The 7Cs of Learning Design – a new approach to rethinking design practice.

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Abstract

Designing for learning is arguably the key challenge facing education today; new technologies offer a plethora of ways in which learners can interact with rich multimedia, communicate and collaborate. Despite this teachers lack the necessary digital literacy skills to make effective design decisions that are pedagogically informed and make appropriate use of technologies. Learning Design has emerged in the last ten years as a means of addressing this, by providing teachers with guidance and support for their design practices. Learning Design is predicated on three aspects: guidance, visualisation and sharing. The paper will describe the development and evaluation of a new framework for Learning Design, the 7Cs of Learning Design. The framework consists of the following elements: Conceptualise (i.e. what are you designing and why, who are you designing for?), Capture (in terms of capturing resources to be used and activities around Learner Generated Content), Communicate (mechanisms to foster communication), Collaborate (mechanisms to foster collaboration), Consider (activities to promote reflection and enable assessment), Combine (combining the activities to give a holistic overview of the design and associated learning pathways), and Consolidate (in terms of running the design in a real learning context, evaluating, refining and sharing the design). The paper will describe the framework and how it can be used, along with an evaluation of its application in practice. It will conclude by contextualising this work within recent broader developments in the field. The framework can be used by individual teacher or with groups of teachers co-designing learning interventions. The latter has been effectively delivered in a series of workshops we have run over the past year.

Keywords

Learning Design, The 7Cs of Learning Design framework, JISC-funded SPEED project, workshops, evaluation, METIS, Larnaca Declaration on Learning Design, Integrated Learning Design Environment (ILDE)

Introduction

- New technologies offer a wealth of ways in which learners can interact with rich multimedia, communicate and collaborate. Despite this teachers lack the necessary digital literacy skills (Jenkins, 2009) to make informed choices about appropriate and effective use of technologies. Learning Design research has emerged in the last ten years as a means of addressing this. This paper will begin with an overview of some of the key characteristics of new technologies and the ways in which they can facilitate different pedagogical approaches. It will argue that designing for learning is the key challenge facing education today (Conole, 2013a) and will introduce Learning Design as an approach to help teachers make more informed design decisions. It will describe the 7Cs of Learning Design framework as a means of achieving this, along with some of the evaluation data we have gathered on its use in practice. We have found that this approach helps guide teachers' design practice and enables them to think beyond content to the activities the learners are engaged with, as well as the overall learner experience. It will conclude by contextualising this framework in the broader research on Learning Design and some of the current activities in the field. This paper addresses the fourth of the conference themes: Design. In terms of the symposium, the paper addresses the question: 'How can the design process and design outcomes be captured and represented, so that they can be shared, repurposed and reused (tools, techniques, patterns)?' It will describe some of the visual representations developed as part of the 7Cs framework to help make the design process more explicit and sharable.

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A more participatory, social and mobile web

It is hard to believe that the web is only twenty years old; our children cannot imagine a world without computers and Google; the web has truly transformed everything we do and is an example of what Christensen describes as a disruptive technology (Christensen 1997); i.e. it has fundamental changed the way we do things and the way we interact. The web has evolved significantly from the early days of static web pages and is now an interactive, immersive, social and participatory environment; enabling us to interact, communicate and collaborate in a rich variety of ways. Furthermore, smart phones and tablet devices mean that mobile learning – anywhere, anytime – is now a reality, and immersive, interactive interfaces enable us to connect seamlessly across different surfaces, locations and devices.[1] Despite being a contested term, Connectivism (Siemens 2005) provides a good way of describing Networked learning through new technologies; harnessing the global, distributed nature of online interactions that are now possible. New technologies can facilitate a wide range of different pedagogical approaches. For example, drill and practice can be enabled through e-assessment and there are now numerous Apps for creating flashcards, providing interactive materials and converting text to audio for language learning. Collective intelligence and crowd sourcing through social media can be used to promote problem-based learning and inquiry learning. Social media and communicative tools enable rich dialogue and collaboration. And situative and role-play learning can be enabled through virtual works and mobile Apps. We have seen a number of changes in the way the web is being used in the last ten years or so. This includes: a shift from the web as a content repository and information mechanism to a web that enables more social mediation and user generation of content, new practices of sharing and mechanisms for content production, communication and collaboration (through blogs, wikis and micro-blogging services such as Twitter). Social networking sites provide a mechanism for connecting people and supporting different communities of practice and a scale or 'network effect' is emerging as a result of the quantity of information available on the web; the multiplicity of connectivity and the scale of user participation, and as a result new possibilities for sharing and harnessing these 'network effects' is occurring. These trends point to new ways in which users are behaving in online spaces. The web is now more participatory and interactive, and supports more open practices. Social and participatory media, in particular, provide a range of opportunities for supporting learning and teaching practices. Key characteristics include: users as publishers, harnessing distributed collective intelligence (Lévy 1997), user-evolving folksonomies,(Nozuri 2006) peer production and critique, the wisdom of the crowds (Surowiecki 2004), the architecture of participation (O'Reilly 2004), the notion of the perpetual beta, free tools and resources, and the notion of openness.[2] The characteristics of these new technologies include the following:

