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# The use of a visual learning design representation to document and communicate teaching ideas

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A learning design is a representation of teaching and learning practice documented in some notational form so that it can serve as a model or template adaptable by a teacher to suit his/her context. This paper presents a work-in-progress of a research study that is examining how a learning design representation developed in an Australian federally funded project known as the Learning Designs project (www.learningdesigns.uow.edu.au) is being used. Eleven participants were interviewed to investigate how they are using the learning design representation and how such a representation could be improved. Preliminary findings indicate that the visual characteristic of this learning design representation is one of its main strengths. The visual element enables a learning design to be summarised so it can serve as a "talking point" during the design process, it can be used as a communication device to share pedagogical strategies, and it can also serve as a personal reflection tool. In-depth analysis of the interviews is currently being conducted. The results will inform the refinement of the learning design representation and make a contribution towards the development of a notation system as there is currently no consistent notation system for learning designs in education.

Keywords: learning design, learning design representation

## Introduction

In the Higher Education sector where Information and Communication Technology (ICT) is becoming mainstream, teachers are faced with an ongoing challenge to review their teaching practices. There is an agenda to improve the overall quality of teaching and learning based on contemporary views of learning and integrate Internet technology within teaching practice (Transcript of the Launch of the Carrick Institute for Teaching and Learning in Higher Education, 2004). This has led to a situation where there is a growing demand for advice and guidance in a time-efficient and effective form so that teachers can implement innovative and pedagogically sound ideas. The current push to reuse existing learning resources via the use of learning objects, and more recent efforts to describe educational strategies in consistent notational forms, referred to as learning designs, are strategies that may encourage academics to implement different and innovative teaching practices.

There is a wealth of literature about effective educational strategies and descriptive case studies that illustrate how theory is translated into practice. This is documented in a range of genres, such as descriptive and analytical case studies reported in journal and conference publications, tips and techniques found in Web sites, pedagogical principles outlined in books, etc. There is, however, no consistent form to describe and represent these ideas. This makes the contrast and comparison of ideas difficult and time consuming. Goodyear (2005) concludes that the current ways of representing and sharing educational designs need improvement and argues for a mechanism to capture design knowledge in a way that bridges the gap between research-based evidence of pedagogical theory and practical application of that theory. Similarly, Waters and Gibbons (2004) state that a notation system for educational design, similar to that found in other disciplines, such as music and dance, is needed to provide a common language that will allow better communication of ideas, and in turn could serve as a stimulus to improve the quality of teaching and learning.

## Learning design representations

A learning design is a representation of teaching and learning practice documented in some notational form so that it can serve as a model or template adaptable by a teacher to suit his/her context. The use of learning designs to share and model expert practice would not eliminate the need for academics to have an understanding of contemporary learning theories and their applications. Instead, it would provide

academics with a scaffold to help them design high quality learning environments without investment of excessive amounts of time.

Currently, there is no consistent notation system for learning designs. Richards and Knight (2005) and McAndrew, Goodyear, & Dalziel (2006) describe several emerging learning design representations. Examples include design patterns (e.g., Goodyear, 2005), pedagogical patterns (e.g., http://www.pedagogicalpatterns.org/), learning activities (http://www.lamsinternational.com/), and the technical specification IMS LD (http://www.imsglobal.org/learningdesign/index.html). These representations are documented in a range of forms such as textual descriptions, flow charts, and computer readable language.

