

# Web-based course design

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## Background and definitions

Course design is a very extensive subject and has a large literature going back many years. Therefore, as a way of focusing and limiting this entry, the following restrictions have been made:

1. Only course design in higher education is considered
2. Only course design using online and Web 2.0 technologies are considered.

It is worth clarifying at the outset that while courses may be designed, learning cannot be. The aim of course design is to provide an environment in which learning can best take place. This leads to one of the main issues in the current context: classes are increasingly multicultural and students have very different backgrounds, expectations about pedagogy and experiences with online tools. Cultural backgrounds are inextricably related to how we learn, and hence learning needs of students may well vary by culture. Attitudes to particular content (political correctness, contextuality in meaning-making and views about absolute reality), variations in writing styles (formality, vocabulary, directness), and above all, concepts about the role of the learner and of the teacher (criticism, authority, politeness) these are all culturally-specific, and hence highly variable in multicultural learning environments. One approach to cultural pluralism is to recognise that every student is individual in their learning requirements regardless of their cultural background. Providing diversity in types of resources, assessments, communication tools, and learning activities not only creates greater flexibility for all learners to customise their learning, but also provides a self-reinforcing learning environment for creativity and innovation.

## Definitions

The design of course materials for online education is still very much a contested area, but is the most crucial factor in both the success and the definition of "elearning". Most advocates agree that the increased opportunities for online interaction, and the quality of those interactions, are key elements of good practice in the design of online courses. The increased opportunities for interaction and the new media related to web 2.0 resources are an important focus of current research, as is the accessibility of these resources. Research on social networks is not a new field – people have been studying the connections between groups of people for many years. What is new is the explosion of interest in online social networking that enables peer-to-peer learning and self-learning student-driven models of education. Some examples of online and Web 2.0 tools with relevance to education are:

- Wikipedia, in which encyclopaedic content is created and edited entirely by users.
- Blogs, a form of online diary, which adds a whole new dynamism to the web, and enables relatively technically unskilled users to contribute content to the web.
- RSS (which stands for Really Simple Syndication or Rich Site Summary) is a family of web feed formats used to help enable access to frequently updated digital content, such as blogs or podcasts.

- Podcasts consist of audio or video files that are distributed over the internet using RSS or the related Atom format, for playback on personal computers, or via a person computer on a portable audio or video player.
- E-portfolios, which encourage students to take ownership of their learning through a dynamic, reflective, multimedia record of their achievements, created by themselves.
- Folksonomy sites such as del.icio.us and Flickr in which users tag with keywords their photos or other content entries, thus developing a form of collaborative categorization of content using the kind of associations that the brain uses, rather than rigid, pre-ordained categories.
- Real-time audio and shared screen tools for multi-way discussions.

## **Online resources**

Online collaboration tools are not limited to Web 2.0 systems, the Internet has for a long time long supported some forms of social interaction e.g. email ([from 1965](#)), email list servers ([Listserv from 1986](#)), and online conferencing ([Online conferencing late 1990s](#)). The level of social interaction they afford has become an established component of distance and even campus-based education. Online resources are numerous, including different communications media, online libraries (text and images) and downloadable software to assist the learning process. Course design that balances the access to resources without allowing ICT to dominate the terms of student engagement is a finely balanced act, and provides a much contested area of debate, including the combination of online education with off-line resources - so-called 'blended learning'. The richness and diversity of opportunities to engage and interact with students can vary widely from the use of a VLE (Virtual Learning Environment) to simply store digital resources to enable easy access for students, through interactive methods such as videoconferencing and/or 'voice-over-internet' conferences, to the fully online courses that link to online journals, video, and audio resources combined with close tutor-student interaction.

## **Findings from research**

Johnson and Johnson (2004) analyse the history of cooperative and collaborative learning and the way in which these practices have been revitalised by the advent of online learning. They cite a range of studies which demonstrate that cooperative learning online results in higher achievement than individualistic learning. They conclude that, “few educational innovations hold the promise that technology-supported cooperative learning does...” (p. 806). Jenkins (2006) points out that one of the implications of online collaborative work is that educators need to re-think the individualistic foundations of assessment in higher education. Social networking encourages collective contribution, not individual ownership. Creativity is different in an open source culture.

