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The rhetoric and reality of technology-enhanced learning developments in UK higher education: Reflections on recent UCISA research findings (2012-2016)

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The rhetoric and reality of technology-enhanced learning developments in UK higher education: Reflections on recent UCISA research findings (2012-2016)

This article reviews the investment that UK higher education institutions have made in technology-enhanced learning (TEL) services in recent years, and considers the impact this has had on academic practice. Drawing on UCISA survey and case study research, our analysis shows that whilst the range of centrally supported TEL tools and services in support of teaching and learning has increased across the sector, evidence of transformational change in pedagogic practice through their use has been harder to discern. We observe an increasing number of TEL systems that instructors are being encouraged to engage with as part of their academic practice; however, there have been limited changes in the mode of course delivery, with content-focused and supplementary uses of the web still very much in vogue. The evidence suggests a gap between the institutional rhetoric on TEL developments and the reality of academic practice across the sector. Using Barnett's "conditions of flexibility" (2014) as a frame of reference, the article discusses the factors behind this mismatch, exploring how a balanced institutional focus on service development and academic support may be needed to foster transformative and sustainable changes in the way that TEL tools are employed in course design and delivery.

Introduction

The introduction of learning technologies has long been seen as an enabler for educational change, a focus 'in and of itself' for capacity building and investment by national funding councils (Jenkins, Browne, Walker & Hewitt, 2011; Walker, Voce & Jenkins, 2016). Technology continues to be presented as a way of enhancing existing modes of course delivery and new modes, ranging from content-based to open and community-orientated models of learning, which challenge the established roles of the instructor and learner (Yuan, Powell & Olivier, 2014). This transformation is illustrated through the changing language that has been employed to describe learning technologies – from the Higher Education Funding Council for England's reference to "e-learning" (HEFCE, 2005), and then the more inclusive "use of technology to enhance learning and teaching" (HEFCE, 2009), to the UK Higher Education Academy's current focus on "flexible learning" (Hammersley, Tallantyre & Le Cornu, 2013), in which technologies are employed to help meet the needs of the diverse range of students entering higher education, enabling student choice and a degree of control over the pace, place and mode of course delivery.

However, doubts remain over the actual impact that technology is having on learning and teaching (Kirkwood & Price, 2013). Over the past 15 years, a series of eight surveys from the Universities and Colleges Information Systems Association (UCISA) has sought to monitor the pace of change across the UK Higher Education (HE) sector in the investment, adoption and embedding of technology-enhanced learning (TEL), reporting on how TEL has moved from the periphery to the centre stage of institutional thinking (Jenkins, Browne, Walker & Hewitt, 2011; Walker, Voce & Jenkins, 2016). Defined as encompassing "any online facility that directly supports learning and teaching" (Browne, Hewitt, Jenkins & Walker, 2008, p.2) the definition of TEL has been intentionally open-ended in scope, allowing for monitoring adoption of formal enterprise-wide systems such as virtual learning

environments and lecture recording and assessment systems, through to collaborative tools and mobile apps that support student learning.

Drawing principally on data from the last three UCISA TEL surveys (Walker, Voce & Ahmed, 2012; Walker et al., 2014; Walker et al., 2016), in this article we discuss current progress towards embedding TEL services within UK HE institutions to deliver the potential efficiency, enhancement and transformation benefits outlined by HEFCE (2009). The article will review the key drivers for institutional adoption of TEL tools and services, consider the impact that TEL adoption has had on teaching and learning practices and question the extent to which institutional investment in TEL services is supporting innovations in course design and delivery.