- Peer critiquing – the ability to comment on other people's work. This has become standard practice within the blogosphere and is being used in general society. For example a growing number of authors and journalists are now active bloggers and traditional book writing is being supplemented by writers keeping a blog and inviting readers to comment on the evolving plot, by academics (through self-reflective blogs on digital scholarship and research ideas) and by learners (in terms of keeping their own reflective blogs or contributing to a collective cohort blog).
- User-generated content – there are now many different tools for creating content (ranging from those which are primarily text-based, through to rich multimedia and interactive tools), meaning that the web is no longer a passive media for consumption, but an active, participatory, productive media. These sites facilitate the sharing of user-generated content and the embedded code functionality means that content can be simultaneously distributed via a range of communication channels.
- Collective aggregation - hierarchy and controlled structures make little sense in an environment that consists of a constantly expanding body of content that can be connected in a multitude of ways. Collective aggregation refers both to the ways in which individuals can collate and order content to suit their individual needs and personal preferences, as well as the ways individual content can be enriched collectively by the wider community (via tagging, multiple distribution, etc.). Social bookmarking, tag clouds and associated visualisation tools, tagging, RSS feeds and embedding code all enable collective aggregation to occur.
- Community formation – clearly the connectivity and rich communicative channels now available on the Web provides an environment for supporting a rich diversity of digital communities. Boundaries of professional and personal identity are eroding and the notion of tightly knit Communities of Practice (Wenger 1998) are giving way to a spectrum of communities from individualistic spaces through loosely bound and often transitory collectives, through to more established and clearly defined communities. See

[1] See for example http://www.youtube.com/watch?v=6Cf7IL_eZ38
[2] The notion of openness is discussed in more detail in Chapter 11

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(Dron and Anderson 2007) for a more specific discussion of collectives, networks and groups in social networking for e-learning.

- Digital personas – individuals need to define their digital identity and how they 'present' themselves across these spaces (Solove 2004). The avatars we choose to represent ourselves, the style of language we use and the degree to which we are open (both professionally and personally) within these spaces, give a collective picture of how we are viewed by others.
- Blurring boundaries - mobile devices and new smart interfaces means that there is a blurring between our interactions online and face-to-face; we can connect across multiple platforms and devices and carry out interactions with use across different contexts.

Despite the clear potential of technologies to support learning there is a gap between the rhetoric and reality; most LMSs are being used as content repository and there is little evidence of harnessing the communicative and collaborative affordances of technologies (Conole 2013). Learning Design has emerged as a means of addressing this by providing practitioners with the guidance and support they need to harness the potential of technologies. It can also be used by teams of practitioners to co-design learning interventions.

The 7Cs of Learning Design Framework

The 7Cs of Learning Design Framework emerged from work carried out at the Open University, UK, under the OU Learning Design Initiative,[3] coupled with work at the University of Leicester on their Carpe Diem design workshops. It was developed based on a socio-cultural approach, with the notion of mediating artefacts and was validated and refined through a series of workshops.The 7Cs of learning design framework illustrates the key stages involved in the design process, from initial conceptualisation of a learning intervention through to trialing and evaluating it in a real learning context (Figure 1). The framework consists of the following stages:

1. Conceptualise: What is the vision for the learning intervention, who is it being designed for, what is the essence of the intervention, what pedagogical approaches are used?
2. Capture: What Open Educational Resources are being used and what other resources need to be developed?
3. Create: What is the nature of the learning intervention the learners will engage with? What kinds of learning activities will the learners engage with?
4. Communicate: What types of communication will the learners be using?
5. Collaboration: What types of collaboration will be learners be doing?
6. Consider: What forms of reflection and demonstration of learning are includes? Are the learning outcomes mapped to the activities and assessment elements of the learning intervention?
7. Consolidate: How effective is the design? Do the different elements of the design work together?

