${ m TRANSFORMING}$ ${ m HIGHER}$ $_{ m EDUCATION}$ THROUGH TECHNOLOGY-ENHANCED LEARNING

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INTRODUCTION

TERRY MAYES, DEREK MORRISON, HARVEY MELLAR, PETER BULLEN AND MARTIN OLIVER

This book represents an important snapshot of higher education's current thinking about the impact of technology on its own teaching and learning. Although this volume was first conceived as dissemination for the Benchmarking and Pathfinder Programme, the final edited collection is somewhat broader in scope, and more reflective in tone, than a straightforward account of the outcomes. The aim of the Benchmarking and Pathfinder Programme, in which 77 institutions participated between 2005 and 2008, was to help them assess their progress and then develop their priorities for the development of technology-enhanced learning. Some policymakers have placed great store by the potential of technology to transform the trade-off between cost and quality in higher education, an issue that resonates only too strongly in the face of an inevitable financial constraint on development. The programme was initiated by the Higher Education Funding Council for England in the immediate aftermath of a rather traumatic event for UK e-learning - the demise of the UK e-University – and the programme represented a welcome opportunity to return the key responsibility for development back into the hands of policy-makers and practitioners in the institutions themselves. At the same time as Pathfinder, the Scottish sector enjoyed a similar opportunity with its e-Learning Transformation Programme. Latterly, Wales has initiated its own enhancement programme, with institutions again leading the development activity. Institutions across the whole UK HE sector have therefore had a recent opportunity to think hard about the opportunities offered by technology. The contents of this edited volume of articles offer both some results of their current analysis, and a reflection on the direction for future policy.

The book is structured into three sections, with six chapters in each. In the first section the focus is on national policy in technology-enhanced learning (TEL), the second is on institutional approaches, and the third looks at how technology is serving new thinking in pedagogy. The contributors to this volume were all invited by the editors to submit a chapter, based on the impact of their work in the Pathfinder programme, or because their work brings an important perspective that helps us to understand the programme in a wider context. All chapters were reviewed by at least two members of the editorial team, and in several cases by an appropriate anonymous reviewer.

In Chapter I, Jane Plenderleith and Veronica Adamson, who have been influential advisers on e-learning strategy to all UK funding councils, set the scene for the rest

of the chapters by describing the policy landscape for transformation. Their chapter not only gives a comprehensive account of the development of national strategies in this area, but gives us insight into the subtle shifts in thinking that have underpinned the development of strategy, both from the Government and in the funding councils. Harvey Mellar and Magdalena Jara, in Chapter 2, approach TEL from a rather different but still crucial perspective - that of quality. Recent years have witnessed a distinct change of emphasis from quality assurance to quality enhancement, but there has been a surprising lack of policy around the issues raised by the rapid expansion of flexible delivery, e-learning in particular gives rise to questions about quality that echo even beyond the sector. In Chapter 3, Derek Morrison, who has led the Benchmarking and Pathfinder Programme, and now leads the Welsh programme, offers a critical reflection on the thinking about technology as transformational that informs much of the UK's current strategy. Following that, Terry Mayes provides a demand-side perspective that shifts the emphasis from institutional provision to the roles of the teachers and learners themselves. The idea of transformation may apply to individuals as powerfully as it does to institutions. Then, completing Section 1, there are perspectives from outside the UK, first an Australian view from Shirley Reushle, lacquie McDonald and Glen Postle, then a focus on European projects that have attempted to develop virtual campuses, from Mark Stansfield and Thomas Connolly.

In the first chapter of Section 2 (Chapter 7), Paul Bacsich introduces the institutional level of analysis by reviewing the methodologies used in the benchmarking exercise. Also at that level, Laura Czerniewicz and Cheryl Brown discuss the evidence suggesting that the effectiveness of e-learning policy will depend to some extent on the nature of institutional culture. This section then offers some specific approaches to transformation that have emerged from Pathfinder as issues for institutional policy. Susan Westerman and Wayne Barry describe an enabling staff development approach that involves intensive support for individual academics to raise their level of digital literacy. In Chapter 10, Alejandro Armellini, Gilly Salmon and David Hawkridge describe the highly effective method of working with programme teams, called Carpe Diem, while in Chapter II, Irene Anderson and Peter Bullen explain how their institutional 'Change Academy' approach has had similar success across an entire institution. Both these approaches exploit the crucial opportunity offered by course design or redesign, and both methods are being now being offered to institutions across the sector. Finally in this section, in Chapter 12, Harvey Mellar, Martin Oliver and Christina Hadjithoma-Garstka reflect on another key issue for institutions - the extent to which transformation is underpinned by the institution's own research.

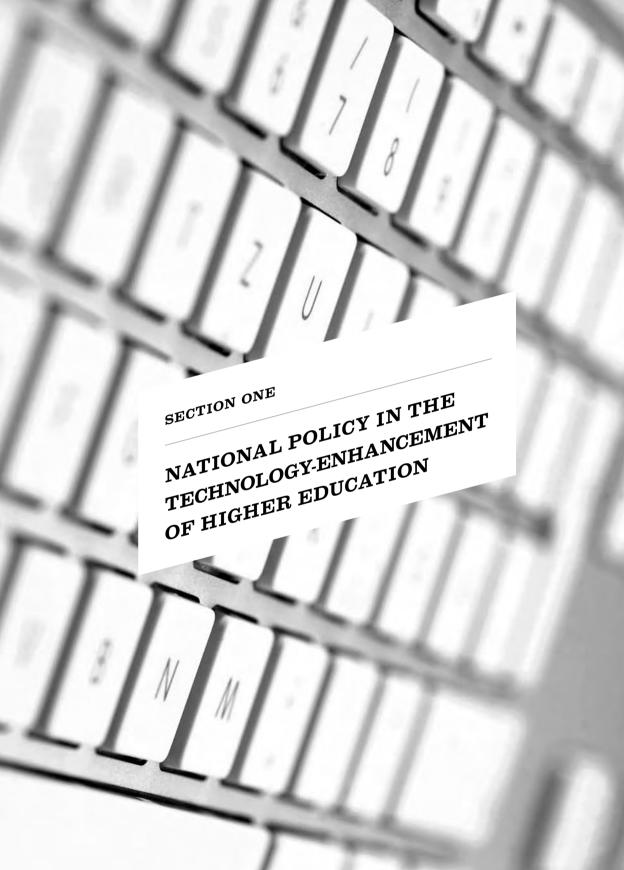
The focus in Section 3 moves to pedagogy. Each of the national initiatives discussed in Section 1 has, in one sense or another, acknowledged that the transformations sought cannot be achieved through technology developments alone. Indeed this point is increasingly recognised in the funding councils' strategy documents in which technology is described increasingly as a tool that facilitates the

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introduction of more powerful and effective methods, particularly in pedagogy. It is these changes in method that we need to understand: the nature of the technology used to achieve them can sometimes simply distract us. In each of the chapters in Section 3, therefore, we see a consideration of this relationship between pedagogy and technology. In Chapter 13, Rhona Sharpe focuses on the impact of researching the learner experience itself, and describes how a thriving Special Interest Group (SIG) in this area has emerged from Pathfinder. The remaining chapters then describe attempts to use pedagogical change directly to underpin transformation. Two of these were projects in the Scottish e-Learning Transformation Programme. The first (Chapter 14), described by David Nicol and Steve Draper, involved deriving a new approach from pedagogical principles around assessment and feedback, while in the second (Chapter 15) Andrew Comrie, Keith Smyth and Terry Mayes describe an attempt to give learners more control over their own learning activity. In Chapter 16, Richard Hall and Heather Conboy consider some key issues raised in Pathfinder by exploring the potential of the read/write web, while in Chapter 17 lethro Newton and Andrew Middleton describe how sector-wide interest in podcasting as a tool that generates new pedagogical thinking has also led to the emergence of a SIG. Finally, in a suitably visual chapter, Phil Gravestock and Martin Jenkins argue in Chapter 18 that giving students the tools and competencies to present their learning in new media can have an invigorating effect on their motivation.

During the period when these transformational programmes were operating some striking changes have occurred in the world outside higher education, particularly as young people in general have started to use the Internet to share their experiences with each other digitally. This seems to signal a fundamental change in the way young people learn, though the change is more likely to be cultural than cognitive. In this context the impact of the programmes themselves in generating transformation in higher education is hard to judge since change is continuous and rapid in some areas, while the tendency to continue to teach in traditional ways is a strong counteracting force. This volume gives a sense – as the title of a Pathfinder report¹ indicated – of both the realisations and the challenges.

I Challenges and Realisations from the Higher Education Academy/JISC Benchmarking and Pathfinder Programme. End of programme report. Available from: http://elearning.heacademy.ac.uk/weblogs/pathfinder



THE POLICY LANDSCAPE OF TRANSFORMATION JANE PLENDERLEITH

INTRODUCTION

'Transformation' is a problematic word. As an abstract concept it invites visionary notions of radical reform; as a concrete noun it refers to a process that alters form without changing substance. Small wonder that transformation is a term that has found favour with policy-makers, speech-writers and advisers in a wide range of governmental, management and political spheres.

In the distant background of this policy landscape is Harold Wilson's 1963 oration to the Labour Party conference, now usually paraphrased as the 'white heat of technology' speech. In the foreground, it could be said that 2005 was a significant year in the UK Government's use of transformation as a policy driver. This was the year when the Cabinet Office first published its Transformational Government Enabled by Technology strategy, which set out plans to "seize the opportunities presented by information technology to transform the business of government". In concrete terms, the purpose of 'transformation' in this context is to improve public service effectiveness and efficiency by shared services, designed and delivered around the needs of individual citizens. In the wider context of visionary reform, the Transformational Government strategy document has had repercussions for all areas of policy and practice².

www.cabinetoffice.gov.uk/cio/transformational government/strategy.aspx

² The Comprehensive Spending Review (www.hm-treasury.gov.uk/pbr csr07 repindex.htm), which sets the Government's spending and delivery targets for 2008 to 2011, has the principles of Transformational Government at its heart in its Service Transformation Agreement.

TRANSFORMATION IN HIGHER EDUCATION

The policy context for the transformation of public services through the use of technology has a particular resonance in the departments responsible for education and lifelong learning. Also in 2005, the then Department for Education and Skills (DfES) published its report Harnessing Technology: Transforming Learning and Children's Services³. The report followed a consultation process entitled 'Towards a Unified e Learning Strategy', including higher education in its scope. The change in language from 'unified e learning' to 'transforming services' in the published strategy signifies a shift in focus in response to the overarching transformational government agenda. The focus on children's services was also a late development reflecting a change in governmental structures.

The DfES strategy was explicitly designed to 'harness' technology (in the sense of 'control and make use of') to address the needs of a wide range of stakeholders in the education and skills arena. It included a definition of e-learning as "learning with the aid of information and communications technology tools", which has been widely cited and further used to clarify what is understood by e-learning, possibly because it appears to meet the desire for a definition without being overly specific. Within this general context, the *Harnessing Technology* strategy set out to achieve four objectives that are specific to the provision of education, but also reflect the wider policy context for transformation with regard to personalisation of services, widening access, partnership working, and efficiency and effectiveness in delivery.

Coinciding with the launch of the DfES Harnessing Technology strategy, the Higher Education Council for England (HEFCE) published its Strategy for e-learning⁴. This set out HEFCE's strategy and implementation plan for supporting higher education institutions to develop and embed e-learning over ten years to 2015. In developing this strategy, HEFCE had initiated a consultation process almost two years earlier in July 2003, which generated responses from more than 100 higher education providers, as well as a range of sector agencies and organisations⁵. The timescale is significant. Initial consultation had confirmed that there was support for an aligned and integrated technology strategy across all the education sectors. HEFCE was encouraged to develop its own strategy for e-learning to meet the specific needs of higher education, while engaging in consultation with the DfES with the aim of ensuring that the HEFCE strategy would stand, effectively, as an annex to the national strategy, specific to the needs of the HE sector while remaining consistent

³ www.dfes.gov.uk/publications/e-strategy/fore.shtml / http://publications.dcsf.gov.uk/default.aspx?Pag eFunction=productdetails&PageMode=publications&ProductId=DFES-1296-2005&

⁴ www.hefce.ac.uk/pubs/hefce/2005/05 12/

⁵ Responses to consultation on the HEFCE e-learning strategy was produced by Glenaffric Ltd in May 2004. See www.hefce.ac.uk/Pubs/rdreports/2004/rd04_04/.

with the overall structure of the national strategy for technology in education. However, the DfES strategy underwent some major restructuring and refocusing, and incorporated a focus on children at a relatively late stage in its development. In the end, the national Harnessing Technology e-strategy and the HEFCE strategy for e-learning were not as well aligned as was originally intended. The differences are mainly of emphasis rather than of substance: the HEFCE strategy emphasises embedding ICT in all aspects of the learner's experience; the Department's strategy echoes the overarching government policy of the day in emphasising the transformation of services in support of education.

The timescale is also significant as regards other technology-related HEFCE initiatives. On behalf of the sector, HEFCE had invested considerable funding in the development of the UK e-University (UKeU). The initial consultation document had placed some emphasis on the leading role of the UKeU and a wholly online approach to e-learning. HEFCE received the report on the consultation responses in the same month as it announced its decision to restructure the UKeU and to reallocate funding in support of the development of e-learning in universities and colleges in February 2004⁶. The demise of the UKeU had a clear bearing on the development of the 2005 HEFCE strategy for e-learning. On the one hand, this strategy presented a clear focus for the reallocation of funding for the use of technology in HE. On the other hand, HEFCE was aware of a 'cold wind blowing through e-learning' and a certain scepticism, disillusionment and disenchantment in the sector with the notion of e-learning as a delivery strategy⁷. If the final strategy document is perceived as more inward-looking than outward-projecting, more consolidative than visionary, more tentative than bold, it is in this context that those judgments should be viewed.

The 2005 HEFCE strategy outlined a number of key aims and objectives, the first of which echoes the policy context for transformation in emphasising the use of technology to transform higher education:

- to support the HE sector as it moves towards embedding e-learning appropriately, using technology to transform higher education into a more student-focused and flexible system, as part of lifelong learning for all who can benefit:
- to enable institutions to meet the needs of learners and their own aspirations for development;
- to support institutions in the strategic planning, change management and

⁶ www.hefce.ac.uk/news/hefce/2004/euni

⁷ These comments are noted in the Review of the 2005 HEFCE Strategy for e-Learning, which was developed for HEFCE by Glenaffric Ltd and published in October 2008. See www.hefce.ac.uk/pubs/RDreports/2008/rd20_08/.

- process development that are necessary to underpin their development and embedding of e-learning;
- to promote learning research, innovation and development that begin with a focus on student learning rather than on developments in technology per se, enabling students to learn through and be supported by technology; and
- to support lifelong learning by joining up our strategy with those of other sectors of education, enabling connections between academic learning and experiential learning in the workplace and other aspects of life.

The implementation plan for the strategy was devised jointly with HEFCE's strategic partners, the Higher Education Academy and JISC. Objectives were outlined under seven strands, with specific implementation actions for each strand developed in consultation with JISC and the Academy. The strategy also includes a set of measures of success by which HEFCE would consider the strategy to have achieved its objectives. In effect these are visionary statements for the role of technology in higher education, of which the first is all-encompassing and determines the rest:

ICT is commonly accepted into all aspects of the student experience of higher education, with innovation for enhancement and flexible learning, connecting areas of HE with other aspects of life and work.

