

# Evaluating a new approach to learning design

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## Abstract

The paper will describe the evaluation of a new learning design methodology as part of an EU-funded project, Design Project. The methodology will be described, along with the learning design resources, tools and activities that have been developed. The methodology has been trialled in the UK, Cyprus and Greece and the paper will report on the evaluation of a series of trials carried out in the UK.

## Keywords

Learning design, evaluation, social and participatory media, Cloudworks

## Introduction

A number of reviews summarise the characteristics and uses of open, social and participatory media and Open Educational Resources (Aitkins et al, 2007; OECD 2007; Conole and Alevizou, 2010; Crook et al., 2008; Redecker et al., 2009). Although technologies appear to offer great potential for learning and teaching, new technologies and OER are not being used extensively (McAndrew et al., 2009); barriers include: accessibility issues, lack of training, unreliability of equipment, limited budgets, etc. (Beabout et al., 2008; Molenda, 2008). The reasons for the lack of use are complex (technical, pedagogical and organisational); teachers lack the necessary digital literacy skills (Jenkins, 2009) to make effective use of these tools and resources. Conole (forthcoming) argues that designing for learning is the *key* challenge facing education today. This paper describes a new learning design methodology that has been developed to address this issue. It aims to provide teachers with support and guidance to make effective design decisions on the creation of learning activities that are pedagogically sound and make innovative use of new technologies. It will describe the learning design methodology and discusses evaluation of these with teachers in the UK.

## The Open University Learning Design Initiative (OULDI)

The OULDI<sup>1</sup> aims to bridge the gap between potential and actual use of technologies through the development of a set of approaches that enable teachers to make better use of technologies that are pedagogically informed. These have then been trialled in a range of settings through the JISC OULDI and the Design Practice project. An explicit aim of the methodology is to help practitioners' shift from an implicit, belief-based approach to one that is explicit and design based. This, we argue, helps them adopt a more scholarly and reflective approach and enables them to share and discuss their designs. We adopted a Design-Based Research methodology (Design-Based Research Collective 2003), which was both iterative and grounded in real practice. Constant evaluation of the materials enabled us to iteratively improve them. Our approach is socio-cultural (Engeström, Punamäki-Gitai et al. 1999), using Mediating Artefacts (Conole 2008) to guide the design process and applying the concept of affordances (Gibson 1979) to technologies.

In terms of visual representations, we have created five views:<sup>2</sup> a course view map (which provides an overview of a course, a course dimensions view (which provides details, such as: the amount of collaboration, the level and forms of assessment, the amount of user-generated content or experience), a pedagogy profile view

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<sup>1</sup> <http://www.open.ac.uk/blogs/OULDI/>

<sup>2</sup> These are described and illustrated elsewhere (Conole, 2010)

(which articulates the types of and amount of learner tasks), a learning outcomes map (which maps learning outcomes to activities and assessment) and a task swimlane view (which maps the tasks the learners undertake to the resources and tools they use). First, these views enable the practitioners to think beyond content to the activities learners will do. Second, they guide practice, enabling practitioners to create pedagogically effective learning activities, instantiated through innovative use of technologies. Third, they provide a mechanism to articulate design practice and make it explicit. Fourth, the resultant artefacts can be then shared and discussed with other teachers. Finally, these views can be used with learners as a means of making the nature of the course and the inherent design behind it more explicit. In terms of resources and activities we have now created a rich set of these to support design practice. This includes the use of the visual representations described above, as well as activities such as getting practitioners to think of the characteristics (affordances) of technologies in terms of how they might be used to support different pedagogical approaches. Finally, to facilitate social interaction, we have created a range of workshops, as well as an online social networking site for learning and teaching, Cloudworks (Conole and Culver, 2010).<sup>3</sup> Cloudworks combines social and participatory functionality to enable multiple forms of communication, collaboration and cross-boundary interactions amongst different communities of users. The core object in the site is a Cloud, which can be anything to do with learning and teaching; such as a description of a learning intervention, a description of a tool or resource or a question. Clouds are a combination of social and participatory functionality. First, they act like a multi-user blog; anyone can start a Cloud and others can sequentially add to it. Second, they have a space for discussion. Third, users can enrich by adding embedded content, tags and links. Finally they have Web 2.0 functionality, such as: activity streams, tagging, RSS feeds and Twitter-like follow and be followed options. The workshops included: a 'Technology lite' workshops, where participants consider the affordances of technologies and how they might be used in their teaching, workshops on the use of the visualisation tools and a 'Design Challenge' workshop where teams, assisted by experts (who provide advice on a range of topics such as using web 2.0 tools, collaborative learning and the use of OER), create a course in a day.

