

Digital stories around the virtual camp fire: participation in a learning resource sharing network as a form of lecturer continuing professional development.

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Abstract

This paper examines the implications of an innovative, virtual, learning-resource sharing network, bringing together teaching practitioners in the United Kingdom. The network enables lecturers in both further education (vocational education and training) and higher education to share digital learning resources developed to support their own teaching requirements but which may also be of use to others. Drawing upon interview data and documentary evidence this paper explores the potential of such a network as an environment for lecturer continuing professional development. Within such a network considerable opportunities are available for lecturers to develop their teaching practice through processes of virtual dialogue. The potential value of the (virtual) dialogue surrounding the processes of resource sharing is examined by drawing upon aspects of social capital theory and practice theory. Social capital theory (Field, 2003) is used as a lens to examine the social dynamics of the resource sharing network and its support for CPD. Practice theory (Schatzki, 1996) (Reckwitz, 2002) is used to highlight how creating and sharing representations of practice can provide opportunities for lecturers to make explicit and develop aspects of their teaching practice. In exploring aspects of creating and sharing representations of practice the paper argues that such representations can offer ‘seed crystals’ around which patterns of dialogue (Laszlo & Stainton Rogers, 2002) – offering informal but valuable professional development – can take shape. As these patterns of dialogue become reified (Sharpe *et al.*, 2004) they can, in turn, become potentially valuable resources for lecturer development (Beattie, 2004).

Introduction

The Joint Information Systems Committee (JISC) is the UK body which ‘works with further and higher education by providing strategic guidance, advice and opportunities to use ICT to support teaching, learning, research and administration’ (JISC, 2003). In 2002 JISC embarked on an imaginative programme, the Exchange for Learning (X4L) programme, to develop a digital learning resource sharing network available to educational institutions in both the further education (FE) and higher education (HE) sectors. The resources available within the network are structured as learning-objects which conform to the IMS content packaging standard (IMS, 2001). Each learning-object contains metadata that conforms to the IEEE LOM standard (IEEE, 2002) and which is used to describe various features of the learning-object and its potential pedagogic application. At the ‘heart’ of the learning-object exchange network is a repository system called JORUM, a word of Biblical origin meaning a collecting bowl (JORUM, 2005). The JORUM repository provides facilities for upload of new or modified learning-objects and allows teaching staff to download learning-objects of interest to them. At this point in time (September, 2005) JORUM exists as a pilot system with plans to launch the JORUM ‘service in development’ later in 2005 – the content of the remainder of the paper reflects this situation.

The focus of X4L is on projects that will foster change in online learning and teaching by exploring the potential of re-purposing and sharing content for use in learning. Part of this activity is to explore the process of integration or ‘plugging in’ of reusable learning objects into Virtual Learning Environments (VLE). The challenges embraced by the X4L programme are considerable (both technical and social) and reflect a broader set of challenges articulated by the IMS in its ‘Learning Design Best Practice Guide’:

The development of a framework that supports pedagogical diversity and innovation, while promoting the exchange and interoperability of e-learning materials, is one of the key challenges in the e-learning industry today. The absence of agreed and compatible ways to describe teaching strategies (pedagogical approaches) and educational goals is a constraint that will hold back the development of the industry. As best practice evolves in systems that support e-learning, it follows that some of these pedagogical approaches will be codified, leading to the presentation of opportunities that facilitate successful learning experiences. (IMS, 2003)

The above quotation draws attention to the focus of this paper – the potential for the sharing of learning-objects to promote innovative pedagogic practice and facilitate dialogue about how lecturers use digital learning-resources as part of their pedagogic practice. The paper examines how information provided by lecturers about their pedagogic strategy for a particular learning-object (such information is often referred to as secondary metadata) could provide a valuable resource for other lecturers and has the potential to serve as a stimulus for continuing professional development. This additional information, the secondary metadata (a kind of digital story), could provide the basis for virtual dialogue between lecturers enhancing their professional development, particularly where they are new to online teaching and learning. A number of challenges must be met if the potential of this secondary metadata is to be realised but one of the most significant is the development of a vocabulary or language to describe, effectively and efficiently, the pedagogic strategies used by lecturers. One of the projects within the X4L programme, Learning to Learn (L2L), has been addressing this issue and initial results from this project are reported later in the paper.

