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## Cloudworks: social networking for learning design

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# Cloudworks: social networking for learning design

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Why do some social networking services[1] work and others fail? Can we apply the best of Web 2.0 principles[2] to an educational context? More specifically can we use this as a means of shifting teaching practice to a culture of sharing learning ideas and designs? Can we harness the potential of technologies to create more engaging learning experiences for students? These are the key questions this paper addresses. We describe how we are using the concept of 'object-orientated social networking' to underpin the creation of a social networking tool, Cloudworks, for sharing learning ideas and designs.

Keywords: Learning design, social objects, social networking, Cloudworks

## Introduction

The paper argues that one of the key challenges in encouraging more innovative uses of technologies is getting teachers to share designs. There have been countless examples of learning object, open educational resource (OER) and good practice repositories, however their impact on changing practice has been limited. This is due to a range of issues (whether the resources match the user's needs, the usability of the site, the level of detail provided, etc.), but a key issue is the sustainability of these kinds of repositories. End-users rarely add resources, such sites usually require an investment in terms of someone entering resources and maintaining the repository.

In contrast, user-generated content and harnessing collective intelligence are key principles of Web 2.0 tools such as Flickr, Youtube and Slideshare;[3] users add content because they want to share their photos, videos or presentations with others and the net result is an aggregate benefit to the community. Can we apply such patterns of behaviour to an educational context and create a social networking site for sharing learning and teaching ideas and designs? We argue in this paper that effective application of Web 2.0 principles can provide a means of addressing the lack of uptake and sharing of learning and teaching ideas and designs. This paper focuses on the Cloudworks tool[4] and in particular how we are applying Web 2.0 principles to encourage end-user participation. We will describe the current functionality of the tool, along with planned developments and will make reference to empirical data we have gathered from end-users in terms of their design behaviour and what kind of features they would like to see in a site like this.

## Current challenges in learning design research

The speed with which new technologies have impacted on all aspects of society since the advent of the Internet is phenomenal. Clearly there are enormous potential educational benefits through harnessing new technologies, but to date this potential has not been realised, teachers lack the necessary skills to assess the value of different technologies and incorporate them into their teaching practice, but also need to see the benefit of doing this. This fundamental gap between the rhetoric of the potential of technologies and actual practice is a central challenge in current learning design research (Conole 2008a; Conole 2008b), both in terms of identifying the reasons for the gap and developing new approaches to help bridge the gap. The opening sentence of a recent handbook on learning design and learning objects states:

> Designing high quality, technology-supported learning experiences is a significant challenge for educators. (Lockyer, et al., 2008: xxxii)

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[1] Boyd, D. (2006) provides a useful definition for social networking sites

[2] Lee and McLoughlin (forthcoming) provides a collection of current Web 2.0 research in education

[3] http://Flickr.com/, http://youtube.com/ and http://www.Slideshare.net/

[4] This is part of the Open University Learning Design Initiative, http://ouldi.open.ac.uk

In our research we have identified a number of supplementary challenges. Traditionally design has been an implicit process, how do we shift to a process of design that is more explicit and hence shareable? Different representations of design have different values and purposes, which representations are appropriate and when? How can we encourage sharing and reuse of designs? How do we achieve critical mass and sustainability?

Our particular interest is in how we can get teachers to develop more innovative approaches to their teaching and to share ideas and practice. A desire to encourage teachers to share ideas is not new – there have been countless initiatives which have attempted to do just that – through the creation of case studies of good practice, or learning objects (and more recently Open Educational Resource) repositories. However on the whole take up and use of these sites is disappointing (Harley, 2007) and without significant resources and investments to develop and maintain them many fall into disuse. It appears that the dream of user-generated content and sharing has failed. However the principles inherent in Web 2.0 tools offer a potential solution – as a core aspect is about user-focus, i.e. user-generated content and the architecture of participation (O'Reilly, 2005). Our interest, as reported in this paper, is about applying these principles in an educational context. The key distinction between the failures of the Web 1.0 attempts to encourage uptake and reuse and what's possible now, is that Web 2.0 allows us to bring in the social dimension, the power of the network. However to make this work it will be important to find the right relationship between the objects (in our case education ideas and designs) and the people (educators and developers). What are the key aspects of sharing practice that educators would find useful and hence make them want to engage with and contribute to the site?