It was HEFCE's explicit intention to review its e-learning strategy every three years in the context of its broader strategy for learning and teaching. A review was commissioned by HEFCE and the report published in October 2008⁸. This made a number of comments in relation to the context and vision of the strategy, the structure of the strategy document and its implementation plan, and procedures for monitoring and review. The review included some specific suggestions for updating the language and tone of the strategy to reflect recent developments in the use of technology in the sector. It recommended a bolder and more outward-looking approach, with particular reference to a shift in the strategic emphasis from embedding e learning towards an appreciation of the potential use of technology to address the key challenges facing higher education.

The policy context for the 2008 review of the HEFCE Strategy for e-learning included the changes in government structures in the Summer of 2007, which formed two new departments with responsibility for education: the Department for Children, Schools and Families (DCSF) and the Department for Innovation,

Universities and Skills (DIUS)9. The letter of grant from DIUS to HEFCE of January 200810 had set the priority areas within which HEFCE was to encourage and reward innovation with regard to increasing student numbers and widening participation, then developing a new relationship between higher education and employers, and research and innovation. The context for the strategy review pointed to the need to respond creatively to the challenges and opportunities of the global economy and for HEIs to have a central role in developing a learning society with the right blend of high-level skills essential to a modern economy in the 21st century.

One of the three key 'transformations' identified in the 2005 Transformational Government strategy was the "move to a shared services culture" to improve the quality and cost-effectiveness of public services. While this was not declared mandatory for HE, the HEFCE approach to shared services and plans to build on existing good practice were set out in a circular letter, Shared services: the benefits for higher education institutions, of August 2006¹¹. The UK academic network, JANET, won an e-Government Shared Services award for 2007¹².

Other policy initiatives for the HE sector with a bearing on the strategic development of e learning include those in support of the Bologna declaration of 1999¹³ on the European space for higher education, working towards a common framework and transparent system of qualifications and skills transferability across the European Union, and actions in support of the Leitch Review of Skills published in 2006¹⁴. The HEFCE strategic plan 2006–2011 makes reference to the revision of the e learning strategy in support of the goal to help universities and colleges use new technology to enhance learning and teaching as effectively as they can, so that it becomes a normal part of their activities. HEFCE's announcement of its intentions with the 2008 review¹⁵ makes clear that this presents an opportunity to develop a more enhancement-focused strategy with an increased emphasis on particular areas of wider importance. This fits with the long-term view that technology-based solutions are integral to all aspects of the sector's business, with particular reference to the core activities of learning, teaching and assessment.

⁹ In June 2009 DIUS merged with the Department for Business, Enterprise and Regulatory Reform to form the new Department for Business, Innovation and Skills. In existence for less than two years, DIUS is one of the shortest-lived Whitehall ministries ever. See www.dius.gov.uk/news_and_speeches/announcements/bis (for the press announcement) and www.timeshighereducation.co.uk/story.asp?storycode=406877 (for comment).

¹⁰ www.hefce.ac.uk/news/hefce/2008/grant/letter.htm

II www.hefce.ac.uk/pubs/circlets/2006/cl20 06/

¹² www.hefce.ac.uk/news/hefce/2008/janet.htm

¹³ http://ec.europa.eu/education/policies/educ/bologna/bologna en.html

¹⁴ www.dfes.gov.uk/skillsstrategy

¹⁵ www.hefce.ac.uk/learning/elearning/

HEFCE published Enhancing learning and teaching through the use of technology: a revised approach to HEFCE's strategy for e-learning in March 2009¹⁶. This document represents a subtle but important shift in the language, and the strategic focus, from "embedding e-learning" to "enhancing learning and teaching through the use of technology". An important step change with the 2009 strategy is the emphasis on the role of this policy in supporting institutions in developing and implementing their own strategies for enhancing learning, teaching and assessment through the use of technology. This recognises that the processes, benefits and outcomes from using technology to support learning will be different in each institution, and depend on underpinning infrastructures, management practices, architectures and services.

So while the 2005 strategy was both relatively introspective, setting objectives for HEFCE and its agencies, but also paradoxically quite directive in the measures of success it expected institutions to demonstrate, the revised approach in 2009 places the strategic responsibility for transforming services through the use of technology firmly with the institutions in the sector. HEFCE's strategic emphasis is on recognising that technology has a fundamental part to play in higher education, but that institutional contexts and strategies are key, with the implication that institutions need to consider how to invest their core funding appropriately. HEFCE's main partner agencies continue to offer support for institutions in identifying the areas where they wish to focus attention. Rather than specifying measures by which the success of its strategy may be measured, HEFCE clarifies the levels of benefits that institutions may derive from such strategic developments as follows:

- efficiency (existing processes carried out in a more cost-effective, timeeffective, sustainable or scalable manner);
- enhancement (improving existing processes and the outcomes);
- transformation (radical, positive change in existing processes or introducing new processes).

This definition of transformation is significant in its advocacy of the use of technology to support radical change in institutional processes. HEFCE's policy statement emphasises the importance for institutions of strategic investment in technology. The implementation framework for the strategy is designed to help institutions to identify their own priorities for development, supported by initiatives and resources from IISC and the Higher Education Academy.

TRANSFORMATIONAL POLICY IN HIGHER EDUCATION ACROSS THE DEVOLVED NATIONS

Responsibility for educational policy and strategy, including higher education, is devolved to the Scottish Government, the Welsh Assembly Government and the Northern Ireland Assembly. Further dimensions of complexity are opened in attempting to untangle the inter-relationships between UK government pronouncements on transformational policy and strategies for technology-enhanced learning and teaching in the devolved administrations of Scotland, Wales and Northern Ireland

SCOTLAND

The Scottish Funding Council was the first of the UK funding councils to issue an explicit policy statement relating to e-learning in higher education. Prior to the merger of the Scottish Higher Education Funding Council (SHEFC) and Further Education Funding Council (SFEFC) in August 2005, e-learning was one of the strategic development areas where there had already been close co-operation. The final report of the Joint SFEFC/SHEFC e-Learning Group had been published in July 2003¹⁷. This report set the following principles for the Council's approach to e-learning, which continue to inform policy and practice:

- e-learning is fundamentally about learning, not technology. The strategic development of e-learning should be based on the needs and demands of learners and the quality of their experience;
- the economics of e-learning mean that progress is likely to require collaborative approaches to create significantly large cohorts of students;
- e-learning has the potential to bring about transformational changes for institutions and the way in which they meet learner needs, but in the short to medium term (and for most institutions) such change is likely to be incremental;
- the Council should not seek to drive the pace of change, but rather help to create the environment within which institutions can develop their approaches to learning; and
- the Council should intervene only where we can add value, and not take spending decisions that would be better left to institutions.

Most significantly, the 2003 Joint e-Learning Group's report introduced the concept of transformation to the policy context for higher education in Scotland:

"e-learning has the scope to transform how institutions operate and serve the needs of Scotland, but if this is to happen it will require a fundamental shift in how they organise the development of courses and support for learners."

The Council recognised that this 'fundamental shift' with regard to real strategic gains could only be achieved if the introduction of e-learning could tackle the major challenges facing the sector. The transformational agenda of service efficiency and effectiveness underpins the Council's vision for the use of e-learning to achieve economies of scale, high-volume scalable production of materials and new forms of delivery for the sector as a whole.

To facilitate the implementation of its policy, the Council planned and supported a programme of e-Learning Transformation (ELT) projects from 2004 to 2007 for both the further and higher education sectors. The context of transformational change is outlined in the Council's circular letters of I July 2004¹⁸, which invited institutions to bid for transformation funding. This context includes the key principles on which the concept of 'transformation' is based:

- the process of change will mean that certain aspects of learning and teaching are conducted in a new way;
- the process of change is consistent with, and embedded in, institutional strategies and is not a peripheral process driven solely by the possibility of external funding;
- the intended outcome is sustainable and is expected to result in long-term change in activities beyond the period of external funding; and
- the process will yield measurable benefits to the institution and its learners.

One of the main influences on the Scottish ELT Programme was the National Center for Academic Transformation¹⁹ (NCAT) in the United States. NCAT is an independent non-profit organisation dedicated to the effective use of information technology to improve student learning outcomes and reduce the cost of higher education. The Pew Grant Program in Course Redesign explored new forms of course design and approaches using technology to achieve efficiency savings and quality enhancements, including learner-centred delivery, on-demand help and alternative staffing structures. Its fundamental premise was that technology can be used to improve both the effectiveness and the efficiency of higher education, specifically that reducing costs does not mean diluting quality.

The SFC published periodic reviews of its policy on e-learning in 2005 and 2007. The 2005 review mentions transformation, in the context of continuing support

¹⁸ http://archive.sfc.ac.uk/information/info_circulars/shefc/2004/he2204/he2204.html

¹⁹ www.center.rpi.edu

for institutional transformational change using strategic development funds. Its first recommendation is to continue to support e-learning activities within the Council's broader policies on quality enhancement, specifically the work of the Enhancement Themes initiative of the Quality Assurance Agency (QAA) in Scotland²⁰.

The 2007 review includes some pointers from the interim evaluation of the SFC-funded transformation projects in the ELT programme. For the Council, the projects had demonstrated that it was possible for institutions successfully to embark on planned programmes of strategic development of e-learning that lead to visible changes in everyday teaching and learning practice. While it had proved challenging to link these developments to simple measures of productivity or efficiency gain, or to measurable improvement in learning, there was evidence that the projects had led both to observable 'culture change' in the participating institutions, and also some quantitative metrics of increased effectiveness. Council policy in 2007 was to continue to track the progress of the transformational initiatives with a view to drawing firmer conclusions about the sustainability of transformational changes in institutional culture and practice.

The policy landscape shifted again in May 2007 with the election of a new nationalist Scottish Government. A 'Joint Future Thinking Taskforce on Universities' was convened in the Autumn of that year to review university funding in the context of the Scottish Government's strategic development priorities²¹. Following the publication of its findings, from 2009 the SFC presides over the disbursement of a formulaic General Fund for Universities and a Horizon Fund, which is intended to act as a catalyst for change²². The Horizon Fund is set within the policy context of the Scottish Government's 2007 skills strategy, *Skills for Scotland: A Lifelong Skills Strategy*²³. While the priority areas for 'groundbreaking' developments in Scotland's universities include the furtherance of world-class research, knowledge transfer and innovation, primacy is given to employability and skills interventions, access and progression. The terms of the Horizon Fund allocation for academic year 2009–10 make no mention whatsoever of transformation or technology²⁴.

²⁰ www.enhancementthemes.ac.uk

²¹ www.scotland.gov.uk/Topics/Education/UniversitiesColleges/16640/hetaskforce

²² www.sfc.ac.uk/news_events_circulars/Circulars/2009/SFC14a09.aspx

²³ www.scotland.gov.uk/Publications/2007/09/06091114/0

²⁴ www.sfc.ac.uk/news events circulars/Circulars/2009/SFC14b09.aspx

WALES

In Wales, e-learning was embedded in the policy objectives of the National Assembly, set out in the 2001 publication The Learning Country²⁵. In 2002, Education and Learning Wales (ELWa), an Assembly Sponsored Public Body with a remit covering further education, government-supported training, adult community learning and school sixth forms, convened an e-learning expert group. In March 2003 this group produced an e learning strategy consultation document, The e Learning Strategy for Wales, with a series of objectives under four broad themes of connectivity, confidence, content and competence. An update report was published by the then Department for Training and Education (DfTE) in 2004, with the intention of developing an 'enhanced e-learning strategy'26. There followed a period of protracted research and consultation, culminating in the publication in April 2008 by the Higher Education Funding Council for Wales (HEFCW) of Enhancing Learning and Teaching through Technology: a Strategy for Higher Education in Wales²⁷. The consultation document on this strategy, published by HEFCW in October 2007²⁸, addresses the various preceding strategic initiatives and policy documents relating to e-learning in Wales, along with a summary of key points, issues, principles and objectives in the use of technology to support learning and teaching in other parts of the UK. The development of the HEFCW Enhancing Learning and Teaching through Technology strategy in 2007 and 2008 draws in particular on the experiences of both the English and Scottish HE funding councils, in both the underpinning conceptual framework it presents and the practical plans for implementation that the strategy proposes.

Like HEFCE in 2005, HEFCW published a ten-year strategy (to the academic year 2018–19), to be reviewed after three years. Instead of focusing on e-learning, HEFCW opted to emphasise the enhancement of learning and teaching facilitated and supported by the use of information and communications technology:

We support the view that institutions' policies should create conditions in which technology-enhanced learning will come to be considered a normal part of the mainstream provision, processes and practice of the institution, rather than being distinct from other forms of learning and teaching. Consequently, we believe in the benefits of seeking to normalise the use of technology within learning, teaching,

²⁵ The Learning Country. A Paving Document. A Comprehensive Education and Lifelong Learning Programme to 2010 in Wales: http://wales.gov.uk/dcells/publications/publications/guidanceandinformation/ learningcountry/learningcountry-e.pdf?lang=en

²⁶ This is based on an informal briefing note supplied by the DfTE Standards and Performance Division in July 2005.

²⁷ www.hefcw.ac.uk/Publications/circulars 5137.htm

²⁸ http://194.81.48.132/Publications/circulars_4804.htm

assessment, the curriculum, strategic planning and other core processes in order to achieve their enhancement.

The emphasis in the HEFCW strategy is on the enhancement of learning, teaching and assessment, and the mainstreaming of the use of technology in all aspects of higher education in Wales. This strategy aims to support and encourage institutions in taking up the opportunities provided by technology and to help create the conditions for the achievement of:

- the enhancement of learning, teaching, assessment, the curriculum and core processes;
- the optimum learning experience, with an established threshold, based on robust technology, including encouraging developments at the forefront of this provision;
- enhanced flexibility and accessibility of provision, including facilitating Welshmedium learning and addressing equality and diversity issues;
- the effective dissemination and sharing of current and good practice, within Wales, the UK, Europe and globally, to facilitate the maintenance of competitiveness of Welsh institutions; and
- the ownership of the strategy by the sector.

The implementation of the HEFCW strategy is supported by the Higher Education Academy and underpinned by the Academy's e-Learning Benchmarking Programme²⁹. Both HEFCE and HEFCW explicitly refer to the Academy's Benchmarking e-Learning exercise as providing a platform for sectoral overview and institutional implementation of initiatives in support of technology-enhanced learning, teaching and assessment.

THE WIDER ROLE OF TECHNOLOGY IN HIGHER EDUCATION

The wider context for the role of technology in transforming higher education also includes the implications of the increasingly widespread use of new and emerging technologies in all aspects of life, work and study by current and future generations of students. The Committee of Inquiry into the Changing Learner Experience was convened in February 2008 to consider the impact of technologies such as social networking and mobile devices on the behaviour and attitudes of learners coming up to, and just arrived in, higher education and the issues this poses for universities and

colleges³⁰. With due respect to the focus of the inquiry, the final report was published online as a text document and accompanying podcast³¹. It concludes that the social web has had a profound effect on the behaviour of young people. Today's learners exist in a digital age, implying access to, and use of, a range of social networking tools and software providing gateways to a multiplicity of interactive resources for communication, information and entertainment.