### **The Design-Practice Project**

The section focuses on some of the evaluation findings from the DesignPractice project.<sup>4</sup> The focus of the project was on transfer of innovation of the OULDI resources to teachers in the UK, Cyprus and Greece. The research questions were: What learning and teaching approaches are evident in the LD and to what extent are they mapped to ICT affordances? To what extent does the visualised and dialogic methodology improves the design process and lesson plans? How does making learning design explicit facilitate the sharing and discussion of designs? The UK trial consisted of 4 interventions: i) using technologies workshop with Post Graduate Certificate in Education (PGCE) trainer teachers at the OU (36 students and 3 academics), ii) using technologies workshop with teacher trainers in Cyprus (40 participants), iii) masters students in Guadalajara and iv) a series of real and virtual workshops with Associate Lecturers (ALs).

Data collected included: questionnaires, semi-structured interviews, rubrics for experts to review content, data from Cloudworks, sample LD artefacts, a reflection tool, workshop evaluation data and observation protocols. The remainder of this paper will discuss the trial with ALs. The trial consisted of the following: i) 1.5 hours self-paced module ii) 5 hour face-to-face module, iii) 5 hour self-paced module on sharing and collaboration. The workshop consisted of the following activities: i) How to ruin a course, ii) Comparing 4 web 2.0 tools, iii) Tools in use, iv) Course map, v) Using the LD notation, vi) Sharing and discussing designs and vii) Action plan and evaluation. The workshop Cloudscape,<sup>5</sup> contained links to the video clips of the OU PGCE 'Using Technologies in Teaching' workshop and participant comments and contributions, and the 'Using Technologies in Teaching' workshop held in Cyprus. Of the initial 51, 18 attended the workshop. They were split into 5 groups: Science, Mathematics, Computing and Technology, Centre for Inclusion and Curriculum, Faculty for Education and Language Studies, and Social Sciences. After the workshop 2 Activity Clouds were added.<sup>6</sup> Participants were invited to participate in one of the 2 versions of Activity 5. One version requested them to provide a Course Map

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<sup>3</sup> <http://cloudworks.ac.uk>

<sup>4</sup> <http://www.design-practice.org>

<sup>5</sup> <http://cloudworks.ac.uk/cloudscape/view/2316>

<sup>6</sup> <http://cloudworks.ac.uk/cloud/view/5589> and <http://cloudworks.ac.uk/cloud/view/5590>

for an OU module. The second version of Activity 5 asked them to use learning design notation to design a tutorial session. Afterwards a Demographic Questionnaire was emailed to those who had attended the workshop (5 completed and 3 were interviewed by telephone).

## Evaluation

The evaluation data yielded the following findings. Associate lecturers are different from those involved in traditional institutions as they are not involved in designing courses, but support and assess learners. Participants could see the value of adopting a learning design approach and most had good technical competencies. They make extensive use of the OU forums to share and discuss resources and activities and could see the benefit of using a tool such as Cloudworks as a richer dialogic medium and space for shared aggregation of resources. The activities were positively reviewed, although there were some suggestions for improvement. For example, 'How to ruin a course' activity helped them to address concerns about use of technologies, whereas they felt that the 'comparing 4 tools' might be better to structure with the jigsaw pedagogical pattern. They felt that the 'affordances' activity worked really well and that the 'representations' course map was particularly valuable. They were also interested in exploring how the students might use these views. Finally, they valued the mix of real and virtual activities and thought Cloudworks was innovative and useful space to share and discuss learning and teaching ideas.

In terms of the 'what is learning design' activity, three themes emerged from participants' responses: i) getting ideas for design, ii) thinking about the design process, and iii) using technology for learning and teaching. Two participants commented that they thought the resource was a good starting point for thinking about learning design:

I thought the article was useful for directing attention to questions about the way learning is constructed.

I find the document quite thought-provoking, especially as a starting point in this journey for developing good understandings.

Participants listed a range of ways for generating learning and teaching ideas, such as: informal discussion, reading, discussion forums, staff development days, years of experience, getting ideas from others, websites (including OER repositories, Moodle, and social networking sites), student feedback, and experimentation with the technologies. Most commonly the methods of sharing ideas were cited as being informal and collaborative. The tutor forum were seen as particularly valuable:

[I] have been surprised by how sociable the learning and teaching become for us all, students and tutors.

