Accommodating the newfound strategic importance of educational technologists within higher education: a critical literature review[1]

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Abstract

Purpose - Educational technologists make significant contributions to the development, organisational embedding and service provision of technology-enhanced learning (TEL) environments, which are key enablers for mass access to flexible higher education. Given the increasing centrality of this role, we advocate that institutions investigate sustainable career structures for educational technologists.

Design/methodology/approach - Our arguments are evidence-driven by the small body of research literature describing the role of educational technologists and contextualized by our experiences as academics and leaders of TEL projects in higher education, including managing educational technologists.

Findings – The roles of educational technologists are very diverse, requiring competencies in educational leadership, both management and technical. Their career paths, backgrounds, legitimate powers and organisational locations exhibit considerable variation.

Research implications - University leaders require evidence to formulate appropriate human resource strategies and performance management strategies for educational technologists. We propose further empirical research to analyze current issues and future trajectories relating to their aspirations, career structures, legitimate power, management and organisational contexts.

Originality/value - Given the strategic importance of educational technologists to ICT-driven transformation, university leaders will require evidence to formulate appropriate human resource and performance management strategies for these key academic-related/professional staff. This paper brings together relevant literature for the first time, generates recommendations for further research and policy discussion.

Keywords Educational technologists, flexible learning, human resource strategies, technology enhanced learning

Paper type Critical literature review

"I know that you're dissatisfied with your position and your place …" - Bob Dylan

1.0 Introduction

The Association for Educational Communications and Technology (AECT) recently updated its definition of educational technology) and for the first time the new definition acknowledges educational technologists' impact on performance improvements in higher education (HE) institutions (Januszewski and Molenda, 2007). This redefinition provides an opportunity to reconsider the terms and conditions under which educational technologists are employed across HE (see Beetham *et. al.*, 2001). Here we argue that educational technologists are increasingly acquiring strategic importance, particularly within those HE institutions whose objective is to deliver affordable, personalised and flexible mass education (see Richey, 2008). Within such institutions, educational technologists can make significant contributions to the development, organisational embedding, and service provision of information and communications technology (ICT) and technology-enhanced learning (TEL) that help to mediate flexible mass education (see Albright and Nworie, 2008). Accordingly some now argue that educational technologists should become full stakeholders in the educational process (Benson, 2002), which raises the question of where educational technologists should be located *vis-a-vis* the great divide between academic and academic-related/professional staff where, despite our differences, "we need each other, and 'the management' needs us both" (Newman, 2007, online). We will confirm that the requisite skill set of educational technologists have now expanded to occupy territory on both sides of this divide, requiring competencies in change management, education, leadership, learning design, research, staff development and techné. Meanwhile, their career paths and organisational locations continue to exhibit considerable risk to the individual and variation between institutions. So, while the importance of educational technologists has grown, we have found scant confirmation in the literature or our own direct and indirect experience of improvements to their terms and conditions of employment. Here, we advocate gathering further evidence to trigger transformations of their career structures, organisational locations, and professional status, which acknowledge the evolution of educational technology from a cottage industry into a profession (see DeBlois, 2006). Such transformations could simultaneously ameliorate the personal risks now associated with pursuing a career in educational technology and protect the core business of these ICT/TEL-enabled universities.

2.0 Background: The dash for ICT/TEL-enabled flexible learning in HE

Two drivers for widespread adoption of ICT/TEL-mediated flexible learning (Chen, 2003) by HE (see, for example, Australian National Training Authority, 2003), have raised the strategic importance of educational technologists. First, in the globally competitive and commercialised HE sector of the 21st century (Smith and Oliver, 2000; Bok, 2003; Attwood and Gill, 2008)—shaped by the political forces we discuss below—there has been a considerable acceleration of the trend for HE institutions to be tasked with increasing access and equity (Hale, 2006; Trow, 2006) while simultaneously reducing costs (Rumble, 1997; Katz, 1999; Seddon and Angus, 2000; Evaline, 2004; Herbst, 2007). Second, educational theorists and policy makers alike are promoting student-centred learning styles, including active, collaborative, enquiry-based, independent and work-based learning (Tickle, 2001; Browne and Shurville, 2007b; Browne *et. al.,* 2008; Shurville and Brown, in press). In this section we explore these drivers and then describe ICT/TEL-mediated flexible

learning, which is a praxis combining pedagogies and technologies that enables HE to respond to them.

As Whitworth observes "Universities are organizations, and as such, they are social systems existing within various environments: natural, cultural, commercial, political, technological, and more." (Whitworth, 2005, p 685). We begin, then, by examining the external forces that have transformed university business and technology models.

Political imperatives within the countries of the Organisation for Economic Co-operation and Development (OECD) are influencing contemporary HE policy (OECD, 2005) with mass access to tertiary education increasingly being regarded as an essential precursor in the pursuit of creating both knowledge societies (Trow, 2006) and knowledge economies (Sizer, 2004; Peters, 2007). For example, the UK Department of Trade and Industry (DTI) has stated that "the universities will be at the heart of this effort to build a knowledge economy. Universities can play a central role as dynamos of growth." (DTI, 2000, p 7). The application of information and communications technology (ICT) within HE is seen as an engine for the dynamic creativity underlying these knowledge economies (see Oakley, 1997; Laurillard, 2002; Clegg *et. al.*, 2003; OECD, 2005; Trow, 2000; McCredie, 2003; Pelgrum and Law, 2003; Marshall, 2006; United States Department of Education, 2006; Browne and Shurville, 2007b; Browne *et. al.,* 2008). Considine *et. al.* summarise this viewpoint from the Australian context, "in the global knowledge economy, a nation's economic capacity is grounded in education, in research and development, and in ICT" (Considine *et. al.*, 2001, p 1). The US Commission on Technology and Adult Learning reached a similar conclusion: "the Commission … encourages governors, CEOs and other leaders to make e-learning the cornerstone of a national effort to develop a skilled workforce for America's digital economy…. By embracing e-learning in our states, our communities and our organizations, we can improve our competitiveness and point the way to a new era of unprecedented growth and opportunity for all Americans." (United States Commission on Technology and Adult Learning, 2001, p 27; but for a dissenting view see McMurtry, 1991, 2000). Weston (2008) is even more explicit: "the real challenge for education and training in the 21st century is to harness the technology effectively, and to help teach individuals how it can be best used to achieve their personal goals. There is a tendency to look on modern IT-related technology as a 'parallel universe', somehow divorced from the real world … the truth is that it is part of our real world. Those who can effectively use the opportunities that technology can offer to enhance the timeless interpersonal and motivational skills can unlock the potential of the knowledge-based economy on which our future depends" (Weston, 2008, p 21). There is, therefore, a virtuous triangulation between the deployment of ICT/TEL, in conjunction with mass education, in fulfilling the objectives of creating a knowledge economy/society (Moser 2007a, 2007b; Browne, *et. al.*, 2008; Parchoma, 2008).

