Who will own the new VLE? Sharing practice, problems and alternative solutions

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This paper reports considerations being made by those responsible for introducing staff at a large distance university to the possibilities for developing new practices around the introduction of a new institution wide VLE. How can new or emergent practices be codified into sharable representations and shared by a large and dispersed workforce? The paper considers some current solutions such as patterns, learning design and the use of toolkits by applying a framing concept of boundary objects to understand some of the problems involved in sharing emerging practices.

Keywords: Virtual Learning Environment, learning design, boundary objects, patterns, toolkits, pedagogical vocabularies

Outline of problem area

The Open University (UK) is a large distance university that emerged as an institution around broadcast technologies, essentially television and radio. The form that the university took has been described, following Peters, as an industrial model by one of its best known writers concerned with the integration of new internet-based technologies (Mason 1989). In the past 40 years the Open University has stabilised into an internationally respected, though often misunderstood, model for large-scale distance education, a mega university (ICDL 1995). Internally the teaching and learning style has been captured in a house style, issued to all associate lecturers, that embodies the spirit of the Open University: 'Supported Open Learning (SOL)'. Currently the Open University (OU) is developing what the university describes as a Virtual Learning Environment (VLE), the first phase of which will begin to be deployed university-wide in February 2007. This initiative has the potential to radically transform the way in which OU courses are delivered and supported; at the very least to provide a valuable opportunity for us to take stock and reflect on existing practice. There is a clear need for the deployment of the new VLE to be matched by staff development initiatives that try to engage members of staff in the faculties at the Open University's home base in Milton Keynes and in the regions. Alongside this need for staff development has arisen a requirement for experienced members of staff to 'surface' the knowledge and expertise thought to be locked in to the existing university staff and structures and to make this available in a way that enhances the take-up and use of the new opportunities expected to be made available by the VLE.

Goodyear (2005) argues that educational design is becoming a more complex and a more inclusive area of activity – also becoming more distributed and involving new roles, concepts, tools and methods. Furthermore, cross-institutional initiatives such as the OU VLE project raise questions about what the most appropriate methods and models are to support staff in going beyond simple technical training, towards a transformation of practice and the development of more innovative uses of technology to enhance the student experience. This is particularly important as recent research suggests that for new generations of students technologies are integral to their learning and that they are sophisticated in using technologies in a variety of ways adapted to individual niche uses (Creanor et al. 2006, Conole et al. 2006, Livingstone 2006). Technologies are no longer an innovation but an essential core tool for learning.

This paper tries to take an initial view of how, in principle, the tacit knowledge and expertise embedded in practice can be reified and circulated within an institution. We are interested in particular in focusing on abstraction of knowledge about how to create more innovative learning activities, making effective use of technologies, grounded in appropriate learning theory. Conole (in press) has argued that:

> Practitioners now have a multitude of learning theories which they can use to guide the development of learning activities. In addition there are now a rich variety of Information and Communication Technology (ICT) tools which can potentially be used in innovative ways to support the implementation of these learning activities. Despite this the actual

> range of learning activities which demonstrate a variety of pedagogical approaches (such as constructivism, dialogic learning, case- or problem-based scenarios, or socially situated learning) and innovative use of ICT tools is limited. Practitioners lack the necessary skills to make informed choices of how to use these theories and tools and are confused by the plethora of choices.

There is no claim that the discussion will lead to definite conclusions or a set of firm recommendations. Rather the aim of this paper is to specify the considerations that we need to take into account when embarking on such a process. In particular, we examine two current and popular approaches to reifying pedagogy and encouraging the development of good practices in making use of new technologies in tertiary education.

The claim we are making is that for the staff within the Open University to have some control over the new VLE they will need to be equipped with the means to critically examine the opportunities and constraints that the new technologies might imply. Our assumption is that teaching is a particular form of social practice, one based on formalised and more or less explicit theoretical knowledge alongside what has been termed implicit or tacit knowledge. The term 'praxis' has been used to identify actions that arise from the deliberate application of theory (DeLaat and Lally 2003). The term praxis used in this sense might be preferable to practice as it brings a sharp focus on theoretical and codified knowledge. However we would wish to qualify this use by noting that social practice is not mere behaviour and that all practice involves intentional action. Also we would point to a circularity in our argument as following the Wittgensteinian view of concepts we suggest that a concept is best understood through its use (Collins 2001, Schatzki 1996).

The OU VLE project

The OU VLE project selected Moodle as the basis for the new VLE. Moodle was selected on the basis that it was Open Source and because:

> Moodle offers significant functionality as part of the base installation. Major modules include forums, online assessment, wikis, blogs, assignments, peer review workshops, guided lessons, glossaries and course calendar. Moodle also provides core common services including authentication, authorization, logging, messaging and archiving. Open University VLE Programme (2006, p6).

