

## **PROSPECTS FOR LEARNING DESIGN RESEARCH AND LAMS**

by **James Dalziel**

Macquarie E-Learning Centre Of Excellence (MELCOE)

Macquarie University, Sydney, Australia

james at melcoe.mq.edu.au

### **Abstract**

Learning Design is a descriptive framework for activity structures that can describe many different pedagogical methods. It is similar to music notation, which can describe many styles of music using a common format, but Learning Design needs further research to be an effective format for sharing good teaching ideas among educators. Learning Design may also provide benefits for traditional educational research through more precise descriptions of educational innovations, which could allow for better control of confounding factors, and through rich records of student performance. Effective sharing of research-based Learning Designs has great potential for the future of teaching and learning.

### **Research on Learning Design**

Learning Design is a significant new framework for analysing the conduct of educational activities. Unlike educational theories (such as constructivism) or teaching approaches (such as problem based learning) Learning Design aspires to “pedagogical neutrality” (Koper, 2002) in the sense that it is a descriptive framework of activity structures that can describe many different pedagogical methods, rather than a commitment to a particular way of teaching and learning that hopes to achieve certain educational benefits. In this sense, it is a meta-theory of education, or more precisely, a descriptive theory of educational activities and processes rather than theory about how students learn.

The history of music notation may be a helpful analogy here (Dalziel, 2007) – while different styles of music exist (such as Baroque, Classical and Romantic in the Western musical tradition), examples of each style can be described using the same system of music notation, and a musician living today can interpret and reproduce music from hundreds of years ago based on this shared notational system. However, a few hundred years before the Baroque period, music notation was quite different from today, and some key elements were missing or underdeveloped (especially notation of rhythm – that is, time). The result of this difference is that a typical musician today would be quite uncertain how to reproduce the musical experience denoted by the earlier system of music notation.

My sense is that we are in a “pre-Baroque” period of notation for educational activities and structures – that is, we are still developing a shared framework/language for describing

how teachers and learners interact over time as they conduct educational activities. Note that the focus is not the discipline content of education, as important as this is, but the activity structures used to help students understand this content. While we have some earlier attempts at parts of the framework problem, such as various structured lesson plan formats and elements of instructional design notation, I see Learning Design as the broadest potential framework to date for capturing what teachers and learners actually do in classrooms over time.

By finding a shared language for describing educational activity structures, we lay the foundations for the most important promise of Learning Design – sharing of good teaching and learning ideas among educators. Ultimately Learning Design, like music notation, is a means to an end – but without a common language for describing effective teaching practices, we will struggle to convey good ideas from one teacher to another.

So it is with great pleasure that I welcome this special journal edition on Learning Design and LAMS. The articles contained are all, in their own way, struggling towards the goal of sharing good teaching ideas, and trying to understand how particular discipline content, educational contexts and Learning Design approaches interact to foster student learning through the dissemination and adaptation of effective teaching practices. My sense is that we are at the beginning of a very long road of research in this field, but I hope that by sharing our insights from Learning Design research, we foster more effective sharing of good teaching ideas – just as we hope that by sharing good teaching ideas, we will foster richer student learning.

There are many topics ahead of us for research on Learning Design, including: theoretical/ontological questions about the most useful framework we could adopt; technical questions about the design of Learning Design specifications and systems; user experience questions about the best ways to help novice and expert teachers use Learning Design systems; sociological questions about how best to foster sharing, adoption and adaptation of Learning Designs among teachers; as well as the more traditional educational research question of how to measure and improve student learning using a Learning Design approach.

### **Implications of Learning Design for Educational Research**

A Learning Design “way of thinking” may have special benefits for educational research. As a specific Learning Design provides a detailed articulation of teaching and learning procedures, it may provide a more solid foundation for experimental/comparison-based educational research. One explanation for the lack of significant differences (Russell, 1999) in

comparisons of educational innovations with control groups is that there are so many small differences in the learning experiences between student groups, that a myriad of confounding factors wash away any potentially measurable difference arising from an innovation.

