ascilite 2010 sydney

curriculum, technology & transformation for an unknown future

Using a Learning Design 'embed' function to disseminate medical education learning designs

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Learning Design seeks to share effective methods for online teaching, such as templates which can be automatically run by Learning Design systems. To overcome barriers to widespread adoption, a new 'embed' function has been developed to allow teachers to view and trial a design from any public webpage – for example, a design can be embedded in a blog post. This new approach has been applied to sharing of designs developed in an ALTC project on medical student training in the scientific basis of medicine during clinical rotations in hospitals. Advantages of the new approach to sharing of medical education designs are discussed, including the ease of sharing designs among those unfamiliar with online Learning Design communities.

Keywords: learning design, medical education, clinical medicine, embed, Web 2, LAMS, online community of practice.

Learning Design background

The field of Learning Design offers new approaches to the sharing of good practice methods for online teaching. Some work on Learning Design has focussed on textual and visual descriptions of good practices (eg, the AUTC Learning Design and CompendiumLD projects). Others have focussed on the sharing of "runnable" files that contain the technical instructions needed to make a Learning Design system automatically implement the design as a running lesson for students (e.g. the Coppercore and LAMS systems).

From a content perspective, a shared design may be in the form of a generic teaching template, such as a Problem Based Learning (PBL) template. This template can contain an online representation of the generic method used in PBL, but where the discipline content is added separately by an expert (Richards & Cameron, 2008). In other cases, the shared design may include the teaching method as well as discipline content, resulting in a "ready to use" design that does not first require content editing.

When a "runnable" file for a Learning Design system includes both the teaching method and relevant discipline content, this allows an educator to take a design from another educator and implement it immediately and automatically (assuming access to the relevant Learning Design system). For designs which are templates without discipline content, or for descriptive Learning Design approaches that do not incorporate a running system, the educator needs to take additional steps to transform the shared design into a format that can be implemented online.

In terms of sharing, there have been a number of approaches to fostering the sharing and adoption of effective designs. One approach is the creation of online communities of practice where educators need to create an account to join in discussions of Learning Design ideas and to view or download designs (e.g. the Unfold and LAMS Communities for Learning Design). More recently, some communities have adopted a hybrid approach of allowing some parts of the community to be viewed publicly (i.e. without first requiring a log in), while other areas or features require a user account. A related alternative is the recent Cloudworks website (Conole & Culver, 2009), which allows public viewing of community materials, but additional functions (such as commenting, adding, tagging, etc) require a user account.

Barriers to adoption and new solutions

In practice, Learning Design is yet to see the widespread adoption that is anticipated within the field (Laurillard, 2002). Some of the reasons for this, based on the overview above, include:

- the demands (and uncertainty) of transforming a descriptive design into a running online experience using typical Learning Management System functionality
- challenges in editing of generic templates when applied to specific disciplines
- the lack of complete interoperability between different Learning Design systems; and
- barriers to exploration of designs resulting from the requirement for users to log in to an online community of practice (Dalziel, 2007).

In an attempt to address these potential barriers, recent work on the LAMS Learning Design system and its associated community of practice has involved the development of an 'embed' function for sharing of designs. This function is analogous to the YouTube 'embed' function that allows a playable video to be embedded into any other webpage (e.g. a blog posting). In the context of Learning Design, this meant developing features to allow a shared LAMS design to be hosted in the LAMS Community which provides the relevant 'embed' code. By adding this embed code to another webpage (e.g. a blog posting), it is possible to show a representation of the design (typically a picture of the LAMS Authoring view of the design) together with a button to allow for a live learner preview of the design (i.e. pressing the preview button launches a live 'dummy' run of the design from a learner perspective).

The advantage of the embed approach is that it allows a design to be embedded into any webpage, and allows for live exploration of the design to occur without needing an account on a Learning Design system or online community. This considerably reduces the barriers to exploring novel designs – for example, to view a learner preview of a LAMS sequence involved many separate steps in the past, including filling out user details for account creation – whereas with the embed approach, only a single click of the 'Preview' button is needed to launch the learner view. This work has been developed in conjunction with the Open University UK as part of a JISC-funded project in association with the Cloudworks website (Galley, Conole, Dalziel & Ghiglione, 2010).

In a separate project, a hosted version of the LAMS Learning Design system has been created and linked to the embed function. This allows an educator to gain access to Authoring/editing of the design in a functioning Learning Design system with only a brief account creation process. By providing a hosted version (in the style of a 'cloud' application), the educator does not need to have the LAMS software set-up and maintained by local technical staff – a major potential barrier to rapid adoption.

In addition, there are no additional steps required for downloading the design from a community website and then uploading the design to a Learning Design system – this process is simplified to a single click to open the design in the hosted website (together with the brief account creation process if needed – account creation is necessary as there needs to be a location to save any changes made to the design in Authoring). The hosted site also allows an educator to quickly launch a design with a group of students – this can be done with a unique URL for the design together with a code given to students to allow for self-registration for access to the design.

