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Pedagogical-research designs to capture the symbiotic nature of professional knowledge and learning about e-learning in initial teacher education in the UK

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ABSTRACT

This paper argues that if new communications technologies and online spaces are to yield 'new relationship[s] with learners' (DfES, 2005, p. 11) then research that is tuned to recognize, capture and explain the pedagogical processes at the centre of such interactions is vital. This has implications for the design of pedagogical activities within Initial Teacher Education (ITE) intended to develop student teachers' professional knowledge and understanding of e-learning strategies.

A case study is presented of an intervention, which attempted to synthesize a face-to-face and online school-based experience with University-based lectures, in order to develop student teachers' capacity to theorize and reflect upon the development of their online pedagogical practice. Theory that focuses on the complex and symbiotic nature of professional knowledge and learning was developed to analyse data in the form of interviews with student teachers and archived extracts from their online interactions with the children. The aim was to evaluate the effectiveness of a pedagogical-research design based upon the authentic and situated use of e-learning strategies and technologies for developing student teachers' professional knowledge and understanding of online pedagogy.

Ultimately the paper concludes that, from the perspective of a dynamic conceptualisation of e-learning as continuously emerging (Andrews & Haythornthwaite, 2007) then a pedagogical-research design that develops and captures student teachers' capacity to reflect upon the development of their own online pedagogy and professional knowledge and understanding in relation to e-learning is vital.

1. The milieu: shifting perspectives

With the shifts in the wider socio-cultural landscape around new technologies it is difficult to see how the face of education and formal schooling can remain unchanged. The backdrop of increasing informal use and growth of social networks has led key think tanks such as Futurelab to try to scope the future face of education hypothesising 'future scenarios' (Facer & Daanen, 2007). Similarly others call for a response from formal education to harness the educational potential offered by the plethora of new social networking technologies exploiting ever increasing band widths (Owen, Grant, Sayers, & Facer, 2006). In their report for Futurelab, Owen et al. claim:

> "The list of social software activity is long and is growing. However, there is also a need for a response in formal education. These technologies do provide a mechanism for transformation in education that appropriates these technologies for educational advantage." (p. 58).

Whilst it is argued here that it is unwise to adopt a determinist approach to the role of new technologies in education, it would be equally unwise not to explore the ways in which the appropriation of new communications technologies for learning may also have the potential to yield new, 'transformative' approaches to education that Owen et al. hint at (2006). However, Kress and Pachler (2007) indicate a far more fundamental shift in response to new technologies with the potential to challenge the underlying power relations within the existing pedagogical paradigm thus:

> "In all learning these are the central issues: Whose agenda is at work, with what power, with what principles of recognition of learning. How is that agenda presented and is it accepted or recognised by those who are potential learners? As 'learning' escapes the frames of institutional pedagogy – a matter in which the e-technologies are deeply implicated – these are questions of increasing importance" (2007, p. 19).

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Kress and Pachler argue strongly that the proliferation of new networks and mobile devices promulgates 'a new habitus of learning' (2007, p. 27). That is, learning itself has become mobile with learners aligning themselves differently towards knowledge and internalising different dispositions towards the process of learning. So how has the formal education establishment responded thus far to the shifting technological landscape?

There has been no let up in the pace to provide access to online communication tools and technologies in formal schooling in the UK. Many schools, secondary and primary now provide their pupils with a Learning Platform (LP) or Virtual Learning Environment (VLE) to access educational resources and information beyond the school gates. If they do not already provide this facility they will be expected to provide it by 2010 as outlined in the Department for Education and Schools e-strategy (DfES, 2005), latterly the department for children families and schools. Similarly, there has been some recognition of these shifting perspectives on the part of the Training and Development Agency for Schools (TDA) in the UK with the introduction of the development of e-learning strategies being identified as a necessary area of proficiency for those qualifying for Qualified Teacher Status (QTS, TDA, 2007). The UK Government sees such technologies as having the potential to transform children's services, targeting support for those in most need through more effective exchanging and sharing of information between children's services such as education, health and social care. Furthermore, claims are made about the potential of such environments facilitated by online communication to develop 'new relationship[s] with learners' (DfES, 2005, p. 11). Such 'new relationships,' it is suggested could place more value and emphasis on 'listening to children, young people and their families when assessing and planning service provision' (DfES, 2004, p. 4) in line with the Every Child Matters agenda. However, this begs the question for those involved in Initial Teacher Education (ITE) of how student teachers', let alone serving teachers,' professional knowledge and understanding of e-learning strategies can be developed effectively? E-learning as a strategy is referred to in the QTS standards for teachers (TDA, 2007) but it is one standard of 41 within a view of professionalism that is, according to Pachler, 'predicated on a view of teachers as technicians and deliverers' (2007, p. 249). This issue is further compounded by the difficulty in identifying an adequate definition of the notion of e-learning itself.