About the UCISA TEL surveys

The UCISA TEL surveys have incorporated a core set of questions which have been reused over the years, enabling a longitudinal analysis of developments across the UK HE sector in the strategic planning, management and support of institutional TEL tools and services. The 2016, 2014 and 2012 surveys received response rates of 69%, 61% and 59% respectively from the 160+ institutions which were targeted. We acknowledge the limitations in the value of the data collected, with only 55 of the 110 institutions that responded to the 2016 survey also responding to the 2014 and 2012 surveys; we cannot confirm whether there has been any consistency in the identity of institutional respondents over the years. To address these limitations, we have conducted qualitative research through structured case study interviews with institutions which volunteered to share their approaches to TEL developments, to probe the longitudinal findings from the survey data (UCISA 2012, 2014 & 2016). Where possible, we have also attempted to corroborate our findings by cross-referencing them against other published studies and reports on TEL development.

Drivers for TEL development

A key focus of the UCISA surveys has been on institutional strategic planning, looking at the drivers for institutional investment in TEL services. Table 1 presents a longitudinal view of these factors, revealing that *Enhancing the quality of learning and teaching* and *Meeting student expectations in the use of technology* have represented the leading drivers since 2008.

The data for the 2016 survey reinforces this picture, with the need to meet student expectations in the use of technology and improve student satisfaction ratings through feedback channels such as the UK National Student Survey (NSS) (http://www.hefce.ac.uk/lt/nss/) listed as among the top three institutional drivers for the development of TEL services

Table 1. Longitudinal view of driving factors for institutional TEL development (rankings)

The commitment to enhanced service delivery may also be traced through the increasing influence of institutional student learning experience and student engagement strategies on TEL developments, with the *student experience* rising from fifth position in 2012 to the second most influential category of strategy informing TEL development in 2016.

Our case study research (UCISA, 2016) indeed shows how the TEL agenda is now being incorporated within broader strategies as an enabling feature of the institutional vision, directly addressing teaching and learning delivery and the quality of the student learning experience. Queen Mary University of London's Student Experience Teaching, Learning and Assessment (SETLA) strategy illustrates this shift in emphasis, committing the institution to the development of new modes of teaching and learning "by exploiting the potential of e-

learning", with one of the key measures of a high-quality learning experience for all students being directly associated with the "quality of the technology designed to support learning" (UCISA, 2016, p. 20).

Institutional provision of TEL tools

What does this new strategic outlook mean for the development of TEL services within UK HE institutions? Our findings indicate that TEL has become an important feature of the student learning experience and a focus for investment by UK universities in student-facing services to match the £9k annual tuition fees for home students which were introduced across the sector in 2012. Virtual learning environments (VLEs) are now ubiquitous across the sector, responsible for the heavy lifting of course management activities and the conventional structuring of lecture and reading materials in a shared online space.

Table 2 reveals that in 2016, 93% of responding institutions had deployed a VLE platform to support 50% or more of their total course delivery. This has led to a focus on consistency in relation to the student experience and resulted in the introduction of policies on minimum standards for the presentation of course content in VLE course sites. The 2016 survey recorded that 68% of responding institutions have a VLE usage policy – an increase from 21% in 2012. This is also evidenced in our case study research for five of the nine institutions that we interviewed (UCISA, 2016) and reported in other institutional studies (e.g. Reed & Watmough, 2015; Irwin, Benning & McNally, 2016), with statements of baseline provision commonly found elsewhere (e.g. Solent, 2015; UCL, 2016).

Table 2: Percentage of institutional courses using TEL tools within the UK HE sector

The UCISA data also reflects the strong investment in e-assessment tools which have been reported in other studies of the UK HE sector (e.g. Newland & Martin, 2016) – specifically for the automated marking of tests and electronic submission of assignments and plagiarism detection to assist students with their academic writing, as much as for the screening of assessed work. Table 2 reveals that over half of responding institutions to the 2016 survey now deploy e-submission tools in 75% or more of the courses that they deliver to students. There have also been notable increases in the adoption of formative e-assessment and document sharing tools and a broader implementation of lecture capture systems across the sector since the last survey, with 71% of responding institutions to the 2016 survey now supporting such a system.