The report of the Committee of Inquiry identifies two immediate and fundamental issues that have a critical bearing on policy and practice in higher education. The first is addressing the digital divide, which from the student perspective means ensuring access to technology for all and the development of practical skills – including staff skills – in the use of technology as a basic entitlement. The second is the development of information literacies. From the student point of view this means ensuring that they possess the skills and understanding to search, authenticate and critically evaluate material from the range of appropriate sources, and attribute it as necessary. For staff, the requirement is to maintain the currency of their skills in the face of the development of web-based information sources. The report concludes that higher education has a key role in helping students refine, extend and articulate the diverse range of skills they have developed through their experience of new and emerging technologies. The role of institutions of higher education is to enable informed choice in the matter of those tools, and to support them and their effective deployment.

CONCLUSION

The word 'transformation' does not appear in the body of the report on the Changing Learner Experience³². The revised version of the UK Government's *Harnessing Technology* strategy, published by Becta on behalf of DCSF and DIUS in July 2008, is subtitled not 'Transforming Learning' but 'Next Generation Learning', and focuses on securing a technologically confident education and skills system where all participants have a good and self-improving capability with technology. The world has moved beyond the vision of the transformative potential of technology to improve service provision, to a new reality where technology is an integral part of everyday life.

The socio-economic climate dominating the landscape of technology in higher education in 2009 demands a return on investment and the demonstration of tangible benefits. The focus is no longer on transformation per se, but on pragmatic solutions

³⁰ www.jisc.ac.uk/news/stories/2008/02/changinglearnerexperience.aspx

³¹ http://clex.org.uk/ourfindings.php

³² However, there is a reference in the Annex to the SFC's e-Learning Transformation Programme as one of the programmes consulted.

for delivering efficiencies and reducing waste, enhancing the quality of teaching and research while sustaining progress in widening participation, engaging with employers and developing workforce skills, and meeting the challenges of global competition. The 'white heat of technology' seems somewhat cooled and dimmed by the dark clouds of harsh economic realities.

The language and concepts of transformation in higher education both confirm and reflect some significant changes in the wider policy context in recent years. The emphasis on the use of technology to promote efficiency and effectiveness through shared public services has shifted to a focus on the enhancement of learning and teaching, and core institutional processes. It has shifted again to reflect the increasing pervasiveness of technology in all aspects of life and work, and the economic imperative of efficiency. In policy terms at least, it seems that technology has transcended transformation.

See the letter to HEFCE from the Secretary of State in response to the Chancellor's April 2009 budget statement www.hefce.ac.uk/news/hefce/2009/efficiency/letter.htm and recent speech to the HEFCE conference on 2 April 2009 www.dius.gov.uk/news_and_speeches/speeches/john_denham/hefce2.

2

QUALITY ASSURANCE, ENHANCEMENT AND E-LEARNING

HARVEY MELLAR AND MAGDALENA JARA

BACKGROUND

The use of e-learning in itself does not constitute an enhancement of the quality of teaching and learning, but it is a potential enabler for such enhancement. Many of the Pathfinder projects and reports² made reference to the concept of quality, and about a quarter of all reports made specific reference to quality assurance and quality enhancement. A number of Pathfinder projects had a particular focus on quality assurance and enhancement, and some of these (Institute of Education, University of London; University of London External System; and the Universities of Derby, Reading and Teesside) came together in the Pathfinder Network Project 'Quality assurance and quality enhancement in e-learning' to further explore QA/QE issues in the area of e-learning and to prepare a workshop that was then run in five universities and has since been run at a number of international conferences. This Network Project resulted in the formation of the Quality Assurance and Quality Enhancement in e-Learning SIG³, which carries this work forward.

This chapter discusses some of this work in the area of QA/QE of e-learning and sets out to put it within a wider context, in particular within discussions of the move from quality assurance to quality enhancement.

² Access to all Pathfinder reports can be found at http://elearning.heacademy.ac.uk/weblogs/pathfinder/

³ www.qe-sig.net

FROM QUALITY ASSURANCE TO QUALITY ENHANCEMENT

Our present UK quality assurance regime has its origins in the Further and Higher Education Act 1992 leading to the founding of the Quality Assurance Agency for Higher Education (QAA) in 1997. The QAA (2003) sets out the framework for quality in this way:

Academic quality is a way of describing how well the learning opportunities available to students help them to achieve their award. It is about making sure that appropriate and effective teaching, support, assessment and learning opportunities are provided for them.

Universities and colleges of higher education in the UK are autonomous, self-governing institutions. Each is responsible for the standards and quality of its academic awards and programmes. Each has its own internal procedures for attaining appropriate standards and assuring and enhancing the quality of its provision.

In particular, institutions address their responsibilities for standards and quality through:

- the assessment of students;
- their procedures for the design, approval, and the monitoring and review of programmes.

The internal quality assurance procedures (IQAPs) commonly used include the use of course validation, external examiners, annual reviews, student feedback, student representation and team meetings.

Quality assurance and quality enhancement can be seen as parts of a larger process of quality management: assurance being concerned with determining that objectives and aims have been achieved, while enhancement is concerned with making improvements. There has been a tension between the twin goals of assurance and enhancement since the beginning of the QAA's auditing of institutions. The fact that the same internal quality procedures have often been used both for QAA assurance auditing and for HEI-based quality enhancement exacerbates this tension. In 2006 the QAA began a new cycle of institutional audits emphasising that it would follow a new format with a more enhancement-focused approach, describing quality enhancement as:

... the process of taking deliberate steps at institutional level to improve the quality of learning opportunities ... Quality enhancement is therefore seen as an aspect of institutional quality management that is designed to secure, in the context of the constraints within which individual institutions operate, steady, reliable and demonstrable improvements in the quality of learning opportunities. (QAA, 2006b)

Further guidance sent to institutions and audit teams by the QAA in 2007 went on to say:

The definition of 'enhancement' QAA has adopted for institutional audit leaves room for institutions to follow their own definitions of 'enhancement'. Some institutions may define enhancement as 'continuous improvement', others as 'innovation' and there may be other definitions.

There is much discussion in the literature (e.g. Biggs, 2001; Harvey, 2005; Inglis, 2005; Middlehurst, 1997; Raban, 2007) about the relationship between quality assurance and quality enhancement. All commentators see a need for an overarching structure that brings assurance and enhancement within a common framework. So, Inglis (2005) describes quality as being about making comparative judgments and the differences between quality assurance and improvement as revolving around the type of comparison made: quality assurance makes a comparison with a predetermined (minimum) standard, whereas quality improvement makes a comparison between the current standard and the standard being targeted. Middlehurst (1997) describes the management of quality as involving quality control, quality assurance, quality enhancement and transformation.

However, the tensions between assurance and enhancement come to the surface quite quickly in these discussions. Middlehurst (1997) acknowledges that quality assurance efforts are concentrated in accountability, arguing that this is not necessarily connected with enhancement and sometimes is even in conflict with it. Biggs (2001) distinguishes between retrospective quality assurance looking into the past to make a judgment with a focus on accountability and prospective quality assurance concerned with the present and future, focusing on quality as fit for purpose and encouraging improvement. Raban (2009) sums up some of the tensions between quality assurance and enhancement in this table:

Quality assurance	Quality enhancement
Inhibits frank reporting	Encourages and requires frank reporting
Promotes incremental improvement of academic practice	Facilitates transformational change
Discourages risk taking	Supports and manages risk taking

In looking for ways of actually getting beyond these divides and bringing about enhancement, Raban (2007) places particular emphasis on the management of risk, pointing to the importance of risk taking for innovation. He argues for a 'modernisation' of quality management systems entailing monitoring and review arrangements that are

predictive and context-focused. Harvey (2005) argues that it is the internal processes of quality monitoring – student feedback, examiners reports, internal improvement audits, periodic revalidation of programmes of study and staff teams critically self-reflecting on their everyday practice – that impact on improvement of the student experience rather than the external monitoring processes, and so these procedures together with the concept of risk taken from Raban will be a particular focus in our examination of quality procedures for e-learning.

CHANGES TO QA/QE PROCEDURES FOR E-LEARNING

In order to see the nature of the impact of e-learning on existing procedures, we carried out a review (Jara and Mellar, 2008) of 129 institutional audit reports produced by the QAA between 2003 and 2006 looking at the aspects of the reports describing the application of QA/QE procedures to e-learning courses. These reports clearly demonstrated that HEIs acknowledged a need to change their procedures to match the specific features of e-learning courses. The QA/QE procedures most commonly applied to e-learning were validation, annual monitoring, periodic review and course evaluations, and each of these had been modified in some aspects to meet the needs of e-learning courses by some HEIs. The type and extension of the modifications varied widely, from minor changes to the standard procedures, such as adding new sections to the annual monitoring and course evaluation forms or moving surveys to the online environment, to extensive changes such as changing the validation procedure to require an e-learning specialist or external assessor to sit on the validation panels, asking to see samples of materials and requiring detailed accounts of sustainability. Courses might be required to carry out risk assessments on the security and reliability of the delivery methods and to have contingency plans in place. There might be specific scrutiny of economic viability, requiring details of developmental costs, specification of computing and staff requirements, and evidence of long-term market demand. Because of the level of investment there might also be a requirement to refer the proposal to the Planning Committee.

There is general agreement in the literature that QA/QE procedures do indeed need to be modified for their application to e-learning courses (Connolly, Jones and O'Shea, 2005; Hope, 2001; Middlehurst and Campbell, 2003; Robinson, 2004; Roffe, 2002; Stella and Gnanam, 2004). The arguments proposed to support this need for revision are based on the identification of four main differences between e-learning and campus-based courses:

 distributed teams: in the development and delivery of e-learning courses academics usually work in collaboration with a wide range of other professionals and teams, who are not always located in the same place.

- disaggregated processes: the processes of design, teaching and assessment in e-learning courses are usually carried out by different people or teams (and sometimes outsourced) resulting in a disaggregated structure of activities.
- distant location of students: in both fully online and blended courses staff have limited opportunities to interact with students and they increasingly depend on the students' willingness to log in and respond to their requests.
- openness to review: as content, resources and communications in e-learning courses are mainly text-based and usually archived in electronic form, it is possible to carry out more in-depth, continuous and unobtrusive monitoring of participants' activities.

In the next section we report on an empirical study that set out to explore whether these factors are actually affecting the effectiveness of the current QA/QE procedures as applied to e-learning courses, and if so then in what way.

CASE STUDIES

We carried out a detailed study of four postgraduate e-learning courses drawn from a range of universities in the UK, with the aim of exploring the ways in which campus-based universities were applying their internal quality assurance and enhancement procedures to their e-learning courses and to identify the impact of the distinctive features of e-learning on the procedures in place.

Four cases were selected, and in creating each case study two sets of data were gathered: the quality assurance documentation for the previous few years and transcriptions of interviews with stakeholders. These were then analysed using a predefined set of quality categories that allowed us to compare the two sets of data and to identify those aspects of the courses that were impacting on the implementation of the procedures.

The results of this study revealed that there was one factor that had not been stressed in the literature that was affecting the implementation of the procedures in these courses, namely the organisational context in which the courses were located. All four e-learning courses in the study, although belonging to very different institutions, occupied rather 'detached' positions within their institutions that created a sense of autonomy in the course teams, but also a sense of isolation. This position of being 'non-mainstream' allowed course teams to operate rather autonomously, and with regard to QA/QE, to run their courses without major supervision from central units. This situation led course teams to often fail to collect relevant quality assurance information, such as course evaluations from students. This autonomy also led to course teams feeling isolated from the support from central units and senior management. Course

teams in this study often had to sort out some basic services by themselves (e.g. admissions, technical support and online library access) and often felt their requests for central support were not being included on the university leaders' agendas. It is interesting to reflect whether this marginalisation is related to the institutions' inability to properly manage innovation risk. Faced with an inherently risky enterprise, it would appear that the only way that the institutions can deal with them is by keeping them at arm's length and at least partially outside the normal quality processes.

Of the four e-learning features identified in the literature, three of them were seen to affect the application of the QA/QE procedures in these case studies – disaggregated processes, distribution of teams and distant location of students:

- The processes involved in e-learning courses were often disaggregated with the tasks of design, delivery and assessment often carried out by different teams, which affected co-ordination and communication among team members, particularly impacting on the allocation of responsibilities for quality assurance processes. In one case a survey was designed by the development team, but not administered by the delivery team because it was not noticed that no one had been designated to carry this out.
- E-learning course teams were found to be composed of a mixture of fulland part-time tutors, tutors with fee-based contracts and tutors working from home or elsewhere. This distributed feature of teams was often not fully recognised by course leaders, who often failed to adapt their communication mechanisms appropriately, tending to rely on rather informal strategies that would have been adequate for on-campus course teams, but were insufficient for distributed teams; as a result, team members who were located off campus did not always have full information about quality assurance and enhancement processes in place.
- The distant location of students was found to impact on the implementation of the mechanisms for establishing student views as students were usually unable to attend on-campus meetings and tutors were not able to directly interact with students in order to obtain feedback about course processes. However, these difficulties were found to be partially compensated for by strong and trusting online relationships built up between students and tutors in some courses, although these opportunities were not always taken up by course teams.
- The factor related to openness to review was not found to have any impact in these case studies. Course teams were not seen to take advantage of the possibilities that the technology offered them for monitoring the course (e.g. to collect student feedback, monitor student participation and interactions).

These factors were found to have the greatest impact on the quality procedures of course evaluations, course team meetings and annual monitoring.

Course evaluations were affected firstly by the distant location of students. The limited access that tutors had to students resulted in low response rates and so course teams tried a variety of strategies to improve this, including changing the timing at which feedback was requested and modifying the tools used to collect it. The low response rates led course teams to discard any feedback they did get, although where feedback was positive, tutors tended to report this as confirmation of their own views. Course evaluations were also affected by the distributed organisation of the teams and the resulting unclear allocation of responsibilities. Course evaluations were not carried out, or where they were carried out responses were left unanalysed because the responsibility for quality assurance was unclearly assigned.

Course team meetings, which played a key role for the management and monitoring of the courses, were affected by the location and distribution of the team members. Scattered teams tended to lack a structure of formal meetings and course directors tended to rely on informal encounters with tutors, so tutors were not always informed of issues to do with the course, feedback from tutors was not consistently gathered and problems with the course were not reported and hence not addressed. In some case studies, course teams had overcome these limitations by increasing the formalisation of the communication and co-ordination channels by establishing formal and frequent meetings either face to face or online.

Annual monitoring for e-learning courses in this study was usually carried out using the same review procedure as campus-based courses within their institutions. Staff perceived them as an administrative burden that had to be written just for accountability and monitoring purposes, and they were not perceived as useful for enhancement. E-learning course teams tended to see senior management as either not prepared or not able to understand the relevance of the e-learning issues that they were reporting, and so did not provide the support they needed to address their problems. As a consequence of this perception by staff, they tended to produce very limited and formal reviews that were of no help for enhancement purposes.

