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From Open Content Repositories to Open Sensemaking Communities

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Summary

The Open Content movement is concerned with enabling students and educators to *access* material, in order to then *learn* from it, and *reuse* it either in one's studies or one's own courses. The core efforts to date has focused on *enabling access*, e.g. building the organizational/political will to release and license content, and in developing open infrastructures for *educators* to then publish and reassemble it. The key challenge in the next phase of the open content movement is to improve the support for prospective students to *engage with and learn from the material*, and *with each other* though peer learning support, in the absence of formally imposed study timetables and assessment deadlines. This paper reports on tools for e-learning and collaborative sensemaking developed at the UK Open University which are now being considered as candidates for open content learning support.

Framing the challenges

The Open University (OU) is Europe's biggest University, with over 220,000 students. With 170,000 students online, the OU is the UK's largest e-learning institution, and specialises in providing the support that distance learners require through small group tutors, online interaction, print and digital media. Fundamentally, the OU's perspective is that open distance learning does not 'just happen' when a student encounters 'content', but that the engagement must be crafted and scaffolded. This is of course a core element to any instructional design approach, but the challenges are more acute when most of the time the student is working alone much of the time, and it is in this context that the OU has developed particular instructional design strategies. Arguably, this is the mode in which most learners will engage with open content most of the time (but this hypothesis may be refuted by studies of open content learners, and possibly by emergent patterns of social software use).

I propose four key challenges for the open content movement to move to the next level:

1. Engage the *instructional, multimedia design* and *computer-supported collaborative learning* research and practitioner communities, some of whose members will engage with open content when they catch the vision. These fields are as much craft as science, and require situated, focused application to the open content context.

2. Contextualise this knowledge to embrace the particular demands of what we might term *Open Learning Pedagogy* which cannot assume the same work process support normally present in a coherent course for which one is paying, and pursuing with a stable cohort of peers. In an Open Content user scenario at present (e.g. a web search brings up a new learning object), there may well be no study guide, assessment, expert support or peer group, or they may not be apparent on initial inspection.

3. Develop engaging, integrated tools to support *learning*, not just resource discovery.

4. Develop engaging, integrated tools to provide the *social support* often needed to maintain motivation when pursuing serious study with difficult material.

In the remainder of this abstract I will sketch some of the sensemaking-support and social software tools at the Open University for supporting (3) and (4) above, based on (1) and (2).

Tools for collective sensemaking

We use the term *collective sensemaking* to refer to the broad spectrum of activities that occurs when an individual or group must construct meaning from an array of environmental inputs.[1] They must literally "make" sense by giving form and utterance to the emerging picture they are constructing as they grapple with the material. Our tools are designed to assist users in giving form and shape to their ideas as they evolve from ill-formed, inchoate structures to more formal, rigorously organised expressions, very much as in the cognition of writing.

One example is the D^3E is a tool for document-centric discussion.[2] The document could be a research paper, a policy proposal, or a multimedia student assignment. The tool makes it easy to transform an HTML file or URL into an interactive document, tightly integrated with topic-specific or section-specific discussion threads. D^3E has been used since 1996 to publish the award-winning e-journal *JIME*[3] in order to support conversational Web peer review. $D^3Eprints$ is a specialisation for the auto-generation of document discussion spaces for Eprint archive documents.[4] The OSLO group has already integrated this kind of functionality into open content repositories.[5] Another example of such a tool is the *Compendium* semantic hypermedia concept mapping tool[6] which has been used in online contexts as diverse as NASA science teams[7], modelling the Iraq debate[8] and long term doctoral research[9]. Another is the *ScholOnto* suite of tools for annotating, visualizing, filtering and navigating networks of knowledge level claims about the connections between documents in a literature.[10] These make use of a metadata scheme which focuses on the connections between ideas/resources, as opposed to trying to classify the resources themselves, which is the usual focus of metadata or annotation. It then becomes possible to ask queries which will get you nowhere with a conventional search engine: *Whose work supports or challenges this article? On what previous results did this idea build? What impact has this result had: has anyone replicated the data? Has anyone extended the methodology?*

All of these are examples of the missing *interpretational, sensemaking layer* in a content repository –the space for expressing and contesting perspectives –but with the difference that they provide explicit support for working with conceptual structure which is lost in email lists or threaded web boards.

Social software

A raft of community-building tools has emerged in recent years, all of which are now being assessed for their potential in a learning context: blogs, wikis, RSS feeds. We are also focusing on the slippery notion of *online presence*, which, we hypothesise, will be an important affordance of mature open content repositories as students seek like-minded peers. We are developing augmented instant messaging with tools such as *BuddySpace*[11] which include conceptual and geographical visualizations of online peers,

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[1] Weick, K. E. (1995). *Sensemaking in Organizations*. Thousand Oaks, CA: Sage Publications

[2] Digital Document Discourse Environment: http://d3e.sourceforge.net

[3] Journal of Interactive Media in Education: jime.open.ac.uk

[4] Eprints: Open Archives Initiative server software: www.eprints.org

[5] Open Sustainable Learning Opportunies: http://oslo.usu.edu/

[6] Compendium Institute: www.CompendiumInstitute.org

[7] Clancey, W.J. *et al.* (2005) Automating CapCom Using Mobile Agents and Robotic Assistants. *Proc. AIAA 1st Space Exploration Conference*: http://eprints.aktors.org/375

[8] Okada, A. and Buckingham Shum, S. (2005). Results of Iraq Debate Modelling in Compendium: www.globalargument.net/experiments/1

[9] Selvin, A.M. and Buckingham Shum, S.J. (2005). Hypermedia as a Productivity Tool for Doctoral Research. *New Review of Hypermedia and Multimedia*, 11 (1), 91-102

[10] Scholarly Ontologies project: www.kmi.open.ac.uk/projects/scholonto

[11] BuddySpace instant messaging and presence visualization: www.buddyspace.org

Hexagon[12] which provides lo-fi video snapshots of colleagues, and *FlashMeeting*[13] which offers video conferencing to anyone with a Web browser and the Macromedia Flash plug-in. We envisage that integrated into an open content environment, these and other tools will offer a spectrum of communication options to learners, for peer-to-peer interaction and tutoring.

All of these tools are now being trialled in the Open University. A more detailed overview, and the replayable webcast of a hybrid physical/virtual workshop which deployed many of them live, can be accessed from the e-PhD project.[14] Some of these will be demonstrated in the presentation to better convey their affordances.

Conclusion

It is early days for the open content movement, but an important trajectory to pursue is to bring to bear the pedagogical expertise and software design expertise needed to tackle the four challenges proposed. Examples have been given of emerging tools for sensemaking and social presence awareness. Future work aims to integrate these into open content repositories, to move them from the first key step of gaining *access*, to the ultimate reason we are doing this: facilitating *learning*.

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[12] Hexagon video presence: http://hexagon.open.ac.uk

[13] FlashMeeting: www.flashmeeting.com

[14] e-PhD project, Knowledge Media Institute: www.kmi.open.ac.uk/projects/e-phd