Central provision of TEL tools has also increased in all areas of student communication and collaboration with the exception of social networking tools, extending way beyond the limited number of core technologies (between four and seven tools) that were reported to be managed by UK HE institutions in our earlier case study research (UCISA, 2012). We may speculate that the recent institutional adoption of cloud-hosted services and Software-as-a-Service (SaaS) solutions, such as Google Apps and Office 365, has enabled swifter implementation of collaborative applications such as document sharing, with minimal technical challenges with the on-going management of these solutions. Consequently, ownership has moved away from non-centrally supported tool-sets, with academic staff presented with an extensive portfolio of central-supported tools to choose from when designing their online course provision for students.

Institutional investment in TEL and its impact on course delivery

Arguably with the increasing investment in centrally supported technologies, HE institutions have created the conditions for pedagogic innovation to flourish, enabling academics to

employ technologies to support student-centred learning activities. However, the UCISA surveys have revealed a strong institutional focus on supplementary uses of the web to support module delivery over the years, based on the provision of electronic copies of lecture notes and content resources to students (i.e. content delivery). Blended learning of this type was reported as being offered extensively across 79% of institutions responding to the 2016 survey, with a further 13% confirming that provision of this type is supported across schools and departments within their institutions.

On one level these findings indicate that UK HE institutions have made genuine recent progress in mainstreaming their blended provision to students. UK figures compare favourably with European estimates of blended provision: the recent European University Association e-learning survey (Gaebel, Kupriyanova, Morais, & Colucci, 2014) reported that blended learning was being offered by only one in four institutions across all departments – representing "a very modest level of mainstreaming" with "huge potential for further development" (p.26).

However, blended provision with a focus on supplementary use is still a distance away from the flexible learning vision that the UK Higher Education Academy has championed, enabling student choice and a degree of control over the pace, place and mode of course delivery. Evidence from the UCISA surveys suggests little fundamental change being observable in terms of the ways in which institutions make use of learning technologies in their mainstream provision (Jenkins, Walker & Voce, 2014). The 2016 survey and supporting case studies suggest instead that where change is taking place, it is happening on a limited scale. Notably less than half of 2016 survey respondents confirmed that open learning course delivery is taking place at any level within their institution. There was an indication of increasing interest in distance learning, though focused on small-scale provision

(UCISA, 2016); our case study research has indeed recorded the establishment of specialist distance learning centres such as the University of Derby Online, but these have been set apart from campus-based course delivery (UCISA, 2014).

Whilst the range of TEL tools and services in support of teaching and learning has increased, the evidence of transformational change has been harder to discern. Why has change in these liminal spaces not impacted on the mainstream? The reticence of staff to adopt and experiment with digital technologies may stem from many factors, including lack of time and support for course innovation (see Table 3). Indeed, it might also reflect a healthy scepticism concerning the value of digital provision in supporting student learning, as well as resistance to top-down strategies based on senior management policy directives (Birch & Burnett, 2009; de Freitas & Oliver, 2005). Ultimately this may lead to a lack of shared commitment to change academic practice.

Table 3: Longitudinal view of barriers to any (further) development of processes to promote and support TEL tools.

Fostering an open academic culture

Table 3 shows that *Departmental / school culture* represented the second most common barrier to the promotion of TEL tools in the 2016 survey – surpassing funding as an obstacle to technology adoption. This barrier was most commonly referenced by Pre-92 universities and large complex institutions, which are more likely to have devolved structures based on faculties and schools. The survey findings also indicate that technology adoption is challenging for specific disciplinary areas - notably art, design and humanities - with

traditional pedagogic approaches and cultural factors in the ways that these disciplines are taught cited as key reasons for less extensive use of TEL, as illustrated in the following comment:

> "Culture and established practice within Schools in this cluster is very traditional. Low levels of staff engagement in professional development opportunities." (UCISA 2016 TEL Survey, p.45).

