

Effective e-Learning through collaboration

By Steve Lee & Miles Berry

About Steve Lee



Steve Lee is a Senior Software Developer working at Exeter College as the 'MIS Programmer', creating an MIS Intranet and data resources using mostly web and database technologies. He is also on the schoolforge.org.uk Executive Board and co-web master.

He is involved in Assistive Technology software, a member of the BCS Disability Group, technical consultant for the Drake Music Project, a volunteer for ITCH and writes the occasional article for Ability Magazine. He is working to bring Open Source to Assistive Technology Software.

His latest interest is various techniques for customising 'off-the-shelf' software to meet individual accessibility needs and how Open Collaborative Communities can help and involve disabled people.

Steve's interest in education has increased recently due to working at a FE college and having children at school. His website is <http://fullmeasure.co.uk/>.

(For Miles' biography, please see page 44.)

The benefits of e-Learning

e-Learning delivers many enhancements to the teaching and learning experience; the biggest impact occurs when the technology enables social and collaborative interaction where all parties actively build their understanding.

It's hard to miss the fact that e-Learning provides learning resources in interesting electronic media and makes them available 'anywhere, anytime'. Such media provides enhanced impact, improved accessibility, can be re-purposed for new uses and also help improve differentiation. However the required media production skills can be beyond teachers' experience, and often publication is by commercial publishers, or a specialist media or web unit. This can have the effect of de-professionalising teachers, who lose control of the materials they use with their learners.

Even where teachers do remain in control of learning materials, a commonplace approach to e-Learning is to simply publish resources appropriate to the learning. Such content may be 'interactive' or describe activities to be performed but is otherwise passively consumed by the students. This can alienate learners, who feel reduced to the level of recipients of content rather than participants in learning. Other methods are used by many teachers to more fully engage students, for example Tim Rylands' (<http://timrylands.com/>) use of the Myst computer games in literacy classes, resulting in impressive improvements in descriptive writing, especially from boys. Teachers in the creative arts often use collaboration and group work around technology to create works in media such as music technology, videos or animations.

Learning in the classroom

In ordinary, classroom teaching, we now enjoy a range of approaches that improve on the traditional 'talk and chalk' method used on its own. These embrace a social, interactive and constructionist approach to whole class teaching. As stated in the 'About Learning' (<http://www.demos.co.uk/catalogue/aboutlearning/>) report of the Demos-led Learning Working Group:

“experienced teachers draw on a mixture of common-sense knowledge, in which learning usually means acquiring factual knowledge that can be memorised and reproduced in written forms, and much more elaborate psychological accounts, which emphasise that learning is a search for meaning that is built upon pre-existing knowledge and is often realised in a social environment rather than something that simply takes place ‘in the head’ of the individual.”

Many students find that their learning is most effective when they actively construct knowledge during group social interaction and collaboration. Characteristics of such approaches also include: an awareness of multiple perspectives, provision of realistic contexts, a sense of ownership and voice, learning as a social experience, an acknowledgement of multiple modes of representation and a sense of self-awareness (metacognition, or learning about learning). These approaches are variously called social constructivism, social learning, collaborative learning or aggregated learning. The theories of social constructivist (http://en.wikipedia.org/wiki/Social_constructivism) epistemology and Vygotsky’s ‘zone of proximal development’ (http://en.wikipedia.org/wiki/Lev_Vygotsky) provide a rigorous underpinning for such pedagogies.

Evolution of the web

ICT technology centred around the intranet and web are also in a process of evolving from a ‘place’ into social and collaborative platform in which many are rapidly developing a voice and an awareness of multiple perspectives. Publishing information on the web no longer requires programming or web design skills: anyone can do it with the new sites that are emerging. Some are calling this “Web 2.0” (http://en.wikipedia.org/wiki/Web_2.0) and it is having an enormous impact on how we get things done, and is much closer to Tim Berners-Lee’s (<http://www.w3.org/People/Berners-Lee/>) original conception of the Web as a read-write medium. As Ross Mayfield of SocialText (<http://www.socialtext.com/weblog/>) recently said in his blog:

“[Users now] Google, Flickr, blog, contribute to Wikipedia, Socialtext it, Meetup, post, subscribe, feed, annotate, and above all share. In other words, the Web is increasingly less about places and other nouns, but verbs.”