The next part of the paper reviews a range of literature to illuminate some key issues from a variety of perspectives. The first part of the review examines the challenges presented to lecturers by the move to greater reliance on e-learning processes and digital learning resources. The second part of the review then examines the potential of learning-objects to act as artefacts around which meaningful professional dialogue can crystallise. The final part of the review briefly examines the concept of social capital and how such capital can be created and enhanced by the exchange of teaching narratives.

Literature review

The demands of designing for effective e-learning are considerable especially for those lecturers new to this mode of learning. As a way of supporting designing for e-learning Goodyear (2000) suggests that designers should perform a ‘cognitive walkthrough’, which is ‘a method for stepping through a set of learning resources, trying at each step to determine what it is that we intend the learner to be doing’ (p. 96). Goodyear acknowledges that learners may end up doing something different to

that intended (the difference between designed learning tasks and actual learning activities) but that a learning resource is unlikely to be effective unless some thought is given to how it will be used. As a framework for supporting cognitive walkthrough Goodyear suggests the use of Tom Shuell's (1992) learning-functions framework, which emphasises what cognitive activities must take place for successful learning. Shuell argues that every successful learning episode involves the activation of all these learning functions but that a learning function may be activated by the teacher, the learner or by a resource.

Undertaking a cognitive walkthrough, using Shuell's learning functions as a framework is a demanding task as it involves the lecturer making explicit aspects of their teaching practice that may be deeply tacit and difficult, if not impossible, to express in a formalised way. These problems become even more significant when the intention is to share these formal representations via a distributed learning-object exchange network like JORUM. The challenges presented by trying to find an effective formalism for sharing the tacit pedagogic knowledge of lecturers are being explored by the L2L project. In many respects the issues raised by this approach to sharing professional knowledge reflect the distinction between hard and soft knowledge addressed by Kimble:

Harder aspects of knowledge are those aspects that are more formalised and that can be structured, articulated and thus 'captured'. Soft aspects of knowledge on the other hand are the more subtle, implicit and not so easily articulated. For example a person's experience which allows them to make new inferences when presented with a new situation.
(Kimble et al., 2001, p. 221)

The potential of learning-objects to function as artefacts around which professional dialogue might develop has been explored by Downes (2004) who questions whether it is sensible to attempt to describe something as complex as a learning-object with just a single set of metadata. Downes suggests making use of multiple, dispersed descriptions of a learning-object that he refers to as resource-profiles. As more lecturers make use of a learning-object they add their experiences of using the resource in the form of a textual narrative thus, potentially, adding to the value of the resource especially for inexperienced lecturers.

The role that artefacts can play in supporting various forms of human activity, and in particular their role as catalysts for professional development, has been explored from a wide range of perspectives. For Activity Theory the mediating role of tools (broadly defined to include material and symbolic artefacts) is an underpinning principle (Engestrom, 1999). Numerous studies within the broad domain of computer supported cooperative work (CSCW) have also drawn attention to the significance of artefacts as resources around which dialogue occurs (Bannon, 1994; Fischer, 2001; Nardi, 1996). Within emerging work on practice theory the importance of resources in shaping professional practices and as embodiments of practice knowledge 'carrying' such knowledge from one domain to another has been examined extensively (Orlikowski, 2000; Reckwitz, 2002; Star & Griesemer, 2003).