The result of combining the embed function and the hosted website is a greatly simplified process for sharing and exploring designs among educators, and fostering adoption of designs. Designs can be shared through any webpage, and educators need only a single click to preview a live learner example of the design. Educators can also open the design in a hosted website with minimal additional steps, allowing rapid editing of designs and/or launching of designs with students. As a result, it is easier and

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quicker to share designs with time-poor educators, such as busy doctors acting as medical content experts.

Learning Design for medical education

Learning Design is well suited to medical education contexts (Ellaway, Dalziel & Dalziel, 2007), particularly those that employ a structured series of activities for students working in small groups, such as PBL. Typically students are presented with a medical case, are asked to hypothesise about the diagnosis and then go on to research the disease from different angles such as anatomy, physiology and pharmacology within their group. This PBL approach can be adapted successfully to an online environment where collaborative activities are enabled. Indeed, case-based online learning is fast becoming an established method of providing the scientific basis of medicine to students and doctors who are in a clinical setting and might otherwise not have the flexibility to attend regular lectures or tutorials on campus.

In the Australian Learning and Teaching Council Project 'Renewing the Curriculum to More Effectively Accommodate Clinical Rotation' the University of Western Sydney, School of Medicine is creating ten modules or approximately 250 hours of online content for medical students in years three through to five of their medical degree, when the students are off campus and in hospital-based attachments. The online content covers topics that students might not otherwise be exposed to while in hospitals, and adds emphasis to the basic sciences of anatomy, physiology, biochemistry and pharmacology. The content has been created using LAMS and is integrated into the university's online learning platform (Blackboard) so that students have single sign-on for all their online activities.

As well as creating online content, the project has: investigated effective designs for presenting online learning materials in medical education; documented the modules to guide practitioners through the rationale of the design; begun sharing the modules through repositories and communities, and fostered a community where educational developers, academic staff and medical staff can come together and discuss the modules that have been created.

Disseminating medical education designs using the 'embed' function

In terms of sharing content among medical practitioners and educators, a large proportion of the content is provided by clinicians who are experts in their particular fields of medicine. However, 'content experts' usually have little experience with online learning or educational theories and are very time poor (and sometimes reluctant when it comes to learning new technologies). The content is therefore created in a collaborative setting with different areas of expertise (clinical, scientific, educational) contributing to the final module. It is important to have a smooth and efficient process for sharing of learning designs and content to foster rapid progress from brainstorming an idea on butcher's paper during an initial meeting to the final product. Earlier project efforts have focussed on the development of a printed 'eStoryboard' to help document and guide the expert content required for an evolving design (Dalziel, Mason & Dalziel, 2009).
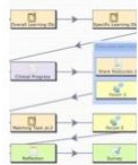
The embed approach is a promising new method for fostering easy sharing of design ideas. The biggest drawback to date has been the sharing of the final modules with clinicians off campus, where coaching them in how to log into LAMS or the LAMS Community and view a preview of the sequence has seemed to go beyond the level of confidence for many. The project website includes sections with a summary of medical sequences developed in the project (eg, 'Hypertension", "The Tired Patient", etc – see Figure 1), together with a Preview link that allows viewing of the sequence from a student point-of-view with a single click (using the embed function). This approach allows content experts to focus on the content and learning design and not be overwhelmed by the technology. In essence, the new embed function has allowed the project to skip the more complex processes previously required for design sharing through the LAMS Community. Experts can focus directly on the embedded sequences and content without needing to be aware of the more general functions of the LAMS Community (which is running in the background).

Figure 1: ALTC project website with two embedded designs from the University of Western Sydney, School of Medicine, Scientific Streams cases.

In addition to the in-house sharing of the design, there is much interest from other medical and healthcare contexts in accessing project designs for direct use in their own courses, or for adapting the designs to suit local needs. The hosting facility has already gathered interest from medical experts who wish to share a design with other expert colleagues, and are able to rapidly do so by creating a simple "class" made up of their peers, into which they can share interesting designs. This approach takes the student feature of the hosted environment and extends its use to sharing among colleagues in an innovative way which was not initially anticipated during the creation of the hosting website.

Conclusion

The new embed function, coupled with the hosted website, is an attempt to address some of the barriers to wider adoption of a Learning Design approach, particularly through a focus on rapid exploration of designs that can be embedded in any page. This approach has been applied to sharing of designs in a medical education context, both for internal team development of content, and for dissemination of project outcomes. It is hoped that the new embed approach to sharing designs will prove useful not only in medical education, but in other discipline areas that would benefit from easier sharing of designs.

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Acknowledgement

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Please cite as: Dalziel, J. & Dalziel, B. (2010). Using a Learning Design 'embed' function to disseminate medical dducation Learning Designs. In C.H. Steel, M.J. Keppell, P. Gerbic & S. Housego (Eds.), *Curriculum, technology & transformation for an unknown future. Proceedings ascilite Sydney 2010* (pp.281-285). http://ascilite.org.au/conferences/sydney10/procs/Dalziel-concise.pdf