For example news gathering is now performed by individuals at the scene and posted by them on the web directly, rather than being the territory of the traditional press and media. Furthermore, students are increasingly familiar with using technologies such as the internet, email and the web in these ways collaborative ways, often for social or recreational purposes but also on issues of group importance.

Bringing these two developments together creates the ability to facilitate the social constructivist learning exemplified by the best classroom practice through ICT. This provides new, more effective ways of teaching and learning, beyond the traditional constraints of time and location. With this approach, the focus is moved from the technology and media itself, to the communication and collaboration which forms the heart of the learning experience.

ICT used in this way enables educators and students themselves to rapidly create and publish their own content, and enables the shared construction of knowledge artefacts and meaning, thus moving into the realm of social constructionist. Such creativity happens without the need of technology experts,

but with plenty of scope for innovation, creativity and collaboration. Furthermore, because the technology acts as a levelling force, in which all may collaborate as equal partners, students who might not ordinarily contribute, perhaps as a result of a disability or shyness, can now join in activities as equals. Perhaps somewhat disconcertingly, the levelling effect also means that students can readily amend tutors' work, or enter in lively discussion with experts.

Many of the available tools allow for 'asynchronous' interaction, meaning each person can be involved at a different time as best suits them, with the archive of the conversation available to all. This allows students and teachers to fit in with busy schedules, meets the needs of those with a range of learning styles, provides flexible class timetabling, and means that class sessions can concentrate on key social interaction, with assessed activities left till later. In addition to flexibility in timing, there is flexibility in geographic location: students can contribute from any location given suitable access.

Teachers can easily view input from students, make assessments online and in most cases full audits of the 'conversations' or amendments are made allowing later analysis. For example, Drew Buddie (<http://merapolis.co.uk/moodle/>) describes an assignment for his ICT students to create a 'fair use policy' document. He created a shared document that could be easily be edited by himself and the students (actually a wiki, see below). After he seeded it with a statement that was obviously incorrect his students soon made 28 edits to the document and created a high quality policy by collective agreement.

Information sites such as Wikipedia, (<http://wikipedia.org/>) the Open Encyclopaedia, and its siblings, including wikibooks (<http://wikibooks.org/>) , allow students to contribute to a hugely useful and globally available resource. Thus students can produce, vet and elaborate an existing resource to develop it for others whilst learning themselves. Many express surprise that the editing privileges which such resources provide are so rarely abused, and on the exceptional occasions when they are, a process of peer review quickly and effectively deals with any difficulties, without the need for an appeal to authority.

These ways of working are also extremely effective for teachers to use themselves for collaboration at college or wider scopes. David Hargreaves, the chair of Becta (<http://www.becta.org.uk/>), believes that having educators working collaboratively in 'innovation networks' is the only way forward for education, thus modelling themselves the sort of collaborative, social learning they hope to encourage in their students.

There is a cost associated with this way of working, however, and an institution seeking to implement such technology needs to be aware that, as these web-based services become the medium for learning, there is a need to provide a level of service and reliability over and above that required for a more passive, resource presentation approach to the web. Similarly, whilst such technology is essentially an empowering one for all learners, there are circumstances in which some students may not have access to the web from home, and some strategy for bridging this 'digital divide' should be in place.

So what tools are available?

Well, a large range of interaction styles is possible and the following categorisation is a guide only, as many of these technologies can be adapted to

other modes. Furthermore the 'many' designation given below may be a closed community, such as a class, school, or college, or may be unrestricted access.

One-to-one

Email and SMS Texts

Text is sent direct to user's mobile (cell) phone. Email can be extended as a many-to-many tool through mail lists, which can provide for discussion, announcements and dissemination of documents.