Prior to the selection of Moodle as the platform for the new VLE an extensive study was undertaken that resulted in the OU VLE Phase 1 report, issued in 2004. This report makes a case for the introduction of the VLE in terms that go well beyond pedagogy. The OU VLE Phase 1 project identified four key aims:

- position the OU as an innovative, top quality, high profile elearning provider in the UK, Europe and other overseas markets, for staff, associate lecturers, students, clients and partners
- increase the value of the online learning experience to the learner
- facilitate partnerships
- enable OU staff to rapidly and efficiently deliver pedagogically appropriate elearning processes that directly enhance distance students' learning (whatever the course model in use).

It is the final point of these four aims that we concern ourselves with here. The Phase 1 report argues that the purpose of the VLE is to 'facilitate elearning' and it goes on to identify two potentially conflicting pedagogical models applied to e-learning and advises that the OU should steer a middle course between these two models.

The report calls these two approaches to elearning the broadcast and discussion viewpoints. The broadcast view is that content is primary, with the Internet seen as a delivery mechanism. A current example of such an approach is identified in the debate around learning objects. The motivation for the broadcast models, it is suggested, is the cost-effective nature of this approach. By contrast the discussion model identifies the Internet and elearning as a communication medium, emphasising *two way* communication, dialogue, discussion and community. Content is not king; the job of educators is not to deliver but to facilitate and support learning. Broadly these approaches lead respectively to instructivist

and constructivist styles of pedagogy. The report sets out a view of current OU practice that sits uncomfortably with these opposed views as the OU has emphasised both the quality of its resources and materials and the quality of its support.

> Indeed, the core of the OU teaching approach has been the Supported Open Learning model (although as has been pointed out there is there is no "official" definition of this term), the essence of which is good quality teaching material and the quality of its support. (Open University VLE Program, 2004, p 11)

A key question for the implementation of the OU VLE is how to take practices developed in the earlier industrial model of the OU, based on broadcast technologies and paper, and to translate these into an Internet and Web-based system.

Theoretical background: Boundaries and boundary objects

Within education and continuing professional development in particular the idea of communities of practice has become a common theoretical framework (Wenger 1998). Wenger discusses the relationship of different communities of practice in terms of constellations of practice. When considering the movement of ideas and practices from one community to another in a constellation of practice, Wenger uses the terms 'export' and 'import'. Import and export are described as active processes that involve reinterpretation and adaptation. In this process it is the styles and discourse that can be exported and represent repertoires of practice (Wenger 1998 p 129). In a related set of ideas Brown and Duguid, following Giddens, discuss the 'disembedding' and 'reembedding' of knowledge across networks of practice (Brown and Duguid, 2001). They suggest that distinct practices can create distinct embedding circumstances and to understand how knowledge flows and where it sticks we need to understand where practices are common and where they are not. Both accounts point to the need for work to be done at both ends of an exchange to allow for a flow of information and knowledge and the disembedding or export and reembedding or import of discourses and repertoires originating in one practice to be incorporated in another. This distinguishes this approach from another tradition in which such a flow is thought of as simply transfer.

In this paper our concern is with boundary objects rather than the process of brokerage, which Wenger identifies as the way that import and export of repertoires of practice occurs (Wenger 1998 p 104–108). Boundary objects are the artefacts, documents, and other reifications around which communities of practice can organise their interactions and through which the import and export of styles and discourses, representing repertoires of practice can take place. As Brown and Duguid point out, the flow or stickiness of knowledge is related to commonalities of practice that allow an ease of movement between two contexts. In this regard it is worth making a passing remark about context. Teaching and learning, based as they are on some common frameworks and understandings, represent an area that is both deeply situated and local and one in which there is sufficient commonality of practice for there to arise an expectation that practice can be generalised. The problem we have identified then is how to allow or enable abstraction and generalisation from context specific practices in a way that assists the mobility and preservation of the practice repertoires alongside retaining a relevance and usability in local contexts.