Establishing open institutional and local cultures that are supportive of pedagogic innovation have been common recommendations in the literature over the years (e.g. Gibbs, 2010; Walker, Voce & Jenkins, 2016) and repeated in the most recent 2017 NMC Horizon report, which highlights the need for HE institutions to develop structures that "promote the exchange of fresh ideas, identify successful models within and outside of the campus, and reward teaching innovation – with student success at the center" (Adams Becker et al., 2017, p.2). It is a moot point as to whether UK HE institutions have developed flexible structures to support pedagogic innovation of this kind, providing academics with the space to experiment and fail in their use of TEL tools. Our most recent case study research suggests instead a trend towards greater centralisation and top-down senior management control over TEL initiatives through the establishment of E-learning and TEL strategy groups, with very few examples of units such as the Disruptive Media Learning Lab at Coventry University (UCISA, 2014) dedicated to the exploration of innovative course design and delivery approaches.

The 2016 case studies indicate that TEL strategy groups have been created to oversee the implementation of new technology services such as lecture capture and the electronic management of assessment across institutions, and have been tasked with designing TEL-specific policies to promote greater consistency in teaching and learning practices through the adoption of these new services, delivering demonstrable benefits for the student learning

experience. Of the nine institutions that we interviewed, Aberystwyth, Queen Mary University of London, Sheffield and Sheffield Hallam universities had all established strategy groups of this type led by their Pro-Vice-Chancellor for Teaching and Learning, with Edge Hill opting for a two-tiered governance model, with a central steering group working with faculty committees (UCISA, 2016).

Developing the evidence base

Another key strategy to overcoming academic scepticism towards the use of TEL services is to establish a stronger evidence base, helping teaching staff to evaluate the cost/benefits of making fundamental changes to course design and their likely impact on student satisfaction and learning outcomes. The limited use of evidence from the literature to inform teaching practice within higher education has been well documented (Price & Kirkwood, 2014). At the heart of this problem is a lack of applied evidence on the effectiveness of technology-enabled approaches (Price, Kirkwood & Richardson, 2016). Taking flipped learning design as an example, Loch and Borland (2014) have questioned the suitability of these methods for undergraduate students who are often targeted for this style of learning, yet who may not have the requisite academic skills and self-discipline to engage effectively with the front-loading of conceptual learning through lecture recordings and pre-class activities, calling for further applied research in this domain. Beyond the hype, where is the evidence to support the effective implementation of design strategies such as flipped learning?

Remarkably, what we observe instead in the most recent UCISA data (UCISA, 2016) is a *decreasing* rate of evaluation studies conducted by UK institutions on the impact of TEL, both in relation to the student learning experience and the effectiveness of pedagogic practices (Table 4).

Table 4. Institutional evaluation on the impact of TEL on the student learning experience and pedagogic practices: 2012-2016

Table 5 presents a cross-tabulation of the evaluation data by institutional grouping, using a complexity index (CHEITA, 2015) to group institutions by size (staff and student FTE) and IT spend, ranging from the largest and most well-resourced institutions (most complex – band 1) to the least well-resourced (least complex - band 5). The table shows that the most complex grouping (band 1) - the grouping that has invested strongly in new TEL services such as lecture capture - has the highest proportion of institutions undertaking evaluations. The UCISA data goes on to show though that the most common drivers for evaluation have been to investigate student satisfaction and take-up of new TEL services, rather than to scrutinise the impact of this technology on student learning outcomes. This suggests that the critical review of technologies and their impact on learning is not being addressed across the sector, with the focus more on service-level evaluation measures. No doubt this has prompted the recent call to action from Jisc and the Higher Education Policy Institute for the sector to develop the knowledge base on what works in TEL to help academics to make informed decisions on their use of technology (Davies, Mullan & Feldman, 2017).