We've had a fantastic Tutorial Resources Forum where tutors have shared what activities, slides, etc they've created.

Two participants commented that the generation of ideas around activity (as opposed to content) tends to be implicit and/or considered to be less important:

I think the topic tends to drive the whole course with learning activities being a secondary consideration and on the whole we have relatively limited discussions about how the activities facilitate or improve learning.

One mentioned a series of design constraints, which impacted on their choices in relation to generating ideas:

This actually varies a lot, depending on the timeframe, aims and objectives of accessing new ideas, learning outcomes and intended learners/audiences, etc.

No mention was made of any teaching theories or processes to support the learning design – the focus was on drawing on the expertise of experienced teachers who developed teaching packages as an inherent part of their role. Although some participants said that they used explicit, collaborative and informed approaches in their design, most reflected that design happened individually and implicitly. Again it should be noted that there was a

tendency in several cases to confuse the idea of learning design, with resource design and development more specifically:

[I] Begin from scratch and use what experience says will work.

It seems to be a very individual process. I think it tends to be a repetition of what seems to have worked before - although why it worked is probably a bit vague.

There was recognition that working more collaboratively would be of benefit to them, particularly in relation to saving time:

We are all beavering away trying to come up with various learning activities when we can be more efficient if we share ideas.

There is little sharing, which in many ways seems silly as that means that everyone creates all resources time and again rather than pooling them.

In terms of the 'design lifecycle' activity, participants found it interesting to think about the process of design in this way. Most participants acknowledged that their existing design processes were more implicit than explicit. They worked well to apply the theory to their own learning and teaching contexts, and made strong and relevant links to prior knowledge, understanding and experience and many recognised the alignment with reflective practice and learning cycle models, such as Kolb and Lewin, which they were already familiar with:

It is useful to see what operates in me at perhaps an almost subconscious level these days, being articulated in this very conscious, systematic and abstracted way.

I felt that from this document I could understand the learning design process and would feel able to use this when designing some learning activities for Elluminate, as I need to do within the next few weeks.

Some participants suggested ways in which the design Lifecycle could be refined or adapted:

I wonder if there can be another stage, 'refinement' / 'reformation', which can naturally come after 'adapt'. The stages can be on a linear relationship to show step by step processes rather than cyclical nature, this could help answer the question - how 'adapt' stage leads to 'vision' stage?

I find that the 'gathering' and 'visioning' (don't like that word: what is wrong with 'imagining'?) do not run, in my case, in separate chunks... Indeed, I would say that sometimes the Gathering comes first and triggers my 'Design' imagination.

There was a feeling that a structure such as this could have benefits in some contexts, but maybe cumbersome and over complex in others:

I see the "spelling out" of this design as imposing a management structure to the process of preparing and delivering learning material. It is essential when more people are involved, or for an extended course, module or programme, but I hardly see the benefit for the designing of a tutorial.

Other advantages discussed included:

I think it is good to have structure as it reminds us to approach design in a logical way so that steps are completed in an appropriate order to maximise the effectiveness of your design and it can be a way to help you to develop new ways of working through building on your experience.

I see all creative work as quite time consuming anyway-what is more difficult perhaps is often converging and looking more at step by step processes so this type of thinking might help to focus more at certain points in the cycle.

Broadly the disadvantages discussed centred on the rigidity of the process in the creative and messy process of design:

I still think that it is very difficult to be creative in any thinking if the structure is too formulaic ... I think that you also need to build in some flexibility that allows some diversion from the suggested plan.

Every activity is different and has to be adapted to its context and this affects inevitably the whole designing process. Some activities are quite simple and short, so they don't require as much planning as a longer and more complicated activity.

In terms of the third activity, most said that they already used a mixture of visual and textual representations, such as mind maps and flow charts, storyboarding, documents, and paper-based diagrams. They felt that using these enhanced both the learning and teaching process:

I am using both textual and visual representations of learning activities. I think using these two modes at the same time/ in one learning activity can enhance the learning process to achieve the learning outcomes.... For more formal representation (meso), PowerPoint's, graphical representations, design tools from word processing and design package, for tutorial activities (micro), mainly highlighter, formatting elements and colour.