The issue of student versus teacher centred course design is another longstanding one which continues to evolve with the impact of social networking. Designing a course around the learner's needs is a cornerstone of open and distance learning where it usually involves passing at least some control to the learner over pacing, interaction with the course content, and timing of the assessments in order that part-time students can fit studying around work and family commitments. Garrison and Baynton (1989) argued that control is a dynamic relationship between independence, power and support, and Hall, Watkins and Eller (2003) talk about the need to find a balance between providing the student with enough structure to

keep their studying on track, and enough freedom to work creatively and flexibly on the course.

A new area of research has emerged recently called Learning Design. It reflects a shift of focus in course design from an emphasis on providing content to an emphasis on designing activities that help students learn through interaction with sources, people and ideas. Learning Designs provide a way of representing learning activities so that course designers can easily identify the essence of a design or learning sequence and apply it to their own curriculum area. Through a process of breaking down activities into constituent parts, it guides individuals through the process of creating activities and incidentally, highlights policy and technology implications. It also provides a common vocabulary for course designers to understand how students learn through activities. In short, Learning Design offers a method for reusing good practice across many disciplines.

## **Implications for practice**

One of the questions which have arisen due to the phenomenal uptake of new technologies by young people is whether and to what extent learners are changing. That is, what is the effect of computer games, mobile phones, the internet and social networking on learners who have grown up with these as an integral part of their environment? A major piece of research on student reactions to the use of information technology (IT) in education was carried out by Kvavik and Caruso in 2005. Reassuringly, students in this survey still saw faculty knowledge and expertise as the most important element in learning, but the majority wanted instructors to make moderate use of IT, whilst equal numbers wanted extensive use or limited use.

The advent of user or student generated content adds a new dimension to the debate. There are a number of ways in which students can participate in creating the content of a course. Discussions and debates have been standard practice on campuses and have been used regularly in online courses where asynchronous conferences are the established mode of communication. Similarly, the practice of resource-based and problem-based learning pre-dates social networking by some decades. Both of these design models imply that students find appropriate material in order to study the course. Student-generated content takes this a step further by students not just finding content (in the form of resources), but actually creating it (through blogs, wikis, e-portfolios, and other multimedia presentations).

The obvious implication of student-created content is a changing role for the teacher and for the educational institution. There is a need for teachers not only to master the new technologies, but also to understand and capitalise on the pedagogical implications. There is a need for institutions to monitor student access to the technologies and consider what to provide for students and what to leave to social trends to determine. Many of the web services are free and may already be familiar to students from social and informal learning activities outside of their studies.

## **The changing role of the student**

The changing role of the student obviously has implications for the role of the teacher. Beldarrain (2006) notes the transition from teacher as deliverer of knowledge, to facilitator of online interaction. With the advent of student-generated content, she predicts that “the future instructor may have to be more of a partner in learning than a facilitator. The instructor must view the students as contributors of knowledge, and thus allow them to participate in the creation of content” (page 149). The instructor, therefore, needs to provide feedback and build rapport. Nearly ten years ago, Papert noted that there was a clash between the dominant ideology of curriculum design and the empowerment learners get from games and other

technologies which enable the user to take charge of their learning (Papert, 1998). Recently, Rudd, Sutch and Facer (2006) have reiterated this point:

Currently most discussions about increasing learner 'choice' and 'voice' are focused around giving learners a greater variety of routes through predetermined and predefined subjects and curriculum content. However, a truly personalised system requires that learners will not only have greater choice and influence over the pace, style and content of learning but that they are also supported to become active partners in developing their own educational pathways and experiences. (Rudd, Sutch & Facer, 2006: 7)

Student-centred learning and the technologies which enable them to generate content will continue to have profound effects on the inter-relationships of students, teachers and course content.