Table 5: Breakdown of 2016 UCISA TEL Survey data on institutional evaluation activity on impact of TEL by organisational complexity bands, using CHEITA index

Data from the 2016 survey also reveals a reduced number of institutions actively assessing the value of TEL in relation to student performance through the use of learning analytics (i.e. n=7, compared with n=12 in 2014), with only six institutions declaring that they are doing this for the purposes of pedagogic evaluation. Only 20 institutions appear to have established learning analytics services which are used by students and typically these services are being used on a small-scale across 1% - 4% of their courses. The limited levels of institutional activity with learning analytics are indeed reported in other studies of the sector (e.g. Newland, Martin & Ringan, 2015; Universities UK, 2016), which highlight the lack of clarity that senior management teams have regarding the possible benefits and outcomes of implementing learning analytics services within their institutions, and the role they could play in supporting learning and teaching activities.

Discussion

Reviewing progress over the last three UCISA surveys (2012-2016), the data reveals that HE institutions have made significant investments in TEL services, which have most commonly focused on the implementation of institutional VLE, e-assessment and lecture capture systems. With attention to the standardisation of the student experience, institutions have also introduced baseline usage policies for the academic adoption of their VLE systems. This has addressed the "transactional" expectations of students towards the use of technology in learning and teaching activities, as highlighted by the Jisc Digital Student project (Jisc, 2013 -), supporting "anywhere, anytime, any device" access to learning resources and course materials. In contrast, there is limited evidence to support the view that TEL is having a major transformational impact on pedagogic practices across the sector, promoting innovation in course delivery. Why is institutional investment in TEL not yielding this change?

This differentiation in *transactional* and *transformational* outcomes may be better understood by using the "conditions of flexibility" framework outlined by Barnett (2014) to analyse recent TEL developments across the sector. Barnett presents a broad and nuanced interpretation of flexibility, identifying four levels:

- *sector flexibility*: enabling flexible entry points for students to higher education study programmes;
- *institutional flexibility*: focusing on institutional responsiveness to student expectations and needs;
- *pedagogical flexibility*: supporting flexibility within teaching and learning processes, including allowing academic staff control over teaching methods and the latitude to respond to different circumstances;
- *learner flexibility*; providing student choice within their learning experience.

Based on these categories it can be argued that recent investment in TEL services has been focused on ensuring *institutional flexibility*, and has been driven by a need to scale up and manage key learning, teaching and assessment processes across institutions. This has been encouraged by HEFCE's vision of efficiency benefits through the adoption of TEL tools and services (HEFCE, 2009). The ubiquitous presence of centrally managed virtual learning environments (VLEs) and e-assessment systems bear testimony to this drive to push technology out to departments and to embed its use within academic practice. Such investment, it can be argued, addresses a commitment to provide a common user experience to students, one of the top five institutional drivers for TEL development across the UK HE sector, as reported in the last three UCISA surveys. It also reflects a desire to meet student expectations and improve student satisfaction ratings through feedback channels such as the UK National Student Survey.

Barnett notes that these differing levels of flexibility will interact with each other and that "a determination to drive up sector flexibility or institutional flexibility may actually work to reduce pedagogical flexibility or learner flexibility" (2014, p.30). If we apply this thinking to TEL developments, it raises the possibility of conflicting institutional priorities towards the use of technology in learning and teaching, with potentially a greater emphasis placed on the *means* through which university teaching happens, rather than on *how* teaching is actually designed and delivered. This underscores the importance of addressing academic staff needs in the drive to scale up TEL provision and meet student expectations, providing academics with the *pedagogical flexibility* to develop their professional skills and to explore innovations in course design and delivery.

In our estimation, the focus on professional development is particularly pertinent to TEL adoption trends, coming at a time when academics are being asked to engage with an ever-increasing number of tools and services in support of the student learning experience. Digital skills development has been acknowledged as a key priority by Jisc (2015), which has developed a shared national digital capability framework to describe and support the skills required by academic and administrative staff to thrive in a digital environment and support the new generation of learners coming on campus. Whilst claims of a new digital divide between academics and Generation 'C' students - the generation responsible for open source software development, music file-sharing, YouTube, Flickr, and the Wikipedia (Bruns et al., 2007) - may be overly simplistic, there is a need to consider ways in which instructors can be encouraged to think about technology mediated approaches which engage students in active learning tasks.