Instant messaging

Text-based messaging, similar to SMS but via a computer and with better support for extended conversations; it often notifies users when their friends are logged on.

VoIP

Free internet telephone calls, often with video or shared desktop facilities; the market leader is Skype (<http://www.skype.com/>).

Some games software

FOAF

Friend of a friend – a means to develop trusted, social networks, see eg orkut (<http://www.orkut.com/Home.aspx>)

One-to-many

Static content web sites

Documents or multi-media made available for download or streaming.

Dynamic content web sites

Database-backed websites providing information tailored to the viewers particular requirements.

RSS

Really simple syndication provides a mechanism to track changes to multiple websites simultaneously, and to share content (typically blog posts) with other websites - an example of the semantic web.

Blogs

Extremely popular on-line diaries, easy publishing and sharing of text and other media such as photos. Comments can be posted by readers, and community blogs provide for shared authoring. Recent developments allow easy updating with text, photographs or even video, direct from mobile phones. Good for sharing experiences and views and are having a major impact on newsgathering. Eg Blogger (<http://www.blogger.com/>), Moveable Type (<http://www.moveabletype.org/>).

Podcast

An audio-based blog, designed to be downloaded to a portable mp3 player, with notification via RSS. Video equivalents are also appearing.

Folksonomies (or social tags)

A mechanism to allow authors to highlight other similar content to a reader, using informal, keyword tags; particularly effective for sharing bookmarks (eg <http://del.icio.us/>), but also used for blog posts (Technorati – <http://www.technorati.com/>), and photographs (Flickr – <http://www.flickr.com/>).

e-portfolio

In this context, a web-space allowing users to share their work with a wider audience.

Many-to-many

Content management systems (CMS)

These allow online group creation of content with workflow, CMSs can also provide shared authorship photo albums and blogs.

News servers

Topic-based news sites with open item posting and comments.

Forums Discussion

Websites where text conversations are organised as topics and threads.

Chat

Popular live group discussion using text. Audio and video conferencing are effectively an extension.

Games

Multi-user games allow collaboration. eg Nesta Futurelabs' Racing Academy (http://www.nestafuturelab.org/showcase/racing_academy/racing_academy.htm), or World of Warcraft (<http://www.worldofwarcraft.com/>).

Wikis

Web sites that can be collaboratively updated using only a web browser. They excel at enabling group development of ideas and information sources. Eg Wikipedia (<http://wikipedia.org>).

Version control systems (such as CVS (<http://www.nongnu.org/cvs/>) and subversion – <http://subversion.tigris.org/>)

These keep track of all the changes to a set of files, allowing several authors to work together on a project. Typically employed in open source software development, but can also provide audit trails for document management systems and wikis.

Almost all of these tools are available as hosted web services or open source software (itself a model of social constructionist principles) and can be readily installed on an intranet or extranet. One particularly effective approach is to collect together some of these tools into a cohesive, unified framework, often called a Virtual Learning Environment (VLE) or Learning Platform. VLEs have been used by Further Education (FE) colleges and Higher Education (HE) establishments for quite a while and, now that many schools and Local Education Authorities (LEAs) are also using them, the features will be familiar to students as they enter FE and HE establishments. Moodle (<http://moodle.org/>), the leading open source VLE, provides modules for assignments, chat, forums, lessons, messaging, surveys, workshops, and wikis, and online assessment

amongst many others. An alternative, or perhaps complementary, approach gives even more control to learners, by providing the tools for them to create their own personal learning landscape for example Elgg (<http://elgg.net/>) makes available tools for blogging, social networks, e-portfolios and folksonomies.

Conclusion

Hopefully this article has provided a flavour of the power of a collaborative approach to using ICT and the tools that are readily available. This is itself an example of such open social interaction, having been collaboratively created as a page (http://schoolforge.org.uk/index.php/Effective_e-Learning_through_Collaboration) on the www.schoolforge.org.uk wiki.

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