1.1. E-learning – defying definition

Possibly the most familiar definition of e-learning within higher education institutions in the UK is that offered by the Higher Education and Funding Council for England (HEFCE) which describes e-learning as encompassing:

> "Flexible learning as well as distance learning, and the use of ICT as a communications and delivery tool between individuals and groups, to support students and improve the management of learning."
>
> (Higher Education Funding Council for England, 2005, p. 5).

However, this definition is believed to be lacking according to Andrews and Haythornthwaite (2007) who criticize the way in which 'the HEFCE definition appears to portray technology as simply a delivery mechanism,' (p. 2). The HEFCE definition is problematic in its coverall approach. Others focus more on key aspects rather than all embracing approaches. Anderson and Garrison (2003) for example argue that the most significant aspect of e-learning is 'its capacity to facilitate communication and thinking and thereby construct meaning and knowledge' (p. XII). They lay greater emphasis upon online technologies facilitating communication through networks whose key purpose is human interaction (Anderson and Garrison (2003)). This is a more dynamic approach to e-learning that foregrounds the importance of human agency as others have done (Turvey, 2008). Indeed Andrews and Haythornthwaite go further in using a dynamic definition describing e-learning as '*continuously emergent* emanating from the possibilities of ICT in the hands of administrators, instructors and learners, and created and recreated by use' (2007, p. 19). This paper adopts a similarly dynamic definition of e-learning based upon the notion of evolving pedagogies as learners and teachers explore, adapt and *construct* the new communicative networks available to education, the emphasis being on communication and interaction. However, given such an evolutionary view of the nature of e-learning the questions remain:

- What are the contingencies for teachers' and student teachers' professional learning about the emergent processes of e-learning?
- What kinds of experiences are appropriate for student teachers to develop their professional knowledge of e-learning?
- What are some of the conceptual tools necessary for them to make sense of their experiences?

1.2. Unravelling professional knowledge about e-learning

The main focus of this paper concerns the micro-level contingencies for student teachers' professional learning about e-learning that may be put in place within Initial Teacher Education (ITE). However, it is also recognized that when acting at the micro-level of the classroom – face-to-face or virtual – student teachers and the environments in which they work are also mediators of wider policy, attitudes and cultural beliefs about education and the pedagogical use of technologies. Consequently, in order to address the fundamental issue regarding the contingencies for student teachers' professional learning about e-learning a conceptual approach is offered that attempts to locate and characterize potential factors interacting within the micro-level environment of professional practice.

It is argued here that it is important to recognize the melded nature of any potential factors that may impact upon the development of professional knowledge of e-learning. This stems from approaches that have attempted to characterize the complexities of professional knowledge and learning within situated contexts (Eraut, 1994; Schön, 1987; Shulman, 1987; Shulman & Shulman, 2004). Lately Mishra and Koehler (2006) have built upon Shulman's original (1987) work on the symbiotic nature of Pedagogical Content Knowledge (PCK), attempting to characterize the ways in which learning and teaching with technology affects the relationships between different representations of PCK. However, it can be argued that the wider socio-cultural factors such as policy contexts or dispositions to the use of technologies derived from their use within non-formal or leisure contexts, is not made explicit within Mishra and Koehler's (2006) conceptual model of technological pedagogical content knowledge (TPCK). These are factors others have shown to influence the adoption of technological tools for pedagogical purposes (Engestrom, 2000; Engestrom, 2001; Loveless, 2003; Somekh, 2007). The conceptual approach offered here attempts to encompass factors emerging from both the micro-level influences upon professional learning to more macro-level socio-cultural influences.