The potential of artefacts to offer opportunities for the exchange of ideas by encouraging dialogue across a geographically dispersed network (communities of interest), thus providing opportunities for professional development, has been

explored by Fischer (2001). Within this work Fischer has explored the role of artefacts and in particular how external and shareable artefacts can offer communities of interest the opportunity for social creativity:

Fundamental challenges facing Cols [Communities of Interest] are found in building a shared understanding (Resnick *et al.*, 1991) of the task-at-hand, which often does not exist at the beginning, but is evolved incrementally and collaboratively and emerges in people's minds and in external artifacts. Members of Cols must learn to communicate with and learn from others (Engeström, 2001) who have different perspectives and perhaps a different vocabulary for describing their ideas, and to establish a common ground. (Fischer, 2001, p. 4)

For Fischer externalisations provide the following, particular, kinds of support to those engaged in complex design communities where multiple (and sometimes fundamentally different) perspectives are prevalent:

- In creating an externalisation individuals are forced to make their ideas clearer and more concrete thus moving away from rather vague mental conceptualisations;
- Externalisations provide a means for others to interact with, react to, negotiate around, and build upon an idea, as such they perform the kind of role envisaged by Star of boundary objects;
- They provide a common language of understanding that can provide a bridge across different domains.

Each of the points made above has a particular resonance for the L2L project and the kind of learning-object sharing network envisaged by the X4L programme. Rather than considering the learning-object repository as a simple warehouse – to be visited occasionally for potentially useful learning resources which can then be (unproblematically), ‘plugged-in’ to a teaching situation, an alternative view is to consider the repository as part of a social environment supporting convivial (Illich, 1973) professional interaction. This view of the learning-object exchange network as a convivial place for professionals to exchange ideas and improve their practice has similarities with the exchange of ‘war stories’ that Orr (1990) observed amongst photocopy engineers. But this convivial environment, based upon the exchange of pedagogic ideas embodied in learning-objects, will only develop if, amongst other things, effective frameworks can be found for expressing pedagogic knowledge in a usable way. Figure 1 (below) is an example of pedagogic knowledge expressed using Shuell’s learning functions framework and which can be integrated in to the metadata associated with the relevant learning-object:

Figure 1 - Excerpt from learning object meta-data record

Learning Activities	The resource uses a framework based on different categories of weak arguments as the main tool for learning
Combination, Integration, Synthesis	The resource identifies the main elements of an argument – students must be able to synthesise these elements to be able to differentiate an argument from a non-argument.
Attention	Directs student attention towards weak arguments by using particular examples from the film 12 Angry Men
Encoding	The weak argument categories provide a way for students to think about different kinds of arguments and to classify them.
Comparison	In assessing each video clip the student is encouraged to think about how the clip compares to an argument they have experienced directly themselves
Repetition	There are a number of video clips used, each clip must be analysed in a similar way
Hypothesis Generation	Students are encouraged to reach a tentative conclusion about a video clip and then test this more rigorously through asynchronous discussion with their colleagues.

An interesting perspective on the notion of shareable representations of practice is provided by Beetham (2001) who notes that, “[t]here is surprisingly little research on whether, and how, representations of practice are actually useful in supporting change”. Based on evaluations of two learning technology projects Beetham developed a taxonomy of different kinds of artefact used to share knowledge about learning technology practice:

- a. Review;
- b. Guidelines;
- c. Staff development material;
- d. Case study (curriculum);
- e. Case study (strategic);
- f. Framework/toolkit (curriculum);
- g. Framework/toolkit (strategic);
- h. Article/report;
- i. Software (learning tool);
- j. Software (activity shell);
- k. Software (learning-object);
- l. Information resource;
- m. Project/service

The brief description provided above about the potential of learning-objects to act as shareable representations of practice supporting the exchange of pedagogic ideas has similarities with the study of narrative in supporting teacher development. As Beattie (2004) notes:

A narrative approach to teacher education allows for the kinds of collaborative programmes and research ventures where teacher/researchers and teacher/participants raise questions of their practices, pose and choose from multiple possibilities and co-create new meanings as they bring about growth, change, and reform in those practices and in their own lives (p. 54)

Although the kind of narrative that might be created about how a lecturer uses a learning-object may seem very restricted compared to that envisaged by Beattie, the argument presented in this paper is that despite the limitations of this 'genre' there is considerable potential for this approach to enhance professional practice.