These findings show that the e-learning mode of the courses, and the complex institutional context in which they are located, impact on the application of the quality assurance mechanisms, and highlight as well the challenges that e-learning course teams need to face in moving from a quality assurance towards a quality enhancement focus. As examples of alternative approaches in the next section, we look at modifications to the three procedures that support the quality enhancement of e-learning courses: student feedback, peer observation and periodic review.

EXAMPLES OF MODIFICATIONS TO QUALITY ASSURANCE AND FNHANCEMENT PROCEDURES FOR F-LFARNING

Barnett's (1994) framework for the analysis of quality assurance processes suggests that course teams need to expand their sense of ownership and control over these procedures in order to increase their usefulness for the course teams themselves rather than external audiences. Raban (2007) argues for the 'modernisation' of quality management systems through monitoring and review arrangements that are predictive and context-focused. The following examples of adaptations of internal quality assurance procedures drawn from recent and ongoing research and development projects go some way to meeting these criteria.

OBTAINING STUDENT FEEDBACK VIA EMBEDDED EVALUATION

Daly (2008) presents an approach to obtaining student feedback using narrative evaluation methods in which learners participate in dialogic evaluation practices as part of their course. Embedding evaluation tasks as part of the activities of the course in this way encourages students to think about their own learning and how the course design, materials and/or activities have supported them (or not) in this process, and it is argued that student learning is enhanced by carrying out this evaluation concurrent with teaching. One of the courses at our own institution that has adopted this approach is the course Research synthesis for policy and practice, and here the students are asked to carry out the following online activity:

Conducting a systematic review is a collaborative process, involving both face-to-face meetings and online discussions/activities. The course has been designed to mimic this process — carrying out activities both in the workshops and online — how has it been to learn like this? Please offer your thoughts.

The results of this activity provide useful feedback to the tutors about the course, as well as encourage learners to reflect on their own learning processes.

PEER OBSERVATION

Swingehurst et al. (2008) describe the development of a programme of peer observation of teaching for online courses, which they call 'Peer-to-peer Reflection on Pedagogical Practice' (PROPP). Modelled on an action learning set, the programme encourages collaborative reflection on teaching practices, based on participants'

specific examples of online teaching. Regular meetings of course tutors are held (either face to face or online), and at each meeting an individual tutor is nominated to bring an example of a problem or an issue related to the course (e.g. feedback prepared for a student, transcript of a virtual seminar, marks awarded for student's work). This material is used as the basis for discussion with other tutors, thus supporting reflection and challenging assumptions. An example topic might be: How do we assess our students? The evidence presented might be a couple of marked assignments with the marks and tutor feedback. The outputs might be insights such that the instructions in the assignment task were ambiguous and so needed to be altered, or that the task needs to be broken down into smaller components, or that written feedback should include specific examples rather than relying on general comments. This PROPP model replaces the quality assurance role of peer observation of teaching with a collaborative approach to quality enhancement through reflection on practice.

PERIODIC REVIEW FRAMEWORK

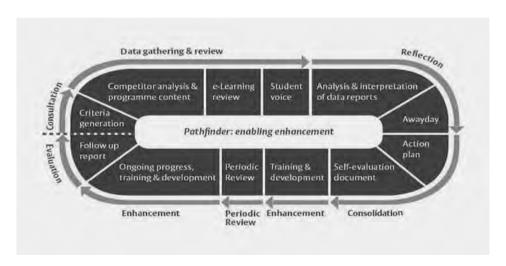


Figure 1: The Enabling enhancement framework4

Papaefthimiou et al. (2008) describe a framework for periodic review developed as part of their e-learning Pathfinder project. This framework involves an expansion of

⁴ www.reading.ac.uk/internal/pathfinder/pf-framework/pf3-framework.asp

the processes of the classic periodic review to incorporate elements of enhancement and evaluation, and the support of a development support team (providing support throughout the process and, in particular, guidance on e-learning aspects). So the stages of the process are as follows:

- Consultation stage to identify criteria, a schedule and timeline.
- Data gathering and review stage carried out centrally by the development support team to create a snapshot of 'where they are now', drawing upon: competitor analysis and programme context; e-learning review; and inclusion of the student voice. This step also seeks to identify how e-learning might be more effectively exploited to address issues arising from the review process.
- Contextual review report written by the development support team.
- Reflection process the analysis and interpretation of data jointly by the course team and the development support team, including an off-campus facilitated awayday. Discussions are held around the contextual review document in order to arrive at a shared understanding and a shared vision for the future. The result is an action plan and a self-evaluation document.
- Enhancement this occurs in response to the reflection and consolidation stage. Short-term needs might be addressed through the provision of staff development sessions and training, while longer-term needs relate to the creation of new programmes and ongoing support for enhancement including the application of technology.
- Evaluation occurs a year after the periodic review process, when the School will be given the opportunity to evaluate progress and report on actions and progress to date.

GOING FORWARD

In this final section we return to the main challenges identified in our case studies and show how these might be addressed, calling on the examples of developing practice that we have described in the last section.

Course teams need to strengthen the co-ordination and communication channels among team members (including academic and support staff, tutors and administrators), firstly through stronger leadership, but also through a higher level of formalisation, which is needed in order to overcome the effects of the distribution of teams and disaggregation of processes. The 'Peer-to-peer Reflection on Pedagogical

Practice' (PROPP) proposal to replace peer observation can be viewed as responding to this need for some formalisation of communication between team members, as can the 'Enabling enhancement framework' for periodic review.

Course teams need to examine strategies to improve the amount and quality of student feedback and to focus efforts on analysing and acting upon that feedback. Course teams also need to take greater advantage of the opportunities provided by the amplified visibility of interaction in online environments in order to monitor students' participation and progression, and to collect feedback from students and also from tutors. Student representation in its traditional campus-based form is not a useful mechanism to access student opinions in e-learning courses, but the case studies suggest that the close online relationships between students and tutors that can develop may be a route worth exploring in order to provide more useful feedback. 'Embedded evaluation' demonstrates one way of capitalising on these features in order to provide a greater insight into the way that the course is impacting on students' learning.

Campus-based higher education institutions need to re-examine the way that they approach the quality assurance and enhancement of e-learning courses. In the cases analysed it appeared that too often e-learning courses were on the sidelines and off the senior management's agenda, senior management was perceived to be unaware of the challenges that the delivery of e-learning courses implied, and quality assurance procedures did not seem to be enforced with the same rigour as for other courses. We have suggested that this may arise from an unwillingness to confront risk as an essential part of innovation, so that rather than develop procedures able to manage this risk appropriately, those innovations seen as inherently risky are treated as special cases and simply excluded from oversight. Institutions need to develop approaches to the quality management of innovation (and especially innovation involving technology) that support innovation rather than stifle or sideline it.

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3

THE BENCHMARKING AND PATHFINDER PROGRAMME AND ITS ROLE IN INSTITUTIONAL TRANSFORMATION

DEREK MORRISON

Transformation (Def):

Change form or appearance or condition or function of, esp. considerably. Electr. Change voltage of (current).

INTRODUCTION AND BACKGROUND

The purpose of this chapter is not to offer readers a detailed account of Pathfinder because there is already considerable documentation relating to the initiative available elsewhere. The intention is, instead, to provide sufficient background information for a reflection on those aspects of the programme that may, eventually, contribute to transformation.

The Benchmarking of e-Learning and Pathfinder (B&P) Programme was a major initiative funded by the Higher Education Funding Council for England (HEFCE) from 2005 to 2008. By the end of the programme in July 2008 77 higher education institutions (HEIs) had taken part the benchmarking exercise, with 37 of those taking part in the related Pathfinder initiative. The programme was led by the UK's Higher Education Academy in partnership with the Joint Information Systems Committee (JISC).

The strategic driver for the B&P Programme was the publication of the first edition of the HEFCE strategy for e-learning, which had placed some emphasis on the embedding of technology and signalled the need for HEIs to identify their relative

I See http://elearning.heacademy.ac.uk/weblogs/pathfinder

positioning with regard to e-learning developments². The HEFCE strategy was updated in March 2009 with a new emphasis on how learning and teaching could be enhanced by the use of technology³.

Five factors were key to the design of the programme.

First, the B&P Programme was launched relatively shortly after the collapse in 2004 of the UK e-Universities (UKeU) initiative⁴. UKeU was itself intended to be a major transformation initiative⁵, which launched in 2000 with £50 million of public money to market and deliver UK university degrees via the Internet⁶. The policy rationale for UKeU had been informed by a number of sources including a business model developed by PricewaterhouseCoopers⁷ and the CVCP/HEFCE report, The Business of Borderless Education⁸, which had highlighted the opportunities and challenges of the emerging 'virtual learning market'. A key driver for establishing UKeU appears to have been the perceived transformational nature of technology itself in enabling a potentially global reach for higher education; a reach which offered both opportunities for UK HEIs, but also challenges because powerful international competitors would no longer be constrained by geography. The model promulgated the benefits of aggregated effort through UKeU as the vehicle rather than through the potentially under-capitalised efforts of individual HEIs or groups.

The different perspectives on the reasons for the demise of UKeU would make an interesting publication in its own right but, in this chapter, it serves only to establish some essential context to the genesis of the B&P Programme. As such, the demise of the UKeU initiative was a painful experience for the UK HE sector and had a major impact on sector confidence for central initiatives. Consequently, re-establishing confidence became essential if the then new B&P Programme was to progress successfully. Ironically, but essentially, it was some of the residual funding from the UKeU that made the B&P Programme possible.

Second, the UK HE sector is very heterogeneous with institutions jealously guarding their independence and being much concerned with their profile. Attempting to impose a single methodology for a benchmarking of e-learning as though the sector was a homogenous entity risked stimulating resistance in the very institutions that we wanted to recruit. In reality the UK HE sector is a richly diverse set of, sometimes

² www.hefce.ac.uk/pubs/hefce/2005/05 12/

³ Enhancing learning and teaching through the use of technology: A revised approach to HEFCE's strategy for e-learning: www.hefce.ac.uk/pubs/hefce/2009/09 12/

⁴ See the Education and Skills Committee press notice www.parliament.uk/parliamentary_committees/education_and_skills_committee/education_and_skills_press_notice_2004_5_24_.cfm

⁵ HEFCE e-University project: business model www.hefce.ac.uk/pubs/hefce/2000/00 43.htm

⁶ For further information on the e-University see www.hefce.ac.uk/learning/Tlnits/euniv/further.htm.

⁷ www.hefce.ac.uk/pubs/hefce/2000/00 44.htm

⁸ www.universitiesuk.ac.uk/Publications/Pages/Publication-109.aspx

competing, entities that may not always embrace approaches to easy comparison that are not under their direct control. This is particularly the case when institutions perceive that an initiative can be used for the generation of centrally-controlled 'league tables' or supplementary quality audits. In 2005, before the benchmarking aspects of the programme were implemented this author wrote in an online essay:

Benchmarking isn't a piece of technology or a physical artefact we are going to going to be able to compare to some agreed specification or standard. Instead, it's about how technologies play their part in teaching and learning in one of the most diverse sectors in the world; a sector composed of a multitude of communities-of-practice whose interactions are not necessarily restricted to one organisation; a sector where institutions have vastly different characteristics, ranging from the über collegiate to the über corporate). (Morrison, 2005a)

In the same online essay this author also said:

... it's perhaps worth reflecting on Mantz Yorke's warning about the adverse effects of benchmarking when it is driven from a regulatory and conformance perspective and not from a developmental one, i.e. provision of information to enable change, volunteerism, mutual trust, and a commitment to self-improvement (Jackson and Lund, 2000).

Third, again, as highlighted in the author's 2005 online essay and verified in consultation with potential HEI participants in the exercise, there was a relative paucity of refined methodologies for benchmarking e-learning in an HE context that would align with the expectations of all those considering engaging with the initiative.

By necessity, therefore, the benchmarking of e-learning exercise would itself be progressing development in this arena.

Fourth, although e-learning was used as a convenient and flexible conceptual container, we suspected that the heterogeneous UK HE sector would make equally heterogeneous interpretations of its scope. This later proved to be the case, which would at times make comparative analysis, even within institutions, challenging and risked making comparative analysis between institutions fruitless.

Fifth, a further conceptual challenge lay in the concept of 'embedding'. This concept was at the heart of the 2005 HEFCE strategy. At the time, an underlying assumption was that 'e-learning' interventions and provision are identifiable components of the overall learning and teaching experience. But when embedded within the normal life and activities of the university, the risk is that all that could be easily identified would be the aspects related to technical provision and underlying infrastructure. Little about how students actually use or benefit from (not just enjoy) the provision would be clear. Indeed, the relative paucity of available student-oriented data related to the benefits of e-learning was a key finding from the benchmarking exercise.

PROGRAMME OVERVIEW

As a consequence of all these factors, the B&P Programme was designed to ensure that participating institutions established and maintained a sense of ownership and control and that they had some choices appropriate to their own context and circumstances. While certainly setting a basic framework for the programme, the role of the Academy was to be facilitative, and to offer high-value, credible advice and choices. In effect the Academy's role was to act more as a broker and guide, functioning in diverse contexts with a wide range of HEI partners, rather than attempting to be directive about the desired outcomes. In 2005 we felt this was the correct decision, and in 2009 we firmly believe it was the correct decision. The approach reflected the origins of the programme in the most challenging of circumstances that could be envisaged. It is notable, however, that despite these challenges, 77 UK HEIs engaged with the programme in one form or another. Although the funding period came to a close in 2008, the degree of confidence in what the programme could offer was now sufficiently high for more UK institutions to become engaged in the process.

The Pathfinder programme offered grants of up to £170,000 to successful institutions. Eligibility to apply for such a grant had, however, a key prerequisite. Pathfinder involvement was only possible if it had been preceded by analysis and reflection of e-learning provision, processes and practice through benchmarking. Benchmarking was conducted without direct financial support, but instead advisers were appointed to support and guide the benchmarking exercise. The intention was to provide an opportunity for institutions to develop insights that would inform their later application for entry to the programme. To the considerable credit of some institutions, as a result of participation in the benchmarking exercise they decided that they were not yet ready for the Pathfinder Programme.

It was recognised that becoming eligible to participate in the funded Pathfinder Programme was originally a significant incentive for many institutions to take part in benchmarking. Nevertheless, the institutions reported a high value from participating in its own right, and for 27 institutions in the last iteration of the benchmarking exercise there was no opportunity to enter a funded Pathfinder Programme.

TRANSFORMATION INTERVENTIONS, TRANSFORMATION MESSAGES?

Initially Pathfinder epitomised a traditional approach for a development programme where selected institutions or centres would be funded to develop reference models for the rest of the sector. However, as the programme proceeded it became clear that projects first needed to focus on becoming 'Pathfinders' in their own institutions. Later, however, the facilitating of aggregations of participating institutions in the

form of 'network projects' led to a more widely owned set of outcomes. Those nascent and inclusive communities initiated by the B&P Programme, in synergy with other sector resources and initiatives, added considerably to the transformative potential, even beyond the life of the programme itself. Several of these networks/ special interest groups have gone on to expand their memberships and activities into a genuinely sector-wide community of practice¹⁰.

