E-pedagogical design of a UK work-based learning programme

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Abstract

There is an increasing accent on using technology to facilitate learning as new technologies become more widely available, popularised and promoted. Similarly there is continuing emphasis on work-based learning as a means to develop highly skilled workers. This paper questions whether there is a convincing case for using networked learning in relation to a UK work-based learning programme and considers the availability of meaningful guidance.

After considering the turn to online learning and establishing the case for pedagogically sound approaches this paper outlines philosophical approaches associated with the design of online learning. It then considers how this might be applied to Programme X, a post-graduate work-based learning diploma for regulatory professionals which is implemented via a tri-partite arrangement between learners, their employer and the university. Earlier consideration of Programme X 'established that interaction can benefit learning' and that there is a need 'to root the programme more securely in learners' practice' (Raistrick, 2010, p. 341).

In reviewing the potential for online learning it is important to consider what is required. Is it a community of practice? Or perhaps a collaborative approach? Alternatively does a definition of networked learning with its emphasis on connections and relationships allow the greatest potential to learn effectively? Similarly connectivism seems increasingly relevant. When tailoring the multitude of possibilities to the specifics of a particular situation where should educators start?

Potential elements of an online learning design are illustrated to give a flavour of how this might look in a specific context. These consider: firstly, how Laurillard's Conversational Framework might bridge learning needs between the existing approach to learning and a technologically-mediated one; secondly, how a series of weak ties established through entering into a learning dialogue using an online forum might hold potential for learning; and lastly how the interaction, connections and relationships afforded by creation of a patchwork text assessment might assist learners in blending formal and informal knowledge. The thinking illustrated here may be of interest to those considering use of networked learning to support work-based learning. What seems to matter most is to seek an approach that adds benefit, though this is part of the difficulty as the research findings are partial and context-specific. Gaps in the research evidence highlight the importance of researching practice to identify how to enhance the learning experience for both learners and educators.

Keywords

Learning design, work-based learning, networked learning, online learning.

The turn to online learning

UK policy and government strategy are increasingly supportive of online learning and Hughes (2009, p. 8) has associated Web 2.0 with a 'hallmark[s] of higher education', namely 'being a contributing member of a learning community', whilst also suggesting that such technologies can be 'particularly powerful in enhancing the experience of part-time, distance and work-based learners' (2009, p. 30). The dynamic social features of Web 2.0 allow participants to generate content and this resonates with desirable employability skill sets: technology proficiency; leadership; communication; collaboration; and creativity (Hughes, 2009); all of which echo the momentous need to build-up the UK skills-base identified in the Leitch Review of Skills (HM Treasury, 2006). Likewise the inter-twining of informal learning and work-based activities is evident, on the programme

discussed in this paper as well as elsewhere (e.g. Eraut, 2004; Siemens, 2005). Thus, as is evident across higher education, it is timely to consider the value of incorporating online social features into learning experiences.

Online technologies might present exciting and novel teaching methods but do they contribute to learning? The 'no significant difference' debate originated by Russell (2001) indexes 355 research documents showing 'no significant differences (NSD) in student outcomes between alternate modes of educational delivery', and subsequently studies, on all sides of the debate, have been added (WCET, 2010). Whilst inconclusive these studies promote the view that 'well-designed teaching using any [or no] technology is likely to be effective', thus the focus is on quality, context and learning design (Bates, 2008, p. 222). The NSD debate is a 'compelling factor in favour of e-learning' strengthening its economic advantage in corporate environments (Strother, 2002, p. 1). New technologies allow 'richer representation of knowledge' by utilising media combinations to provide 'more opportunities for teachers and learners when designing the learning experience'(Bates, 2008, p. 222). Though, in Laurillard's view, 'the additional value they offer is logistic rather than pedagogic' and to achieve, for example, the advantages of a supervised workshop 'would require the integration of several different kinds of learning technology' (2009, p. 12). The TESEP Project sought to change the 'emphasis on technology and content development as the 'driver' of change' preferring to emphasise 'pedagogy as the 'driver' and technology as the 'enabler' (Comrie, 2007, p. 3). Meanwhile policymakers recognise it as 'imperative' to make 'time and systematic provision' for the development of e-pedagogy capabilities (Hughes, 2009, p. 34). This recommendation addresses Evans' (2008, p. 216) detection of tension between pedagogy and 'corporate approaches to the implementation and operations of computer-based learning systems that are created from corporatist ideological positions'. Similarly, concern at the rapidity with which conventional universities are adopting online learning indicates problems with access, quality and sustainability (Bates, 2008). A strong message is that high quality learning is associated with well-designed teaching matched to its context of use. Consequently technological choices during teaching design have the potential to hinder or promote effective learning and educators intent on improving (or sustaining) standards have much to consider.