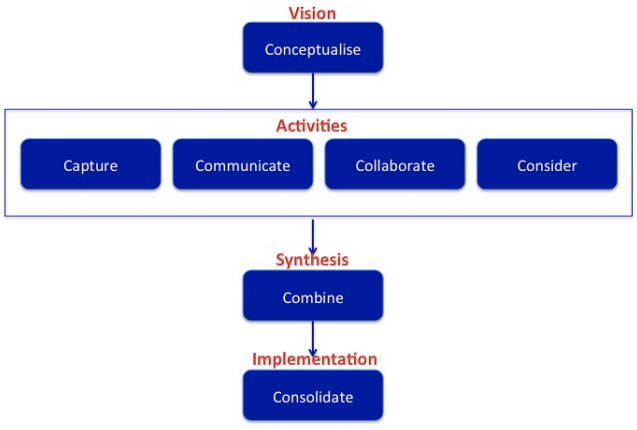

Figure 1: The 7Cs of Learning Design Framework

[3] http://ouldi.open.ac.uk

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For each of the seven stages we have developed a series of conceptual designs, building on our own work and the work of others in the field. Four of these are described here. The first is the Course Features view, which is associated with the conceptualise element. This enables teachers to think about the overall essence of the learning intervention and how it will be delivered and supported. Participants interact with a pack of cards around the following elements:

- Principles: What is the essence of the course, what are the core principles? So for example cultural or aesthetic aspects may be important, the intervention may have a practical focus or be about applying theory to practice, it may be based on a professional community of peers or it might be important that the intervention includes elements of serendipity.
- Pedagogical approaches: What pedagogies are involved? For example is the intervention based on constructivist principles, is it problem or inquiry-based?
- Guidance and support: What guidance and support are provided? For example in terms of a website or module handout, or access to study materials.
- Content and activities: What kinds of activities are included and what content will the learners be using?
- Reflection and demonstration: Are the learners actively encourage to reflect at key points? How are they demonstrating their learning? What forms of diagnostic, formative and summative assessment are included?
- Communication and collaboration: How are the learners interacting with each other and their tutors? Are there any elements of collaboration included?

Figure 2 illustrates the 'Principles' element of the Course Features, whilst Figure 3 shows the terms associated with 'Guidance and Support' element. The value in the Course Features conceptual view in particular stems from enabling practitioners to think beyond content to a broader vision for the course; and in particular the key principles and pedagogical approaches. It also enables them to think of the context of the design and the nature of the learners and their associated needs.

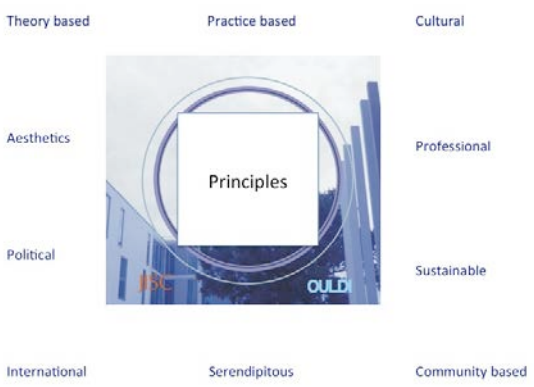

Figure 2" The principles associated with the learning intervention

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Figure 3: Guidance and support

The second example is the Course Map, which is associated with the Combine C. Once the Course Features exercise has been completed, teachers can fill in the Course Map, which provides more details on the six elements of the course features view. This includes details of which tools and resources are associated with each of the elements and any notes such as details of prerequisites required or description of the philosophy underpinning the learning intervention, for example it might be that peer interaction is deemed important or that learners are expected to generate their own materials.