Solutions on offer

There are many ways that practice can be shared and circulated within education. Conole (in press) suggests that practitioners use a wide range of 'mediating artefacts' to support and guide decision-making in creating learning activities (Vygotsky, 1978). The application of the use of the term 'mediating artefacts' in this context, and their role in supporting the creation and use of learning activities, resonates with contemporary thinking concerned with the relationship between tools, discourse and individuals (Engestrom et al, 1999). Insights from Cultural Historical Activity Theory have underpinned much of current socio-cultural thinking about the nature and role of semiotic tools. Different tools and resources can provide support and guidance on: the context of a learning activity, the choice of pedagogy, the creation of associated learner tasks, or any combination of these. They range from contextually rich illustrative examples of good practice (case studies, guidelines, narratives, etc) to more abstract forms of representation which distil out the 'essences' of good practice (models or patterns). Mediating artefacts

can act as boundary objects helping practitioners to make informed decisions and choices in order to undertake specific teaching and learning activities.

In this section we concentrate on two alternative approaches, both of which make use of mediating artefacts and both of which make a point of situating themselves as part of a process in which the artefacts and representations are resources that can be used to make choices: toolkits and design patterns.

Toolkits

Conole and Oliver (2002) have advocated the use of toolkits as a means to support decision-making. They set out the case for toolkits by drawing together a number of currently used terms:

> A range of aids and resources to facilitate decision-making processes has developed to support the use and integration of learning technologies. As a consequence, the terms 'tools', 'toolkits', 'frameworks', 'good practice' and 'model' abound, but are very rarely used with any consistency. Indeed, there is considerable confusion and overlap within the literature on the precise nature of these types of resources. (Conole and Oliver, 2002, p 2)

Conole and Oliver go on to define the various terms in the following ways:

- Tools are artefacts located in a socio-historical context that form an integral part of human action. Such tools may be conceptual or embodied.
- Good or best practice is often used to denote guidelines that practitioners are exhorted to follow. This may disguise a moral message in so far as good or best has to be judged in relation to a framework of values.
- Models are representations, usually of systems and frequently visual representations, although formal models are more likely to be syntactic and may be defined mathematically.
- Frameworks are aids to decision-making and range from highly restrictive 'templates' or 'wizards', which provide high levels of support and step-by-step guidance to 'theoretical frameworks', which leave the user to devise their own strategy for implementation.

A number of pedagogic frameworks have been developed from particular theoretical viewpoints. Conole and Oliver (1998) developed a framework to provide a structured approach to integrating learning materials into courses that was designed to support the process of 're-engineering' a course. The framework provided for the description and evaluation of various features of a course and it could be applied at various stages working through a process of selection of alternative techniques.

More recently the DialogPlus project has produced a pedagogical toolkit which aims to guide practitioners in making informed decisions about the creation of learning activities (Bailey et al. 2006; Conole and Fill, 2005). The toolkit provides the user with layered information on each of the components involved in creating a learning activity. For example it provides details of different pedagogical approaches and links to examples of how different approaches are being used. It also gives help on the different kinds of tasks which can be used to achieve particular learning outcomes along with suggestions of ways in which these tasks can be structured. The toolkit is underpinned by a taxonomy (Conole, in press) that attempts to consider all aspects and factors involved in developing a learning activity, from the pedagogical context in which the activity occurs through to the nature and types of tasks undertaken by the learner. Learning activities are achieved through completion of a series of tasks in order to achieve intended learning outcomes. According to this taxonomy the components which constitute a learning activity are defined as:

- The context within which the activity occurs; this includes the subject, level of difficulty, the intended learning outcomes and the environment within which the activity takes place. Learning outcomes are mapped to Bloom's taxonomy of learning outcomes and grouped into three types: cognitive, affective and psychomotor and are what the learners should know, or be able to do, after completing a learning activity; for example they might be required to be able to: understand, demonstrate, design, produce or appraise.

- The pedagogy (learning and teaching approaches) adopted. These are grouped according to Mayes and de Frietas' (2004) three categories – associative, cognitive and situative.
- The tasks undertaken, which specifies the type of task, the (teaching) techniques used to support the task, any associated tools and resources, the interaction and roles of those involved and the assessments associated with the learning activity.

The taxonomy was essential in terms of providing the underpinning for the technical architecture of the toolkit and provided a means to pin down and codify practice. In particular it provided a visual representation of a 'learning activity' and helped to articulate the associated key components. In a sense it provides a crude form of reification of practice, as it helps capture and represent practice. The taxonomy makes it possible for practitioners to see the different ways in which components can be combined.

As Conole (in press) argues when comparing this approach to other more heuristic approaches to creating learning activities:

> However one could argue that this [approach based on a learning activity taxonomy] is still very much a component-based approach; as yet the relationships between the components are not well understood and hence this still does not lead to providing a template for adopting a holistic approach to designing for learning where the 'sum of the components is greater than the parts'.