The last part of this literature review very briefly touches upon the concept of social capital in an attempt to draw attention to the importance of trust and reciprocity in a network where face to face contact is minimal. In many respects the key ideas embraced by the concept are not new and in essence are quite simple – relationships between people are important and can provide an important resource for achieving valued outcomes. A useful definition is:

[s]ocial capital is a resource based on relationships among people. In particular, most definitions focus on membership in networks and the norms that guide their interactions. These in turn generate secondary features such as knowledge and trust, which then facilitate reciprocity and cooperation. (Kilpatrick *et al.*, 2003, p. 419).

In a very crude sense the concept of social capital embodies the age old saying 'you scratch my back and I'll scratch yours' but this fails to do justice to the subtlety of some of the ideas embraced by it. One such idea is that of the distinction between bonding-ties and bridging-ties. Bonding-ties refer to those relationships between individuals who are members of the same group or community whereas bridging-ties refer to relationships between individuals who are members of different groups or communities. Part of the argument advanced in this paper is that if the JORUM learning-object exchange network is to be successful it must allow for the development of social capital and in particular encourage the development of bridging-ties across the network. The kinds of digital narratives being explored by the L2L project may have the potential to support the development of bridging-ties, and in so doing, open up new avenues of professional development.

Research method

The evidence presented and discussed in the next part of the paper is derived from an interview survey conducted as part of the ongoing evaluation of the L2L project. In total 25 interviews were conducted involving five informants from each of the five L2L partner institutions. Within each institution an informant from each of the following roles was chosen:

- learning support lecturer;
- L2L steering group member;
- Librarian/learning resource centre manager;
- Virtual learning environment (VLE) manager;
- Senior manager with some responsibility for e-learning.

Each of the interviews was conducted by an interviewer in line with a pre-established questionnaire template and in accordance with an agreed protocol. The interviews were recorded (with the permission of each of the informants) and transcribed by a secretary at the University of Stirling. The transcripts were then analysed using the Atlas.ti qualitative analysis software. The analysis employed both an a priori coding scheme and an inductive coding scheme (Miles & Huberman, 1984). The two coding schemes allowed for a wide range of issues to be examined and explored including the potential challenges and opportunities presented by trying to 'capture' and share

pedagogic ideas. The following section presents the findings from this aspect of the interview survey and discusses them in relation to the concepts introduced in the literature review.

Findings and discussions

The interview survey conducted as part of the ongoing evaluation of the L2L project revealed a range of attitudes about the potential of recording and sharing pedagogic ideas along with learning-objects. For a middle manager at one of the L2L partner institutions involved in the project the problems were deep rooted:

I hate to say this, but we've got about 95% of the staff in this college are TQFE trained. I think a lot of them would have difficulty saying what their pedagogic strategies are. They would have to have a recap on what they are and what they possibly might be.

Another middle manager from a different partner was also sceptical about the potential of trying to record and share pedagogic expertise because lecturing staff do not have enough time to do it and will probably see the process as detracting from what they see as their main responsibilities:

Oh dear, I think they will respond very much as my previous answer, that they will see it as something extra that they have to do, that they don't have the time to do at the expense of trying to do what they feel is the most important task, which is trying to work and engage with the students.

However, the lecturing staff involved in the project responded in a generally positive manner about the potential of recording and sharing pedagogic ideas. This was especially so for a lecturer who was new to learning support work and had little previous exposure to pedagogic theory:

I do think that there is value in trying to document this kind of expertise or different approaches, mainly and personally I feel that its valuable because its asking me to reflect on what I do in a classroom, and not just kind of prepare something and offer it without giving it any kind of thought to its efficacy or validity. So its asking tutors to think very carefully about what they are doing and also on another personal level, is that I am quite new to the whole theoretical side of education so I'm learning a lot about that theoretically as well as personally.