Understandably novices might desire a blueprint which outlines or guides effective pedagogical design combining learning theory, context, and technology. Such guidance is available. Comrie (2007), for example, details five principles to guide learning design. Moreover, Laurillard proposes 'a pedagogical framework with which to challenge digital technologies to deliver a genuinely enhanced learning experience' (2009, p. 5). In contrast to Laurillard, Bates argues practical considerations can be 'better discriminators' than teaching requirements (2008, p. 226). His ACTIONS (Access, Cost, Teaching function, Interactivity, Organizational issues, Novelty and Speed) decision-making model guides appropriate selection of media and technologies in a specific context. Policy-makers however, deny the notion of a blueprint for implementation of Web 2.0 technologies as individual circumstances are decidedly context specific (Hughes, 2009).

One thing is clear, that much research is needed. 'Little is still known about how learners communicate or interact online' (Enriquez, 2009, p. 102). Work on adaptive systems to automatically match students' needs in relation to learning style and cognitive traits remains ongoing (Graf, Lie, Kinshuk, Chen, & Yang, 2009). Similarly there is insufficient research evidence of the usefulness and challenges associated with 'acceptance of the digital medium for learning and a resistance to using IT' (Chesney & Marcangelo, 2010, p. 702). The corporate world also calls for further research into the efficacy of online learning (Strother, 2002). Importantly, there is a call 'for more studies that adopt essentially the same constructionist views of knowledge as the learning processes they are trying to study' (Hodgson & Watland, 2004, p. 127).

Teachers in this context need to keep pace not only with their disciplinary field but also with developments in e-pedagogy. This begs the question: how can an educational programme make an informed decision about the blend of communications media and what technologies might be most appropriate, if at all. Importantly, McConnell argues, teachers 'require assistance in making the paradigm shift from 'conventional' teaching and learning to teaching and learning in 'virtual', or networked environments' (2006, p. 25). Likewise in recognising the greater breadth of affordances of digital technologies over conventional means Laurillard admonishes that they 'are only valuable if we have some way of encouraging teachers to take advantage of them, and not simply emulate what they know'(2009, p. 15). Thus as teachers we have many challenges.

Disappointingly Spratt's Australian study found early adopters lacked support and felt marginalised when attempting pedagogical innovations; even to the extent 'that the university executive had no real understanding of new technologies, nor how they might be applied in teaching enhancement or learning improvement' (2008,

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p. 329).   These 'innovative pedagogical risk takers' found working within their institution's prevailing system was challenging and that this could blur their vision and seemingly, unless they were prepared to be subversive, even persuade them to uncritically adopt the (sometimes fantastical) institutional policies which push subscribers 'towards the ideological wastelands of "flexibility" and "going online" ' (Spratt, 2008, p. 235). Such are the tensions between teachers' lived experience of pedagogically-driven technological innovation and institutional discourse driving online learning. The case for identifying pedagogically sound ways to deliver learning experiences goes beyond creating a course design to put the learning experiences together but also demands deliberation on a programme's infrastructure and its contexts in their entirety.

Having considered the turn to online learning and established the case for pedagogically sound approaches this paper will now outline philosophical approaches associated with design of online learning, before introducing a specific work-based learning (WBL) programme and illustrating how learning design might be applied.