A big issue is that language is not clear cut, terminology will be subtly different in different contexts and have different meaning to different practitioners, indeed even a seemingly simple term such as 'lecture' is problematic – meaning different things to different people. Furthermore, technologies continue to change and evolve at a rapid pace – new terms and ways of describing tools and their use emerge at a frightening rate (consider for example the rapid increase in discourse on wikis and podcasting, the rise of the term social software and Web .20 in the last year or so). Therefore identification of what a particular technology can be used for is problematic and again its use will change in different contexts.

Design patterns

Goodyear has popularised the idea of design patterns in the context of networked and elearning (2004, 2005). The idea of design patterns is informed by Alexander's work in relation to architecture (Alexander 1979) and has a strongly democratic ethos. Patterns offer a set of resources around which ordinary people can shape and reshape their own environment. The patterns foreground key design issues and offer alternative solutions from which choices can be made. Patterns are intended to offer solutions to recurrent problems that persist over time. They are intended to be context sensitive as the context helps to constrain and define both the nature of the problem and its potential solution. Goodyear comments that:

> In addition, patterns should also teach. They should be written in such a way that they help the reader understand enough about a problem and solution that they can adapt the problem description and solution to meet their own needs. The rationale for the pattern helps with this teaching or explanatory function. Ideally, the name of the pattern should crystallise a valued element of design experience and help relate it to other design elements such that we can create and use a pattern language. The use of patterns, then, can be seen as a way of bridging between theory, empirical evidence and experience (on the one hand) and the practical problems of design. (Goodyear 2004 p 342)

Design patterns are then a potential solution to the problem of how to surface aspects of practice so that they can be both preserved over time and made available outwith the context in which they originated.

Patterns have a structure consisting of seven main parts: a picture, an introductory paragraph describing the context of the pattern, problem headline outlining the essence of the pattern, the body of the problem including empirical data and descriptions of ways in which the pattern might occur, the solution, a diagrammatic representation of the solution and a paragraph linking it to related patterns. Patterns are considered useful because they provide a structured means of sharing practice. They are different from a taxonomy-based approach as outlined above in that they provide contextual information and although structured they are essentially more flexible in how they can be interpreted.

The OU VLE initiative: An attempt at institution wide intervention

The OU VLE implementation is a two year programme in the first instance, and the first phase of implementation will begin in February 2007, with the second phase starting one year later. The initiative, though based on Moodle, goes beyond putting in place a single technical VLE solution by trying to embrace or bring about wide scale change and innovation in OU provision, delivery and support. It is related to the development of a whole institution e-learning strategy that includes elements related to the VLE that are outside of the VLE project itself. These initiatives include structured authoring for courses, an Enterprise Content Management System and OpenLearn – an open archive of learning materials. The VLE project has a structured formal history – of consultation and agreement to a phased implementation from the vision through to the establishment of a VLE office and the creation of a range of posts. These posts include the establishment of a new set of roles – Business Process Leaders (BPLs) who lead the various different sub-projects within the VLE. There are, for example, BPLs in charge of e-assessment, library integration, learning design, mobile computing and integrated student experience (interfaces).

As this paper is being written, a large number of workshops and awareness-raising activities are taking place. Many of these focus on the individual tools integrated in the new platform such as blogs and wikis. At this stage comparatively little attention has been paid to the overall aims of the project or the pedagogical and organisational purposes that might underpin the use of such tools. It is interesting to map the components of this initiative in terms of how the different forms of mediating representations and artefacts associated with the initiative support the movement of ideas and knowledge around the university and help (potentially) bring about change. The mediating artefacts in place include:

- The BPLs themselves and their role in terms of document production, brokering their expertise with the faculties and gathering user requirements,
- A team of academic advisors who provide further documentation and provide 'academic authority/validity' and try to ensure a direct link into research findings and outputs,
- Workshops, a short course and s series of one-day events intended to raise awareness, provide training on particular tools, and offer opportunities to consider and reflect on the potential of the new system. All of these produce further documentation alongside activities and in the case of the short course a variety of resources and materials.
- Online materials and support – FAQs, study guides, support materials, etc.
- A range of electronic communication vehicles, including blogs by the VLE team for continuously disseminating information about the initiative and encouraging discussion.

The question for us is to what extent this apparently quite extensive range of support processes and mediating artefacts actually helps academic staff to engage with the changes taking place and make coherent choices in terms of their own practice. A traditional viewpoint might look for the gaps in the provision. Whilst this is one of our concerns we are also interested in the 'stickiness' of certain kinds of knowing and the ways in which new practices can be encouraged to develop. In particular we are interested in how ideas such as the toolkit approach and design patterns might be used to improve the flow across the institution.