## Social objects as the theoretical basis for Cloudworks

In this section we provide a definition of the term social object and articulate how we see this framing our design and development activities. We will argue that we see adopting a social object/social networking philosophy as key to ensuring that the site remains active, dynamic and user-driven and therefore meets the needs of end users. We have reviewed the lessons learnt from pervious attempts to create sustainable learning and teaching communities – both from initiatives within education – such as learning object and OER repositories, as well as the more general patterns of user behaviour evident from generic web services. We are using this understanding of what worked and what didn't work as the basis for guiding our design approach. We draw in particular on the work of Engeström (2005) and also Bouman et al. (2007); by aligning with Engeström's definition of the term social objects and his arguments for the importance of social objects as the key mediating artefacts that make social networks work. We will show how we are using Bouman et al.'s design framework as the basis for guiding our development of the Cloudworks site.

Engeström (2005), drawing on the work of Knorr-Cetina (see for example Knorr-Cetina in Schatzki, 2001), puts forward a compelling argument for the need to adopt an approach to social networking based on 'object orientated sociality'. He focuses on the notion of social objects, which he defines as:

> The term 'social networking' makes little sense if we leave out the objects that mediate the ties between people. Think about the object as the reason why people affiliate with each specific other and not just anyone…

Knorr-Cetina argues that objects have become ever more important in today's society and that objects are increasingly replacing and mediating human relationships. There are parallels here to the work of Salomon (1993) and the notion of distributed cognition and Perkin's notion of 'Person-Plus (Perkins, 1993) – i.e. our cognition is distributed between our environment and us – which increasingly means the digital environment and associated technological tools. Engeström contends that the definition of a social network as 'a map of the relationships between people' is inadequate.

> The fallacy is to think that social networks are just made up of people. They're not; *social networks consist of people who are connected by a shared object.*

This is an important distinction and he argues that this can be used as a basis for understanding why some social networks are successful whilst others fail. He provides examples of successful social networking sites built around social objects – such as flicker (photos), del.icio.us (bookmarks/urls) and sites such as

'eventful' (eventful.com) where the objects are events. Other examples that come to mind include YouTube (video clips) and Slideshare (presentations). He puts forward object-orientated sociality as a mechanism for helping us to identify new objects that might be used as the basis for developing new social networking services. Engeström's original blog post sparked a significant debate in the blogosphere, with a number of people picking up and expanding on the idea. Reflecting on his work, in particular with respect to its relevance in an educational context, Weller (2008a) provides a useful definition of a social object as:

> something (it can be real or virtual) that facilitate conversation, and thus social interaction.

He argues that in education the primary social object is content and that the educational value is not in the content itself but the social interaction that occurs around the content. Porter (2007) suggests that the success of sites such as Flickr, Youtube and Slideshare is based on their ability to make the activities of uploading, viewing and sharing as easy as possible. He also sees social relationships as key, arguing that relationships can't be explained without the objects and experiences that we share. In terms of sharing designs and ideas Conole (2008a) uses a similar argument, through application of Cultural Historical Activity Theory (CHAT) as the basis for considering the 'mediating artefacts' that are used as part of the design process. Dempsey (2008) provides a useful summary of some of the discussions in the blogosphere around the notion of social objects. He picks up that the value in Engeström's ideas is the notion of the relationships between people and objects and the importance of shared interest, through social objects as a necessary condition for social networks to work:

> The linking theme is that people connect and share themselves through 'social objects', pictures, books, or other shared interests, and that successful social networks are those which form around such social objects.

He references Stutzman's (2007) distinction between ego-centric and object-centric networks; myspace and facebook are ego-centric, where Flickr and Youtube are object-centric. Central to this idea is the notion that there needs to be a reason for people to connect together and to want to continue connecting.

> An ego-centric social network places the individual as the core of the network experience (Orkut, Facebook, LinkedIn, Friendster) while the object-centric network places a non-ego element at the center of the network. Examples of object-centric networks include Flickr (social object: photograph), Dopplr (social object: travel instance), del.icio.us (social object: hyperlink) and Digg (social object: news item).