Another of the learning support lecturers also commented that although the completion of the Shuell analysis was 'tough, hard' the process was valuable for their professional practice.

For one of the senior manager informants the problems presented by trying to encourage virtual dialogue across a digital network are so great that it is likely that lecturers will not wish to participate:

I think that [sharing pedagogic ideas] would work when other college staff come and talk to other college staff and say "this worked for me". I don't think staff would look at paper based or Internet, it would have to be "lets get a group together, what worked for you" or even better "what didn't work for me" and people sharing "Oh it didn't work for you there, how about trying this, this worked for me"

One of the VLE managers focused on the challenges of trying to find an agreed and effective way of encoding pedagogic ideas and which can then be used as the basis for sharing aspects of pedagogic expertise:

I think they'll need a language to describe it, and that won't be necessarily simple to generate and equally well you have to enforce some sort of standards so that if I'm describing how I use an object to teach one particular class and you're describing how you use something else for a different class, we have to have a common language in doing this, we have to have common descriptors to make sure that if we're both actually doing the same thing, we end up describing it as the same thing.

The evidence presented above, although very brief, reveals some of the difficulties anticipated by the informants interviewed as part of the L2L project about sharing learning-objects in general and exchanging pedagogic-ideas in particular. Although informants were on the whole positive about the idea of sharing learning-objects there was less certainty about the idea of recording and sharing pedagogic ideas structured as semi-formalised narratives. Many informants were hesitant about the potential of the learning-object exchange network as an environment for professional development and enhancement. At the root of these perspectives appears to be the difficulty of promoting social capital across the exchange network. A particular difficulty is how to encourage the kind of bridging-ties that could be very significant in supporting professional dialogue leading to professional development and, potentially, innovative pedagogic practice.

Conclusions

The potential of a learning-object exchange community to offer fresh insights and novel forms of pedagogy that transcends traditional disciplinary boundaries is captured by Anderson (2003):

The excitement of learning objects is not that we can now efficiently develop, classify, and distribute little bits of content. That is pretty ordinary didactics. The excitement is in developing the epistemological, pedagogical, and philological resources and strategies by which we can span the quadrants. Unless we do that, learning objects will not cross those boundaries (except in the acts of increasing semiotic violence of poaching, appropriation, and expropriation). That we develop only intra-disciplinary libraries of learning objects is not a bad thing. It is simply so much less than what could be. If we do develop these boundary spanning resources and strategies, there is a genuine opportunity for a critical revolution in knowledge production.

The kind of knowledge production and exchange envisaged by Anderson already occurs in informal and often un-noticed ways: over coffee in the staff-room, around the water cooler, as conversations in the corridor. Part of the challenge facing the X4L programme in attempting to promote an effective learning-object exchange economy is to transfer these informal, local, practices to a more formalised, distributed, environment. In attempting to promote knowledge exchange the JORUM service must overcome a wide range of challenges. The technical challenges posed by this development are considerable but by far the more significant set of challenges is that relating to the social-dynamics of resource sharing. This paper has attempted to examine the potential of a form of digital narrative, included in the metadata associated with a learning-object, as a way of addressing some of these challenges. By sharing these digital narratives the exchange network becomes not only an

environment for sharing teaching/learning resources but also a potentially valuable environment for professional development.