I use mind maps especially for providing an overview of course materials and identifying links between the various materials and concepts. I use pictures to convey ideas and concepts and also PowerPoint. I also like to draw Rich Pictures so then I use pen and paper.

Most of my learning activity representations are textual. However, I have been using some visual tools recently and I'm starting to think that they are a better option for planning activities and tasks... A visual resource gives me a bigger picture of the activity and helps me to build a general perspective with some elements that textually I wouldn't consider. It even saves me time.

Many benefits of using visual representations were cited:

Good impact, enhances recall, clarity and transparency.

Provides an extended/alternative form of representing concepts and principles.

Allows for opportunities for students to actively participate in the develop of the visual representation and so becomes a collaborative activity between myself as the AL (more experienced other) and the student participants.

Good to map out complex learning activities or whole course design.

Gives perspective so may make it easier to spot any omissions or errors in design compared to textual representation.

Great for mapping out complex/multi-faceted designs; a useful communication tool to show people 'at a glance.

Easier to refer to, to share and for students to follow. It might help to design better learning activities.

Does help to structure the thinking... it consolidates issues and really gets me to look at process as well as content.

However some did not feel that visual representations added anything for them but recognised it might be useful to others:

I used to do an initial mind map for content but didn't find it added much to what was already in my head...I can see considerable value if you're designing a whole course though, because of the need to make sense of the complexity

I tend to use textual representations in bullet point or table form for lesson plan. Occasionally I do mind maps when planning activities.

I would be happy to be proved wrong but at the moment I cannot see where the benefits might arrive to me it seems a bit of a step back, jumping through hoops and I don't think particularly helpful.

Other disadvantages of using visual representations tended to focus around the time required to draw visual representations and the expertise required to use the tools:

The time it takes all round-becoming familiar with the tools to use

Once the language used gets a little technical and there is the need to go to various websites and download the tools needed I do start to panic!

Time and effort v impact.

More time consuming and often the amount of time and effort put into them is not in keeping with how many students you have turning up.

The visuals are only as good as you are at using the technology!

Following the workshop, 4 participants agreed to be interviewed following their participation in the online module and the face-to-face workshop, and 3 participants completed the telephone interview (the fourth did not respond to the scheduling email). The interviews were conducted by telephone by the workshop facilitator and were semi-structured. Questions focussed on the following topics: their reasons for taking part, other ICT-related activities, what did they think of the workshops, views on the learning design approach, views on Cloudworks and CompendiumLD. Below some of the key points to emerge from these interviews are described. There was variety in the level of enthusiasm for using a learning design approach. All of the interviewees felt that they had very good levels of understanding in relation to online pedagogies and the theories that underpin learning design and two felt that what they had learnt complimented what they already knew about 'best practice':

I think the learning design process has huge potential for me personally and hopefully for my students eventually... [learning design] sets in place a framework for really participating in an interactive sort of way - even if that's only as an individual to reflect on what is going on and find ways of approaching it differently and improving it.

I suppose one of the strengths in a way was that it didn't contradict anything I already knew.. I think what was interesting for me which I hadn't consciously thought about was the making it explicit to share with other people, although I have had to do that in work in the past.

One commented that whilst she recognised the value of taking a learning design approach she was not sure that it added enough value to AL tutorial design to justify the time spent. When asked specifically about the value of using visualisation in design, one suggested that visualisation may be appropriate for some people but not others:

I'm not convinced [visualisation] is helpful for scientists because I don't think it's really the way that we work... Visualisation is fine if you're all about arguing and making a case but science is much more about facts and you don't need to visualise facts because they just are or they're not.

All interviewees highlighted the ways in which they already share resources and ideas with other tutors and mentioned the strong sharing communities in the online tutor forums:

You can look at all manner of lists of things but until somebody tells you where or how - so I'm quite happy to share things. Other people are quite happy to share things, and do as well.

All of the interviewees had used CompendiumLD successfully and had uploaded their designs onto the Cloudworks site. Two of the interviewees found it complex to use and all three were not able to immediately see what the tool might add to their practice, but did say they would continue to think about it:

I don't work that way. I think things through in a very linear way and the whole idea of planning what I was going to design, in order to design something... It just seemed to be several extra steps... I could see that it could be useful for some people but I couldn't get my head around working out how to do it.

I really enjoyed creating my design on CompendiumLD so if I could find some reasonable excuse I probably would but I'm really conscious that I could be using it as a diversion! But I'll keep it in mind... because I did find it very intuitive to use.