Transformation is primarily a social process, which can be facilitated by a number of benign interventions. The perceived authenticity of these interventions matters a lot because from these come the credibility and the acceptability of the messages being offered. The B&P Programme offered participants a number of 'authentic' interventions, from both the Academy and wider sector:

- I. Benchmarking advisers were funded by the Academy to help institutions navigate their way through the processes and tools. The activity took place over several months and involved a mixture of independent institutional activity and collaborative sharing of information in cohort groups. It was considered important that these advisers were recruited from higher education rather than from the broad commercial consultancy sector.
- Some of the institutions that had taken part in earlier phases of the programme shared their experiences in workshops and meetings in later stages of the exercise.
- 3. Peer-support groups of participating institutions were created. The formation of the peer groups was informed by the earlier work of the CAMEL project (Collaborative Approach to the Management of e-Learning)¹¹. The CAMEL approach was originally developed by the Association for Learning Technology (ALT)¹² and JISCInfonet under a project funded by the HEFCE Leadership, Governance and Management Programme, the latter itself being a major transformation initiative¹³. The

⁹ http://elearning.heacademy.ac.uk/weblogs/pathfinder/?cat=18

¹⁰ For example, see ELESIG: for those involved in investigations and Evaluations of Learners' Experiences of e-learning (http://elesig.ning.com/); Quality Assurance and Quality Enhancement in e-Learning: practitioners moving from a QA to QE agenda (www.qe-sig.net/); and Podcasting for Pedagogic Purposes (http://pppsig.podomatic.com/ and http://podcastingforpp.pbwiki.com/).

¹¹ CAMEL set out to explore how institutions who were making effective use of e-learning and collaborating in regional lifelong learning partnerships might be able to learn from each other in a community of practice based around study visits to each of the partner institutions (www.jiscinfonet.ac.uk/camel).

¹² www.alt.ac.uk

¹³ www.hefce.ac.uk/lgm/build/lgmfund/

- 'study' visits between cohort members that are an integral part of the CAMEL approach were supported by a modest grant from the Academy.
- 4. A team of 'critical friends' from the HE sector with a recognised track record in the development of learning technology policy was appointed by the Academy to support cohorts of institutions participating in the Pathfinder Programme. As well as offering their advice and experience directly to the project teams, these individuals also had sufficient provenance within the sector to negotiate with senior managers in the institutions when necessary and sit upon project steering groups.
- 5. In its latter stages the programme established a small number of 'Pathfinder Network Projects', whose purpose would be to utilise their experiences and expertise and help to build capacity in the other institutions. Three of these have since developed a life outside the programme in the form of sector-wide special interest groups focusing on approaches that emerged across the programme.
- 6. The B&P Programme also had embedded within its structure an Evaluation and Dissemination Support Team (EDSuT) whose role was twofold. The first purpose of EDSuT was to help support institutions in evaluating their own progress. So rather than view external evaluation as a post-hoc event or as something that was done to institutions, the focus was on the institutions as evaluators of their own transformation goals. EDSuT's second purpose was to negotiate with participating institutions over the extraction of lessons of relevance to the broader HE sector. The programme inevitably explored areas that would remain confidential to the institution and so to maintain a trust relationship with institutions required that their ownership of their own outcomes was not in doubt.
- 7. The programme team invested considerable effort in raising awareness of, and facilitating synergies with, other national and international 'e' initiatives. As the programme progressed, the issues coming into focus in other initiatives, such as the JISC's learner experience programme, the Scottish e-learning transformation programme and the Scottish enhancement themes, were increasingly incorporated into the thinking of the Pathfinder teams themselves, so that Pathfinder in one sense became a test bed for application.
- 8. The programme was instrumental in taking forward the methodology of benchmarking itself. One such methodology, the e-Learning Maturity Model, enjoyed considerable development from both its original

New Zealand author, Dr Stephen Marshall, and a number of UK HEIs participating in the programme. The benchmarking methodology developed by the Observatory of Borderless Higher Education (OBHE)/Association of Commonwealth Universities was also refined considerably during the programme¹⁴.

Transformation initiatives benefit from being inclusive. While it is obviously the case that public finances are limited and that this is normally addressed by assessment and selection, we think more creative solutions are possible. The B&P Programme provides a useful pointer for future initiatives of how major programmes with transformation goals may benefit from having a phased design with relatively low or zero barriers to entry to earlier capacity building or analytical phases. Opting for a single 'big-bang' exclusive solution inevitably favours those with the resources and those who are already highly skilled in the art of crafting proposals, whereas in the transformation arena it may well be those who lack the skills and resources who have greatest need. There were extremely low barriers of entry to the benchmarking exercise. In effect, institutions volunteered to take part. The barriers to entry to the Pathfinder phases of the programme were tougher, but even here we attempted to build in inclusivity by sponsoring the work of the Pathfinder Network Projects whose brief encompassed even those institutions that had not received a Pathfinder grant.

Transformation in multi-faceted and socially-complex organisations like universities takes time. More time than funding cycles, political imperatives, and corporate-oriented Enterprise Change Management theories/books sometimes would like. Because universities are complex multi-faceted organisations, central initiatives like B&P may actually be taking place at the time when other sometimes unexpected changes are impacting upon the organisation. One rather uncomfortable reality is that transformation involves a series of processes rather than an event; as such transformation can seldom be aligned with political and financial timescales. A better analogy, therefore, would perhaps be with metamorphosis rather than transformation. One of the many conundrums faced by those charged with leading transformation initiatives, however, is the inevitable demand from a multitude of political stakeholders for evidence that positive results are rapidly accruing from the interventions over which neither they, nor the lead agencies, have direct control. The consequence can be the creation of an institutional ethos that focuses on easily delimited deliverables that are produced and accepted as the evidence of impact rather than the longer-term outcomes that are the 'real' evidence for transformation. For example, institutional policies that require a certain proportion of all courses/ modules to be uploaded to the institutional VLE are unlikely to be achieving

meaningful gains for students' learning. Another obvious consequence of such a short-term ethos is establishing and maintaining the viability of a team who inevitably will be scanning the horizon for the next project.

Transformation requires thinking beyond the project. Rather than a programme such as Pathfinder manifesting as a parallel series of time-limited projects, it would perhaps be better to view such initiatives as contributing to the creation of a healthy and synergistic ecosystem, although this metaphor, of course, is at variance with the systems engineering model. The latter, arguably, underpins a focus on short-term projects and deliverables. To counteract this tendency we might normalise the expectation of institutions that there would be short, medium and long-term reviews at the end of a programme. The ethos of community, synergy and sustainability established in the B&P Programme has fed forward into the ongoing work of the self-organising special interest groups, B&P cohort participation in other programmes (e.g. the JISC Curriculum Design initiative¹⁵), and the design of new programmes like the Enhancement Academy¹⁶.

Even relatively modest amounts of funding can have significant impacts when targeted appropriately and when the recipients have genuine ownership of the problem area. There are several examples in the Pathfinder Programme of institutions utilising their overall Pathfinder grant to provide discipline-based initiatives with an opportunity to submit local proposals for enhancing learning and teaching through the use of technology. One such example is the University of Hertfordshire's *Change Academy for Blended Learning Enhancement* (CABLE) initiative¹⁷, described in Chapter II of this volume. The CABLE initiative went on to become *CABLE Transfer*¹⁸, one of the five Pathfinder Network Projects¹⁹ that were invited to facilitate similar activities in other institutions²⁰.

Transformation may be influenced, initiated and informed by external drivers. Such influences, however, are only possible when they are perceived to be relevant and important to the work of the institution and so align with their internal goals. The identification of such relevancies perhaps benefits from both active 'push' and 'pull'. The external drive from the programme made actions possible inside institutions that would otherwise have been difficult to achieve. As well at the fixed timeline of the programme, the benchmarking advisers and critical friends played a significant role in raising the profile of the initiative within institutions. This gave external credibility to the 'pull' from champions inside the institution.

 $^{15 \}qquad www.jisc.ac.uk/media/documents/programmes/elearning capital/curriculum design open univeristy bid.pdf$

¹⁶ www.heacademy.ac.uk/ourwork/learning/elt/enhancementacademy

¹⁷ University of Hertfordshire CABLE Project: Pathfinder Pilot Briefings package http://elearning. heacademy.ac.uk/weblogs/pathfinder/wp-content/uploads/2007/11/HertsPathfinderBriefings.zip

¹⁸ http://cabletransfer.ning.com (registration required)

¹⁹ http://elearning.heacademy.ac.uk/weblogs/pathfinder/?cat=18

²⁰ Similar examples of 'micro-grants' to facilitate discipline-focused activities have been employed by the Academy Subject Centres.

WHAT TRANSFORMATION MODELS OR THEORIES APPLY?

What transformation model does all of the above represent? Arguably, much activity and investment seems to be grounded in an underlying ethos that it is the introduction of technologies themselves that, when aligned with new or reengineered processes, become the engines of transformation. In that case, as Marshall McLuhan postulated, a medium represents far more than the content it carries:

... the 'content' of a medium is like the juicy piece of meat carried by the burglar to distract the watchdog of the mind. (McLuhan, 1964)

Such a view would seem to be reinforced by the December 2008 JISC-sponsored Guardian media supplement, which asserts:

Technology has dramatically changed the way students experience university life, and not just in terms of the number of gadgets they own. It has affected where and how they study, helped them collaborate with each other and broken down barriers between students and teachers, social life and study. It has also given students a bigger voice in the way they learn²¹.

The underlying assumption about the transformative power of technology is further reinforced by the UK's Committee of Inquiry into the Changing Learner Experience²².

Techno-transformation also tends to underpin national strategies.

There are, however, also some revisionist views that seem to be warning that technologies can also be the vectors of risk. For example, James Cornford and Neil Pollock have emphasised how the organisation adjusts its processes and practices to meeting the needs of the technology and not vice versa, i.e. organisations end up serving the 'machine':

... the application of the new technologies is generating a myriad of demands for re-institutionalisation of the university as a far more 'corporate', one might even say concrete, kind of organization ... (Cornford, 2000)

... universities may be increasingly forced to consider institutional changes in order to maintain alignment with the system. (Pollock and Cornford, 2005)

The B&P programme has highlighted how e-learning is a flexible, but also

²¹ www.jisc.ac.uk/news/stories/2008/12/guardiansupp.aspx

²² www.clex.org.uk

problematic conceptual container rather than a concept itself. Like Humpty Dumpty in *Through the Looking-Glass* (Carroll, 1871), the 'e' in e-learning can mean whatever we want it to mean as long as technology is involved. Consequently, despite a focus by some stakeholders on how technologies can be used to enhance pedagogy and the student experience, there is an equally seductive technological deterministic or engineering view promulgated by other stakeholders. The latter articulates a view of the industrialisation of higher education and associated business processes:

In this industrial model, so the argument goes, the global demand for Higher Education is now so great that existing physical estate and human resources of Higher Education can no longer cope. The industrializing argument invariably goes on to propose that the focus needs to be the study and implementation of the optimal processes using 'best practice' from business, design and manufacturing. For example, in A Foundation for Modelling e-Learning Processes by Pauline Wilcox, Jim Petch and Hilary Dexter (e-Learning Research Centre) we find descriptions of models such as the Rational Unified Process (RUP) which originates from the software and systems development domain but, it is argued, are applicable to other domains such as e-learning. Here is the rational world of business modelling, workflows, iterations, content/materials development, and end-to-end processes for e-learning. In describing how the RUP model could apply to e-learning, Wilcox, Petch and Dexter suggest teaching and learning: "... is concerned with the actual activities involved in the delivery of the material between teacher and learner". (Morrison, 2005b)

In this view of the world, teaching and learning appears to focus on the 'delivery' of material, which implies a mechanistic view of education. Wilcox et al. (2000), however, also go on to consider the underlying transactions for said 'delivery':

Example activities will include teaching, assessment, feedback, support, tracking, progression, peer mentoring.

Such Business Process Re-engineering (BPR) has among its conceptual ingredients the radical redesign and change of processes + IT + efficiency (lower inputs, higher outputs) + 'customer' focus. Or to put it more starkly:

The fundamental reconsideration and radical redesign of organizational processes, in order to achieve drastic improvement of current performance in cost, service and speed. (Hammer and Champy, 2001)

Indeed, some enterprise transformation theories are themselves grounded in systems theory:

Enterprise transformation is driven by experienced and/or anticipated value deficiencies that result in significantly redesigned and/or new work processes as determined by management's decision making abilities, limitations, and inclinations, all in the context of the social networks of management in particular and the enterprise in general. (Rouse, 2005²³)

Examination of the documentation relating to the most explicitly transformationoriented initiative, the SFC e-Learning Transformation Programme, appears to merge both enterprise transformation such as the above, and a belief in the transformative power of technologies:

This model of transformation contrasts with ongoing processes of incremental institutional change, and involves e-learning substituting for (and not simply enhancing) conventional delivery methods²⁴.

Or is it a social-constructivist model of transformation? In which case can we apply Learning Transformation Theory?:

As there are no fixed truths or totally definitive knowledge, and because circumstances change, the human condition may best be understood as a continuous effort to negotiate contested meanings ... that is why it is so important adult learning emphasizes contextual understanding, critical reflection on assumptions, and validating meaning by assessing reasons. Transformation theory ... adds a fifth and crucial mode of making meaning: becoming critically aware of one's own tacit assumptions and expectations and those of others and assessing their relevance for making an interpretation. (Mezirow et al., 2000, pp. 1–2)

Or is it a cultural change model that we are attempting to apply? A useful literature review of the relationship between technology and organisational or sociological change was provided in a 1997 study by the International Institute for Electronic Library Research for the JISC supported eLib Programme (Davies et al., 1997). The report makes interesting reading since it calls upon readers to reflect on the timescales and stakeholder engagement required for cultural change and the contributory rather than dominant role that technologies play:

The findings of the Study focus largely on whether eLib has created appropriate preconditions for longer-term cultural change... Among the findings were a general

²³ See also Rouse (2006).

²⁴ www.jisc.ac.uk/media/documents/programmes/elearningsfc/sfcbookletintroletter.pdf

recognition that eLib is only a contributor to the general cultural change which is happening in HE ... Overall, projects in this type of innovation programme need to be encouraged from the start to take an approach which is both human centred and organisationally aware, rather than focusing too narrowly on technical and short-term practical problems. (Ibid)

In future programmes, more training and awareness activities should be initiated that aim explicitly at the middle-management (budget-holding) levels in academia. Library managers, and heads of academic departments, need to be involved personally if they are to move their staff into new ways of working, both formal and informal, and hence effect cultural change. (lbid)

THE ROLE OF TECHNOLOGY IN TRANSFORMATION

We need to reflect on the potential impact of different perspectives of transformation particularly when technology is involved. In the back of the minds of the politicians or university executives transformation may equal cost-savings; a risky assumption particularly in an age when the unrealised expectations of discontented students are frequently expressed in the public media (Grimston, 2009). We perhaps need to assume that today's 'digital natives' expect the HE sector to provide not just a high quality ICT infrastructure but also sufficient 'contact time' with their teacher-scholars.

Transformation can be highly unpredictable. Like any organisation, HEIs are dynamic entities and transformations would be so much easier if we could assume a steady state. We cannot. Key personnel move on, strategies are rewritten, finances deteriorate, ethos evolve, organisations merge and government policy itself changes. The rationale for original transformational effort may simply be forgotten. Only one thing is predictable and that is that sustained transformation will always take longer than we think. It will never align with financial years, project durations or political imperatives.