## **Success factors**

There is a course design version of 'feature creep' which consists of the addition of a web 2.0 technology to an existing course in order to address a particular problem or to update the course and make it more attractive. In fact, the more common applications of these technologies in courses are undoubtedly as feature annexation rather than as design creation for a new course altogether. The problem is that adding a web 2.0 technology changes the whole course: the balance between teacher and taught, the role and expectation of each participant, and the benefits and responsibilities are subtly altered. The addition of the new technology may actually address the original problem, but it will also create other problems. The point is that course design needs to be understood as a holistic process in which all the learning elements are in balance. Technology in itself does not make the defining difference, and there is considerable emphasis in the academic literature of the need for a 'culture-shift' by users (learners and tutors) rather than simply a new technical 'fix'. Palloff & Pratt (1999) have indicated that learning can be improved when there is a sense of community achieved through online communications, and much research into web 2.0 applications is directed at extending and deepening this sense of online community fellowship. What is required is more thoroughgoing and appropriate ways of using technology to create a learning environment which is motivating and engaging, yet challenging and rewarding.

## **Current Issues and future directions**

There has been some argument over whether Web 2.0 tools are a revolution or merely an evolution. However, we need to understand is how people can learn in this contemporaneous Web environment and how course designers can enhance learning through the right tools and applications.

### **Current Issues**

The key points are:

1. We need to trust the power of peer learning and the importance of self-expression as vehicles for developing the kinds of process skills that are of increasing value in a socially networked world.
2. Emergent design is convergent with the use of web 2.0 tools as it makes space for the unexpected and caters for user-generated content.

3. The learning process is more important and more lasting than the recollection of any particular content, and hence should be given more significance in course design than the transfer of information.
4. The art of course design is to capture the essence of the informal uses of web 2.0 tools while introducing structure and direction into students' engagement with them.
5. Passing control of learning to learners will be a very challenging and threatening request for many lecturers and most institutions. This is where the essential feature of social networking conflicts with educational practice.
6. Changes to existing courses require maintaining a balance amongst different kinds of learning opportunities.

## **Future directions**

Anderson (2007) suggests three elements of current web 2.0 practice that look set to have a profound impact on education in the future. The first of these is the notion of the wisdom of crowds, or the power of groups (Compare with Rheingold, 2002). This emergence of online social networking communities could create a significant threat to universities as the traditional repositories of wisdom and knowledge creation. Anderson's corollary to this possibility is that the issue of online identity and privacy will increasingly become the focus of tension and acrimony. The rise of blogs particularly is already beginning to affect journalism and newspaper circulation. As yet it is unknown how will universities be affected by the wisdom of the crowd, rather than the wisdom of the expert.

Anderson's second prediction is that the growth of user-generated content will increase the rise of the amateur and the culture of DIY. These two will also challenge the status of the academy as the elite source of knowledge. Anderson says, "These challenges may not be as profound as some of the more ardent proponents of Web 2.0 indicate, but there will be serious challenges none the less".

Finally, Anderson predicts that there will be profound intellectual property debates over the ownership of the huge amounts of data that web 2.0 is generating, along with new tools for aggregating and processing it. In this context it is worth noting the growing importance of OER (Open Educational Resources) that are produced as very short 'chunks' of learning resources by trusted academic sources and made freely available on the internet (OECD, 2007; OER, 2009). In addition to self-directed learners, there are an increasing number of educational establishments prepared to share these, and to re-combine OER of others in the design of their own courses, such as MIT OpenCourseware (2009); and the UK Open University, OpenLearn (2009).

All of these potential futures point to a large-scale transformation toward a more participatory form of learning, where teachers and learners share the teaching and learning roles, where information is found in blogs and wikis, controlled through RSS feeds and connected through social networking sites. The participatory culture is empowering and while the tools will change, the genie of participation will be reluctant to go back into the teacher-centred bottle of traditional education.

## **Conclusions**

A synopsis of some of the issues affecting web 2.0 course design has emphasised a number of critical issues:

1. The medium is only as good as the design of the instructional strategy the educators have used.

2. Cooperation is the watchword, not control. Web 2.0 applications work on the basis of participation not coercion.
3. Course design is no longer about transmission and consumption; it is about co-creating, sharing, repurposing and above all, interacting.
4. A constructivist theory of education appears to fit well with the opportunities for exploration, collaboration, and reflection offered by web 2.0 interaction.
5. Online interaction is best supported when the characteristic features of the online application are fitted to the learning needs, rather than by trying to simply replicate offline learning situations.