References

- Bannon, L. (1994). *Representations of work: A symposium*. Paper presented at the Hawaii International Conference on System Sciences (HICSS-27), Maui, Hawaii.
- Beattie, M. (2004). New prospects for teacher education: New ways of knowing teaching and teacher learning. *Educational Research*, 37(1), 53-70.
- Beetham, H. (2001). Developing practice through networks and shared resources. *Educational Development*, 2(4).
- Downes, S. (2004). Resource profiles, *Journal of Interactive Media in Education* (Vol. 2004).
- Engestrom, Y. (1999). Innovative learning in work teams: Analyzing cycles of knowledge creation in practice. In Y. Engestrom, R. Miettinen & R. Punamki (Eds.), *Perspectives on activity theory* (pp. 377-404). Cambridge: Cambridge University Press.
- Engeström, Y. (2001). Expansive learning at work: Toward an activity theoretical reconceptualization. *Journal of Education and Work*, 14(1), 133-156.
- Field, J. (2003). *Social capital*. London: Routledge.
- Fischer, G. (2001, 9-13 December, 2001). *External and shareable artifacts as opportunities for social creativity in communities of interest*. Paper presented at the Computational and Cognitive Models of Creative Design, Key Centre of Design Computing and Cognition, University of Sydney, Heron Island, Australia.
- Goodyear, P. (2000). *Effective networked learning in higher education: Notes and guidelines*. Lancaster: University of Lancaster.
- IEEE. (2002). Draft standard for learning object metadata. version 6.4. Retrieved 28/9/2005, from <http://ieeeltsc.org/wg12LOM/lomDescription>
- Illich, I. (1973). *Tools for conviviality*. London: Harper & Row.
- IMS. (2001). Content packaging specification. version 1.1. Retrieved 28/9/2005, from <http://www.imsglobal.org/>
- JISC. (2003). About the jisc. Retrieved 28/9/2005, from <http://www.jisc.ac.uk/index.cfm?name=about>
- JORUM. (2005). Helping to build a sharing community. Retrieved 28/9/2005, from <http://www.jorum.ac.uk/>
- Kilpatrick, S., Field, J., & Falk, I. (2003). Social capital: An analytical tool for exploring lifelong learning and community development. *British Educational Research Journal*, 29(3), 417-433.
- Kimble, C., Hildreth, P., & Wright, P. (2001). Communities of practice: Going virtual. In *Knowledge management and business model innovation* (pp. 220 - 234). Hershey, USA: Idea Group Publishing.
- Laszlo, J., & Stainton Rogers, W. (Eds.). (2002). *Narrative approaches in social psychology*. Budapest: New Mandate.
- Miles, M. B., & Huberman, A. M. (1984). *Qualitative data analysis*. London: Sage.
- Nardi, B. A. (Ed.). (1996). *Context and consciousness: Activity theory and human-computer interaction*. Cambridge, MA: MIT Press.

- Orlikowski, W. J. (2000). Using technology and constituting structures: A practice lens for studying technology in organizations. *Organization Science*, 11(4), 404-428.
- Orr, J. (1990). Sharing knowledge, celebrating identity: War stories and community memory in a service culture. In D. S. Middleton & D. Edwards (Eds.), *Collective remembering: Memory in society* (pp. 169-189). Beverly Hills: Sage.
- Reckwitz, A. (2002). The status of the "material" in theories of culture: From "social structure" to "artefacts". *Journal for the Theory of Social Behaviour*, 32(2), 195-217.
- Resnick, L. B., Levine, J. M., & Teasley, S. D. (Eds.). (1991). *Perspectives on socially shared cognition*. Washington, D.C.: American Psychological Association.
- Schatzki, T. R. (Ed.). (1996). *Social practices: A Wittgensteinian approach to human activity and the social*. Cambridge: Cambridge University Press.
- Sharpe, R., Beetham, H., & Ravenscroft, A. (2004). Active artefacts: Representing our knowledge of learning and teaching. *Educational Developments*, 5(2), 16-21.
- Shuell, T. (1992). Designing instructional computing systems for meaningful learning. In M. Jones & P. Winne (Eds.), *Adaptive learning environments*. New York: Springer.
- Star, S., & Griesemer, J. (2003). Institutional ecology. 'translations' and boundary objects: Amateurs and professionals in Berkeley's museum of vertebrate zoology, 1907-39. *Social Studies of Science*, 19(3), 387-420.