedagogical planner in designing learning using technology is the same as with any other learning design but there are a number of additional factors to consider: most importantly, deciding on the locus of control and working within the available resources. Technological capabilities dictate not how much learner control is supported, but how much is possible. They determine not what should be, but what could be (Hannafin & Land, 1997), hence technology can be used to personalise learning or depersonalise it. The use of technology in university teaching and learning is growing rapidly, with many claims for its

increasing impact on the processes and outcomes of teaching and learning. Much of this is occurring in an ad hoc way, driven by the technology itself (Boud & Prosser, 2002). Many of the developments adopt a teacher-focused rather than student-focused perspective in the process of translating teaching practices into new forms. They involve designing and presenting materials using new technology rather than utilising knowledge of how students' experience learning through the technologies. Our planner offers some alternatives in the form of different types of teaching techniques adapted for online delivery (eg, role plays, Problem-Based Learning, Predict-Observe-Explain, etc) so that the lecturer can explore a range of options to find an approach that they feel is appropriate to their context. Once a lecturer has selected a teaching technique or 'template' from the planning tool, he/she can then add their discipline specific content to the template.

The ideal e-learning model would describe how to engage the learners in meaningful tasks, give rapid feedback, encourage reflection through dialogue with tutors and peers, align assessment, and would encourage the creation of a community of learners through discussion (Mayes and de Freitas, 2004). Guidelines for best practice in e-learning can be structured around five key areas (Boud and Prosser (2002):

- *Engaging learners* — Taking into account their prior knowledge and their desires and building on their expectations.
- *Acknowledging the learning context* — This includes the context of the learner, the course of which the activity is part and the sites of application of the knowledge being learned.
- *Challenging learners* — This includes seeking to get learners to be active in their participation, using the support and stimulation of other learners, taking a critical approach to the materials and go beyond what is immediately provided.
- *Providing practice* — This includes demonstration of what is being learned, gaining feedback, reflection on learning and developing confidence through practice.
- *Learners should be given time and opportunity to reflect*. When learning online, students need time to internalize the information (Ally, 2004).

In addition to the teaching and learning benefits of e-learning, there are also benefits to lecturers in the increased efficiency of tracking and monitoring students' progress. Yet despite these potential benefits, e-learning is still not uniformly adopted across the disciplines, or even within individual institutions (Knight, 2004). Making the move towards e-learning presents lecturers with a complex set of challenges — they may need to develop new skills,

embrace changes in the nature of their role and then reassess the pedagogies they employ. In many cases of 'e-learning transformation,' teaching and learning approaches have often simply been re-hosted, not re-defined (Hannafin & Land, 1997). The activity planner can provide lecturers with step-by-step guidance that helps them make theoretically informed decisions about the learning activities, tools and resources they will need to attempt e-learning with some confidence.

It was demonstrated in this project that the complex task of learning design for the higher education environment can be improved with good guidance, inspiring examples, and supportive tools. The learning designs provide an opportunity to share examples of good design practice, which can be tailored to meet the lecturer's particular requirements.

Conclusion

This project explored what one participant described as the 'granularity' of the field of learning design through the prism of the pedagogical planner. As is evident from the frank reflections of all of the participants involved with this project, learning design is a complex and sometimes difficult field in which to be engaged. By concentrating on concrete deliverables, such as the examples in the pedagogical planners, the project provided a substantive beginning to a practical exploration of sound pedagogy across a variety of disciplines. There remains considerable work to be done in expanding this conversation so that individual practitioners receive the support that they need to develop and refine this work.

The philosophy shaping this project was to focus on individual practitioners and particular activities. The work on fostering a community of practice and especially the mobilisation of the LAMS community of practice is a positive way of learning from the experience of many. However at some stage it will be necessary, if only for strategic purposes, to think about how such approaches will be linked to the strategic planning environments that are now shaping the learning and teaching environments of universities in both Australia and internationally. Finally there is scope for the explorations to be made of how the practices encouraged in the planner relate to student outcomes. It will be essential for this work to be done so that there is substantive evidence to drive the adoption of the strategies produced from engagement in this project.

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