

e-portfolios and Web 2.0

In the spheres of internet use and education, there is a shared currency of knowledge and information creation and exchange. As the internet and its affordances become more deeply woven into the fabric of our everyday experience, it is natural that strong bonds between the two are being formed, particularly at the level of informal learning. At the level of institutional education, this natural attraction has often been resisted; there has been a tendency to privilege a certain kind of knowledge and resist challenges to its authority.

Here we consider the educational exploitation of new knowledge-networking practices enabled by information and communication technologies.

In this essay I will look specifically at e-portfolios and how they might take advantage of the emergence of Web 2.0 technologies.

Learning in an Information Society

A Futurelab report notes that there are calls for new approaches to education premised on the notion that:

we are moving into a new form of information society which is characterised by changes in the use of technologies and the forms of knowledge and learning that are valued in society (Owen *et al* 2006, p. 30).

It is suggested that there is "a shift in the nature of knowledge and how knowledge is created and organised", and "a cultural shift growing from the use of information and communication technologies, the so-called cyberculture" (*ibid*). If we accept this analysis (while acknowledging important issues around access to technology and digital literacy), then we should consider how we might address the needs of an information society culture within our educational practices.

To get a better idea of what those needs might be, we can take a closer look at ways in which information technology is being used, and how cultural shifts are being articulated through information creation and exchange on the internet.

Collective wisdom

At the heart of much interest in Web 2.0 is the notion that it is a social phenomenon, where connections are made between people, as well as between ideas or web pages. Value is uncovered in bringing together the resources of many in a connected architecture. By this view, the whole is greater than the sum of the parts. O'Reilly (2005) documents a series of example of this, including Google's page rank technology, which analyses web page popularity to give it an advantage in internet search; Amazon's successful emphasis on user participation, and again, ordering of content by popularity; del.icio.us and Flickr's shared online resources (URLs and images respectively), arranged in a bottom-up, user-controlled tagging system ("folksonomy" as opposed to taxonomy); Wikipedia, the collaboratively authored encyclopaedia; and the phenomenon of blogging, where "the collective attention of the blogosphere selects for value" (p 3).

A key observation by O'Reilly is that "Web 2.0 companies set inclusive defaults for aggregating user data and building value as a side-effect of ordinary use of the application." (*ibid.*) In other words, the social aspect of the application is inherent to its architecture, so that it cannot easily be used in a way which doesn't provide benefit to

others. Where normally in economic theory the increasing use of a common resource leads to a depreciation of its value ("The Tragedy of the Commons", (Hardin, 1968)), in the Web 2.0 model, the more a common resource is used, the greater the value it aggregates ("The Cornucopia of the Commons" (Bricklin, 2000)).

The term "social software" has been coined to describe web applications and services which take advantage of and cultivate collective knowledge in this way.

This social aspect of certain internet services opens up new avenues from which we can explore and uncover information and organise it into knowledge. Spatial and temporal barriers to communication, partially broken down by the printed word, are broken down further by digital publication to the internet. Users with similar interests can find each other's up-to-date resources online, almost instantaneously, irrespective of their global location.

The barrier of entry to internet publishing is lower than that of entry to paper publishing, so users can contribute original content, and are often encouraged by Web 2.0 services to do so. What often distinguishes these publication services from "Web 1.0" and paper publishing is that they allow for the rapid and easy creation of "microcontent" (Alexander, 2006).

The exploding web page

Closely linked to the rapid growth of social software is what we might call the atomisation of the web page, or the advance of microcontent. Where information exchange in "Web 1.0" was typically at the level of the web page, technological innovations have made it possible to link to and exchange smaller units of data over the web. Significant among these is RSS, a technology which allows web users to subscribe to regularly published chunks of content from websites. This has led in part to the great popularity of blogging, where publication occurs at the level of the *post*, and together with the aid of *permalinks*, posts can be aggregated in contexts other than their original site of publication.

Other examples of Web 2.0 technologies which facilitate publication at micro level are wikis, the collaborative writing tools, and AJAX, a technology which allows for specific sections of content on a web page to be dynamically updated without reloading the whole page. This in turn leads to a less disruptive user experience, and brings the quality of usability of web applications closer to that of desktop applications. As a result, more of the everyday work done on computers is taking place in a connected, internet context. The open programming protocols of some Web 2.0 services also result in the appearance of new custom web services, where microcontent is recontextualised in novel ways.¹ This phenomenon is known as the "mashup".

A bigger picture

Looking at these examples of Web 2.0 technology, we can see patterns of use emerging. Value has been discovered in the pooling of resources in new, previously impossible ways. Collective wisdom has proven useful in finding the most popular resources, but also in accessing specialised knowledge, via folksonomical tagging.

We can see a creative culture, where content is created, shared, appropriated, aggregated and mixed up to suit the requirements of individuals and ad hoc user groups in ways more fluid than we have previously experienced.