Instead of assuming that technologies are transformational, we should perhaps reflect more deeply on David Edgerton's (2006) historical analysis of technological impact. Edgerton suggests that: we tend to confuse sustainable technologies with invention, innovation and novelty; widespread transformational impact can come decades away from the point of invention; what look like promising disruptive technologies can in the longer term be rendered obsolete by developments in more established technologies; serious unexpected consequences emerge over the longer term from what looked initially to be promising inventions; and greater effort is expended on maintenance than innovation over the lifetime of an invention.

CONCLUSIONS

This chapter has attempted to step back from the particular – in this case the B&P Programme in e-learning development – and has reflected on more general issues raised by initiatives that aim for transformation in HE through technology.

The genesis of the B&P Programme was grounded in the UKeU initiative, which had aimed to offer a world-class transformation vehicle for UK HE through technology. In contrast, the transformation aims of B&P were socially grounded in the needs and expectations of the sector. Indeed the B&P Programme established an ethos of transformation that offers a quite different model from that of programmes that place technology at their centre. Now, continuing this approach is an Academy-led initiative called 'Enhancement Academy' (EA), which has B&P as a key antecedent²⁵. The EA initiative has taken the model of interventions described above together with some of the lessons derived from the Academy's Change Academy initiative²⁶ and used them to inform the design of an institution-focused transformation initiative, which aims to enhance aspects of learning and teaching at a local level. Here then are teams of local Pathfinders, having undertaken benchmarking, seeking to build on the analysis of their own institution's needs, while collaborating with others and being supported by an external critical friend.

Finally, at the time of writing this chapter, 'Demos', the UK political think-tank, was promoting the launch of its JISC-supported report, *The Edgeless University*, a project exploring the impact of technological and social change on universities in which the report argues:

... technology in higher education is not just about virtual learning environments, but is increasingly central to how institutions provide learning and facilitate research. Technology has made research and learning possible in new places, often outside of institutions. Far from undermining them, this is creating exciting opportunities for universities to demonstrate and capitalise on their value. Doing so will take strategic leadership from inside institutions, new connections with a growing world of informal learning, and a commitment to openness and collaboration. This is the radical role of the 'Edgeless University'²⁷.

The two siblings, technology and transformation, march ever onwards.

²⁵ http://elearning.heacademy.ac.uk/weblogs/ea/

²⁶ www.heacademy.ac.uk/ourwork/institutions/change

²⁷ www.demos.co.uk/events/theedgelessuniversity

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ALL IN THE MIND: PROGRAMMES FOR THE DEVELOPMENT OF TECHNOLOGY-ENHANCED LEARNING IN HIGHER EDUCATION

TERRY MAYES

INTRODUCTION

The main argument in this chapter is straightforward. It is that higher education (HE) can be transformed in a beneficial way for learning through significant changes in the way individuals – both teachers and learners – understand their roles. One of those changes is to understand how an effective teacher, or a capable learner, should use the tools of digital or web-based technology. However, the impact of using technology in HE is hard to distinguish from the effects of other treatments that may accompany its use, particularly pedagogical, or from the effects of changes that are taking place that have no relation to technology at all. This is true for individuals, as well as for much larger-scale interventions, like the national development initiatives discussed here. In fact, the impact of these programmes can only really be understood in a much wider context of continuous change. The enhancement strategies of the UK funding councils are now essentially all in agreement with the point that improving the quality of the learners' experience should be the driver for change, not technology. A real challenge, though, is to try to understand what that actually means for practice.

Reading through the reports from the e-learning programmes initiated by the HE funding councils for England, Scotland and Wales since 2005, leads one to the conclusion that a main effect of the initiatives has been to draw institutions into an extended reflection on how to interpret this relationship between the provision and use of technology and its impact on student learning. Indeed, a contention of this chapter is that the key thing for institutions to do is to encourage staff and students to reflect in the same way. This is essentially a demand-side view of transformation – that effective change will emerge by equipping the main participants with a proper

understanding of their needs, and then with the ability to use technology effectively to meet them.

In UK HE, teaching practice on the ground is only weakly prescribed by policy, although in recent years the attempt to define and assure good practice has been led by a semi-regulatory quality regime. Despite this, and the institutional learning and teaching strategies that have been developed across the sector, individual teachers still have significant freedom to implement their own approach in teaching on a module. Indeed, modularisation has made it easier for individual teachers to retain control over teaching methods since modules are essentially teachingcentred approaches to curriculum delivery, defined as they are by their content. This freedom especially applies to e-learning, where the usual pattern is that an e-learning champion teaching a particular module will innovate, and gradually their colleagues within that discipline will follow. If it is a compelling example, and if the institution in question has some process for raising the visibility of the example across disciplines, then the practice may spread across the institution. Or it may spread informally to other institutions through the discipline. We can see this process at work in the descriptions of the use of podcasting and digital story-telling in the current volume. It may be that this 'pockets of innovation' process is actually the most effective way that change will occur in practice, that this is the way mainstreaming evolves, although some innovations, like e-assessment or e-portfolios, will require institutional policies to change as well.

Although change in teaching methods happens largely through individual academics making personal decisions and then sharing their outcomes, there is a persistent belief that institutions and agencies have a responsibility to intervene, to drive innovation at an institutional or even at a sectoral level. There are, as most academics are only too aware, rational reasons why individual teachers will be slow to innovate without external incentives to do so1. In the UK we have seen over a period of more than 20 years successive centrally funded initiatives aimed at the development of e-learning. For much of that period the approach was confounded by the need to stabilise access to an enabling technology, through, for example, the development of Super|ANET, and the institutional take-up of virtual learning environments. Since the sector has now achieved universal access to high quality materials, originating from both inside and outside an institution, and since it readily facilitates various kinds of electronic communication with teachers and peer learners, the emphasis has now shifted onto ways in which this infrastructure can be deployed to bring maximum benefits to the individual learner's experience. However, there remains a widespread view (e.g. Cooke, 2008) that HE is not yet taking full advantage

I See, for example, the quote from Diana Laurillard concerning the distorting effect of the Research Assessment Exercise, reported in the DEMOS report *The Edgeless University* (2009), p.59.

of the opportunities that online learning should bring. The recent initiatives were intended to accelerate the transformation that most policy-makers believe is inevitable for the 'Edgeless University' (Bradwell, 2009; Garrison and Akyol, 2009). Nevertheless, there remains a troubling vagueness at the very point one seeks clarity: what is to be transformed and how?

PEW GRANT: A TRANSFORMATION EXAMPLE

At first sight, the Pew Grant Program² in Course Redesign (PCR) in US higher education (Twigg, 2003a) appears to offer a clear example of transformation. The programme was carried out from 1999 to 2003, attempting to demonstrate how a redesign of HE teaching approaches using technology can achieve cost savings as well as quality enhancements. It focused directly on ways of making more efficient the student's interaction with the subject matter, choosing performance on summative assessments as the measure of quality. The PCR projects concentrated on large-enrolment, introductory courses, which of course have the potential of impacting on significant student numbers and generating substantial cost savings. The programme duly demonstrated evidence of savings without a decline in assessed levels of achievement, and in some cases succeeded in demonstrating real improvements. This result impressed many at the UK policy level and directly influenced the thinking behind the Scottish e-learning transformation initiative (Harvey, 2006).

Twigg (2003b) discusses five variations of the basic redesign in the PCR programme. All essentially involved a reduction in face-to-face class meeting time accompanied by an increase in online activity; although in some cases the face-to-face activity was redesigned as well. More of the tutoring was achieved through the courseware, the "interactive tutorials, computational exercises, hypertext books, practice exercises, solutions to frequently asked questions, and online quizzes". It is not surprising, perhaps, to realise that the courses redesigned in this way in the original Pew Grant programme were all in Mathematics, the subject that has always been the most amenable to the 'computer as tutor' (Anderson et al., 1995).

Looking at the PCR overall, two key points emerge. First, the redesigns were pedagogy-led. Although they moved from face-to-face contact to online, this was usually accompanied by a greater emphasis on active learning and formative assessment. Other things being equal, learning gains would be expected from this change in the direction of what Biggs (2001) called constructive alignment. However, the second key point is that cost reductions were in large part achieved through reducing the amount of time that academic staff spent in direct interactions with

students. Twigg's claim is that without the technology this would be not be possible, yet in the PCR cases the burden of interaction time seemed to be taken less by software (tutorial software, automated feedback, support for peer and group discussion) and more by employing graduate and peer undergraduate teaching assistants to be responsible for contact time that would previously have been undertaken by academic staff.

THE TRADE-OFF BETWEEN COST AND QUALITY

In Twigg's (2003a) review of the original ten institutions in the PCR programme, the claim is made that "by using technology-based approaches and learner-centred principles in redesigning their courses, these ten institutions have demonstrated a way out of higher education's historic trade-off between cost and quality". Let us try to examine this more closely. In general, activity- or enquiry-based pedagogies succeed by ensuring that it is learners themselves who do more of the work. On the face of it, constructivist learning should reduce the need for instruction - shifting some of responsibility for effort from the academic teachers onto the learners themselves. Mellar (2008) raises the interesting question of how we should regard student work. Is it actually desirable that we should try to achieve particular learning outcomes in fewer notional study hours? If we adopt wider goals for learning than simply the passing of content-based assessments, then a desirable objective might be to encourage students to study for longer - reaching deeper levels of understanding, exploring the subject more widely, sharing their learning in discussion with peers. There is something of a paradox about learning that makes it different from all other kinds of work - it cannot be made 'easier' in the usual human factors or automation sense without losing the very thing that makes it effective - the hard cognitive restructuring that leads to deep learning (Mayes and Fowler, 1999).

A move to active learning repositions the teaching effort: reducing the emphasis on the initial exposition and shifting it onto the feedback and guidance that should follow from learners' attempts at problem solving and self-explanation. The real difference between exposition and feedback is the need in the latter to target explanations at individuals, or at least at frequent categories of self-explanation. This is far more demanding, of course, than delivering a primary exposition. So the trouble is that getting students to do more of the activity that should underpin deep learning doesn't free up teaching time at all, since activity-based learning places a premium on scaffolding, which in most subjects means tutor feedback. In fact the normal consequence of adopting enquiry-based methods is an increase in tutor effort, not a decrease at all. Paradoxically, it is the highly cost-effective large class lectures that would more typically be reduced, as the academic teacher's role moves away from the delivery of information towards learner-centred guidance. So it is initially hard to see how redesign – in the direction of active learning – can possibly lead to reduced costs.

In fact the PCR redesigns adopted both of the possible ways in which active learning might be encouraged while reducing costs — substituting either peer support or automated tutoring of some kind for more expensive academic staff time. The peer support can be face to face or online. In several PCR cases, tutoring was carried out by slightly more advanced peers substituting for teaching staff. Under what circumstances this substitution can occur without compromising quality is such a key question for the whole enterprise of HE that it is surprising to find so little evidence on it. It may be that the greater sensitivity to the experience of being a student offered by peers might outweigh the greater expertise in subject matter offered by subject experts, at least at certain stages of learning.

The cognitive science work on tutoring by Chi et al. (2001) has demonstrated that a key aim of an effective tutorial should be to help learners generate their own explanations, then for the tutor to respond to those explanations with feedback. This, as Chi et al. have demonstrated, is a demanding task requiring a sophisticated mix of subject expertise and understanding of the learning process itself. It seems that tutoring is more effective when tutors suppress their inclination to offer their own explanations. In fact, the more that we research into the process of tutoring, the clearer it becomes that for quality of learning it matters a great deal how the tutoring is carried out. It is a key research issue, but one that is very hard to address in a general way. Recently, Chi et al. (2008) have demonstrated that students can learn as well by observing a recorded tutorial collaboratively as the tutees who were being tutored individually. This confirms earlier work on vicarious learning, demonstrating that students can benefit from having access to recorded online dialogues of other learners (Mayes et al., 2001).

UK TRANSFORMATION INITIATIVES IN TEL

With these issues in mind, we consider three national programmes for the promotion of technology-enhanced learning in UK higher education. Although devolution in the UK has led increasingly to differences in national higher education policies (Gallacher, 2008), the HE funding councils have all continued to allocate central funding to sectorwide e-learning development programmes. The initiatives in question are the Higher Education Funding Council for England (HEFCE)-funded Benchmarking and Pathfinder Programme, in which £8 million has been distributed widely across over 70 HE institutions, the £6 million Scottish e-learning transformation programme, involving six large-scale collaborative projects, and the £1 million Welsh enhancement programme, *Gwella*, distributing development funding across all Welsh HEIs. Since it commenced when the funded stages of the English and Scottish programmes were coming to an end, *Gwella* has benefited in its design from the lessons learned from the earlier initiatives.

These UK initiatives are described more fully elsewhere, both in the chapters in the current volume and in a number of evaluation reports³. At one level the policy background for the initiatives is complex, each funding regime beginning to interpret higher education policy within an increasingly different set of political aspirations. Nevertheless, these initiatives all break new ground by placing the emphasis on the effective use of technology in mainstream teaching, rather than focusing on the development of new technology itself. All, however, have had to take account of a comparatively long period of disappointing returns from central funding targeted specifically at the development of technology-based learning, in programmes such as the Teaching and Learning Technology Programme (TLTP). Not only has the uptake of technology-based methods seemed slower than expected across the existing sector, but the idea that a transformed model of HE could be created from scratch by supporting the creation of new institutions, based on entirely online delivery to distance learners, has been decisively rejected after the failure of the UK e-University.

The ten-year e-learning strategy published by HEFCE in 2005 can be read as explicitly encouraging the acceptance at institutional level of the responsibility for driving the development of e-learning and embedding it in mainstream delivery. The recently merged funding councils for higher and further education in Scotland took a similar, but slightly broader, stance by encouraging the Scottish institutions to take responsibility for the enhancement of quality across the board. Indeed the SFC tried to go further by encouraging the adoption of technology-based approaches that would work across both HE and FE sectors. Nevertheless, the HEFCE and SFC programmes differed. In England as many participating institutions as possible were given the opportunity to base their developments on the outcomes of a benchmarking exercise. In Scotland, the programme was aimed more explicitly at transformation, emphasising the impact of a small number of high profile exemplar projects carried out by consortia of institutions. The Scottish programme explicitly referred to the PCR enhancements as intended outcomes. The Welsh funding council's ELTT (Enhancing Learning and Teaching through Technology) ten-year strategy was not published until 2008 and its funded phase (Gwella) is following quite closely the Benchmarking/Pathfinder approach, with all Welsh HEIs undertaking the supported benchmarking exercise, followed by the design of an enhancement project. In this programme we see more clearly than in the previous programmes that new technology is following, rather than leading, the enhancement agenda.

³ See http://elearning.heacademy.ac.uk/weblogs/benchmarking, http://elearning.heacademy.ac.uk/weblogs/pathfinder and www.jisc.ac.uk/whatwedo/programmes/elearning_sfc.aspx.