The third example is the Pedagogy or Activity Profile (Figure 4), which is associated with the Combine C. This enables teachers to map the types of activities the learners will engage with. There are six types: assimilative activities (reading, viewing, listening), information handling, communicative, productive, experiential (such as drill and practice exercises) and adaptive (such as modelling or simulation). The profile also indicates the amount of time spent on assessment activities. The profile is available as an online flash widget.[4]

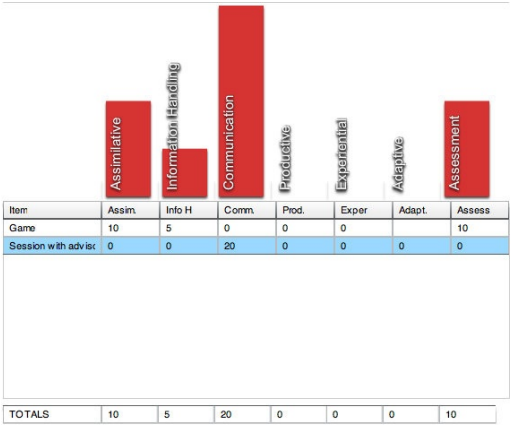

Figure 4: An example of a completed pedagogy profile

A key conceptual view is the Storyboard, another example of the Combine C (Figure 5). This enables teachers to see how the different elements of the design process fit together. It consists of a timeline, with the activities included in the design along the middle. Learning outcomes are mapped to the assessment elements. Above the activities any inputs to the individual activities are include: for example reading materials or podcasts. Below the activities outputs are listed, for example contribution to a discussion forum or creation of a blog post. Topics and timeframes are indicated along the top (in the example shown the Storyboard covers four weeks' worth of activities). Learning outcomes are listed along the left hand side. At the centre of the storyboard are the

[4] http://www.rjid.com/open/pedagogy/html/pedagogy_profile_1_2.html

activities the learners will engage with. In this example, in Week 1 the learners are watching a video and reading a paper; in Week 2 listening to a podcast and reading a paper, and in Weeks 3 and 4 listening to a podcast, watching a video and reading a paper. In Week one they produce a paper, which the teacher provides formative feedback on, in Week 2 they write a blog post and provide feedback on the blog posts of two of their peers, finally in Week 4 they take part in a group presentation and write a reflective essay on their experience, for which the tutor provides summative feedback. The final step is to ensure that all four learning outcomes are covered across the assessment elements, to ensure constructive alignment (Biggs 1999).

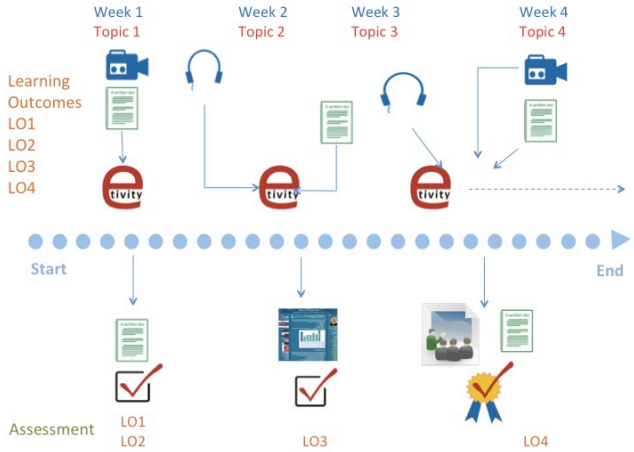

Figure 5: The storyboard

Evaluation

The framework has been trialled in a range of contexts over the last couple of years. The JISC-funded SPEED project[5] enabled us to run a series of face-to-face workshops, along with a series of synchronous sessions to four UK institutions. In addition, we have done numerous workshops at international conferences. The evaluation consisted of observations of the workshops and gathering of data from participants around four main questions: What three words best describe the workshop? What did you like? How could the workshop be improved? And what action plans would participants do as a result of participation? Overall the evaluation was positive, participants found the workshops engaging, useful and inspiring. However, most participants would have liked more time to explore the resources. We have found that running these workshops works best over a two-day period. They found that the learning design activities enabled them to think beyond content to learning activities and the learner experience. They enjoyed the mix of micro-level designs to create learning activities and the ability to think of the learning intervention at a holistic level.