Transnational education, which blends face-to-face and ICT/TEL mediated approaches, is also a contributor for this trend (The World Bank Group, 2005). For example, in 2004 transnational education was reported to be Australia's third largest services export, contributing over ten billion AUS$ per annum to the Australian economy (Australian Department of Employment, Education and Training, 2004). Government agencies have observed that new technologies and teaching practice bring the need for appropriate transnational quality assurance programmes (Australian Department of Employment, Education and Training, 2005). Following the recent announcement of the United Nations Decade of Education for Sustainable Development (United Nations Educational Scientific and Cultural Organisation, n.d.), some perceive an ethical opportunity for transnational education to sway the transnational education practices of developed nations from academic imperialism

and facilitate sustainable globalization (Sumner, 2008) leading to a civil commons i.e. a "co-operative human construct that enables the access of all members of a community to life goods[2]" (McMurtry, 2001, p 820).

In parallel, there is a pragmatic worldwide economic agenda to reduce costs within public services, which also drives the deployment of ICT/TEL within HE[3] (Noble, 2001; Sissel *et. al.*, 2001; Brabazon, 2002; McCredie, 2003; Twigg, 2003; Comm and Mathaisel, 2008).

These ICT/TEL approaches to incubating knowledge economies and societies via HE have been facilitated by research and subsequent development of one-stop-shops for delivering online education (Stiles and York, 2007). Over the last two decades, experimental and in-house educational technology platforms have gradually been supplanted by commercial products, such as Blackboard and WebCT, and open source platforms, such as Moodle, which have enabled HE institutions to move from localized to institutional deployment of ICT/TEL via managed and virtual learning environments (Cornfordand Pollock, 2003; Social Informatics Research Unit and Education for Change Ltd, 2003). In turn these mature products are now being challenged and supplanted by new research based tools and commercial products emanating from Web. 2.0 and more student-centric views of education (see Stiles, 2007), which we will explore below.

Moving now from politics and technology to pedagogy and from external forces to more internal ones, the transformative role of ICT/TEL has become identified with various forms of student-centred learning. Many of these are rooted in the influential arguments of Laurillard (1993; but see Michaelson, 2002), with increasingly, the student voice being articulated (see Cowan, 2005; Salaway *et. al.*, 2007; Conole *et. al*., 2007). As a UK-based observer explained: "Although it's true that some of the drive to go 'on-line' has come from above through academic development plans and university strategies, one of the main drivers for the development of on-line learning has been the student body. One of the greatest levers we've found has been student demand." (Education for Change Ltd, 2004 p 3). This change is exemplified in a recent case study of two very different UK universities representing the extremes of research-centred and teaching-centred focuses (see Browne and Jenkins, 2008 for details). Both universities have found ways for ICT/TEL to improve learning and teaching through increased student-focus while playing to their respective strengths in research and teaching. This case study illustrates that ICT/TEL can be applied in a variety of ways to promote and mediate student-centred learning within the existing ecology of an institution (see Browne, *et. al.*, 2003; Luckin, 2007). Both Universities drew upon a national programme inviting institutions to reflect upon their current and anticipated alignment with a range of institutional strategies. In turn this national programme stimulated a revision of many of those strategies towards student-centred learning mediated by ICT/TEL (Mayes and Morrison, 2008)[4].

The gamut of such student-centred approaches—including action learning (Bourner *et. al.*, 1996; Revans and Marquardt, 1999), action research (Dickens and Watkins, 1999), androgogy (Knowles, 1984), conversation framework/theory (Laurillard, 1993; Boyd, 2001; Scott, 2001), enquiry based learning (Centre for Excellence in Enquiry-Based Learning, 2007), experiential learning (Kolb, 1984); radical constructivism (Liber, *et. al.*, 2000), reflective learning (Bourner, 2003)—are distilled into the praxis of flexible learning whose ethos "… expands choice on what, when, where and how people learn. It supports different modes of learning, including e-learning. Flexibility means anticipating, and responding to, the ever-changing needs and expectations of vocational education and training clients – enterprises, learners and communities." (Australian Government Department of Education, Science and Training, 2005). Flexible learning should provide "students with flexible

access to learning experiences in terms of at least one of the following: *time*, *place*, *pace*, *learning style*, *content*, *assessment* and *pathways*" (Chen, 2003, p 25). Flexible learning can be a somewhat utopian destination for an institution (Shurville and Owens, in press) and some critics, such as Chen (2003), contend that it always comes with economic provisos for staff and students alike. However, as Nunan observed, "while part of the framework for flexible delivery may be borrowed from economics, there are progressive interpretations of flexible learning which are structured around competing social and humanist values which have educational expression through concepts such as constructivism, open education, student-centred learning, life-long learning, deep learning, and accessible learning structures" (Nunan, 1996, online).

Such approaches to learning and teaching are being promoted at the same time as Web 2.0 tools are becoming accessible—a relationship with bi-directional cause and effect between the developers and users of the technologies (for discussion of second-order cybernetics see Brand, 1976; von Foerster, 2003). Thus, ICT/TEL now empowers personalised learning via Web 2.0 and more specifically personal learning environments (Liber, 2000; Conole *et. al.*, 2004; Wilson *et. al.,* 2006; Luckin, 2007; Stiles, 2007). This approach now incorporates mobile learning (Herrington *et. al.*, 2008). Meanwhile the oft discredited, yet still valuable, role of warehousing learning materials is widely achieved via more traditional virtual learning environments (Jones and Muldoon, 2007; Stiles, 2007).