As access to information becomes ever easier, its sources more diverse, its modes of delivery ever more malleable, and the frequency of its updating ever more regular, our relationship to it does change. It becomes more difficult to ignore the nuanced nature of information, the multiplicity of knowledge perspectives and the relativity of truths.

Where we once might have used information to build rigid diamond-like truths which were held precious and immutable, we might liken knowledge in an information society more to the sliding layers of pencil graphite, impermanent and continuously rewritten.

What do these new experiences tell us about the educational requirements of the information society? At least, that new competencies should be valued, those which allow for

moving beyond the mere accessing of content (learning about) to the social application of knowledge in a constant process of re-orientation (learning as becoming) (Mejias, 2005a).

Learning as becoming

We can contrast these new experiences with those of recent Western industrial society, where the individual's identity was more clearly proscribed by dominant ideological and discursive forces, notably by the class system. In this scenario, education fulfilled the requirements of *being*; imparting canonised bodies of knowledge, reifying and ponderously developing those canons and by implication forming predestined subjects. By contrast we could characterise the new knowledge-networking information society as bringing an emphasis on the process of *becoming*. Being and becoming coexist uneasily in post-industrial times:

Most serious thought in our time struggles with the feeling of homelessness. The felt unreliability of human experience brought about by the inhuman acceleration of historical change has led every sensitive modern mind to the recording of some kind of nausea (Sontag 1966).

Deleuze and Guattari articulate this dualistic experience in terms of "the *logos* of entrenching oneself in a closed space (hold the fort)" (Massumi 1988) versus "the *nomos*: arraying oneself in an open space (hold the street)" (ibid). In their discussion of smooth and striated spaces:

smooth space is a space of becoming, of wandering (nomad space), where the movement is more important than the arrival. In striated space, what is most important is arrival at the point towards which one is oriented. (Bayne, 2004)

Hypertext and the web "surfing" experience can give the sense that "wherever we choose to pause, arrival at a final destination is always postponed" (Bayne, 2004); while the particular patterns of usage encouraged by Web 2.0 technologies contribute to a sense of relative, context-dependent knowledge acquisition. In looking at e-portfolios, our focus will be on this nomadic, smooth aspect of the web.

Applications for e-portfolios

Barrett and Carney (2005) provide us with a useful summary of the key applications for e-portfolios. Three areas are identified: portfolios for accountability (or assessment), portfolios for learning, and portfolios for marketing. They document the dangers of confusing these purposes in e-portfolio deployment and use-analysis. Here I will focus primarily on e-portfolios for learning, though I will also briefly consider the other two categories.

Learning with e-portfolios

The usual rationale behind using e-portfolios in e-Learning is to provide a space for reflective learning, where students can develop their own insights over an extended period. This follows the principles of constructivist learning theory, where knowledge structures are derived from the learner's own experiences and learning is achieved through reflective and adaptive processes which accompany doing. The main educational value is seen to be in the authoring process, conducted with the help of formative

feedback from teachers, and perhaps peers, rather than in the final (if there is an ending) body of work.

With its focus on the personal experience of the student, the e-portfolio is ideally situated as a locus for the connection of learning experiences in various contexts, be they institutional, workplace, or community. As Tosh *et al* (2005) point out, it is the "recognition that learning occurs beyond the classroom that makes e-portfolios attractive to many educators."

In spite of the accompanying practical problems of provision, e-portfolios are also theoretically suitable tools for lifelong learning, bound as they ideally are to the learner, rather than the learner's school, college or university career.

A Web 2.0 e-portfolio

The e-portfolio has strong potential to operate as a Web 2.0 service.

Let us consider this hypothetical web service and how it might be used to realise pedagogical ideals.

A Web 2.0 e-portfolio would have much in common with a weblog.

In a blog, an individual publishes on a subject or subjects from a personal perspective. Most blogs are text based, but some are made up of multimedia, such as text and music², or images³.

A Web 2.0 e-portfolio would extend the range of possible content to include media assets of all kinds; text posts, documents, images, web page snippets, video and audio clips, and so on.

Just as in a blog, the notion of authorship is important, but in the process of compiling a digital portfolio we find echoes of the "rip, mix and burn" (Owen *et al* 2006, p 39) culture of Web 2.0, and shades of Levi-Strauss's (1998) bricoleur, where the author is cast as collector, aggregator as well as creator. The creative process consists of fashioning something new from fragments, found or created.

One of the key claims of e-Learning programmes has been temporal and spatial flexibility to meet the learning needs of individuals, and often the individual experience has been the focus of those programmes. By contrast, Web 2.0 technologies, such as our hypothetical e-portfolio, could be used to enhance the social aspects of e-Learning.