But as with many areas of web 2.0, the new tools and approaches are only a development or fuller realisation of the true potential of the web platform. This gives us a key insight into how to design educational uses for these applications and services.

This overview of the issues related to using web 2.0 tools in education has tried to convey an important concept: that web 2.0 is actually more than a set of tools and services. It is the powerful ideas behind the tools and services that have so much potential for education: the reality of user-generated content, the network effects of mass participation, and openness and low threshold for easy access. These factors are inherent in the original concept of the web, just as their application to education builds on long established principles of best practice: student engagement and interaction in learning, and student ownership and management of learning.

## References

- Anderson, P (2007) What is Web 2.0? Ideas, technologies and implications for education <http://www.jisc.ac.uk/media/documents/techwatch/tsw0701b.pdf>
- Beldarrain, Y (2006) Distance Education Trends: Integrating new technologies to foster student interaction and collaboration, *Distance Education*, 27 (2), pp. 139-153
- Brown, A & Voltz, B (2005) Elements of Effective e-Learning Design, *IRRODL*, 6(1) <http://www.irrodl.org/index.php/irrodl/article/view/217/300>
- Conole, G & Fill, K (2005) A learning design toolkit to create pedagogically effective learning activities, *Journal of Interactive Multimedia*, 8 <http://www-jime.open.ac.uk/2005/08/conole-2005-08.pdf>
- Ehlers, U (2007) The “E” - Empowering Learners: Myths and Realities in Learner-Orientated eLearning Quality, *eLearning Papers* [http://www.elearningpapers.eu/index.php?page=doc&vol=2&doc\\_id=8550&doclng=6](http://www.elearningpapers.eu/index.php?page=doc&vol=2&doc_id=8550&doclng=6)
- Garrison, D & Baynton, M (1989) Beyond independence in distance education: The concept of control. In: Moore, M and Clark, G (eds) *Readings in principles of distance education*. University Park, PA: American Center for the Study of Distance Education.
- Hall, R, Watkins, S & Eller, V (2003) A Model of Web-Based Design for Learning. In: Moore, M and Anderson, W (eds.) *Handbook of Distance Education*. New Jersey: Lawrence Erlbaum Associates
- OECD (2007) Giving Knowledge for Free: The Emergence of Open Educational Resources, Available from Centre for Educational Research and Innovation at: [http://www.oecd.org/document/41/0,3343,en\\_2649\\_201185\\_38659497\\_1\\_1\\_1\\_1,00.html](http://www.oecd.org/document/41/0,3343,en_2649_201185_38659497_1_1_1_1,00.html)
- OER Handbook for Educators (2009) available at URL: [http://www.wikieducator.org/OER\\_Handbook/educator\\_version\\_one](http://www.wikieducator.org/OER_Handbook/educator_version_one)

OpenCourseware (2009) The landing page of the MIT Open Courseware initiative, URL: <http://ocw.mit.edu/OcwWeb/web/home/home/index.htm>

OpenLearn (2009) The Learning Space of the UK Open University open courseware initiative at URL: <http://openlearn.open.ac.uk>

Palloff, R M & Pratt, K (1999) *Building learning communities in cyberspace: Effective strategies for the online classroom*. San Francisco, CA: Jossey-Bass Publishers

Rheingold, H. (2002) *Smart Mobs: The next social revolution*. Cambridge MA: Perseus Publishing.

Rudestam, K. E. and Schoenholtz-Read, J. (Eds.) (2010) *Handbook of Online Learning* (2nd Edn.), Sage: Los Angeles & London

Mason, R & Rennie, F (2006) *Elearning: The Key Concepts*. London: Routledge

Mason, R & Rennie, F (2008) *E-Learning and Social Networking Handbook: Resources for Higher Education*. London: Routledge

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