By analogy, HE institutions are chasing a post-Fordist (Nunan, 1996) industrial model (Peters, 1983) promoting flexibility and the apparent contradiction of mass personalization (see Frank, 2001). Yetton proposed a template for this model in the late 1990s: "a hybrid, mass customisation strategy for a large devolved university, which would use IT to obtain the benefits of a low cost central IT infrastructure, while empowering innovation and student focus in strong academic faculties" (Yetton 1997, online). Arguably, institutions now have the requisite pedagogic tools and technology to implement it.

This post-Fordist model suggests two main strategies for producing affordable, mass personalised products: (1) reducing labour costs through casualisation, off-shoring, outsourcing and aggressive supply chain management (see Comm and Mathaisel, 2008); and (2) transforming institutions by retooling business processes to incorporate additional ICT/TEL and related approaches to knowledge management (Groccia and Miller, 2007). Both strategies are often finely-tuned together in the context of such familiar tactics as increasing research income (see Bok, 2003), enlarging class sizes (Kokkelenberg *et. al.*, 2008) and cost sharing with consumers (Johnson, 2004). The organisational e-transformational strategy, has recently been shown to produce efficiency improvements in the order of 3.3% across all Australian universities—with a range of 1.8% to 13.0%—(Worthington and Lee, 2008; see also discussion of improvements in the UK reported in JISC e-learning Team, 2008).

So there are many political, economic, social and technical reasons to believe that ICT enabled HE business models—ranging from flexible, blended learning (Chen, 2003) to fully virtual universities (Hanna, 1998; Ryan *et. al.*, 2000; Roberts and Webster, 2002)—should have transcended *fashion* (Pratt, 2005) to become part of HE's *ubiquitous* fabric (Stiles and York, 2006). In reality, however, many institutional strategies for learning and teaching lag behind the rhetoric and the technology (Duderstadt *et. al.* 2003; Conole, 2004; Salmon, 2005; de Freitas and Oliver, 2005; Zemsky and Massy, 2006; Price and Oliver, 2007; Browne and Jenkins, 2008). Over a decade ago, the UK Dearing report recommended that "all institutions should, over the medium term, review the changing role of staff as a result of [ICT], and ensure that staff and students receive appropriate training and support to enable them to

realize its full potential" (Dearing, 1997, online). As Yetton commented: "The universities which get IT right will attract resources; those that get it wrong will not." (Yetton, 1997, online). However, while research continues to suggest that institutions which do not implement strategic approaches to ICT/TEL will become vulnerable (Moser, 2007b), as Cowan comments "if we are frank with ourselves, [such strategies] have not been strongly evident in the approach of many of our institutions" (Cowan, 2008 p 758; see also Shurville and Browne, 2006a, 2006b and Browne and Shurville, 2007).

While the pedagogic and technical tools are now available, many universities' personnel strategies for delivering institutional ICT/TEL are embryonic. Following a survey of U.S. institutions' attitudes to ICT/TEL, Duderstadt *et. al.* (2003) recommend that "university leaders should recognize that the rapid evolution of ICT will stimulate indeed, demand a process of strategic transformation in their institutions" (Duderstadt *et. al*, 2003, p 50). They also noted that "the employment relations between academic institutions and their *faculty* will become ever more complex" (Duderstadt *et. al.*, 2003, p 49). Here we will argue that university leaders should also consider the complexities of the new roles of academic-related/professional staff that embed and support ICT/TEL while working in what Evaline (2004) terms 'the ivory basement'. For example, as Albright and Nworie (2008) comment on their recent US survey of educational technology management in HE, "clearly, despite the rapid growth in technology use by faculty and students and the multitude of reports and other publications hailing the virtues of instructional technology, centralizing leadership for these service areas under a single senior manager has not been a priority." (Albright and Nworie, 2008, p 16). Accordingly, we will suggest that due to the mass adoption of ICT/TEL-enabled flexible learning by HE institutions, a major innovation in human resources management now required of HE is a re-examination of the role and organisational position of educational technologists and in particular senior educational technologists. We base that argument on the proposition that cost savings and improvements in access to high quality education are not automatic and that institutionally resourced educational technologists need to be deployed at an appropriate level to help HE to achieve them (see section 4). To frame that argument, we will now introduce our protagonists.

3.0 Introducing educational technologists

Notwithstanding the rhetoric above that the role of educational technologist needs reconsideration, educational technologists have been in existence in HE for over thirty years as evidenced by Lawless and Kirkwood (1976) and Harris (1977) and professional practice has historical roots going back to the second world war and beyond (Saettler, 1990; MacLean and Scott, 2007). The AECT has recently re-defined its standing definition of educational technology as a profession from one "concerned with the design, development, utilization, management, and evaluation of processes and resources for learning" (Seels and Richey, 1994, p 1) to the following: "educational technology (also called learning technology) is the study and ethical practice of facilitating learning and improving performance by creating, using and managing appropriate technological processes and resources" (Januszewski and Molenda, 2007, p 1). Richey's commentary on this redefinition shows how the educational technologist has now acquired an enhanced strategic importance within the organization: "a critical addition to the 2008 definition is the term 'improving performance'. This echoes the demands now placed on our field. Effective products are no longer the primary goal. Even learning is no longer the only goal. Our efforts are expected to impact transfer as shown in individual and organizational performance improvement" (Richey, 2008, p 24). Ely adds that "one sign of a new

profession is a series of publications attempting to describe the current status and scope of the field. Educational technology is no exception … When an organizations concerned about its concepts and terminology it usually calls for a new (or changing) scope of the field. When definitions and terminologies are reviewed and tested by professional people over time, the field often begins to work together using new standards and terminologies." (Ely, 2008, p 25). This transition towards a new profession is confirmed by DeBlois: "Just as technology-enhanced teaching and learning has evolved…so has support for instructional technology evolved at our institutions. The changing rubric of librarian, media specialist, information resource analyst, faculty computing consultant, instructional technologist, and instructional designer has signalled the advent of a major branch of the IT profession, with unique service, management, and leadership challenges." (DeBlois, 2006, p 1). Czerniewicz comments that: "What adds confusion to the emerging profession of educational technology is that the university is one of the key contexts in which that occupation is located … It is likely that professionals are employed in universities on non-academic conditions of service, thus differentiating those working as academics in the new scholarly field in some ways. Depending on the status of the practitioner's position, the work may be invisible and professional knowledge unacknowledged. (Czerniewicz, 2008, p 172)".