The introduction of Learning Design to these comparisons could provide a much closer comparison of learning experiences between groups, with some of the confounding factors removed or mitigated as a result of a greater similarity in educational contexts (apart from the relevant difference under investigation). Using Learning Design in this way provides no guarantee that significant differences would be found, but it may help to remove some of the “noise” in comparisons of student groups in educational research, and hence provide a better chance of measuring any genuine differences that are being masked by confounding factors.

A second benefit of Learning Design for educational research arises from contexts where a rich record of student behaviour is recorded as a result of running the design. This is most common when Learning Designs are implemented online using a system that automatically records student contributions (such as LAMS, Dalziel, 2003), but there is no theoretical reason why similar student records couldn't be achieved in a face-to-face context through audio/video recording and collation of written notes. In either case, capturing a rich record of student behaviour as they progress through a Learning Design may provide educational researchers with new insights into the strengths and weaknesses of different educational approaches, as well as the potential to compare student learning processes and outcomes between online and face-to-face Learning Designs.

It is worth noting that richer records of student behaviour within Learning Designs may lead to a wider variety of measurable outcomes for research. There is a tendency in some educational research to focus only on measures such as test scores on multiple choice questions; whereas in certain contexts, this may be a poor measure of whether any changes in student learning have occurred. Rich records would permit other kinds of quantitative measures (such as the number or length of forum postings) as well as potentially more meaningful qualitative analyses such as changes in a student's written comments about a concept over the life of a Learning Design (or a series of designs). As this last point suggests, detection of some differences may require comparisons of each student over time (i.e., repeated measures), rather than a simple comparison of test score averages between groups at the end of a study.

My personal suspicion, for what it is worth, is that there are real differences to be found in certain contexts, but we need studies that carefully use Learning Design to reduce the

“noise” in group comparisons, as well as new kinds of measures to detect differences (many of which may be qualitative, and based on repeated measures experimental approaches). I also suspect we need longer timeframes to detect differences in many contexts – a comparison of groups after a single lesson may not be sufficient – we may need a series of controlled comparisons over many sessions (and hence multiple Learning Designs) before differences are readily apparent.

Why would the impact of a Learning Design “way of thinking” on traditional educational research matter for Learning Design itself? Improvements in educational research arising from the use of a Learning Design lens may help us to identify those contexts where genuine differences in student learning can be found (and replicated), and hence which specific Learning Designs are deserving of greater attention. It’s hard to think of a better long term goal for Learning Design than greater sharing of good teaching ideas which themselves have been proven to be beneficial for student learning.

## References

- Dalziel, J. R. (2003) Implementing Learning Design: The Learning Activity Management System (LAMS). In G. Crisp, D. Thiele, I. Scholten, S. Barker and J. Baron (Eds.), *Interact, Integrate, Impact: Proceedings of the 20th Annual Conference of the Australasian Society for Computers in Learning in Tertiary Education*. Adelaide, 7-10 December 2003. Retrieved 25<sup>th</sup> May 2009 from <http://ascilite.org.au/conferences/adelaide03/docs/pdf/593.pdf>
- Dalziel, J. R. (2007). New steps for LAMS and Learning Design: Bug fixes, branching and Pedagogic Planners. Presentation for the 2007 European LAMS Conference, 5<sup>th</sup> July, 2007, London, Retrieved 25<sup>th</sup> May 2009 from <http://www.lamsfoundation.org/lams2007/slides/EuropeanLAMSconference.DalzielKeynote.ppt>
- Koper, R. (2001). *Modeling Units of Study from a pedagogical perspective: The pedagogical metamodel behind EML*. Technical Report, Open University of the Nederland (OUNL), Retrieved 25<sup>th</sup> May 2009 from [http://dspace.ou.nl/dspace/bitstream/1820/36/1/Pedagogical metamodel behind EMLv2.pdf](http://dspace.ou.nl/dspace/bitstream/1820/36/1/Pedagogical%20metamodel%20behind%20EMLv2.pdf)
- Russell, T. L. (1999) *The No Significant Difference Phenomenon*. Raleigh: The International Distance Education Certification Center, North Carolina State University.