This has implications for professional development in relation to *digital capability* – the technical skills that academics require to manage the use of learning technologies in

course delivery, but also extends to *digital fluency* - the pedagogical skills which are needed to design in and facilitate technology-mediated learning effectively, informed by evidence-based use cases and transferable practice. Research tells us that instructional support for online learning requires differing strategies to facilitate effective group learning and participant-led activities (Harper & Nicolson, 2013; Salmon, 2004) and can lead to academics assuming different roles in their online interactions with students, transitioning from subject expert to "process oriented supervisor" and "therapist" (Danielsen & Nielsen, 2010). Academics need to be supported in the development of these skills as part of a joined-up professional development focus, addressing both technology and pedagogic practice.

The UCISA survey findings also highlight the importance of establishing institutional and departmental / school cultures which are supportive of academic adoption of TEL tools and open to innovation in technology-mediated course design and delivery. Our case study research has highlighted how senior managers are attempting to influence institutional culture on various levels by establishing TEL strategy groups and committees and introducing top-down policy initiatives requiring the use of VLE, e-assessment and lecture capture systems. There is a need though to consider how enabling approaches to TEL adoption from the bottom up and 'middle out' (at the programme-level) might influence academic practice and support cultural change. This relates to initiatives which provide academics with the space to reflect on pedagogic values and their approach to supporting student learning - offering them the freedom to experiment, evaluate and learn from trial and error.

Conclusion

This article has drawn on longitudinal data from recent UCISA surveys and case studies to report on TEL developments across the UK HE sector. The UCISA data reveals a gap between the institutional rhetoric of TEL and the reality of its impact on academic practice. Whilst there has been significant institutional investment in learning technologies in recent years that has increased the range of tools available to staff and students to use in learning activities, the ways in which these technologies are being employed does not appear to have changed dramatically: with respect to the mode of course delivery, supplementary uses of the web still predominate. The UCISA surveys and supporting case studies have shown that attempts to stimulate pedagogical innovation are occurring within institutions, but they tend to be limited in scope and contained in terms of their impact on mainstream academic practice.

The UCISA findings suggest that the use of technology to support creative innovations in course delivery is being overshadowed by investment which focuses on delivering efficiencies in academic and administrative processes. There has also been a concerted effort by UK HE institutions to establish a common user experience that will help produce a positive response to strategic measures such as the UK National Student Survey. Crucially these investments have been made by institutions at a time when there has been a reduced level of evaluative activity in addressing the impact of TEL tools and services on student learning and pedagogic practices. This calls into question the depth of the evidence base available to academics to inform their effective use of TEL tools in teaching and learning activities, with benefits to learning assumed rather than proven.

We conclude from these contrasting developments that institutional decision-making has been stratified with investment decisions directed to institutional flexibility and the

student satisfaction agenda – with support for pedagogic innovation in course design and delivery approaches attracting far less attention across the sector. Whilst it is clear that investment in TEL services has supported the establishment of a baseline of course provision with accompanying benefits for the student learning experience, we are a long way from mainstreaming innovative pedagogic practices through the use of technology, which demonstrably improve student learning. It is incumbent on HE providers to be aware of how investment decisions interact at different levels within an institution, adopting a balanced strategy which values pedagogical flexibility as much as institutional flexibility in the adoption and deployment of learning technologies. The UCISA research indicates that a balanced approach is necessary if we are to realise the full potential of TEL to support new and enhanced models of course delivery - encouraging sustainable change in academic practice across the sector. This is a theme that we will seek to track in future UCISA research on institutional TEL developments within the UK HE sector.

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