Until recently, educational technologists typically operated in small scale and close-knit academic communities, where they researched and developed educational technologies while engaging in academic staff development and support (Epper, and Bates 2001; Oliver, 2002, 2003; Bath and Smith, 2004). Now that distance education has evolved into the broader family of ICT/TEL-enabled flexible learning (Rumble, 2001; McCredie, 2003; Roberts, 2008), the cottage industry of educational technology has transformed into a profession whose members need to deliver institutional systems for ICT/TEL that implement strategically driven learning and teaching imperatives. Moreover new competencies are emerging that are increasingly viewed as part of the holistic remit of an educational technologist, e.g. ecological auditing (Higher Education Environmental Performance Initiative, 2007; Lipsett, 2007), estates management for technology rich learning spaces (UK Higher Education Space Management Group, 2006; Brewster and Hamilton, 2008; Joint Information Systems Committee, 2008), and training and technical support for e-research and virtual research environments (Newhouse *et. al.,* 2007).

However, lest this interdisciplinary career appears too tempting to new graduates, it is worth noting—as Whitworth astutely cites—that "too often in HE 'interdisciplinary' is a euphemism for 'that for which there is no money' (Landow, 1992, p. 124)" (Whitworth, 2005, p 688). For example, Berry reported that: "[Canadian] regional governments are very interested in the abilities and quality of tasks which are performed by these people but don't seem to be able to put the money in place to pay them" (Berry, 1998, online). A decade later this remains a familiar trope within an educational technology profession, which all too often relies on funding from short term projects and soft budgets (see, for example, Brown *et. al.*, 2003).

So what has happened to the colleagues employed as educational technologists over the past three decades? Many, because of the fixed-term nature of many contracts and limited career potential, have had to respond to such uncertainty by re-orientating their careers. A minority of educational technologists have managed to retain some primacy in this expertise whilst also obtaining more senior posts. In Browne and Shurville's direct and indirect experience, the organisational setting for educational technologists can be precarious and these senior educational technologists can still lack equivalent status with managers of more established services when competing for institutional resources and access to the senior

management group (see also Albright and Nworie, 2008). So educational technologists at all levels can represent significant flight risks for their institutions as their frustrations can make them prone to moving into either academic or more mainstream academic-related/professional roles. Incidentally, both Browne and Shurville both have personal experience of such career shifts. Previously, the institutional impact of an educational technologist defecting to a better contract or a more mainstream profession might have been easily absorbed. Now, given the centrality of ICT/TEL to flexible learning, we believe that the defection of explicit and tacit organisational knowledge (see Bhardwaj, 2006) and established social networks represents a clear and present danger to many institutions' core services. The fragility of the increasing centrality of the role of educational technologist alongside its very uncertain career trajectories drives us to advocate that institutions investigate sustainable career structures for such personnel by establishing ongoing institutional services for ICT/TEL.

4.0 Professional resourcing of ICT/TEL in HE via institutional services

Establishing ongoing institutional services for ICT/TEL composed of professional educational technologists can help an institution to overcome the barriers to its successful deployment, which include "cost and time involved, resistance to culture change, requirement for large scale and continuous staff training and staff development, heavy reliance on having a stable infrastructure … and the importance of system security and data security" (Social Informatics Research Unit and Education for Change Ltd, 2003 p 6) as well as fears that ICT/TEL mediated flexible education is driven by reification of technology (see Turnbull and Macnamara, 2003; Selwyn, 2008). In this section we address how institutional provision of an educational technology service can breach these barriers.

ICT/TEL-enabled flexible learning has been widely perceived as a means to reduce the cost of mass teaching (see Roberts, 1993; Laurillard, 2007; Smith, and Mitry, 2008). For example, Crossouard *et. al.*, comment: "The pressures on higher education in many countries, including England, are undeniable. Fortuitously then the rapid development of internet technology might offer the possibility of delivering of course materials to large numbers of students in cost-effective ways." (Croussard *et. al.*, 2003, p 4). Often, however, ICT/TEL-enabled flexible learning can be more expensive and labour intensive to implement than traditional approaches (Guri-Rosenblit, 2005). Moreover, some academics contend that educational technologists can over sell themselves and the promise of the technologies in terms of reduced cost and improved pedagogy (Selwyn, 2008). Nevertheless, in Browne and Shurville's experience (Browne *et. al.*, 2003; Luckin *et. al.*, 2006), approaches to supporting ICT/TEL with professional educational technology services that are strategically aligned across the institution and carefully designed can provide opportunities for economies of scale without sacrificing quality (Browne *et. al.*, 2003; see Morris, 2008). The view that well designed, implemented and embedded ICT/TEL can be a key enabler for delivery of flexible learning, which can help institutions to implement cost and educationally effective personalisation strategies is also supported by a range of case studies (Leadbetter, 2004; Conole and Oliver, 2006; Moser, 2007a, 2007b; Worthington and Lee, 2008).

A recent UK survey (Browne *et. al.*, 2008) identified lack of time as the primary barrier to use of ICT/TEL across HE institutions and lack of staff knowledge as the second barrier. Both of these perceived barriers can mask fears that new approaches will increase workloads, reduce status and even cause redundancies (Newton, Paine and Flowers, 2001; Evaline, 2004). Assuming the best intentions on the part of employers, an educational technology service, such as a flexible learning

support centre (see Nunan *et. al*., 2000), can help to ameliorate such fears via change and communication management (see below). Such a service can also help staff to conserve time through professional development and training (see below) and supporting academics in learning design and materials development. Finally, in an HE culture which reifies accountability and quality assurance, an educational technology service can help academics to design learning experiences that meet institutional and national standards for learning design (Seeto and Herrington, 2006).