Philosophical approaches to pedagogical design

Laurillard's synopsis of pedagogical principles reviews how educationalists have progressively recognised aspects of learning from instructionism to constructionism and onto socio-cultural learning and more recently collaborative learning. As each approach offers alternatives to conventional teaching so it does to digital learning, delineating 'the minimal essential requirements needed to fully support the formal learning process'(Laurillard, 2009, p. 8). Similarly, Bates outlines five perspectives on learning (i.e. empiricist, cognitive, situative, constructivist and didactic) about which he notes 'a surprising degree of agreement among educators', also pointing out that a 'mix and match' approach determined by context and perceptions of learners' needs is prevalent (2008, p. 224). Both views predicate pedagogical design.

Bates (2008, p. 230) emphasises a:

> constructivist approach to online learning, with a focus on knowledge construction, problem-solving, collaborative learning, critical thinking and autonomous learning, all skills considered to be essential in a knowledge-based economy.

This constructivist approach is played out as 'individuals consciously strive for meaning to make sense of their environment in terms of past experience and their present state', using strategies that juxtapose the known and the new, creating a tentative, dynamic reality (Bates, 2008, p. 224). Conversely Laurillard (2009) emphasises collaboration which focuses more markedly on combining socio-cultural and constructionist approaches. Likewise, networked learning (NL) emphasises 'a social constructionist view that assumes that learning emerges from relational dialogue with and/or through others in learning communities' (Hodgson & Watland, 2004, p. 126). NL, due to its emphasis on connections, is considered a 'more nuanced term' than others such as technology enhanced learning and e-learning (Raistrick, 2010, p. 341) and consequently Jones and Steeples' (2002, p. 2) definition is preferred here:

> Networked learning is learning in which information and communication technology (C&IT) is used to promote connections: between one learner and other learners, between learners and tutors; between a learning community and its learning resources.

Furthermore, it is recognised that 'WBL aligns with a social constructionist epistemology where knowledge is built-up by the practitioner through exposure to practice' (Raistrick, 2010, p. 336). Moving beyond these learning theories Siemens (2005) introduces the term connectivism, recognising our capacity to create connections between information sources and facilitating learning in a knowledge economy in a networked age when the half-life of knowledge is ever-shrinking. Accordingly 'we derive our competence from forming connections' and 'the ability to recognize and adjust to pattern shifts is a key learning task'; thus the learning process is self-organising (Siemens, 2005, p. 1).

So what might work best in a particular circumstance? How can programmes led by disciplinary experts who lack expertise in delivering effective online learning be made pedagogically sound? How can teachers avoid being buffeted by the allure of the latest technology or their institutions' ideological position? How can teachers' backgrounds in educational theory be further developed to facilitate appropriate technological choices? It is questions such as these in relation to Programme X that stimulate the thinking behind this paper.

Programme X's context

Programme X is a post-graduate WBL diploma for regulatory professionals undertaken via a tri-partite arrangement between learners, their employer and the university. Reflection on my professional practice, as module leader for half Programme X's modules, drove the development of this paper. Face-to-face teaching predominates with some use of a virtual learning environment, including discussion forums. Previous consideration of Programme X 'established that interaction can benefit learning' and that there is a need 'to root the programme more securely in learners' practice' (Raistrick, 2010, p. 341). The employer's concept of learning accords with that of Boud and Solomon: that it will 'be a productive part of everyday work, embedded in the culture, structures, relationships and processes of the workplace' (2001, p. 25). Likewise WBL: 'focuses higher-education-level critical thinking upon work' (Gibbs & Garnett, 2007, p. 410), resonates with the concept of 'ready-to-use' knowledge (Eraut, 2004, p. 248), and requires formal and informal learning to be drawn together. 'Perhaps the most significant feature of WBL is the acquisition of knowledge from practical work-based sources to accomplish learning' (Raistrick, 2010, p. 338). A critique of WBL in relation to this programme is provided elsewhere (Raistrick, 2010).