THE BENCHMARKING AND PATHFINDER PROGRAMME

The Benchmarking and Pathfinder Programme was launched by the UK Higher Education Academy in late 2005. The benchmarking exercise provided institutions with an opportunity to have their future decision-making informed by undertaking a recognised process of analysis and reflection of their e-learning provision, processes and practice. These methods are described in detail in the chapter by Paul Bacsich in the current volume. As the benchmarking exercise moved through successive stages, involving new cohorts of institutions, so the methodologies started to influence each other. It became clear that the very process of asking penetrating questions about e-learning in a systematic way is what is valued, rather than the characteristics of the detailed methods themselves. However, many institutions found that the data needed for informed judgments about the way in which e-learning provision is actually used in real learning and teaching at module level are very hard to pin down. Indeed, the exercise served to remind institutions that the quality procedures do not typically reveal the details of the pedagogy on a particular module.

During the benchmarking programme the locus of greatest interest moved gradually from the attempt to create a description of internal institutional provision, and rate its adequacy, to a focus on its use, and to a realisation that 'input' measures of e-learning may not correlate in any straightforward way with 'output' measures. Thus, providing course materials on a VLE may improve efficiency, but may have no impact at all on the quality of student learning outcomes. The main consequence of this shift in focus, reported by many benchmarking teams, is a more questioning and analytical stance on the nature and pedagogic purpose of the e-learning that is being developed. Overall, the picture that emerges is of a sector only now starting to come to grips with fundamental issues of e-pedagogy – the role to be played by technology in shaping real learning. Although most institutions have written e-learning strategies, there is a sense in which these seem disconnected from innovation by teachers at module level, since neither the tools nor the quality procedures required from the institution may yet be in place to encourage fundamental change in the traditional roles of teacher and student.

Following benchmarking, eligible institutions undertook an enhancement/ transformation project shaped by the earlier exercise. Several of the Pathfinder projects are described in other chapters in the current volume. The outcomes reveal a wide acceptance that technology-enhanced learning (TEL) involves embracing an activity-based pedagogy. Almost none of the Pathfinder projects involved the development of new learning materials, unless these were created by the learners themselves. Most of the projects have involved attempts to set up sustainable procedures for the encouragement of academic teachers to use technology in the support of what Salmon (2002) has called 'e-tivities'. In fact, Pathfinder has revealed a broader process at work than just normalising e-learning: it is the positioning of technology within the normalising of the pedagogy of active learning.

Many of the Pathfinder projects can be regarded as in some sense raising awareness of the importance for transformation of the course design process. These have at least started the process of embedding a truly student-centred, enquiry-based e-pedagogy at subject level, and institutions are now beginning to engage with the implications of this for institutional policy across the board. There are some obvious challenges for policy posed by, for example, e-assessment or e-portfolios or social networking. There are also many less obvious areas of policy directly affected, such as student induction or even estates. The Pathfinder projects are all, in one way or another, trying to accelerate the process of adapting to the changes consequent on more active and socially-based learning.

THE SCOTTISH E-LEARNING TRANSFORMATION PROGRAMME

The six e-learning transformation projects in the Scottish programme can be thought of as six mini-development programmes for the sector. Each involved a number of institutions coming together to pursue learning and teaching enhancement, and in some cases strategic change, driven by e-learning. Each project was required to demonstrate how its innovation would generalise to other institutions, and in the case of three of the projects, how that generalisation would extend across the higher education/further education boundary. The programme was funded in response to the 2003 report of the SFC's e-learning working group, which highlighted the importance of developing e-learning within a planned process of organisational development. This kind of transformation contrasts with continuous incremental change, and involves e-learning substituting for, rather than simply enhancing, conventional teaching methods. In asking for transformational change through e-learning the SFC indicated their belief that there would be most scope for productivity gains "where institutions were prepared to use content developed externally (or collaboratively), where there was clear scope for substitution of capital or labour, where the required skills or training were in place, and where there were effective partnerships between academics and service departments". The SFC noted that the Pew Grant outcomes in various US institutions were most encouraging in a policy environment where relating impact to particular interventions is "often seen as challenging or even impossible" (Harvey, 2006).

The Scottish transformation projects cluster into two main groups. The first group offered transformation through a pedagogy that focused on directly empowering students, with e-learning being employed in a variety of ways that gave the individual student more control over their learning activities. The second offered it through collaboration in the creation and delivery of resources. The

pedagogy group comprised TESEP4 (Transforming and Enhancing the Student Experience through Pedagogy), REAP⁵ (Re-engineering Assessment Practices) and ISLE⁶ (Individualised Support for Learning through e-Portfolios). The resources group comprised CeLLS⁷ (Collaborative e-Learning in the Life Sciences), BlendEd⁸ (Collaborative Transformation of Course Delivery) and the e-Construction Transformation project9. Both TESEP and REAP had a similar goal: the enhancement of learning through giving students a more active role in the design of their own learning activities. REAP looked quite like a PCR project, where course redesign focused on large first-year classes. All three of these pedagogy projects depended on transformation of the fundamental model of 'delivery' by empowering students to play an active role as co-creators (TESEP), co-assessors (REAP) and co-planners (ISLE) of their developing knowledge. The three 'resources' projects in this programme tried to transform the existing model by showing how new alignments and partnerships at various levels could render online teaching more efficient. In the case of BlendEd, the aim was to demonstrate the impact of real collaboration across colleges. For CeLLS the key idea was the collaborative development of high quality learning objects for sharing online across institutions teaching a particular curriculum area, in this case life sciences. Finally, the e-Construction project tried to use the design of technologymediated materials to transform attitudes to teaching and training across an entire industrial sector – in this case the Scottish construction industry.

THE WELSH GWELLA PROGRAMME

The Gwella programme is currently underway, all Welsh HEIs now having benchmarked their TEL provision and embarked on enhancement projects. The Higher Education Funding Council for Wales (HEFCW) has distinguished between short-term (2010–11) and long-term (2016–17) indicators of success: the differences acknowledge the longer time required to gain convincing evidence about the role to be played by technology in the achievement of a quality student experience. The programme itself acknowledges the central role of staff attitudes and understanding – through the accumulation of evidence from research, and the design of effective staff development programmes.

- 4 www2.napier.ac.uk/transform/
- 5 www.reap.ac.uk
- 6 http://isle.paisley.ac.uk
- 7 www.napier.ac.uk/fhlss/international/newsandevents/pages/cellsrelease.aspx
- 8 www.blend-ed.ac.uk
- 9 www.learndirectandbuild.com/Transformation/E-Construction%20Transformation%20Project.pdf

UNDERSTANDING TRANSFORMATION: VERTICAL VERSUS HORIZONTAL LEARNING

In PCR, the institutions selected for this programme had already overcome the main barriers to change in the desired direction: the organisational, procedural and attitudinal resistance to a radical redesign of large-class teaching. Much of the activity in the UK programmes is focused on a stage that precedes course redesign: gaining the support and understanding of managers, teaching staff and quality administrators about the needed direction of pedagogical change, and then gaining an understanding of the implications for practice. Institutional readiness for change requires a critical level of understanding across a large enough proportion of these individuals. This might be seen as essentially a challenge for staff development, which is correct in one sense, although the entrenched attitudes to staff development to be found in many discipline areas imply that a more radical approach to changing mindsets is required. One approach was devised in the Pathfinder project at Canterbury, described in this volume by Susan Westerman and Wayne Barry. This was a demand-side attempt to empower individual members of staff by giving them personally tailored intensive support for their mastery of chosen tools.

Although the underlying pedagogical and organisational issues are complex, it is possible to characterise the challenge of transformation as a choice between two simple models. As shorthand, we can call these the vertical and horizontal models. Both are necessary – but there are deep pedagogical differences in the assumptions that underpin them. Vertical approaches try directly to improve the interaction between the learner and the material to be learned. It is vertical because one can imagine a passing down of expertise or knowledge from the teacher or teaching material to the learner. Horizontal approaches, on the other hand, focus on the learners themselves. The key emphasis is on the process of learning rather than directly on the subject matter. This approach emphasises the role played by the social dimension of learning, and on the capacity of the individual learner to learn from peers. Vicarious learning is an example, so are other versions of peer support. The sharing of experience that is so characteristic of blogging, Twitter and other aspects of the web 2.0 culture represents a real opportunity for HE to rebalance the way effort is currently distributed between teaching and learning.

As an illustration of the contrast between the two approaches consider the issue of feedback. In general, the debates about how to provide feedback in a cost-effective way resolve themselves into two main issues: one vertical and one horizontal. The vertical issue is the extent to which online tutoring (including formative assessment) can be 'smart' (removing or reducing the need for human intervention). The horizontal issue is the extent to which effective scaffolding can be achieved through tutors who are not full academic staff, and may be peer learners. Both are attempts to scale the provision of feedback to individual learners.

Some years ago the main development effort in this field seemed to be directed

into the vertical challenge of creating courseware that in some sense performed a tutoring role itself. Looking across the recent initiatives as a whole leads to the conclusion that the agenda has changed quite markedly from that. The emergent themes are now more focused on the empowerment of teaching staff, to equip them to redesign their teaching in a way that makes effective use of available resources, including technology. Empowerment is a key concept here, since it refers not just to the process of equipping teaching staff with new awareness of the role technology can play in a social-constructivist pedagogy, and giving them the skill to make use of it, but it also acknowledges the key role they need to play in introducing change. There is also the beginning of a new agenda about student empowerment, or rather the re-emergence of an old agenda about developing information literacy, now given a very modern emphasis by the digital knowledge creation and social networking expertise that some students are increasingly bringing with them into HE¹⁰. In a horizontal approach, though, the empowerment of learners needs to go much further than supporting their digital storytelling or podcasting skills. It needs to engage with the idea of a student experience that is transformative for the individual, as well as for the institution. It also needs a clearer sense of the learners' role, particularly in the sharing of their learning experience, and the supporting role they might play in their peers' learning.

In the end what is meant by transformation becomes a cultural issue. In the rise of the enhancement culture in the UK we see a shift from progression and award statistics towards a wider understanding of what students will get out of their courses, namely, something more like 'academic' or 'learning' literacy, something that can be said to be personally transformative. There is increasing recognition of the importance of preparing students more effectively for the HE experience, so that they will more readily engage with their responsibility for active learning. We also see a gradual acknowledgement by the HE institutions that the institutions themselves have a responsibility to try to empower their first-year students with the skills, attitudes and confidence that will allow them to get the most from the HE opportunity they have . This more generic and holistic view of outcomes does not align well with the idea that quality in first-year classes is improved when automated testing shows a higher score on specific content knowledge. Nevertheless, the trade-off between cost and quality remains as the fundamental challenge. It is hoped that the recent programmes have resulted in a deeper and more widely distributed understanding of how that can be met through technology-enhanced pedagogy.

¹⁰ See the report from the Committee of Inquiry into the Changing Learner Experience. Available from: http://clex.org.uk/ourfindings.php.

¹¹ See the chapter by Reushle, McDonald & Postle in this volume.

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5

TRANSFORMATION THROUGH TECHNOLOGY-ENHANCED LEARNING IN AUSTRALIAN HIGHER EDUCATION

AUSTRALIAN HIGHER EDUCATION
SHIRLEY REUSHLE, JACQUIE MCDONALD
AND GLEN POSTLE

BACKGROUND

The application of technology-enhanced learning and the global Internet has stimulated some transformation of higher education in most Australian institutions. This change, however, is not evenly spread across the sector and tends toward pockets of innovation rather than widespread transformation. This chapter explores how the profile of higher education in Australia has changed to accommodate new influences and pressures and documents Australian government policies and initiatives, which provide the context for the implementation of technology-enhanced learning and teaching. The authors consider the concept of transformation of higher education through technology-enhanced learning and reflect on the evidence of transformation in one Australian university.

In over three decades, beginning in the Australian Labor Government's Whitlam era in 1972–75, there has been a substantial increase in numbers of students accessing university education and a substantial change in the student profile of those entering universities. Supported by such changes as those contained in A Fair Chance for All (DEET, 1990), a government initiative to increase access, participation, retention and success in university programmes for a number of targeted disadvantaged groups, universities have opened their doors to a more diverse student group, thus legitimating flexible pathways for university entry.

Influences largely responsible for significant change in the culture of higher education are the growing legitimacy of flexible pathways for university entry, the expansion of teaching strategies available particularly through flexible delivery initiatives and the shrinking financial support from government leading to increasing trends toward 'user pays'. This has placed growing demands on the university sector to find

ways to address the equity issues that arise from having to meet the educational needs of a more diverse student body. In many universities, particularly the newer ones, this focus has positioned equity as a central and strategic concern for learning and teaching within the institutions, and faculties have experienced greater pressure to do more with less. Such strategic concerns in some institutions have resulted in the adoption of learning and teaching models based on distance education.

Taylor (2001) provides a useful framework for understanding the rationale behind the expansion of teaching strategies available through distance education initiatives, particularly those involving technology. Taylor's (2001) report provided information on how educational institutions should adapt to the fast-growing changes in technological knowledge, and highlighted the need for institutions to do things differently in their response to such changes. Distance education institutions tend to be well placed to adopt and adapt distance education models for the innovative application of technology, as is outlined in the institutional example later in this chapter.

The delivery generations described by Taylor (2001) are not necessarily linear, exclusive or discrete. Some universities, particularly those who by design or circumstances began to provide opportunities for non-traditional students, adopted distance education well before governments focused on access and equity initiatives. In such cases, they often operated across all four generations or across more than one generation at any given time. They were also in a much better position to be able to apply technology to learning and teaching in a manner that acknowledged the influences of such variables as "the type of subject matter, the specific objectives of the course ... and not the least, the student target audience" (Taylor, 1996, p.2). Their initial involvement in distance education had much to do with responding to changing student populations and an increasing demand for lifelong learning opportunities. This time also coincided with advances in communicative technologies. The digital world has been embraced as one means to leverage the efficiency of higher education.

Table 1: Models of distance education – A conceptual framework

Models of distance education and associated delivery technologies	Characteristics of delivery technologies					
	Flexibility			Highly	Advanced	Institutional
	Time	Place	Pace	refined materials	interactive delivery	variable costs approaching zero
FIRST GENERATION						
The correspondence model						
Print	Yes	Yes	Yes	Yes	No	No
SECOND GENERATION						
The multimedia model						
Print	Yes	Yes	Yes	Yes	No	No
Audiotape	Yes	Yes	Yes	Yes	No	No
Videotape	Yes	Yes	Yes	Yes	No	No
Computer-based learning (e.g. CML/CAL/IMM)	Yes	Yes	Yes	Yes	Yes	No
Interactive video (disk and tape)	Yes	Yes	Yes	Yes	Yes	No
THIRD GENERATION The telelearning model Audioteleconferencing Videoconferencing Audiographic communication Broadcast TVIradio and audioteleconferencing	No No No No	No No No No	No No No No	No No Yes Yes	Yes Yes Yes Yes	No No No No
FOURTH GENERATION The flexible learning model						
Interactive multimedia (IMM) online	Yes	Yes	Yes	Yes	Yes	Yes
Internet-based access to WWW resources	Yes	Yes	Yes	Yes	Yes	Yes
Computer-mediated communication	Yes	Yes	Yes	Yes	Yes	No
FIFTH GENERATION The intelligent flexible learning model						
Interactive multimedia (IMM) online	Yes	Yes	Yes	Yes	Yes	Yes
Internet-based access to WWW resources	Yes	Yes	Yes	Yes	Yes	Yes
Computer-mediated communication, using automated response systems	Yes	Yes	Yes	Yes	Yes	Yes
Campus portal access to institutional processes and resources	Yes	Yes	Yes	Yes	Yes	Yes

Source: Taylor, J.C., 2001, p.3

TECHNOLOGY AS A 'DISRUPTIVE INFLUENCE'

Worldwide, the normally conservative higher education environment is under considerable pressure from society to change: to become more accountable, more efficient and effective, and more relevant and responsive, while providing greater and more equitable access. The move to mass higher education has been so dramatic as to place enormous strains on the resources available to support higher education, requiring universities to enter the commercial arena to supplement income. Mauch and Sabloff (1995) have noted that the concept of high quality, free public higher education is under threat worldwide because governments cannot allocate enough resources to address quality goals in the face of enrolment pressures. They note the trends towards increased user fees and strain on student support, the diversification of institutional financing, a shift of government resources from universities to lower cost institutions such as technical institutions and community colleges, and a tendency for growth in higher education to occur in the private sector, to such an extent that nations which previously prohibited private institutions now welcome them. The base of private providers is also broadening to include forces as diverse as professional organisations, large communication carriers and special educational units within large private corporations.