In our Web 2.0 e-portfolio, an aggregator featuring RSS subscriptions to other e-portfolios is built-in. For the author, it is possible to make connections between different "entries" or assets, both their own and public resources in other e-portfolios, make meta-comments on these relationships, and illustrate them graphically. These mini narratives are then postable as new entries in the e-portfolio, or publishable to a separate website for a specific purpose, such as assessment or marketing.

Meta-commenting and tagging, and a "history" view similar to those in wikis, which allow users to see the evolution of a document, help to reveal the "disciplinary practices, passion and effort" (Forte and Bruckman, 2006) that authors invest in the production of the portfolio artefact.

This brings advantages for reflective learning, for others learning from shared content, and potentially for assessment.

In allowing others to share in and contribute towards the process of asset aggregation, we can see how the siting of our e-portfolio in a connected context allows for the "social application" of knowledge. As Mejias (2005a) states:

The benefits of a socialized learning experience can outweigh the benefits of an individualised learning experience, because it forces the learner to apply knowledge through interaction with the world. What social software can do is to reintroduce the social back into the learning equation, while preserving some of

the advantages in personalisation that e-Learning and flexible learning have introduced (p 4).

For truly far-reaching, evolving, ad hoc networks to develop, our Web 2.0 e-portfolio should be web facing, that is, not constrained by institutional "walled gardens" (e.g. VLEs requiring logins) on the web. (It's possible to imagine the definition of subgroups in the portfolio software to allow the convenience afforded by having access to certain peer groups, such as an e-Learning course cohort, as in Facebook⁴ for example; and to have the facility to publish media assets selectively, to individuals, groups or the web, for purposes of confidentiality.)

The use of social software presents opportunities for meaningful exchange between the local and global realms. This meaningfulness is key when we come to consider the *authenticity* of the learning activity. Forte and Bruckman (2006) quote research showing that authentic activities can "impact motivation and learning outcomes" (p 2).

Key dimensions of an "authentic" activity include:

- personal (students care about it),
- disciplinary (aligned with the intellectual tools and practices of the domain),
- real world (connected to the world outside the classroom) (ibid.)

Publishing to the World Wide Web gives students a potentially global audience for their work, but this only partially connects them to the "real world", as students realise that college websites rarely get much external traffic. The inherent connectedness of Web 2.0 applications increases the authenticity of the experience by exposing the existence of the reader, and providing a sense of audience (see Forte and Bruckman 2006, p 6).

The connections made can be with practitioners as well as other learners, again increasing authenticity. This is not education as rehearsal, but education as *doing*. We can see Web 2.0 as building bridges between local *institutionalised* learning spaces, both offline and online (and in which e-Learning programmes may already have global reach), and global, *non-institutional* online learning spaces, i.e. the rest of the accessible and receptive web. Here we have the connection of different learning contexts previously attributed to e-portfolios, but advanced to a new level.

The compelling personal aspect of compiling an e-portfolio also lends to its authentic nature. In returning to the notion of nomad thought, we could interpret portfolio compilation as the mapping of paths through the congruent landscapes of identity and knowledge acquisition; not necessarily to make the terrain safe or complete and knowable, but in order to foster a sense of personal progress, and thereby produce meaning. Here we explicitly see the dual experiences of being and becoming, rubbing together to produce the marks of identity.

In a study of Flickr, a Web 2.0 image-sharing application which in some ways could be seen as a prototypical Web 2.0 e-portfolio, Davies (2005) notes how Flickr members reconfigured their online identities through the manipulation of their digital image assets, after seeing the examples of other Flickr users.

This is an example of what Wenger (1999) describes as a "community of practice", where learning is mediated by the influence of peer group activity. Web 2.0 facilitates this interaction. Our Web 2.0 e-portfolio embodies the ideals some educators have for collaborative learning, in that it invites collaborators to invent both the user, and the user's work.

Conclusion

Mejias has described how mediated experience can in some cases give greater insight than direct experience. For him this insight, even where there may be temporal/spatial distance, can be described as epistemological "nearness" (Mejias, 2005b). Web 2.0 technologies can provide access to collective wisdom in ways which are not obviously

possible via direct, face to face experience. The model proposed for an e-portfolio also has strong potential to introduce *ontological* nearness, the power of agency over, and the capacity for interaction with, those entities used in the production of meaning, in spite of their "direct" distance.

For this reason it is proposed as an appropriate tool for a pedagogical practice which values "learning as becoming."

Notes

1. For example, in the marrying of NYPD information about homicides with the google maps mapping interface, to illustrate which parts of New York City suffer the most fatal criminal incidents.

http://www.nytimes.com/packages/html/nyregion/20060428_HOMICIDE_MAP.html

2. For one example of a "music blog", see Soulsides:

<http://soul-sides.com>

3. For one example of an "image blog", see Bibliodyssey, a blog about book illustrations:

<http://bibliodyssey.blogspot.com>

4. Facebook is a popular social networking website:

<http://www.facebook.com>

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