An institutional educational technology service can also communicate staff concerns about flexible learning to senior management (see Browne *et. al.*, 2003) as part of introducing and embedding ICT/TEL-mediated flexible learning via careful change and communications management (Rossiter, 2006; Luckin *et. al.*, 2006; Shurville and Owens, in press). As Hughes observes from the viewpoint of an academic on the receiving end of change: "ICTs are not neutral technology they are designed, purchased and implemented with senior management motives attached" (Hughes, 2007, p 35; see also McNaught and Lam, 2005). Educational technologists who are trusted local champions (see Browne *et. al*., 2008) are now a vital component of this communicative process (Grimshaw and Wilson, 2006; Coen *et. al.*, 2007). Institutionally they can provide a cost effective resource for change management, development of effective materials, and training and support of academics leading to transformation of learning and teaching (Sharpe *et. al.*, 2006; see also Sharma *et. al.*, 2008, for discussion of the feedback between information systems and organisational change). Educational technologists who are local champions with appropriate social networks within an institution (Browne *et. al.*, 2008) can engage front-load change management into participative design involving workers of influence across the institution (Browne *et. al.,* 2003; Shurville and Williams, 2005; Luckin *et. al.*, 2007).

Professional development of academic and professional staff can be a key activity within such change management and ongoing embedding of ICT/TEL-enabled flexible learning (Latchem and Lockwood, 1998). Ellis and Phelps (2000) and O'Connell *et. al*, (2006) report that critical and reflective learning across the range of pedagogic and technical issues is best facilitated by a diverse team of staff developers, a viewpoint which favors locating such staff development within an institutional service or federation of services. Kirkwood and Price (2006) make the point that creation of flexible learning courses is often a team or cross-faculty project. So central provision of professional development therefore facilities common practice across the course team, which can include academics and professional staff (Kirkwood and Price, 2006). Since the actual costs, opportunity costs and risks of staff development are considerable, this suggests that an institutional service is a sensible option in order to achieve economies of scale, which can also be gained across institutions (Weaver, *et. al.*, 2008).

The provision of stable infrastructure for ICT/TEL-enabled flexible learning can be addressed by staff working under a variety of titles at School, Division or Campus-Wide scales and even at federated levels (see Surrey and Robinson, 2001). However, effective ICT/TEL systems require substantial investments in staff and ICT (see Bramble and Panda, 2008) no matter where they are located. Institutional provision offers some advantages in terms of shared hardware, licenses and administration and the reduced number of service contracts and negotiations that need to be made between the educational technologists and other departments, such as information services, management information services and the web team (see section 7.0 for discussion of organisational locations). Similarly, ICT/TEL environments offer a useful path to ensuring information assurance, which encompasses: confidentiality—ensuring that information is accessible only to those authorized to have access;

integrity—safeguarding the accuracy and completeness of information and processing methods; and availability—ensuring that authorized users have access to information and associated assets when required (International Standards Organisation, 2000). However, universities have idiosyncratic practices associated with learning and teaching (Shurville and Williams, 2005). Hence an institutional educational technology service can bring expertise in local academic processes and ICT to liaise with other departments who may have less expertise in these processes, such as management information services, to ensure that the educational data is accurate and secure.

Mayes and Morrison's recent study illustrates a sea change in the profession that places pedagogy firmly before technology: "capacity is seen more clearly than before to involve an institution's confidence and willingness to embark on course redesigns that favour an activity-based pedagogy, rather than favouring the development of technology-defined learning environments." (Mayes and Morrison, 2008 p 15). However, critics of ICT/TEL-mediated flexible learning still contend that the design of courses with a high ICT/TEL component can be overly driven by technology rather than educational advances or ways to deliver anticipated learning outcomes (Turnbull and Macnamara, 2003). Laurillard stresses that "[learning] design has to be generated from the learning objectives and aspirations of the course, rather than from the capability of the technology" (Laurillard, 2002, p 22). In many cases innovators are technology champions who actively sponsor and adopt emerging technologies (Moore, 1991) and this has been substantially evident with the rise of Web 2.0, creating a competence gap between such staff and the majority of academics (see, for example, Tynan *et. al.*, 2008, Rogers, 2008). Conversely, many opportunities to improve learning and teaching via ICT/TEL are also missed. For example, Jones and Muldoon found that "a range of research has found that these systems are used predominantly to transmit course documents to students" (Jones and Muldoon, 2007, p 451; Browne *et. al.*, 2008). Designing effective flexible learning experiences mediated by ICT/TEL requires pedagogically sound methodologies that map learning outcomes through to content, materials, assessments and mediating technologies (Scott, *et. al.*, 2007). So on the one hand there are sober reasons to support a professional service, driven by outcomes rather than technology, over the grass roots approaches personified by 'Fred in the Shed' and the 'Lone Ranger' (Stiles and York, 2006). On the other hand, it is worth bearing in mind that small research teams are implementing new technologies, such as pedagogic planners and personal learning environments (Conole *et. al.*, 2004; Wilson *et. al.,* 2006; Luckin, 2007; Stiles, 2007), that are increasingly being explored as a ICT/TEL medium to place learning design central to the learning process. In order to maximise innovation and deployment it is important to realise that educational technologists have roles to play within research and development projects as well as institutional services. Individuals may occupy both roles in one or more institutions. This duality of purpose brings issues to the fore around the balance between research and service provision that we will discuss below.

The arguments in this section in favour of establishing an institutional service of professional educational technologists, begs the question 'how will the sector define *professional* in this context?'. We begin to address this question in the next three sections.

5.0 Transforming professional recognition?

As we have seen, creating, introducing and maintaining effective educational and institutional systems requires specialist knowledge of education, educational management and ICT, which is hard for individuals and institutions to acquire and

update. The practice of HE is continuously informed by advances in educational theory and by internal and external policy initiatives. Hence educational institutions routinely adopt and introduce new approaches in learning and teaching (Barnett, 2003), such as enquiry based learning (see Centre for Excellence in Enquiry-Based Learning, 2007), which need to be accommodated and mediated by institutional strategies and educational technologies. ICT/TEL itself can be adopted on the basis of a fashionable trend rather than a well-researched business or pedagogic case (Pratt, 2005). Meanwhile industrial dynamics implies that certain technologies and products will be mainstreamed while others are discarded (Schumpeter, 1942; Marsili, 2001; Beatty and Ulasewicz, 2006; Browne, *et. al.,* 2006; Stiles and York, 2006). For example, a recent survey of ICT/TEL in the UK found that "Blackboard continues as the most used enterprise or institutional VLE. However, when also including VLEs that are used more locally, e.g. within departments, then Moodle is most used with a rapid rise since 2005. Overall, there is a vastly reduced range of VLEs in use since 2005. … The tools that have increased significantly in prominence are those for podcasting, e-portfolios*, e*-assessment, blogs and wikis" (Browne *et.al.*, 2008, p 2). However, "position descriptions are often written and people selected based on their experience with the specific learning management system employed at the institution … while the value of skills with the existing system is important, the knowledge is confined to a specific system and can limit considerations of other approaches, which may be more coherent and practical" (Jones and Muldoon, 2007, p 453).

