

Future developments of IMS Learning Design tooling

Moderators & Summarizers:

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Introduction

In February 2005, a meeting of the UNFOLD project (see <http://www.unfold-project.net>) took place in the Netherlands. The meeting gathered together around 50 people from all over the world who are using the IMS Learning Design specification in their own educational practice, or in designing software tools that utilize the specification. The group of instructional designers, teachers, learning providers and tool developers worked together in creating and exploring Units of Learning with recently developed tools (editors & players) which implement the IMS Learning Design specification. The focus of this discussion paper elaborates on that of the meeting: in which direction should the IMS Learning Design tooling develop in the near future?

The IMS Learning Design (IMS LD) specification has been available for 2½ years. It is a new and interesting development, and tools and materials are becoming available. UNFOLD has produced a number of resources for those interested in the specification, including a list of Frequently Asked Questions, explanatory material, short courses and example Units of Learning (UoLs). Articles describing research and development involving IMS LD are now becoming available (Griffiths, Blat, Elferink & Zondergeld, 2005; Karampiperis & Sampson, 2005; Koper & Olivier, 2004; Koper & Tattersall, 2005; Tattersall & Koper, 2005).

Few instructional designers and teachers have, however, experience in designing learning materials using IMS LD, which requires the use of an editing environment and runtime 'player', accessed by learners. The availability of the first tools can be considered as the start of a new phase in the life of IMS Learning Design, progressing from the written specification, to the use of the Learning Design concept represented by tools such as editors and players.

Who is the user of IMS Learning Design?

People applying Learning Design in actual educational settings are not necessarily interested in the details of the IMS LD specification, or how it is implemented by applications such as editors, content management systems, players and VLEs. Realistically speaking, a sound knowledge of the specification is needed to use today's tools to create UoLs. The prevailing question is: which road should be taken: to aim at specialist or generic users?

One position is to keep the tooling suited for those trained in instructional design in general, and specifically the application of Learning Design, since the specification is too complex to have tools simplify the authoring process. As a result, a sound knowledge of the specification is needed to be able to apply it. In this scenario, it is not expected that teachers build their own Learning Designs but merely arrange available Learning Designs to make them suit the educational context. A second prevailing scenario is for teachers not only to arrange existing Learning Designs (re-use) but also build their own Learning Designs from scratch. Current tooling does not yet meet the demands of this scenario. How much effort should we put in the usability of the authoring tools?

Tool usability

IMS Learning Design may be complex to use in practice, but it is flexible in the kind of Learning Designs that can be created. Current authoring tools offer generic editing possibilities. Are these sufficient for specialized designers? Are they suitable for teachers? Will more sophisticated tools in which templates, wizards or patterns can be used help? Or is IMS LD too complex to expect easy to use authoring tools?

The future of LD tools

Learning Design is sometimes seen as being particularly suited for educational contexts such as distance education, in which learning activities are typically planned in advance and students learn in a reproductive manner. In the specification, the design of learning activities is separated from everything that happens in runtime between the roles specified in the UoL. In such situations learners may not follow a planned UoL completely, they may define on the spot their own, unspecified learning paths, and produce their own materials as part of their learning activities (self-directive learning). The situations mentioned can be expressed in IMS LD as a transcript of learning activities that took place. How are we going to deal with these issues? Should the distinction between authoring environments for creation of UoLs and the virtual learning environment for running them disappear? Should the actual activities and products of learners generate UoLs to be stored and reused?

Discussion

Five attendees of the UNFOLD meeting shared their views on the discussion points raised.

1. IMS LD tooling requires specialist expertise in putting together Learning Designs. Who are the designers?

All those involved in the discussion identified both instructional designers and regular teachers as designers of education and users of the IMS LD specification. The difference between these groups lies in the level of complexity of the Learning Designs that may be expected to be built. Instructional designers may create specific pedagogical designs that can be used by teachers who connect the designs with actual learning contents. Teachers should be able to construct Level A UoLs as long as they are not confronted by the ins and outs of the specification itself and the tooling is very user-friendly. Level B and C designs are feasible for advanced users who can put more time and effort in studying the details of IMS LD.

Everyone stressed the need for user-friendly tools, where the concept of designing education and the user interface are transparent and easy to understand. Without this level of support, the hurdle is too high for teachers. Commercial developers of authoring tools have learned this lesson, but tools still often lack support for the latest specifications and standards. Universities, as customers of both authoring tools and VLEs, need to urge vendors to adopt specifications like IMS LD.