The importance of the social aspects and the connections between people and objects, is picked up by McLeod (2007), who argues that sharing is a fundamental human activity:

> The most important word on the internet is not "Search". The most important word on the internet is "Share". Sharing is the driver. Sharing is the DNA. We use Social Objects to share ourselves with other people.

He also argues that it is the relationship between people and the social objects that is important – which links back to the primary purpose of social objects:

> The interesting thing about the Social Object is not the object itself, but the conversations that happen around them.

In response to Weller's argument that the principle social object in education is content, Fraser takes this a step further by arguing that people's profiles within a social network as themselves examples of social objects (quoted in Weller, 2008b).

> Profiles ARE social objects. They're not a real person - they're a constructed representation around which interaction takes place - a specific kind of social object. They are artefacts which connect and make visible networks.

So far we have discussed the notion of social objects and considered its relevance in terms of creating successful social networks. Engeström (2007) argues that this can be used as a basis for designing social networks built around social objects and puts forward five principles for design which include ensuring that the objects are shareable, having a clear definition of the objects and the actions (verbs) that users perform on the objects.

Bouman et al. (2007) have developed a design framework based on sociality (Table 2). Referencing Wenger (1998) they argue that sociality cannot be designed but only designed *for*, and offer the framework as a checklist for guiding the design process. Core to their approach are a number of assumptions. Firstly, that the system needs to accommodate both the evolution of practices and the inclusion of newcomers. Secondly, that individual identity is also important so there needs to be a mechanism to enable the development of identities. Thirdly they argue that people are more inclined to use software systems that resemble their daily routines, language and practices than to adopt whole new concepts, interfaces and methods, which suggests that metaphors and structures that mimic real life practices are likely to be more successful. The framework is based on four design domains: enabling practice, mimicking reality, building identity and actualising self.

> In the *realm of enabling practice*, a designer is faced with the task to create facilities that enable the support of a practice that exists or could exist within the social group that is the intended audience of the social software system. In the *realm of mimicking reality*, a designer faces the challenges of finding or creating metaphors that relate to the empirical world. In the *realm of building identity*, the designer's job is to provide the user community with the mechanisms that allow for the development of an online identity. Finally, in the *realm of actualizing self*, a designer needs to create the mechanisms that allow users to tap into the collective wisdom and experience and use it for their own benefit, learning processes and actualization. (Bouman et al., 2007: 14)

For each of these domains there is a set of design criteria, principles and parameters. For example in terms of enabling practice the design criteria are based around the fact that users value social software that adds value in terms of enabling or creating practices that are important to them. The design criteria for mimicking reality are about use of mechanisms and metaphors associated with ordinary real life. For building identity social criteria are important – in terms of building trust and creating a sense of belonging. Finally for actualizing self it is about aligning with individual interests, addressing the question 'what does this software do for me?' They also suggest that there are associated design dilemmas for each of the domains, for example whilst it is useful to mimic existing practices and use real life metaphors, there is also a needs to shift and change practice. This is particular pertinent to our work.

**Table 1: A design framework for sociality**

| Design domains | Enabling practice | Mimicking reality | Building identity | Actualising self |
|---|---|---|---|---|
| Criteria | Use, purpose, value | Empirical reference ability | Trust, connectivity, identifying with, trajectories | Love, social needs, esteem, cognitive needs, aesthetics |
| Principles | Design to support social practice | Design as a real life social experience | Membership, participation, relations, brokering | Feedback, discovery surprise, association |
| Parameters | Facilities of engagement, alignment & imagination | Metaphors of engagement, alignment & imagination | Conversational interaction, social feedback & networks | Guided exploration sharing |
| Dilemmas | Create new practices & using old ones | Finding new ways, words, and worlds without losing reference ability | Balancing between factual and self depiction | The act of balancing between unknown and unfamiliar |

## The Open University UK Learning Design initiative

The OU Learning Design initiative started in April 2007; funded through a university strategic fund. The current work runs through to December 2009. In addition we have been successful in securing £400K national funding through the Joint Information Systems Committee (JISC)[5] for a project to run alongside