Similarly, two of the interviewees similarly thought that Cloudworks was not easy to use and all felt that it lacked some key features but that but they could see how it might be a useful tool. One interviewee suggested that an activity introducing the site would be helpful:

I wasted a lot of time finding out where different comments are because things do seem to be in slightly different places... it's not bad, it's just if I want to find something, I want to find it now.

Interesting. I like the idea of being able to collaborate online. I found it quite restrictive - the fact that you couldn't comment directly to somebody and it just went in time order.

## Conclusion

Designing for learning is the key challenge in education; practitioners need support and guidance to make effective use of the affordances of technologies. The paper has described a learning design methodology that aims to provide practitioners with a range of approaches to guide their design thinking. It has reported on the evaluation findings of the use of these with teachers in the UK. This has given us rich insights into practitioners' design practice, as well as an indication of the value of these resources. Whilst there were some negative comments, overall participants seemed to value this approach to design thinking and could see ways in which it could enable them and other practitioners to rethink their practice and in particular to enable them to think beyond content towards the activities that their students would be engaging with, as well as a holistic approach to thinking about the learner experience.

## References

- Beabout, B. R., Carr-Chellman, A. A., Alkandari, K. A., Almeida, L. C., Gursoy, H. T., Ma, Z., and Pastore, R. (2008). The perceptions of New Orleans educators on the process of rebuilding the New Orleans school system after Katrina, *Journal of Education for Students Placed at Risk*, 13, 212 – 237.
- Conole, G. (forthcoming), *Designing for learning in an open world*, Berlin-Verlag: Springer.
- Conole, G. (2010), An overview of design representations, paper in a symposium - Conole, G. and Retalis, S. (2010), Symposium organisers - Current challenges in learning design and pedagogical patterns research, Networked Learning Conference, Aalborg, Denmark, 3rd – 4th May 2010.
- Conole, G. (2008). Capturing practice, the role of mediating artefacts in learning design. *In L. Lockyer, S. Bennett, S. Agostinhi and B. Harper Handbook of learning designs and learning objects*, IGI Global.
- Conole, G., and Alevizou, P. (2010). Review of the use(s) of Web 2.0 in Higher Education, HE Academy commissioned report, [http://www.heacademy.ac.uk/assets/EvidenceNet/Conole\\_Alevizou\\_2010.pdf](http://www.heacademy.ac.uk/assets/EvidenceNet/Conole_Alevizou_2010.pdf), 7/10/11,
- Crook, C., Cummings, J., Fisher, T., Graber, R., Harrison, C., and Lewin, C. (2008). Web 2.0 technologies for learning: the current landscape - opportunities, challenges and tensions, a BECTA report.
- Design-Based Research Collective (2003). "Design-based research: An emerging paradigm for educational inquiry." *Educational researcher* 32(1): 5-8.
- Engeström, Y., R. L. Punamäki-Gitai, et al. (1999). *Perspectives on activity theory*, Cambridge: Cambridge University Press.
- Gibson, J. J. (1979). *The ecological approach to visual perception*. Hillsdale, New Jersey, Lawrence Erlbaum Associated.
- Jenkins, H. (2009). *Confronting the challenges of participatory culture: Media education for the 21st century*, MIT: MIT Press.
- McAndrew, P., Santos, A., Lane, A., Godwin, S., Okada, A., Wilson, T., Connolly, T., Ferreira, G., Buckingham Shum, S., Bretts, J. and Webb, R. (2009), *OpenLearn research report 2006-2008*, Milton Keynes: The Open University.
- Molenda, M. (2008). Historical foundations, in M.J. Spector, M.D. Merrill, J. van Merriënboer and M.P. Driscoll (Eds.), *Handbook of research on educational communications and technologies*, 3-20, [http://www.aect.org/edtech/edition3/ER5849x\\_C001\\_fm.pdf](http://www.aect.org/edtech/edition3/ER5849x_C001_fm.pdf), 11/8/11.
- Redecker, C., Ala-Mutka, K., Bacigalupo, M., Ferrari, A., and Punie, Y. (2009). *Learning 2.0: The impact of Web 2.0 innovations in education and training in Europe*. Seville: Institute for Prospective Technological Studies, <http://ipts.jrc.ec.europa.eu/publications/pub.cfm?id=2899>, 11/8/11.

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