In addition, it was noted that in many R&D institutes around the world, software is being developed that uses IMS LD. As a result, there are lots of resources for the development of technology. A bottleneck in many Universities is that staff do not have enough time to develop e-learning materials, since this kind of task is undervalued. Organizational change is needed to realise the potential of new specifications and tools in University education.

The involvement of regular teachers and professional instructional designers is needed to further educational innovation through the development and sharing of Learning Designs. Ultimately, individual teachers are the carriers of educational innovation in their institutes. Opportunities for this are created by instructional designers who in explorative projects guide new directions of educational innovation.

2. How should we improve authoring tools? Tuning them to the needs of different kind of users? Making them more sophisticated? How?

Regarding this question, those interviewed warned against reinventing the wheel. There are many authoring tools available with too many features. Tools need to be customizable to offer basic functions that are to be used by authors, presented in an easy to use, transparent user interface and integrated in (test-) players and content management systems. One suggestion is to involve regular educators in usability tests of the various tools that are being developed by the Research community. Another route is to use widely available authoring tools implementing IMS LD level A (as a minimum), which are accessible for regular teachers. The Learning Designs themselves can be shared and improved.

The exact meaning of user-friendly tooling is open to discussion. A graphical user interface, where one can move around the IMS LD elements, explanation of required information, and support for the steps in the design of UoLs were all mentioned by the interviewees, without a strict prioritisation. The tools available during the

UNFOLD workshop were used with some difficulty by the interviewees, who consider themselves fairly skilled users of computer software. For many others, the hurdles to use the tools are considered high. One suggestion is to actually integrate Learning Design in a complete VLE suite, in which the authoring and delivering of courses is integrated, completed with a full import and export of IMS LD designs. This approach would support self-directed learners, who design their own personal educational arrangements with little involvement of teachers, and might encourage more involvement of peer-students planning group activities together.

3. Learning Design is sometimes considered particularly suitable for educational contexts such as distance education, in which learning activities are often planned in advance and students learn in a reproductive manner. Which direction(s) do you see for future developments of Learning Design?

Everyone is aware of the potential of IMS LD, in which various pedagogical designs can be specified. At the same time IMS LD is inherently complex. As can be seen from the statements made so far, the balance needs to be found between encouraging educators to use the basics on a broad scale and utilizing the advanced possibilities in specific educational settings. Distance education is one such setting, but the interviewees mentioned other situations such as blended learning and self-directed learning. The specification is not perceived as something only suited for distance education. For example, in many businesses there is a need for flexible custom-made and just-in-time learning; IMS LD could be very valuable in combination with tools that can be tuned to one's needs. The possibility of incremental adaptation and reuse of UoLs is considered very valuable, as educators do not have a common language in which educational designs can be expressed.

IMS LD is considered generic. Different tooling can by its design and specific features specially suit different educational contexts; there is no size that fits us all.

Conclusions

Given the discussion triggered by the three main questions one can conclude that IMS LD is considered a complex but powerful concept. The perceived use, range of tooling and suitable educational context is seen as broad.

Interestingly, some of the suggestions have echoes international projects that choose to use the IMS-LD specification. Peer-reviewing and reuse of pedagogical patterns expressed in UoLs is being examined by the Learning Design Research Group of the University of Waterloo (see <http://lt3.uwaterloo.ca/innovation/ldrg.html>). The use of an authoring environment suited to certain instructional designs is being investigated by the group developing the Collage editor, focussing on the building of collaborative designs (see: <http://gsic.tel.uva.es/collage>). The Sled (Service-based Learning Design System) project is developing a new IMS LD player, using a web interface to remove software installation issues (see <http://sled.open.ac.uk/>). Furthermore, evaluative projects are being undertaken within institutional contexts to reveal how IMS LS can be used to support learning and teaching in a real context (see <http://www.hope.ac.uk/slide/>)

Now that the first tools and resources are available and have been used by different user groups, the dialogue around IMS LD is moving from 'what is it' to 'who is it for and how can it be put to good use'. The answer to this question may well come in several flavours; although IMS LD is an interoperability specification, its use has repercussions beyond file formats. IMS LD gives learning activities a central place, orchestrating learning objects and learning services in the attainment of learning objectives. Few of today's Virtual Learning Environments reflect this philosophy, and few educators are able to see their desired pedagogical approaches reflected in e-learning environments. Change is in the air, and new initiatives around IMS LD are aiming to progress its original aims of improving the quality of e-learning, not only for educators, but also for learners.

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