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[5] http://www.jisc.ac.uk/whatwedo/programmes/elearningcapital/curriculumdesign/fundedprojects

the institutional work from September 2008 – May 2012. We are adopting an iterative methodology focusing on two areas of activity in parallel: a) capturing and representing practice - through user consultation and case studies and b) supporting learning design – by gathering relevant resources and ideas about design, through the development of online tools for visualising and guiding design and through a series of associated workshops offering participants the opportunity to explore the resources and tools we have developed. Our methodology consists of four interconnected facets: *understanding design* - through gathering empirical evidence about design, *visualising design* - as a means of articulation and representation, *guiding design* - through appropriate scaffolds and support, and *sharing design* - to inspire and encourage uptake and reuse. Empirical evidence has included the collection of user requirements, case studies, in-depth interviews, evaluation of workshops and a longitudinal evaluation of a whole course design. Forty-four case studies were captured through in-depth interviews with course leaders. The focus was on the pedagogies used to achieve specific learning outcomes and the use of tools (blogs, wikis, e-assessment, etc.) to support learning activities. Twelve interviews were carried out with teachers to gain a better understanding of the ways in which they go about designing learning activities (Cross et al., 2008). Whereas the case studies focused on *tools in use*, the interviews with teachers were more concerned with the *process of design*. The interview focussed around five themes: How do teachers go about the process of design? How do they generate ideas and what kinds of support do they use? How do they share their designs with others? What are the barriers to design? How do they evaluate their designs? We are also following a new course in educational technology in detail to identify how and when design occurs as the course is developed. We believe this more detailed evaluation will give us a rich insight into the complexity of the design process, how it occurs as a course evolves and what are the different levels of granularity of design, which are considered at different stages in the process.

We have developed two design tools: CompendiumLD[6] – a tool for visualising learning designs (Brasher et al., 2008) and Cloudworks[7] – a tool for sharing designs. CompendiumLD helps teachers articulate their ideas and map out the design process. The system provides in-situ help and guidance. Users find it easy to use and say that it helps to make their design ideas more explicit. Visualising and mapping out the design highlighted issues that they may not have noticed otherwise, it also provides a useful means of representing their designs so that they can be shared with others. A slidecast describes the creation of one learning sequence, along with a commentary of the issues encountered in the design process.[8] Conole, Brasher et al. (2008) provide an outline of the development of the CompendiumLD tool and the associated evaluation of its use, this paper will concentrate on the Cloudworks tool.

## The design and development of Cloudworks

This section will describe the Cloudworks site and how it has been developed. Cloudworks is a social networking site for learning design, adopting a Web 2.0-based philosophy. The aim is to create an evolving, dynamic community for learning design. The site is based on the notion of social objects discussed above. A discussion of the theoretical basis of Cloudworks based the notion of social objects is discussed in more detail in the next section, here we provide a brief overview of how the tool has been developed, along with current and planned functionality. It is built on the premise that there is a network of social objects associated with learning design – tools, resources, approaches to design and people and the site is designed to facilitate connections between these objects. The site includes simple user generated tagging, around three categories – pedagogy, tools and discipline. We think this is an innovative approach, providing an interesting mixture of applying folksonomy, while maintaining some structure. We plan to develop this adopting an open approach by making connections to similar networks and harnessing the best of Web 2.0 to dynamically push and pull information, via RSS feeds, embedding features, etc. There are five types of objects:

1. *Clouds:* These range from little snippets of practice or simple ideas of teacher practice, through to more detailed design plans – which might be in the form of visual design representation such as a LAMS[9] design sequence or a CompendiumLD diagram, or a text-based, narrative case study or pedagogical pattern.

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[6] CompendiumLD can be downloaded from http:/.compendiumld.open.ac.uk

[7] http://cloudworks.open.ac.uk

[8] http://www.Slideshare.net/PerryW/using-compendiumld-to-design-a-learning-activity-435001/

[9] http://www.lamsinternational.com/

2. ***Stormclouds:*** This is a new object we have added recently. Stormclouds are requests; articulating an educational problem that someone is seeking help on. For example a teacher might want to teach introductory statistics across a range of disciplines and request help on ideas for doing this. Alternatively a teacher might put in a stormcloud about how to promote learner-centred approaches to inquiry-based learning to encourage students to develop their scientific thinking skills.
3. ***Resources:*** These include learning objects, open educational resources, design templates and case studies, but also different ideas and approaches to thinking about design, and links to sites providing information on different tools and how they can be used.
4. ***Tools:*** These include Learning Design tools - that guide the user through the design process and pedagogy tools – which instantiate particular pedagogical approaches.
5. ***People and communities:*** Each user has an associated profile and any social objects they put in are automatically assigned to them adding value to their profile and illustrating in a dynamic way the evolving expertise of the system.

