Web 2.0 for networked learning: from collaboration to shared cognition & knowledge networking

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Abstract

This poster presents research-in-progress into the educational affordances of so-called Web 2.0 sites, services, with a particular emphasis on those applications that involve forms of shared human-machine cognition and that promote public knowledge networking. This research involves reviewing many hundreds of Web 2.0 tools and selecting approximately 50 for further analysis and exploration as learning applications. In doing so, the research will generate examples of unusual affordances provided by Web 2.0; it will also present a more structured categorisation of the kinds of uses and benefits of these tools. This approach is valuable because much current research and analysis of the impact of Web 2.0 on education, particularly higher education, has emphasised a relatively limited array of tools – principally blogs, wikis and social networking services – that offer educators and students opportunities for student-led collaborative work. Such opportunities involve strong emphasis on constructivist pedagogy: students' interactions with each other, mediated via the Internet, are viewed as the positive benefit which networked learning can provide. However, Web 2.0 is far more than just collaboration, and associated shared self-expression. In particular, Web 2.0 includes many examples of services that take one form of input from a user and, rather than just sharing it with others, enable the transformation of that input into different forms, either as visualisations, maps, or other re-representations. Web 2.0 is also starting to see the development of knowledge-work engines that embody the concept of shared cognition, in which the service and the user cooperate in the production of some final knowledge output or which present to users knowledge that has already been processed more extensively than through simple searching. Web 2.0 is also closely associated with the idea that knowledge work is now networked and distributed; it involves users appropriating, creating and sharing knowledge products in a very public way, far beyond the narrow 'audience' of a particular course or program of study. The research presented in this poster will provide, firstly, examples of the Web 2.0 tools which emphasise these additional ways of exploiting the Internet for networked learning; secondly, the research will provide a first iteration of the overarching structure of categories and classifications which can be used to assess any proposed Web 2.0 application in terms of its affordances for learning as knowledge networking. By understanding these technologies, truly collaborative networked learning can be developed that blends with the emerging cultures of online behaviour increasingly common to contemporary student populations.

The extent and diversity of Web 2.0 for education

I am currently undertaking a detailed empirical investigation of the many readily available tools, sites and services that are termed 'Web 2.0'. This research is being conducted by reviewing and selecting innovative and educationally useful Web 2.0 tools, providing for each of the final ones selected a brief analysis of its educational affordances and the way in which they might be exploited in several exemplary contexts (see below for methodology). The research will first of all provide a detailed list of key tools and services which educators might then use to assist in choosing Web 2.0 applications. Second, the research will – by bringing together an overview of some hundreds of such tools – also provide an empirically grounded system of categorising such tools. While such categorisations are likely to be contingent and multi-dimensional, given the multiple

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affordances involved in many Web 2.0 services, nevertheless the research will provide the basis for a more generalised engagement with 'Web 2.0' than is often the case with current research that tends to focus either on one ill-defined technological form (blogging), or specific sites and services (e.g. Facebook). The research will assist educators in fully realising the capacities of these technologies while remaining focused primarily on the value they have for educational outcomes, rather than just as technologies to play with (see Collis and Moonen, 2008).

As outlined in the abstract, a key aspect of this research is the emphasis on analysing and promoting tools for networked learning that are not primarily focused on relative generalised collaboration and sharing between students. There is already good research being conducted in this area, which will not be duplicated here. It is also, however, the aim of this research to show that recent developments in the technologies available online – often simply and quite freely available – are making the Internet a far more dynamic and extensive place for knowledge networking, because of the sharing of 'cognitive' processes between humans and software (see for example Allen and Long, 2009). The research is also influenced by the emerging understanding that the Internet is a place which blurs together personal communication and public media, thereby complicating its use for pure 'communities' of learning, distinct from other online activities and processes (Luders, 2008).

The research for this poster will be all but complete at the time of the conference. The poster will present the categorisation and classification system and a small number (3-5) of exemplary Web 2.0 services and applications. Additional information will be provided to conference participants of all the tools available which have been analysed and assessed.

Research methodology

The methodology being used in this research is as follows:
1 A brief review of some 3,400 applications based on the description given at the directory website http://www.go2web20.net, from which approximately 20% (ca 700) will be selected for further investigation based on that review.
2 Visit and exploration of the selected applications at their own websites, from which approximately 25% (150) will be selected.
3 Detailed investigation of those 150 websites and services including analysis of their underlying affordances for educational use, in various contexts.
4 Selection of a limited array of services (no more than 50) that will be described, analysed and detailed

Criteria being used to make the selections noted above include:

- Cost: no paid-for applications or services will be considered, though particularly important examples of this kind will be noted for future exploration
- Ease-of-first use: applications will be favoured if they impose very low demands on first-time users to get started
- Duplication: numerous applications tend to perform the same function; the research will attempt to select 1 or perhaps 2 only of any particular kind of application
- Not relevant: while termed 'Web 2.0' some applications are not relevant to the meaning used in this research (e.g. Google Chrome is listed but is not, by most people's reckoning Web 2.0)
- Practicalities: based on my 15 years experience as a university educator, applications that meet practical considerations for use by teachers and students will be selected.
- Diversity and difference: emphasis on finding applications which are not commonly referred to in educational literature and which exemplify different kinds of social media / Web 2.0 approaches

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