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How learning design can illuminate teaching practice

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Description

The field of learning design holds the promise of providing teachers with a framework that will enable them to design high quality, effective and innovative learning experiences for their students. By creating the possibility of deconstructing their existing teaching strategies; aiding reflection on their own practice; documenting and scaffolding innovative learning activities; and sharing and reusing expert practice, learning design has the potential to improve the quality of teaching throughout the higher education sector. A key challenge for the future of Learning Design is to continue to bridge the gap between rich, descriptive models and technologies (such as IMS-LD), and the everyday practice and understanding of teachers. This paper highlights the distinctions between the central concepts, such as the differences between a formal learning design framework, the active teacher process of creating a learning design, and the requirements for creating, transmitting and adopting effective learning designs with an aim to improve student learning.

Location

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How learning design can illuminate teaching practice

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Abstract

The field of learning design holds the promise of providing teachers with a framework that will enable them to design high quality, effective and innovative learning experiences for their students. By creating the possibility of deconstructing their existing teaching strategies; aiding reflection on their own practice; documenting and scaffolding innovative learning activities; and sharing and reusing expert practice, learning design has the potential to improve the quality of teaching throughout the higher education sector. A key challenge for the future of Learning Design is to continue to bridge the gap between rich, descriptive models and technologies (such as IMS-LD), and the everyday practice and understanding of teachers. This paper highlights the distinctions between the central concepts, such as the differences between a formal learning design framework, the active teacher process of creating a learning design, and the requirements for creating, transmitting and adopting effective learning designs with an aim to improve student learning.

Introduction

Teaching has often involved some element of lesson design, however, with e-learning, the need for intentional design becomes more obvious and pressing. With the use of technology, learning activities require forethought and an explicit representation of what learners and teachers will do (Beetham, 2007). New technologies make aspects of teaching visible that were previously taken for granted (Beetham, 2007).

What is learning design?

Learning design has a predominant focus on technology but it can cover a more general field than just technology (Dalziel, 2008). It is a term that bridges both theory and practice and encompasses both a systematic approach with rules based on evidence and a set of contextualised practices that are constantly adapting to circumstances (Beetham & Sharpe, 2007). Because the term 'learning design' has come to have a variety of meanings, it will be useful here to carefully define each, consistent with recent convention (Dalziel, 2005; Britain, 2004):

1. Learning Design (capital "L" and "D") as is implemented in the IMS-LD specification
2. Learning design as a broad general concept (the process)
3. Learning designs as a product of designing learning.

1. Learning Design (capital "L" and "D") as is implemented in the IMS-LD specification

Without consistent and compatible ways to describe teaching strategies, designers will experience unnecessary difficulty in:

- Documenting teaching strategies and materials
- Establishing and adhering to prescribed procedures for assuring the consistency of that documentation
- Re-using elements of existing teaching materials (IMS GLC, 2006)

- Guaranteeing portability between learning platforms.

A learning design, modelled using the language described in the IMS-LD Specification, captures who does what, when and using which materials and services in order to achieve particular learning objectives. The Specification describes the constructs of the language and gives a binding in XML. The XML document instance is "loaded into" an IMS-LD-aware application and "played".

The IMS-LD specification has been designed to facilitate the creation and use of learning content and support material in such a way that it can be exchanged and reused by others (Koper, 2006). An important part of this definition is that pedagogy can be conceptually abstracted from context and content, so that exemplar pedagogical models can be shared and reused (Koper & Olivier, 2005).

However, despite significant activity and enthusiasm toward developing this specification for describing learning designs, the researchers have yet to find ways to describe learning designs so that teachers in mainstream education can easily understand and apply them. IMS-LD is a complex specification and the Best Practice Implementation Guide produced by IMS to assist educators in understanding how to use it is a difficult document for the average teacher to read and understand (Britain, 2004). The current representations of IMS-LD are generally not meaningful to mainstream practitioners and few examples have been generated (Neumann & Oberhuemer, 2009; Oliver & Littlejohn, 2006).

Numerous tools have been developed so that teachers might document their teaching. Falconer & Littlejohn (2009) have divided these into two categories: the executable design, that can be processed automatically by a machine; and the inspirational design, that clearly illustrates the pedagogical ideas of the designer, but are not machine readable. However, none of these tools have successfully realised the model Koper envisioned for the IMS-LD Specification.