The following table takes a list of previously identified mediating artefacts (Conole, 2005) and attempts to consider these in relation to the VLE initiative – to what extent are they being used and in what ways? We also consider how these mediating artefacts and processes might be deployed to assist in the circulation of knowledgeable and new practices in the future. Specifically, as a next step, we are interested in exploring and applying the ideas from toolkit developments and design patterns, as outlined in this paper, to the VLE initiative and in exploring their impact and relevance.

Table 1: Current and potential mediating artefacts for the VLE initiative

Narratives/Case studies – In what ways can these be captured and shared, in particular as new practices emerge?
Peer dialogue and Knowledge building – BPLs, academic advisors, new faculty appointments with a VLE remit, the VLE office team, others with an interest in the VLE are forming a new elearning Community (eLC) for the exchanging of ideas and experiences. What kinds of mediating artefacts can support engagement and sharing in this sort of grouping?
Expert guidance – VLE director and manager, academic advisors. How do the views and knowledgeable practices of experts circulate, how is expertise 'surfaced' and what can make such material accessible and useful to others? Currently presentations given at the OU centre in Milton Keynes, including those of key international figures as well as central staff, are made available by synchronous video link and stored for future use.
Networked communication –mailing lists and blogs, wikis, etc dedicated to aspects of the VLE. What allows mediating artefacts in these forms to be useful?
Tips and tricks – how could these be a) built up, b) sustained, c) targeted? And how do they relate to:-
Frequently asked questions – Currently there are limited FAQs available concerning the VLE, its tools and overall purpose. Is the FAQ an appropriate form to provide just-in-time guidance and advice?
Demonstrations – how do we demonstrate what hasn't been (fully) developed? The timeline of the OUVLE runs alongside a timeline of course production that required new courses to engage with the VLE before it is actually rolled out.
Schema/Scenarios/Patterns – initial exploration of use of patterns. What form could these take, for example in the identification of persistent problems in current teaching practice and relating these to new technologies. Can generic scenarios be used to organise case study material into a usable form?
Toolkits – a specification for a Learning Design toolkit being drawn up. Is such an approach viable or excessively rigid?
Models – How can we abstract out models of new and existing practice in relation to the evolving use of the VLE?

A key question for the authors of this paper is how integrity is maintained between the overall elearning strategy and the technological changes brought about with the new Moodle-based VLE. For academic staff who are currently designing new courses for deployment in the VLE this is a pressing concern. Courses currently in production will rollout in versions of the VLE that are, as yet, only sketchily known and understood. Perhaps most importantly the immediate concern with understanding the operation of new tools will distract from the overall conception of the VLE that is founded upon a vision of the OU becoming a digitally native institution, formed around new technologies, rather than adding Web and Internet technologies to a primarily broadcast and industrial model of distance learning.

The usefulness of patterns and toolkits in the context of the new VLE

This paper has outlined a particular problem in one institution, the need to surface knowledge embedded in existing practice to preserve and translate essential elements of that practice into a new technical context originating in the deployment of a new institution wide VLE. This paper seeks to identify core theoretical problems, on the assumption that academic practice might best be considered as praxis, an

explicitly theoretically informed form of practice. Having identified a key problem in the development of reifications that were able to move across different communities or networks of practice the paper identified two alternative approaches to finding a solution to this problem.

Recently Sharpe et al. (2006) examined what might be needed to promote the adoption of technologies in tertiary education. Their aim was explicitly to increase the uptake of the VLE within a single institution. They noted that success was likely to be due to key elements of effective intervention, contextualisation, community and teachers' beliefs rather than activities per se. The elements that Sharpe et al. identify are elements of process - a form of brokerage - whereas we have focused on kinds of reification – boundary objects – that might be useful in such a process of change.

Key in our identification of the alternative approaches to reification was the notion of choice. Both the idea of toolkits and the idea of design patterns assume an active engagement with a design constituency. This seems to us to offer the best approach to the theoretical concerns we have identified and the need for a process driven solution as identified by Sharpe et al. (2006). The Open University has a quality level that has been assured by practices that are embedded in high quality resources and in high quality systems for student support. The introduction of a VLE based on fully interactive technologies can be a disruptive force, destabilising the current practices without leading automatically to a new set of equally robust or quality assured ways of working. The task we face is to develop reifications of current and developing practices, some of which are already identified in documentation around the idea of SOL (Supported Open Learning), and to develop discussion and debate about the creation of new practices around the new tools and services in the VLE. We will pursue the idea of design patterns and toolkits as we endeavour to provide sharable representations of practice that can encourage choice and the development of new practices whilst guarding against discarding essential elements of previous practice.

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