Another emerging learning design representation was developed from a project funded by the former Australian Universities Teaching Committee referred to as the Learning Designs project (http://www.learningdesigns.uow.edu.au) (Agostinho, Oliver, Harper, Hedberg, & Wills, 2002). The Learning Designs project focused on the development of generic learning designs, based on exemplary teaching and learning practice in higher education supported by information and communication technology. The site includes five generic learning design guidelines, four generic learning design software tools and 32 contextualised learning design exemplars and has been heralded as one of the most extensive Web based resources in higher education available (Hicks, 2004). A learning design representation was devised to illustrate the learning designs in terms of the tasks students are required to undertake, the content resources students are provided with to assist them in completing the tasks and how the teacher plans to help or support students through their learning process (Oliver & Herrington, 2001). The representation includes a graphical formalism that assigns symbols for each of the three learning design elements (squares/rectangles for tasks, triangles for resources and circles for supports) and delineates these symbols in a chronological sequence. Figure 1 provides an example of the visual learning design representation. The suggested time period for the learning design and intended learning outcomes are also included.
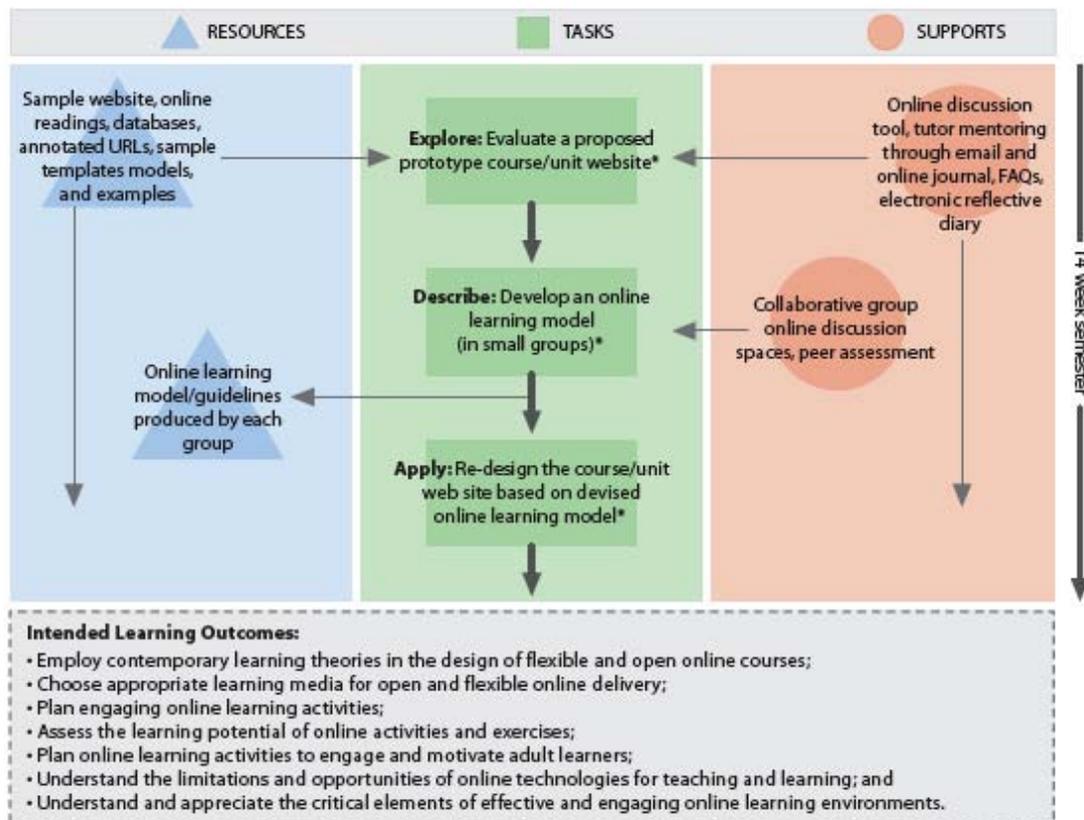


**Figure 1: Example of the visual learning design representation devised in the Learning Designs project (Herrington & Oliver, 2002)**

On the project web site, this visual is accompanied with rich textual information to explain each aspect of the learning design and provide guidance on how it can be implemented.

Whilst there has been some research conducted into how the learning designs from the Learning Designs project could be reused (Bennett, Agostinho, & Lockyer, 2005; Bennett, Agostinho, Lockyer, & Harper, 2006), little is known about whether this graphical learning design representation is being utilised beyond the project and if so how. Thus, the aim of this research was to conduct a small exploratory study to investigate how the learning design representation is being used, what is its perceived usefulness and limitations and what refinements are required to improve the representation.

## Research approach and preliminary findings

The researcher (author) was the project manager for the Learning Designs project and was heavily involved in the development of the learning design representation. Through ongoing work and communication with several members of the project, she identified that the visual learning design representation is being utilised by several teaching academics and staff development academics across several Australian universities. These academics were approached to participate in this study. Interviews were conducted, both face-to-face and via telephone with the following key questions asked:

- Does the graphical representation help you to understand a learning design in a time-efficient manner?
- How have you used this learning design representation?
- What suggestions would you recommend to improve the learning design representation?
- Do you know of other colleagues that are using this learning design representation?

Some participants knew of other colleagues that were also using the learning design representation, thus these academics were also requested to participate in this study.

In total, eleven interviews were conducted with participants spanning four university institutions. The interviews were reviewed using a data analysis technique referred to as "skimming the cream" (Smith, 1978), where the researcher reflected on the interview data and brainstormed the predominant themes that emerged.

Preliminary findings indicate that the learning design representation is being used as a mechanism to describe and document teaching ideas in the form of a learning design. The visual characteristic of the learning design representation is a significant strength that aids the documentation and communication process. Because the learning design can be summarised graphically, participants stated different ways in which they use the learning design representation. These include:

- A tool used during the design process of a course/subject/activity to communicate and discuss pedagogical ideas.
- A documentation device to summarise and communicate a learning design implemented in a course/subject.
- An analysis tool to reflect on an implementation of a course/subject.

The representation's underlying structure of tasks, resources, and supports was seen as a useful mechanism to focus on the tasks students are required to complete and delineate the content resources to be provided to help students complete the tasks and how they are to be supported in the learning environment. The other significant feature deemed effective is the chronological sequencing of tasks as this explicitly illustrates the order of tasks in the learning design.

In-depth analysis of the interviews is currently being conducted. It is envisaged that the results will identify the characteristics required by a representational model that enable a learning design to be understood by a teacher, thus contributing towards the development of a notation system for learning designs to facilitate their dissemination and reuse.

## Conclusion

This paper has presented a work-in-progress of a study that is investigating how the learning design representation devised by the Australian Learning Designs project is being used. This research is timely as there is no consistent form for describing and representing a learning design. McAndrew, Goodyear & Dalziel (2006) argue that it is an appropriate time for reflection on current representational forms to determine how sharing can be best facilitated amongst teachers and designers. The findings from this study will contribute to this dialogue. The findings will also feed into the research work of the awarded Australian Research Council Linkage grant titled: "Improving university teaching: Creating strategies and tools to support the design process".

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