**Table 2: Initial vision statement for Cloudworks**

> We plan to develop a website to foster the growth of an evolving set of user-contributed learning design tools, resources and examples of learning activities. We aim for the site to be used by Open University course teams who want to collaborate on aspects of the design of their courses as well as by people outside. The Open University who design courses and learning activities. We want to promote the community-based aspect of the site both as a place for people to showcase their designs and related work, and also as place to obtain inspiration and share advice when creating new designs. We believe that different people will want to use a variety of different tools for designing learning activities in different contexts and at different stages of the design process, and therefore that the site should not be tied to any specific tool but allow people a choice of formats for design (such as CompendiumLD maps, LAMS sequences and text-based formats).

In terms of developing the site, we are adopting a agile development approach, we have run a number of events with potential users of the site. In February 2008 we ran a 'visioning' workshop. We began by providing a vision for what we wanted Cloudworks to achieve (Table 1) and then had people working in groups to design on paper suggestions for organising the site and ideas of key features and functionality they would like. Emergent themes were written on post-it notes and clustered on a whiteboard (Figure 1). Themes included: the tension between a low barrier to entry to encourage users to generate content verses the desire for high-quality content (the issue of reputation systems and evidence for quality came up frequently), a tension between the website being open and issues such as rights clearance and student access to the site, that finding the right person to talk to about a topic can be as important as finding the work they have done, the relative advantages of a locked-down taxonomy compared to folksonomy-based approach, the different types of audience for the site, how it would integrate with related websites, and how to generic dialogue such as presenting design problems with others suggesting solutions.



**Figure 1: Brainstorming initial ideas for Cloudworks**
Drupal, an open source content management platform,[10] was chosen as the basis for the site, as we wanted to rapidly prototype and test the site. Figure 2 shows the first iteration of the site built in Drupal. Another aspect of the importance of a low barrier to entry is making it 'ok' to just write a few sentences about something. In terms of users we think that facilitators/brokers such as learning technologists will be important users of the site.

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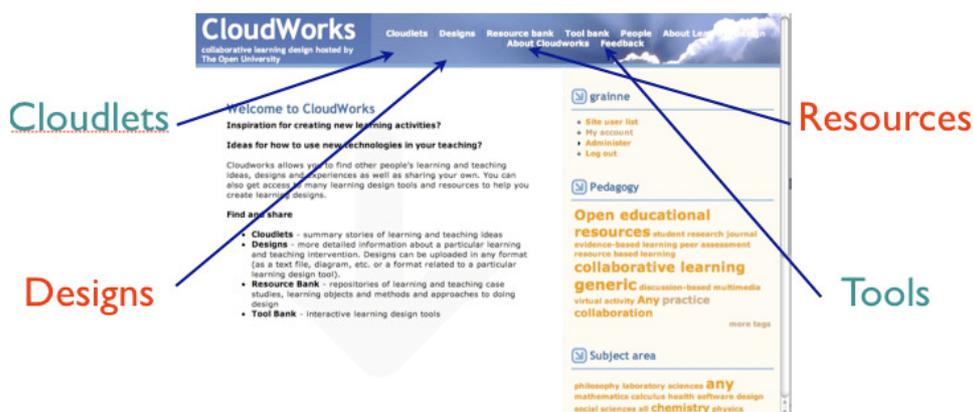
[10] http://drupal.org/

**Figure 2: The initial prototype of Cloudworks built using Druppel**

Ultimately the aim is to have a self-sustaining site that is user driven, however we have seeded the site initially - to illustrate the kinds of objects we anticipate populating the site and also as a mechanism for us to test out the structure and functionality of the site. We are aware that there is a difficult balance between user-generated content and having a sufficient critical mass of materials within the site to attract interest. We drew up a comprehensive set of resources and sites that we felt would be appropriate to data mine for social objects to include in the site. These included the 44 case studies carried out at the OU of how the VLE tools were being used in different courses, examples of CompendiumLD designs that people had produced, as well as related external learning design projects such as the AUTC Learning Design site[11] and the JISC-funded Phoebe project.[12] We also included links to relevant repositories of information on tools, learning objects, and Open Educational Resources.[13] Events have been run over the past six months across a range of target users, who include: learning and teaching innovators, those with a brokerage role in institutions (such as educational developers, librarians, etc.) or the e-learning research community.