In reviewing the potential for online learning it is important to consider what is sought? Is it a community of practice (CoP) where people 'share a concern or a passion for something they do and learn how to do it better as they interact regularly' (Wenger, 2006, p. 1)? Or a collaborative approach to 'share and discuss the actions they take, and the products they make, in the practice environment' mediated via the internet (computer supported collaborative learning (CSCL))(Laurillard, 2009, p. 10)? Or does the above definition of NL with its emphasis on connections and relationships allow the greatest potential to learn effectively? Perhaps, given learners' evolving status as professional regulators, a CoP is premature and establishment of a learning community 'that embodies a culture of learning' where responsibility is shared and each individual contributes might be more appropriate (McConnell, 2006, p. 19). Indeed, 'the learning community can be seen as an advanced interpretation of collaborative design in that, as well as sharing ideas, tutors and students take joint responsibility for planning, implementing and evaluating the detailed design content and direction of the course' (Hodgson & Reynolds, 2005, p. 15). Similarly connectivism, as outlined in the previous section, seems increasingly relevant. It is suggested that through focusing on specific associations, identified by research into practice, the course development team (CDT) might develop an approach to learning that suits this programme's context. This process of reflection to inform e-pedagogy is widely supported as is recognition that staff will require up-skilling to achieve best practice (e.g. Hughes, 2009). Tailoring the multitude of possibilities to the specifics of a particular situation might be a beguiling prospect but where should a CDT start?

Sufficient broadband access to the internet is fundamental. Programme X participants have workplace access and laptop computers. Moreover, as 74% (Q1, 2011) of adults in the UK have fixed and/or mobile broadband access is not expected to be difficult (OFCOM, 2011). However, digital literacy requires confidence and Comrie recommends use of a personalised assessment tool to establish learners' capabilities and needs (2007).

Learners' experience of and willingness to use online technologies is important otherwise they gain no benefit. The Great Expectations study reveals undergraduate students' (18+) comfort and familiarity using new technologies (Ipsos MORI, 2008). Of these technologies Programme X's mature students already use: administrative materials, emailing tutors, posting questions online to tutors and course-specific materials; however the degree of use is believed to vary considerably and it is not known how this compares with the undergraduate study. Surprisingly in an informal survey the majority of these learners expressed willingness to submit assignments online which contrasts with the expectation generated by the Great Expectations study.

Thus Programme X's participants appear to have sufficient access and digital literacy to justify consideration of online learning. However, provision may require varying degrees of support. Furthermore, it should not be assumed that preparedness to use existing technologies equates to a willingness to use them more concertedly or adopt further perhaps novel ones. Similar points will be relevant in the context of other WBL programmes too.

Lastly, the value of 'involving learners more explicitly' has been recognised both in relation to this programme (Raistrick, 2010, p. 342) and elsewhere (e.g. Comrie, 2007; Hughes, 2009). The existing mechanisms for learners' involvement (e.g. student-staff liaison committee, feedback forms) may be usefully supplemented by links with the CDT's evolving ideas. Encouraging student feedback is part of the university ethos which has been embraced by students and their employer.

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Learning design

An earlier recommendation on Programme X was that 'closer adherence to the principles of WBL, allowing the learners to steer, and using technology to support learning, perhaps via a CoP, may be worthwhile' (Raistrick, 2010, p. 342). Notwithstanding this it is acknowledged that a CoP evolves because it is held to be of value to participants. Such commitment may not be open to being designed-in. Relationships are nevertheless important and particularly the connections between them as highlighted in the definition of NL above. Furthermore, consideration of learning communities has emphasised the value of designing environments based on participation and flatter hierarchies to achieve a more democratic ethos. Thus Hodgson and Reynolds decided on four principles supporting the concept of 'difference' and which they consider make a valid contribution to learning design, seeking, as they do, to 'avoid the more coercive characteristics of 'community''(2005, p. 18).

In contrast to CoP and approaches based on CSCL, a 'relational view', as in NL, avoids privileging particular relationships (between participants and learning resources as well as each other) (Jones, Ferreday, & Hodgson, 2008, p. 90). A significant difference is the emphasis placed on the strength of ties. Strong ties are associated with collaborative and community models whilst networks more generally show ties of varying strength (Jones et al., 2008). Whilst highlighting the power attributable to the presence of a great many weaker connections it is noted that 'learners in a network may well have weaker ties with each other than might be expected in terms of a CoP', equally Jones et al. recognise that participants' main commitments may be elsewhere (2008, p. 92). Similarly Programme X's participants have work, family and social commitments to distract them and the commitment and degree of engagement required for a CoP may exceed learners' expectations. Furthermore, the effort to work collaboratively may be too onerous. If so learners would not benefit from the strong ties associated with such approaches. Educators may therefore wish to consider how they might design learning to influence development of appropriate ties.