The things they liked included: the wide coverage and the rich set of resources provided, the fact that the workshop had a strong focus on pedagogy and being able to see the bigger picture in terms of course design. The course features card set was particularly popular. Also a general comment was that they would value having more time to explore the resources and that it would be valuable to use the course designs presented in the design of real courses. In terms of action plans, participants stated that they wanted to explore the conceptual views with their own courses and that they would like to share these with colleagues in their own institution. Words to describe the workshop included: inspiring, informative, timely, reflective, participatory, collaborative, based on theory but applying practice, innovative and creative. The framework and associated resources are particularly useful when designing a Networked Learning intervention, in particular the resources associated with the Communication and Collaboration Cs.

In addition, to the general evaluation of the workshops we have run, one of our researchers, Ming Nie, did a more in-depth evaluation of the use of the 7Cs framework as part of the JISC-funded SPEED project.[6] The following quotes, from her evaluation, demonstrate that the 7Cs framework enables teachers to think differently about their design and to make more pedagogically informed choices:

[5] http://speedprojectblog.wordpress.com/author/bdra/
[6] http://www2.le.ac.uk/departments/beyond-distance-research-alliance/projects/speed

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We made a big breakthrough. We have achieved the insight about the need to structure it as a course, an online course, and not just simply as a set of learning activities plus integrated resources.

The visual nature of the tools and the quick and easy way that one could use it without too much elaborative training. They help stimulate us to look at the course in a different way, in a natural and creative way even if we didn't see all the little links right upfront.

I wanted to have my thinking challenged with regard to course design and development and I definitely left reflecting and questioning our unit's current approach and have some good tools and approaches to pilot with course design teams.

It's a way of freeing your mind and putting all the ideas of all the people in the course team down somewhere, not having to be so prescriptive. It was just a much freer and [more] creative experience than getting the learning outcomes and writing them as active verbs, and getting in at a granular level. It was quite sort of a liberating thing to just have everybody move components around and say, 'Do you know I really like all these features. I'd like to do some problem-based learning. I'd like to do peer-review.'

The broader context

The 7Cs framework has been developed alongside a number of other research activities in the field of Learning Design. For an up to date overview of research in this area, see Beetham and Sharpe (2013). In addition a group of us have been working in the last few years to try and articulate what we mean by Learning Design and in particular how it is distinctive from the more established field of Instructional Design. This has resulted in the production of a position paper called the Larnaca Declaration on Learning Design.[7] Figure 6 shows a diagram that illustrates our conceptual approach. The central 'problem' we are addressing is that teachers lack the necessary digital literacy skills to make effective and informed design decisions, i.e. we want to enable they to create learning experiences that are aligned to particular pedagogical approaches and learning objectives. Our framework aims to cover all different pedagogical approaches, disciplines, and theories and methodologies. It can be applied at a range of granularities from the design of individual learning activities up to whole programmes. We see design as an iterative process of deign, enactment and evaluation and believe that in the future learning analytics will provide valuable data to enable us to better understand student learning, which can inform future design processes. In terms of tool development, Conole provides an overview of the key Learning Design tools that have been produced in recent years (Conole 2013). An exciting new development is a new Integrated Learning Design Environment, created as part of an EU-funded project METIS.[8] The ILDE provides support for conceptualisation, authoring and implementation into a Learning Management System (LMS). As part of the project, we will be trialling the use of the tool in Greece, Space and the UK during 2013-2014 and so will be able to provide an update on the evaluation data at the conference. A particular emphasis is using ILDE to creative collaborative learning opportunities, an important component of Networked Learning.

Conclusion

This paper has described a new learning design framework. It has provided a description of some of the conceptual learning designs we have developed as part of this, along with a sample of evaluation data on its use with practitioners. The evaluation indicates that the framework is welcomed and that the conceptual designs enable teachers to rethink their design practice to create more engaging learning interventions for their learners. The conceptual views can also be used with learners, to give them an indication of the nature of the courses they are undertaking. We aim to continue to refine the elements of the framework. In particular more work is needed around the 'consider' and 'consolidate' elements, including rubrics for assessment and evaluation of the effectiveness of the design.

Acknowledgements

[7] http://larnacadeclaration.org
[8] http://www.metis-project.org/

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