Educational technologists have incredibly varied skills which necessarily span the academic and professional divide (Beetham *et. al.,* 2001). Therefore familiar management styles and standard terms and conditions, such as academic and academic-related / professional, and particularly the somewhat demeaning 'support staff' rarely suit them. They also tend to emerge from disparate backgrounds and face highly uncertain career paths (Oliver, *et. al.,* 2004; Browne *et. al.*, 2008). Inappropriate deployment and inadequate staff development can have severe implications for retention, performance and advancement into more strategic roles. Moreover, academic-related or professional educational technologists are often research active, which can contribute to credibility, knowledge and revenue (Conole, 2002; Beetham, 2005). However departments paying levies for support services can perceive research activity by 'support staff' as a luxury. In Browne and Shurville's experience, the costed inclusion of educational technologists to externally-funded research bids is often inadmissible and, even when it is permitted, their engagement can be considered a distraction from their service-oriented organisational imperatives. This incongruity could be addressed by senior management and research funding bodies.

One pertinent concern is that research into educational technology—whether conducted by academic or academic-related/professional staff—has been the subject of some legitimate criticism (Cuban, 2001; Noble, 2000; Oppenheimer, 2003; Selwyn, 2008). As Reeves observes: "the effectiveness of the field known as educational technology to fundamentally enhance teaching and learning has increasingly been called into question, as has the efficacy of educational research in general. Doubts about educational technology research stem primarily from decades of an arguably flawed research agenda that has been both pseudoscientific and socially irresponsible" (Reeves, 2006, p 86). In order to achieve a more professional status, educational technologists could conduct design-research, which is characterised by investigating critical and complex problems via iterative, collaborative and long term research programmes (Reeves, Herrington and Oliver, 2005). They could also engage in practitioner-centered research (Bourner and O'Hara, 2000), which typically applies action research (Coghlan and Brannick, 2005)

to determine how, where and by whom a particular approach can be best applied within practice. Practitioner-centered research has been popular within educational practice (Bourner and O'Hara, 2000). The problem is that so far it is less popular within the practice of educational technology: while many educational technologists are research active, the majority of the research they produce focuses upon evaluating products and projects rather than presenting reflections upon methodologies for development and evaluation that can be reused within the profession to build a core of knowledge (Reigeluth and Carr-Chellman, 2006; Shurville and Owens, in press). However, establishing a core body of disciplinary knowledge is complicated by the fact that, as Czerniewicz observes: "there is disagreement about the extent to which the field is coherent, contained and bounded. Impressions of the field seem to lie along a continuum, ranging from a perspective on one end which considers the field to be unified with common postulates, ranging to a version of the field as one coming out of its infancy to a point of maturity where it is possible to seriously formalise it. The far end of the continuum sees it as fragmented and incoherent (Czerniewicz, 2008, p 171). Anecdotal opinions from senior members of the field and conference organisers suggest that educational technology conferences are starting to polarise into those which are focused on academic researchers presenting prototype tools and theoretical knowledge and those which are focussed on academic related / professional researches presenting evidence of practice and deployment. If such polarisation exists and if it is allowed to flourish then the fragmentation of the field is likely increase.

These arguments suggest that educational technologists apply a skill set and a body of professional knowledge that may be worthy of chartered professional status. However, we believe that self-organisation into strong professional bodies with the power to discipline and members and accredit their status is a necessary move towards chartered status. The recent Scottish experience of creating a chartered status for teachers which offers additional responsibility and remuneration without leaving the classroom for a position in management offers an interesting template (see Christie, 2006). In the UK there is an attempt to accredit educational technologists through the Certified Membership of the Association for Learning Technology (CMALT) (Schmoller, 2006). However the CMALT qualification has yet to achieve critical mass or even a full appreciation of its relevance. Indeed, the professionalization of educational technologists is still at an immature level although alternative paths to recognition lie in chartered membership of organisations such as the British Computer Society (BCS) or fellowship of the UK Higher Education Academy (HEA). Nevertheless, membership of professional organisations is relatively low in the UK compared to Australia and North America (MacLean and Scott, 2007) where organisations such as the Australasian Society for Computers in Learning in Tertiary Education (ASCILITE) and the Association for Educational Communications and Technology (AECT) in the USA are well established. Would an international professional body akin to the Project Management Institute (PMI) help educational technologists to achieve internationally recognized professional status and support international labour mobility akin to that enjoyed by academics and ICT professionals? However, we should note that this change might not suit employers. Nevertheless, we suggest that senior managers should consider mandatory staff development programmes for new educational technologists—to match those which are often required of new academics - leading to professional recognition and mutual expectations of continuing professional development (Nicholls, 2001). Ethics is a hallmark of a profession and there is an emerging body of literature on the ethics of educational technology (see Dreyfus, 2001; Papandreou, 2006; Jones and Muldoon, 2007; Lin, 2007; Gur and Wiley, 2007), which needs to be incorporated into

professional development within the field. Generic middle-management training for higher education professionals is increasingly available (Muijs *et. al.*, 2006) but it does not yet address the specific needs of educational technologists outlined here. Moreover, due to the limited numbers of senior educational technologists, it seems unlikely that such specific training will be developed outside of professional bodies. As we will discuss below, the transition to senior management is even less well supported.