Jones et al.'s study of professional networks suggested that 'strong and weak links are not mutually exclusive'; they are 'relative' and may 'co-exist' (2008, p. 91). The strength of ties or links is therefore important because understanding how participants relate within their learning environment and the benefits of such relationships may affect what they learn and how; consequently it is of relevance to learning design. Generating multiple weak ties may be more easily achieved. It is conceivable that a course design incorporating the opportunity for many and frequent weak ties may have a better effect on learning. In a WBL context this includes ties connecting formal learning associated with teaching and assessment to informal learning associated with day-to-day work practices whilst learners do their job. Indeed, educators on Programme X have noted a tension between learners' perceptions of their academic learning and what they need to know to undertake their job.

A digital medium also opens up opportunities for assessment. The incomplete but largely supportive debate in the literature shows personal learning systems may support learning; including via online patchwork text assessment (Chesney & Marcangelo, 2010). This form of assessment is associated with benefits for post-graduate learners and faculty which include engagement throughout the module, facilitating management of assessment workload, and enhancing learning through the combined benefits of formative feedback from both peers and tutors. There are thus several opportunities to create ties of varying strength. Parallels between Chesney and Marcangelo's participants and those on Programme X include: that completion of the programme is compulsory; that participants are geographically dispersed from each other as well as the institution; and they require support during their professional transformation.

Laurillard's Conversational Framework (2009) appears to offer a neutral and pedagogically sound basis to help explore whether online learning might offer something of value to Programme X. This framework considers how to design-in the use of learning technology from users' perspectives. It is a 'technology-neutral' approach to generating a learning design grounded in fundamental research-based knowledge of the formal learning process (Laurillard, 2009, p. 12). It seeks to generate a digital learning design in its own right, rather than using technological means to 'merely enhance conventional learning designs'(Laurillard, 2009, p. 6). This pedagogical process is acted out with respect to teacher, learner and learners' peers.

The above discussion emphasises a focus on activities to provoke learning rather than content per se and others' acknowledgment that 'outcome-based design is in vogue' is recognised, as is the view that the potential of web 2.0 tools can be found in their affordances (Mason & Rennie, 2008, p. 21).

Illustrations

This paper will now consider potential elements of an online learning design for Programme X. Currently a predominantly didactic format is used to quickly expose learners to the common occupational health issues encountered in workplaces. Face-to-face teaching is supplemented by WBL as learners initially work with experienced regulators. Thus learners attempt to construct their professional practice inter-weaving various strands; achievement that is assessed by a 4000 word written assignment. However, the programme's design lacks a formal ongoing opportunity for relationships, interaction and connections inherent in a NL approach. Contact is intermittent at face-to-face events and assessment is a solitary activity. The following three illustrations seek to give a flavour of what development of a learning community might look like.

1. Conversational framework

The checklist in Laurillard's Conversational Framework (2009) might be used to record an existing approach to learning for comparison with a technologically-mediated one generated to achieve the same learning outcomes. Both versions of this checklist might attempt to bridge learning needs and the opportunities afforded by formal learning and informal WBL, including consideration of Web 2.0 technologies. For example, this could incorporate learning activities associated with an introductory study block, considering the preparatory activities, the face-to-face teaching sessions, and the consolidation activities. The aim being to illustrate how opportunities afforded by integrating digital technologies might work rather than using them to just supplement or replace conventional forms of teaching and learning. However, establishing whether an alternative approach achieves an improved outcome would require an empirical study.