Our initial approach was to have two types of design objects – 'cloudlets' representing short summaries of practice – typically no more than a paragraph in length and more detailed full 'designs'. However recently we have decided to combine these into a category of social objects we are currently labelling 'clouds'. In addition we have added a counter type of object – 'stormclouds' – to enable users to request help with designs they are having problems with. The tools category originally only included specialised learning design tools – such as the CompendiumLD tool we have developed and the Phoebe and London Pedagogical Planner tools.[14] However we have now expanded this category to include any tools that have a specific pedagogical purpose. For example the Knowledge Forum developed by Scardameila and Bereiter (2003), which is designed to encourage and facilitate discussion and has been used in a range of educational contexts. Similarly AcademicTalk has been designed to provide a scaffolded environment for encouraging students to discuss and debate ideas (Ravenscroft, 2007; McAlister et al. 2004).

Since April of this year we have been trialling the initial version of the site through a range of mechanisms; including three design workshops (for our Health and Social Care faculty within the OU, staff at the University of Cyprus and at the CNIE conference in Canada) and a series of 'Cloudfests' to generate new design 'clouds' and to elicit user feedback on the site, how they might envisage using the site and ideas of how to encourage greater user engagement and take up. These have included four Cloudfests at the OU, and one at the LAMS Learning Design conference in Cadiz in June. Figure 3 shows one of the activities using during the Cloudfests. Participants read a selection of 'clouds' from the site and then use post-its to make comments on what they like and dislike about each of the clouds. These sessions have provided us with timely and valuable input that we are feeding into the next iteration of design of the site. We do not see Cloudwork as the definite site for design, but want it to adopt an open approach and

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[11] http://www.learningdesigns.uow.edu.au/

[12] http://phoebe-project.conted.ox.ac.uk/cgi-bin/trac.cgi

[13] Lockyer et al. (2008) provides a comprehensive overview of current research and developments in this area, JIME has recently produced a special issue on OER research (McAndrew et al., 2008)

[14] http://phoebe-app.conted.ox.ac.uk/ and http://www.wle.org.uk/d4l/

be part of a wider network of inter-connected sites. Therefore we are running a series of 'Cloudworks-summits' – the first was run in mid-September, where experts in the field will be invited to consider how this work connects with their own communities of interest and any associated sites.

**Figure 3: A Cloudfest activity**

## Discussion

Fundamental to our design approach are two things. Firstly, the site is made up of a range of 'social objects' concerned with shared educational practice; these include learning designs, but also tools and resources associated with the design process and creating learning activities, and profiles of individual users and communities. Secondly, Cloudworks is designed to apply Web 2.0 principles to encourage sharing and reuse of designs, so that the site achieves critical mass and is self-sustaining through end-user engagement and contributions. We see the people and community profiles in Cloudworks as social objects. We aim to add value by linking these to the other social objects (the designs, resources and tools) in a range of ways. The below list illustrates how Cloudworks map to Engestrom's five principles of design, discussed earlier.

i. ***Clearly define the social object your service is built around.*** Cloudworks is made up of social objects about learning design. There are five types: Clouds (designs), Stormclouds (design problems), resources, tools and user profiles.

ii. ***Define the verbs that users perform on the objects, so that is it clear what the site is for.*** The key verbs for Cloudworks are 'find' and 'share'.