6.0 Transforming seniority?

We have argued that that professionals are needed to develop systems that deliver both educational and institutional flexibility (Shurville, *et. al.*, 2008a; Shurville *et. al.,* 2008b). Embedding such systems at an institutional level brings requirements for senior managers with soft skills, including change and innovation management (Benson and Palaskas, 2006; Grimshaw and Wilson, 2006; Shurville and Browne, 2006a; Stiles and York, 2006; Moser, 2007a; Keegan, *et. al.*, 2007; Cox, 2008). Maintaining such systems requires skills in service management (Office of Government Commerce, 2001) which are broadly akin to those of a head or deputy head of a university's information technology service. With such a diversity of roles and skills, coordinated teamwork is essential (Jones and Muldoon, 2007; Shurville *et. al.,* 2008a).

While the move from experienced *techie* to *accidental project manager* is routine in many industries, it can be problematic for the individual and the organisation (Ensworth, 2001). The key role of project manager can be offered to educational technologists prematurely without the necessary experience or training (see Oliver *et. al.,* 2004).). Moreover, educational technologists can be charged with the role of project manager without access to the necessary sources of coercive, legitimate or reward power (French and Raven, 1959) that comes with the job title. Such constraints within universities can cause educational technologists to reconsider their career path. Senior managers and human resource managers need to consider whether the role descriptions for the new educational technologists in their own institutional setting should be biased towards educational, managerial or technical skills, with corresponding sets of terms and conditions.

The consequences of attempting substantial ICT/TEL projects without educational technologists in senior positions are well documented: "it is frequently stated that the UK e-university did not have any acknowledged e-learning experts amongst its senior management and that, therefore, policy discussions had to begin at a lower level than an experienced team would accept." (Keegan, *et. al.*, 2007, p 72). Browne and Shurville experienced that reporting to a pro vice chancellor of learning and teaching with a background in ICT/TEL was key to the successful introduction of ICT/TEL at a British university (Luckin *et. al.*, 2006). On the basis of their US survey, Albright and Nworie (2008) propose that:

> "… each campus should have a *senior academic technology officer* (SATO) to provide strategic leadership and direction for academic technology applications, initiatives, and support services across the broad spectrum of instructional technology functions; provide leadership in planning and policy related to curriculum development, e-learning, and other instructional technology initiatives that facilitate achievement of the institution's strategic goals; and build partnerships among campus academic support units to work collaboratively toward achievement of institutional goals that can be addressed through instructional technology. The SATO should assume an advocacy role on behalf of faculty and students in campus matters related to

> teaching and learning with technology, and work closely with academic units to ensure that their needs are incorporated into academic technology plans. The position should also provide overall leadership and direction for the academic technology support staff to ensure the most effective use of human resources, with a strong emphasis on quality service." (Albright and Nworie (2008, p 17).

Creating such roles and job descriptions for senior managers of ICT/TEL development teams is a specific problem that emerges from the issues in interdisciplinarity, organisational structure and professionalization that we have discussed (see Moser, 2007a). When designing such roles, managers need to consider the existing organisational structure and available resources to determine how to accommodate new senior staff and at what level of seniority and in which location. As a heuristic, Albright and Nworie recommend that "campus leadership for [TEL] should never sit lower than one echelon below the chief information officer (CIO) or two levels below if the CIO is not at the Vice President level" Albright and Nworie (2008, p 21). However, senior managers will need to weigh the prevailing institutional culture against the amount of autonomy and support that a senior manager of ICT/TEL systems will require (see Simons, 2005). They may decide that a programme of cultural change will be needed to head off organisational conflict. The job description itself should be comparable to similar positions in competing universities. The complexities hidden within that human resources task include the fact that similar roles carry different titles and levels of responsibility in different institutions which reflect their social structure and history. In the UK the complexity of calculating remuneration is eased slightly because academic and academic-related/professional colleagues have been positioned on a common pay scale since 2006 (Higher Education and Research Opportunities, n.d.). Moreover, deciding upon which institutions constitute the 'competition' means considering many factors including size, course offerings and prestige, as well as location and internet enabled reach.

Filling such roles also brings requirements for personal transformation by senior educational technologists. It is common for senior educational technologists to have achieved a reputation and hence a senior position due to their involvement in the development of a particular theory or a particular educational technology. Once such senior educational technologists are asked to lead an institutional service it can be hard for them to abandon former allegiances and undertake a more pluralist approach to educational technology (Shurville, *et. al.*, 2008a).

7.0 Transforming organisational structures?

When locating ICT/TEL teams within an existing organisational structure, senior managers need to weigh the pros and cons of creating a standalone business unit against embedding members of the team within an existing service or a decoupled departmental structure (see Yetton 1997; McKnight, 2003; Nunan *et. al.*, 2000). In the UK, for example, multiple approaches are taken - "support for TEL is provided by a wide range of units. There is a differentiation of roles within the different support units ranging from technical support to pedagogic support. Of the different types of support units post-92[5] institutions have larger Education Development Units with greater numbers of academically oriented support staff. Pre-92 institutions appear to provide more support locally suggesting a more devolved provision." (Browne, *et. al.*, 2008, p 7). Each of these approaches brings perceived biases towards either pedagogy or technology, which can affect credibility (see Armitage *et. al.,* 2004) and voluntary uptake of services by academics. Introducing a dedicated unit can bring

opportunities for both empire building and organisational conflict and can also duplicate administrative roles and costs; adding ICT/TEL to an existing service requires careful change management as it can be hard for some services to accommodate an interdisciplinary culture; diffusing educational technologists across the organisation means that activity is aligned to the diverse and particular needs of different disciplines while risking counter-cultures developing against a university-wide ethos, business processes and technology platform; independent departmental implementations of educational technologies can be seen and managed as unwanted outbreaks of disruptive technologies or opportunities for innovation and renewal; in today's culture of ever increasing auditing, quality needs to be ensured and local educational technologists may require objective scrutiny from a central unit or a peer in another academic department; matrix and federal structures show promise but these carry high management overheads and can create further opportunities for conflict. The danger is that centralised departments and systems can stifle academic creativity and diversity (Jones and Muldoon, 2007), with expensive infrastructure needing to be justified as a long-term asset. An astute positioning would be for centralised educational technologists to adopt and maintain an ecumenical stance to their discipline (Shurville, *et. al.*, 2008a).