2. Online forum

Online learning can facilitate asynchronous discussion, student-to-student or student-to-teacher, via an electronic forum. Participants' degree of engagement with the learning community might be measured by number of posts. Arguably, participants who engage might create ties of varying strength whilst those who lurk may create no ties. However, Jones et al. (2008, p. 93) consider:

> if a member of a forum reads a posting, and this then has an impact on their subsequent activity, they can be seen as having entered into a learning dialogue even if they do not formally respond to the posting.

Therefore the key determinant becomes whether a post elicits a response and it becomes less relevant whether that response is visible to others. If we limit our conception of learning to that which is evidenced in the public space of an online forum, for example, we deny the existence of alternative horizons within each learner's world and this seems a particularly important consideration in relation to WBL. Thus learning dialogue holds potential, whether expressed publically via text or speech, encountered experientially via practice, or devised silently through a learner's reflective processing of their connections. Consequently the convergence of ties might reflect the magnitude of learning achieved and the acts in creating ties construct learning. Thus it is proposed that an important consideration for CDTs is to design-in opportunities for learners to create ties. For example, learners might post examples of occupational health hazards seen during workplace visits; subsequently they might be asked to consider peers' contributions and to synthesise the type of work activities associated with such hazards. Thus consolidating and extending work-based knowledge. This common basis might then be drawn upon during face-to-face teaching. A later consolidation activity might seek examples of how organisations assess such hazards in practice. Accordingly such engagement predisposes multiple ties.

3. Patchwork text assessment

The assessment, recognising the pre-eminence of work-based activity, requires a visit to and critical analysis of an organisation's occupational health needs. Assessment criteria blend professional and academic knowledge and skills. However, learners lack awareness of the standard required; may be unfamiliar with essay-style assignments, and may not have studied recently. Furthermore, essay-style composition is not a natural element of their work role and may not be best-suited to this WBL programme. Teachers provide significant support, perhaps these efforts could be channelled more constructively by an alternative form of assessment? An approach with potential to support learning is the concept of a patchwork text:

a series of short independent pieces of writing, completed with the intervention of peer and tutor dialogue and formative feedback, and then 'stitched' together by a reflexive commentary. (Chesney & Marcangelo, 2010, p. 702)

It is suggested that the interaction, connections and relationships afforded by creation of a patchwork text may contribute to blending formal and informal knowledge acquisition and an online medium may be convenient.

Peer feedback is associated with deeper understanding of assessment requirements, creating opportunities for collaborative work where learners' benefit from the diversity of colleagues' experiences and knowledge (McConnell, 2006). This 'sharing of patches' has the potential, at a formative stage, to expose learners: to a wider range of issues than those they might otherwise consider; to appreciate the advantages and disadvantages of alternative writing styles; and to consider their learning in the context of the module aims and learning outcomes (Chesney & Marcangelo, 2010, p. 702). Hence learners may be encouraged to fuse academic and professional knowledge (Dalrymple & Smith, 2008) through the generation of multiple ties of varying strength.

Conclusion

Transformational change of learning, teaching and assessment is recognised as a complex process and achieving this through e-pedagogy is seemingly viable, providing technology follows pedagogy. Educators considering e-pedagogy should be reassured that there seems to be no 'right' way and a recurrent recommendation is that learning design be matched to its context; hence the recommendation here to integrate the perspectives of learners and the CDT with that of the literature. A variety of perspectives on principles, tools and frameworks to assist consideration of online learning have been highlighted, and whilst focussing on a specific WBL programme this paper has highlighted some pitfalls (e.g. poor institutional support, inadequate teacher development) and promises (e.g. successful access, well-designed teaching is effective) which inform how a CDT might approach e-pedagogical design. This approach has applicability beyond the programme in question to other WBL contexts. What matters most is to seek an approach that adds benefit, though this is part of the difficulty as the research findings are partial and context-specific. Gaps in the research evidence and the rapidity of changes in higher education highlight the importance of researching practice to identify how to enhance the learning experience for both learners and teachers. This process may well be strengthened by the development of 'provisional stabilities' (Saunders et al., 2005, p. 12), whereby sufficient stability is achieved before moving on to the next change. Having considered aspects of designing an online learning community the developmental thinking behind this paper now needs to be shared with colleagues so we can collaborate further.

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