2. Learning design as a broad general concept (the process)

Koper uses the phrase 'learning design' (without capitals) when referring to the process of designing units of learning, learning activities or learning environments (Koper & Tattersall, 2005, p. x). Yet it is crucial that any definition of 'learning design' includes a means of describing learning activities (Conole, 2009) so that they can be shared and reused. Therefore, a more comprehensive definition is, "a representation of teaching and learning practice documented in some notational format so that it can serve as a model or template adaptable by a teacher to suit his/her context" (Agostinho, 2006). This is a commonly agreed meaning (Conole, 2009; Masterman, 2009; Miao, 2009; and Britain, 2004) and one that will be adopted throughout this paper. However, Goodyear & Yang (2009) dislike the term 'learning design' because they feel it subtly suggests that designers are helping learners abdicate their responsibility for learning so they prefer the term 'educational design'. Goodyear (2005) also emphasises the iterative and cyclical nature of the design process. His point is an important caution to the use of learning design to ensure it does not undervalue the role of an active learner.

The term 'design for learning' coined by Beetham & Sharpe (2007) overlaps in meaning with 'learning design' in that it focuses on activity-centred learning, activity sequences and shareability. 'Design for learning' focuses primarily on the activities undertaken by learners, only secondarily on the tools or materials that support them (Beetham, 2007). Therefore, in terms of process, 'design

for learning' restricts itself to "the process by which teachers – and others involved in the support of learning – arrive at a plan or structure or design for a learning situation" (Beetham & Sharpe, 2007, p. 11).

3. Learning designs as a product of designing learning

Koper (Koper & Tattersall, 2005) uses the phrase 'the learning design' when describing the result of the learning design activity conducted by teachers. The documentation of learning designs has been implemented by classroom teachers for many years. Commonly known as "lesson plans", they are regularly produced by teachers, often as a requirement of the formal accreditation documentation process. JISC (2006, p. 1) define a learning design as, "an outcome of the process of designing, planning and orchestrating learning activities as part of a learning session or programme".

We will adopt a more comprehensive definition provided by Donald (2009):

> A learning design documents and describes a learning activity in such a way that other teachers can understand it and use it in their own context. Typically it includes descriptions of learning tasks, resources and supports.

A learning design may be of any degree of granularity, ranging from a course to an individual activity. The scope of the design is determined by the learning objectives to be met (Falconer, Beetham, Oliver, Lockyer & Littlejohn, 2007). If a learning design is shared with another teacher, and it can call upon that other teacher's existing knowledge of context, or experience, then the activities need only be described briefly. But if the pedagogy or context is unfamiliar to that teacher, then the new scenario will need be described in great detail. This is a factor that limits the potential usefulness of learning designs for changing practice (Falconer et al, 2007).

A learning design can communicate more than just the sequence of activities; it can also express the relationship between the activities. This relationship reflects the pedagogic intent of the design and communicates why these particular activities are to be delivered in this way (Falconer & Littlejohn, 2009).

The Design Process

There are many different descriptions of learning design processes. Laurillard (2006) stated simply that the design process is "determining what it takes to learn and how the learning process needs to be supported if we are to be sure the learner can learn." Beetham and Sharpe (2007, p. 6) provide a broad overview of the design process:

• Investigation: who are my users and what do they need? What principles and theories are relevant?
• Application: How should these principles be applied in this case?
• Representation or modelling: What solution will best meet users' needs? How can this be communicated to developers and/or directly to users?
• Iteration: How does the design stand up to the demands of development? How useful is it in practice? What changes are needed?

Britain's "Key Activities in Learning Design" (2004, p. 7) provides a more prescriptive list:
• Define learning objectives

- Develop narrative description of learning and teaching scenario
- Create learning activity workflow from narrative description
- Assign resources, tools and people to activities
- Running (real-time)
- Learner support and on-the-fly adaptation
- Reflecting (including sharing outputs for peer reflection)

Using learning design to illuminate teaching practice

Learning design is a descriptive framework that allows teachers to unpack the learning design process by separating the content from the pedagogy. As seen from the comments below, it encourages teachers to reflect in a deeper and more creative way and see how they design and structure activities for learners (Britain, 2004).

"it made me look at the content from a learner's perspective, so that I could ensure that the elements would be engaging and easy to understand, as well as accomplishing the learning that I want the learner to achieve"
(teacher comment in Masterman, 2009, p. 233)

"thought about the place of the teacher and the role of the teacher"
(teacher comment in Masterman, 2009, p. 233)

"I've never really thought about all of this"
(teacher comment in Bennett, 2008, p. 36,315)

This approach makes the relationship between practice and the underpinning theory more explicit, and, as Conole argues (Conole & Fill, 2005), this should enable teachers to make more theoretically informed choices of tools and resources used to support learning.