iii. ***Make the objects shareable.*** The site is designed to be easy to use; there is a range of mechanisms to encourage users to input social objects as well as links to other related social networking sites. We also have plans to increase the interactivity of the objects in the site by including interactive design widgets and runnable learning design sequences. We also plan to mirror the 'embed' functionality common in sites like YouTube and Slideshare, so that social objects in Cloudworks can be virally spread through different communication channels and to different communities. We have plans to develop deep-level integration with a number of other sites/communities and dynamic sharing across the sites of appropriate objects. For example a social object that is of relevance to a pedagogical patterns community when uploaded to Cloudworks, automatically also links to the pedagogical patterns community too, and vice versa. Tagging will help identify different communities.

iv. ***Turn invitations into gifts.*** As a means of increasing awareness of the site and getting objects entered we have run a range of 'Cloudfests' which are designed to be fun interactive sessions where people enter design ideas and then vote on their favourite design. Through our new JISC project we are also engaged in linking Cloudworks to strategic initiatives at the OU and four other institutions. Ideas include embedding Cloudworks in the annual appraisal scheme so that teachers are required to evidence learning and teaching innovations they have developed by uploading examples into Cloudworks, peer reviewing and user-generated favourite designs and linking Cloudworks to conferences. Using conferences as a trigger is an extension of the existing practice at many conferences of awarded best paper or poster prizes. Delegates would be encouraged to upload Clouds arising from their papers; a voting mechanism would then identify the best entries. Although not exactly a gift, another means of adding value within Cloudworks is that any objects a user puts in are dynamically added to the user's profile. Therefore users are motivated by seeing the collective list of all the objects they have entered and this helps to label them as an 'expert' in a particular area, which others can see when they look at their profile.

v. ***Charge the publishers, not the spectators***. This links to the current debates about the future of education and in particular what might be appropriate business models for education. In a world where content and tools are essentially free – what are the students actually paying for? Walton et al. (2008) provide a description of the SocialLearn project, which is applying Web 2.0 principles to education, as part of this they are exploring different business models.

Cavalho (2007) comes up with a related set of ten principles for social design. His list really emphasises the social dimension and many of the features of Cloudworks described above map across the first eight

of his principles. In addition, future plans will focus on the final two of his principles, i.e. building reputation and social capital. We think the user and community profiles will be an important part of this, but also want to encourage dialogue around the social objects within the site and an ability for users to rate objects and individuals to built reputations through peer recognition.

We plan to use the framework developed by Bouman et al. described earlier, to guide future developments of Cloudworks. We feel all four of the design domains identified by Bouman et al. are important and need addressing. In terms of enabling practice we need to clarify what added value Cloudworks provides to teachers' current practice – through providing mechanisms for them to find ideas and inspiration for their teaching and a means of connecting into a community of others with shared interests. In terms of mimicking reality we now have a good idea of how teachers currently design through the empirical data we have gathered through the interviews. We need to mirror aspects of this in Cloudworks whilst also harnessing Web 2.0 principles to find new ways of connecting users and adding value. Similarly we need to use the user profiles within the system to help build both individual identity and communities within the system.

We have a long list of functional improvements. In particular we are keen to look at ways of enabling deep-integration across related communities and mechanisms for making the site engaging and interesting to ensure that users return to the site.  Ideas for achieving this include having easy mechanisms for users to share their designs, an embedding functionality to enable users to export social objects to other sites, and engaging/motivational interactive design widgets and runnable design sequences.

## Conclusion
The paper is relevant to a number of the themes for Ascilite 2008. It provides an example of the application of Web 2.0 principles in an educational context. It could be argued that part of the success of sites like Flickr is that they mimic existing practices – whereas designing and sharing of educational practice is different; it is not yet a significant part of academic practice (Lane, 2008). We see Cloudworks as part of a wider network of those interested in different facets of learning and teaching. A core principle of the work we are doing is to find mechanisms to connect to these communities, so that the drive and momentum is around the communities and the technology is simply a seamless interface to facilitate that. We have significant development activities planned over the next few months so will be able to report on the progress we have made at the conference and in particular to reflect on to what extent we have been successful in creating a self-sustaining, user-driven site for sharing learning and teaching practice. This paper sets out the philosophy underpinning our approach; to date we have only implemented a small sub-set of the Web 2.0 approaches we want to include. The next phase will enable us to evaluate the success of further enhancements and work towards answering some of the questions posed at the beginning.

## Acknowledgements

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