Whatever organisational structure is adopted, it is important for the stakeholders to consider how appropriate synergies can be facilitated, most particularly between the educational technologists and academics and that such synergies are created on the basis of equality (Browne, 1999; Hannan, 2005). However, academic equality in this context is often seen through the prism of whether both parties are credible researchers and as noted earlier, such a role for the educational technologist is often not encouraged by the institution, with service delivery being short-sightedly promoted in isolation from any underpinning theoretical creativity (Armitage, *et. al.*, 2004). A central question for senior managers to consider is whether, due to the diversity of disciplinary behaviour, ICT/TEL can have an institutional common ground at all? Yet in a mature organisation, seeking identifiable branding as well as economies of scale, some funding and infrastructure invariably has to be centrally provided. This remains a common source of tension in many institutions.

Where an educational technologist is located within the organisational structure can have important implications for their accumulation of career capital. Opportunities for personal development and promotion may be severely constrained in hybrid academic-related positions that lead to nowhere on either the academic or professional ladders. With limited opportunities for growth in the internal labour market, and no particularly strong professional affiliation to keep them in the same industry, educational technologists represent a 'flight risk' that should concern university leaders.

8.0 Further research

Given the multidisciplinary nature of the profession and the varied paths to entry (Beetham *et. al.,* 2001), it is unsurprising that educational technologists are found in very different locations within institutions and that their job descriptions vary considerably (notable exceptions include Beetham *et. al.*, 2001; Surrey and Robinson, 2001). There is little published evidence of these locations and job descriptions. Likewise, too little is known about the background and qualifications of existing educational technologists (MacLean and Scott, 2007 is an exception). In 1999, a limited UK snapshot was undertaken (Rothery and Jenkins, 1999) but an updated and wide scale study is needed. The outcomes of such research could be a valuable input into strategic workforce planning for educational technologists across

the sector. Some clues can be gleaned from a number of tangentially related surveys conducted in the UK in 2001, 2003 and 2005 by the Universities and Colleges Information Systems Association (UCISA) (Browne *et. al.*, 2006). A more recent survey conducted by Browne *et. al.* (2008) has further developed this longitudinal analysis. It confirms a very wide spread of job descriptions, job titles and organisational settings for the broad profession of educational technologist.

We believe that further research is needed to catalogue and evaluate the range of development opportunities, terms and conditions and organisational structures currently offered to educational technologists. Common ingredients for job evaluations include analysis of staff diaries and timesheets, interviews with incumbents, their subordinates and supervisors and, rarely, interviews with clients and customers (Brannick and Levine, 2002). We are therefore preparing structured questionnaires for educational technologists, senior educational technologists, senior university managers, and other stakeholders, including academics, academic-related and professional staff, policy makers and students. We are also approaching a group of educational technologists and their managers to keep reflective diaries of their activities. We will ask our recipients to compare their current role descriptions with their perceptions of the environmental, market and technological factors that will influence future performance in the role and suggest beneficial and realistic changes to these role descriptions. Finally, we intend to interview educational technologists who like, Browne and Shurville, have moved on from the field both to discover the factors that influenced this decision and their new destinations.

We believe that educational technologists and their professional bodies can take their share of responsibility for the professionalization of the field. Moves towards conducting research that is motivated by addressing the big problems (Reeves, Herrington and Oliver, 2005; Reeves, 2006) and building a core of methodological knowledge for the discipline (seeReigeluth and Carr-Chellman, 2006) can be complemented by engaging in widespread continuing professional development (see MacLean and Scott, 2007). Czerniewicz asks "Why does all this matter?" and asnswers that "Newcomers being inducted to the field need to know the parameters of the field and its knowledge base. Members of the research and professional community need to agree where their shared areas of interest, focus, approach and projects lie." (Czerniewicz, 2008, p 177). Project management is an example of a field that has recently transitioned to chartered professional status with an agreed body of professional knowledge making a significant contribution to that transformation (Morris *et. al.*, 2006).

Further research is needed to document such activities and disseminate their outcomes to a range of stakeholders including academic colleagues, senior managers and policy makers.

9.0 Conclusions

Institutions are beginning to grapple with the significant cultural and structural changes necessary to firmly embed technological innovation within mainstream education as part of their overall mission (Whitworth, 2005; see papers in Shurville and Browne, 2006a and Browne and Shurville 2007a) both in terms of vision and in terms of connecting multiple institutional strategies, in response to the range of increasingly market-oriented drivers we have discussed. However mature placement, development and recognition of educational technologists remain embryonic at best. This seems especially true for senior educational technologists, with mandates to both initiate and shape policy, change and innovation. So we suggest that despite the relatively low numbers, addressing the systemic weakness regarding the institutional role of educational technologists is a pressing challenge for HE. We contend therefore

that senior managers require evidence to help them make strategic decisions about how to draft policy, create role descriptions and shape appropriate cultural change programmes. However, as we have argued above, to achieve changes in status, educational technologists also need to collectively document and communicate their own ongoing professionalization and need to build professional bodies which ensure ethical and professional practice is maintained.

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Biographical notes

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Dr Tom Browne FHEA is Education Research and Evaluation Advisor at the University of Exeter. Tom is a member of the UCISA-SSG-Academic Support Group and has completed a term of office on the JISC Committee for Learning and Teaching. He served on the JISC Pedagogy Steering Group throughout its 3 years existence and continues to be an active member of the JISC Learning and Teaching Practice Experts

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[1] A shorter version of this paper was accepted by ICICTE 2008 but could not be presented for logistical reasons. A subsequent version was presented at ASCILITE 2008. It has now been thoroughly updated to include comments made at the conference and substantially expanded.
[2] See also Papandreou (2006) for discussion of how educational technologists can contribute to such goals.
[3] This driver for deployment of ICT in HE requires consistent ethical tempering via participative design and an ecumenical stance to TEL (Shurville and Williams, 2005; Jones and Muldoon, 2007; Shurville, *et. al.*, 2008a).
[4] Unfortunately, the transformative impact of these new strategies has yet to include reconsideration of the roles of the academic-related/professional staff.
[5] In the UK the institutions previously known as Polytechnics became Universities in 1992, in Australia, for example, these are comparable to the Australian Technology Network Universities.