The focus of the framework is not the discipline content but the activities employed by the teacher to help students understand that content, acknowledging that students learn better when they are actively engaged. Learning design can describe many different pedagogies rather than prescribe any one specific teaching or learning strategy (Koper, 2001 Dalziel, 2009).

Once teachers realise they can separate content from the learning design, they can be introduced to the concept of the generic learning design. It is proposed that generic learning designs could serve as a pedagogical framework to support teachers in creating learning experiences, with the teacher adapting the learning design, specifying the particular activities and choosing or creating the resources and supports needed to suit his/her learners (Bennett, 2004, p. 177).

Also called "practice models" they are common, but decontextualised, learning designs that are usable by practitioners (teachers, managers, etc.) (Falconer & Littlejohn, 2007). Practice models should be a representation of effective practice and are intended to inspire teachers to adopt effective pedagogical approaches, and support them in doing so, by promoting sharing and reuse of effective designs. They have many potential uses: they describe a range of learning designs that are found to be effective, and offer guidance on their use; they support sharing, reuse and adaptation of learning designs by teachers, and also the development of tools, standards and systems for planning editing and running the designs (Falconer et al, 2007). The use of the term 'model' or 'exemplar' is intended to indicate a further level of abstraction from the learning activity or

sequence that was originally designed (JISC, 2006). However, many of the things that teachers most want to know about when assessing designs for reuse, such as rationale, assessment policies, reflection and evaluation, and student outputs and feedback, are scarcely covered, if at all, in most existing representation forms (Falconer et al, 2007).

When looking at a design to inspire and hence change practice, teachers need to get some insight into how they and their students would operate effectively within the confines of the design. The situations in which teachers are most likely to be effective are those which require flexibility. That is, where the problems are ill defined and/or where rapid decisions need to be made (Falconer et al, 2007).

There is little incentive for a teacher experienced in one teaching method to change to a new practice in which they will be a novice with little indication of how they might ever become anything else. When teachers are in the position of learners as they change their practice, the formation of a community and dialogue around a practice is essential to helping to internalise the practice so that it can be performed competently (Falconer et al, 2007). The learning design framework can provide a means to have this dialogue.

However effective a learning design may be, it can only be shared with others through a representation. The issue of representation of learning designs is, then, central to the concept of sharing and reuse. To adapt, share and/or reuse learning designs, they will need to be documented. An aim of learning design is to find a shared language for describing educational activity structures that can be easily used by typical teachers (Dalziel, 2009).

A key aim of the IMS-LD specification is to make reuse possible, and yet it has not been a simple matter for software systems to represent learning designs in a way that is both powerful and flexible and also easy to understand and manipulate. The design needs to be described at a sufficient level of abstraction that it can be generalised beyond the single teaching and learning context for which it was created, but not at such an abstract level that the pedagogical value and richness is lost (Britain, 2007). And as Masterman & Vogel (2007) point out, few teachers are prepared to invest time and effort to create learning designs that are reusable (Britain, 2007).

Explicit notation of a design will allow integration across systems and enable more precise measurement of quality (Koper, 2001) and comparisons. A detailed articulation of teaching and learning procedures would provide a more solid foundation for experimental /comparison-based educational research (Dalziel, 2009). Any resultant improvements in educational research may help us identify those contexts where genuine differences in student learning can be found and hence which learning designs are deserving of greater attention.

Another central idea of learning design is that learning activities may be sequenced or otherwise structured into a learning workflow to promote more effective learning (Britain, 2004). Learning designs can predetermine the order in which the content will be presented, how it will be integrated in learning support services, how it will be sequenced, and how it will be assigned to students in a lesson (Knight, 2005).

Conclusion
The field of learning design holds the promise of providing teachers with a framework that will enable them to design high quality, effective and innovative learning experiences for their students.

By creating the possibility of deconstructing their existing teaching strategies; aiding the reflection of their own practice; documenting and scaffolding innovative learning activities; and sharing and reusing expert practice, learning design has the potential to improve the quality of teaching throughout the higher education sector.

A key challenge for the future of Learning Design is to continue to bridge the gap between rich, descriptive models and technologies (such as IMS-LD), and the everyday practice and understanding of teachers. This paper has drawn attention to subtle distinctions between central concepts, such as the differences between a formal learning design framework, the active teacher process of creating a learning design, and the requirements for creating, transmitting and adopting effective learning designs so as to improve student learning. Deeper analysis of the links between these concepts should provide further foundations for the adoption of learning design by typical educators.

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