The shift in emphasis to lifelong learning has resulted in an alarming pattern of credentialism and a proliferation of short-term specialised professional training programs aimed at meeting present occupational needs. It is associated with the expansion of adult education and training, the growing importance of continuing education and an increase in the number of higher education students studying part-time. Student cohorts have also made further demands on universities for greater flexibility in the ways they are able to access programs and services. In addition, society now has at its disposal a growing range of more sophisticated information and communications technologies that can be utilised for educational purposes, impacting upon traditional distance education models and theory, and challenging the traditional roles of teachers and learners. The growing reliance on technology and flexible modes of learning is impacting on the nature of the curriculum, the way that courses are offered and the range of students who can access them.

Laurillard (2006, p. 2) argues that "e-learning could be a highly disruptive technology for education – if we allow it to be. We should do, because it serves the very paradigm shift that educators have been arguing for throughout the last century". The agenda in Australia for university renewal driven by technology has followed trends elsewhere, although the influence of distance education as an accepted element of higher education took root in Australia much earlier than in many other countries.

TECHNOLOGY AS 'TRANSFORMATIVE'

Contemporary adult education literature strongly promotes the transition from transmissive to transformative approaches in education (Cranton, 2003; King, 2003). The transformative approach relates to learning that occurs when an individual is empowered to reflectively transform their meaning schemes with regard to their beliefs, attitudes, opinions and emotional reactions. Transformative learning is the process by which we call into question our taken-for-granted habits of mind or mindsets to make them more inclusive, discriminating, open and reflective in order to guide our actions. According to the tenets of transformative learning, adult learners need to be reflective, critical thinkers who are open to other perspectives and accepting of new ideas. Dialogue with others is crucial (Reushle, 2005).

This approach to learning and teaching is not new, so why is it attracting such renewed interest in the higher education arena? In the early 1900s, for example, the educational theorist John Dewey (1916) supported an approach to education that would transform schools, work organisations, and the society at large into more participative, democratic cultures (Gregson, 1995). Dickinson (1992, n.p.) stressed the importance of finding new ways of communicating and working together "to confront the problems that threaten the lives of human beings, countries, even the planet itself". The attempted transition, however, is a relatively recent phenomenon in the higher education sector and has met with some opposition (Raschke, 2003, p. 110). What has hindered such ideas in the higher education 'classroom' setting? Raschke claims that higher education, unlike other "pillars of culture" or "sectors of the economy" has undergone little change over the last 80 years. He notes that despite significant cultural, social, economic, political and technological revolutions, the view of learning and teaching in higher education "does not look or function much differently from the way it did in the 1920s". He believes that this resistance to new systems of knowledge creation and distribution is linked more to the desire to sustain a sense of privilege and aristocracy than to a fear of the loss of quality standards. He observes that much of higher education has refused to join the 'information grid' and that a good deal of institutional resistance to technological transformation stems from a belief that knowledge is nothing but "the transfer of information from one database or brain to another" (Talbot, 1999, as cited in Raschke, 2003, p.110).

This lack of transformation may not only follow from the reluctance of the academic community to change. The pressure of mass education and student diversity – more students, more fees, more marketing – emanates from a managerial perspective and to manage these numbers and process them (throughput, completion rates), there needs to be regulation that facilitates the mass education focus. The traditional classroom model allows large numbers (cohorts) to move through the system at the same pace in the same order providing a cost-effective means to do this.

Technological advances and changing societal, economic and political expectations are, however, strongly influencing and encouraging the exploration of how educators

in higher education "can go beyond the acquisition of simple techniques to a deeper reflection on and understanding of their work" (Cranton, 1996, p. vii), suggesting that online settings can provide 'friendly' environments that will support learning contexts that are collaborative, interactive and community-based. These online environments can support and promote transformation in learning and teaching. Bonk (1999) observes that "online learning offers a chance for students to enter into dialogues about authentic problems, collaborate with peers, negotiate meaning, become apprenticed into their field of study, enter a community of experts and peers and generally be assisted in the learning process" (p.410). When taking into account the literature on transformation theory and the characteristics of transformative learning, there is a strong indication that technology-enhanced educational settings offer an environment conducive to this type of learning and teaching.

AUSTRALIAN HIGHER EDUCATION POLICIES, PROJECTS, INITIATIVES AND TRENDS

Australian governance is multi-tiered, operating at local, state and federal levels. The federal government is responsible for higher education policy and funding. Higher education is managed by the Department of Education, Employment and Workplace Relations (DEEWR), while the six State and two Territory governments have their own education departments and education ministers. Australian higher education consists of 37 public universities, two private universities and 150 or so other providers of higher education (Bradley, Noonan, Nugent and Scales, 2008).

In the Australian system, policies that impact and frame the requirements and standards for teaching and judgments related to the effectiveness of teaching are distributed among specific bodies. Thus the *National Protocols for Higher Education Approvals Processes* establish standards and requirements, accreditation is shared between self-accrediting institutions, state regulatory bodies and professional organisations in the relevant fields. The Australian Universities Quality Agency (AUQA) conducts regular quality audits of institutions across their Australian and overseas campuses, and the Australian Learning and Teaching Council (ALTC) encourages, promotes and funds programmes to enhance learning and teaching excellence in higher education institutions. Across all this, the relevant Australian government department (presently DEEWR) and a collective universities body (Universities Australia) have key co-ordinating roles (Dow, 2008).

A 2006 study commissioned by the New Zealand Ministry of Education to consider the e-learning policy experiences of a number of countries identified consistent trends, themes and tensions. This report provides a useful framework to identify trends in the roll-out of policies and projects and identify landmarks in the implementation of technology-enhanced learning. The study analysed e-learning policy between 2000 and 2005 in Australia, Canada, Finland, Iceland, Korea,

Japan, Sweden, the United Kingdom and the United States. The analysis identified a discernible pattern to the development of e-learning policy. Stage one occurs as governments act to make e-learning possible, stage two is the integration of e-learning into the education system, and the third stage is a transformative role, with changes to views of learning and to the nature and operation of the tertiary institutions and the tertiary system (Brown, Anderson and Murray, 2007).

The Australian experience clearly illustrates the first two stages, with the provision of infrastructure (stage one) and a range of projects that fund and draw on the experience and expertise of early adopters technology (stage two). Brown, Anderson and Murray (2007, p.76) note that policy initiatives in the second and third stages include mainstreaming strategies to develop physical infrastructure, a focus on building and ensuring quality in e-learning and moves to create a system-wide approach to e-learning and a sector-wide embedding of e-learning.

In stage one, the Australian Government's *Creative Nation* (1994) and *Networked Nation* (1995) policy statements funded infrastructure and the context for the establishment of Education Network Australia (EdNA), a collaborative network of stakeholders in government and non-government school education, vocational education and training, adult and community education and higher education. During stage two, the economic opportunities created by global networking to market Australian education online were recognised and *education.au limited*¹, owned by all Australian Ministers of Education and Training, was established as a national company to develop and manage online educational services and products agreed to by the education and training stakeholders (White, 2004). The Australian Federal Government's 2000 education and training action plan for the information economy, *Learning for the Knowledge Society* (DETYA, 2000), addressed all education levels across Australia. These action plans were developed collaboratively by all Australian government departments and agencies, including the Australian National Training Authority (ANTA) and the Australian Vice-Chancellors' Committee (AV-CC) (White, 2004).

During the four years 1993 to 1996, the Committee for Advancement of University Teaching (CAUT) funded 448 National Teaching Development Grants to the value of AU\$16.7 million, and expended AU\$1.1 million over three years on the Clearing Houses. Following a review period and a change of government, a new Committee for University Teaching and Staff Development (CUTSD) operated through the three-year period 1997 to 1999 (Dow, 2008). Many educational technology projects were funded under the CAUT and CUTSD schemes.

During this current decade, the Australian government policies have reflected wider trends in higher education, such as embracing the knowledge society, and have reflected an increasing emphasis on student learning (rather than teacher focus), lifelong learning,

I www.educationau.edu.au/jahia/jsp/index.jsp

and access and equity issues. Other initiatives included *Our Universities: Backing Australia's Future* 2003 policy that recognised the impact technology was having on education. The then Federal Minister for Education said that "globalisation, massification of higher education, a revolution in communications and the need for lifelong learning leave Australian universities nowhere to hide from the winds of change" (Nelson, 2003, n.p.).

While infrastructure and online content provide the necessary framework for technology-enhanced learning, recognition that transformation of learning and teaching practice will not change without concentrated support for educators and a focus on learning and teaching practice resulted in the establishment of the Carrick Institute for Learning and Teaching in Higher Education, now called the Australian Learning and Teaching Council (ALTC). The ALTC was established in 2004 as part of a Federal Government initiative to enhance learning and teaching in Australian universities. The ALTC receives approximately AU\$27 million annually to support a range of programmes, such as grants in leadership for excellence in learning and teaching, priority projects, resources, awards, an exchange network (ALTC Exchange) and benchmarking.

The activities of ALTC provide national leadership in teaching, learning and the student experience, and offer an evidence-based policy voice through reports and research at government level. The ALTC Grants Scheme and the Discipline-Based Initiatives Scheme have enabled more projects and larger projects than had been usual in earlier programs (under CAUT and CUTSD particularly). Of particular interest here are the competitive grants that support innovation, research and development across more broadly based topics than those in the previous programmes. They provide funds of between AU\$60,000 and AU\$220,000 for projects of between one and two years. The identified priorities in 2006–08 were areas of emerging and ongoing importance - the teaching-research nexus, performance indicators for learning and teaching, student diversity, robust methods for identifying and rewarding teaching excellence, and innovations, particularly using new technologies (Dow, 2008). Project and grant information for this period indicated a range of technology-enhanced learning projects, such as 'A new enabling technology for learning and teaching quantitative skills', 'Digital learning communities: Investigating the application of social software to support networked learning' and 'New technologies, new pedagogies: Using mobile technologies to develop new ways of teaching and learning'.

The ALTC competitive funding processes have created tension as people compete for limited funds, while the funding processes indicate that projects should include cross-institutional collaboration. Project member collaboration often includes international educators from the UK, US, New Zealand and Canada, with strong links with the UK Higher Education Academy. ALTC programs have given legitimacy to leaders at faculty as well as institutional level to take time to think and act strategically about future directions and future needs and priorities in their programme offerings (Dow, 2008). This process is important as the more recent focus on accountability and quality outcomes is considered by many to have a detrimental impact on transformative education.

The Australasian Council on Open, Distance and E-Learning (ACODE) is the peak organisation for universities engaged or interested in open, distance, flexible and e-learning. ACODE's mission is to enhance policy and practice in open, distance, flexible and e-learning in Australasian higher education and seeks to influence policy and practice at institutional, national and international levels through disseminating and sharing knowledge and expertise, supporting professional development, providing networking opportunities, investigating, developing and evaluating new approaches, advising and influencing key bodies in higher education and promoting best practice. ACODE works on a range of activities including strategic planning, communications strategies, policy development and the e-Maturity Model (eMM), which provides a means by which institutions can assess and compare their capability to develop sustainably, deploy and support e-learning. A joint project between ACODE and ALTC involved encouraging benchmarking in e-learning².

Innovative educational use of technology is fostered by the Australasian Society of Computers in Learning in Tertiary Education (ascilite)³. While founded by Australian educators, ascilite is now an international professional community of innovators, leaders and scholars engaged with the cutting-edge applications of technology to enhance teaching and learning in higher education. Activities including publication of a high quality electronic journal, circulation of a regular newsletter, programmes for campus representatives, community mentoring, an international awards scheme and an annual conference that showcases innovative application of educational technology.

In March 2008, the Government initiated a Review of Higher Education to examine the future direction of the higher education sector, its fitness for purpose in meeting the needs of the Australian community and economy, and the options for ongoing reform. The Review was conducted by an independent expert panel, led by Emeritus Professor Denise Bradley AC with the final report being provided to the Deputy Prime Minister at the end of 2008 (Bradley et al., 2008). In the introduction to the report, Bradley noted the need to act quickly to create an outstanding, internationally competitive higher education system to meet Australia's future needs. Following the release of the May 2009 Federal budget, the Government announced in its response to the Bradley Review that it would provide an additional AU\$5.4 billion to support higher education and research over the next four years through the project *Transforming Australia's Higher Education System* (DEEWR, 2009). The quantum leap in resourcing is designed to support high quality teaching and learning, and to improve access and outcomes for students from low socio-economic backgrounds. It also aims to build new links between universities and disadvantaged schools, reward

² www.altc.edu.au/project-encouraging-benchmarking-elearning-usq-2007

³ www.ascilite.org.au/

institutions for meeting agreed quality and equity outcomes, improve resourcing for research and invest in world-class tertiary education infrastructure (DEEWR, 2009). Despite the Government not fully supporting the funding recommendations made by the Bradley Review, Lane and Trounson (2009, n.p.) reported Bradley as saying: "What you have seen is the Government committing itself to the importance of higher education teaching and research for the country's productivity into the future and (acknowledging) that it can't be done on a shoestring."

In early 2009, the Australian Federal Government announced the establishment of a new company to build and operate a super fast National Broadband Network. This Network, built in partnership with the private sector, will be the single largest nation-building infrastructure project in Australian history. The Network promises to connect 90% of all Australian homes, schools and workplaces with broadband services with speeds up to 100 megabits per second – 100 times faster than those currently used by many households and businesses – and connect all other premises in Australia with next generation wireless and satellite technologies that will deliver broadband speeds of 12 megabits per second.

The emphasis in the 2009 Australian budget reflects the current economic climate, with initiatives to stimulate the Australian economy, such as AU\$2.6 billion for new infrastructure for universities and the vocational sector over four years with an emphasis on university and science projects. However, much of that money will not be available until 2011–12 and 2013 (Trounson, 2009). This highlights another issue that has emerged in the release of the 2009 budget, which revealed no specific allocation for e-learning initiatives. Rather, the focus is on technology to support economic developments such as nanotechnology and biotechnology business applications (Australian Government, 2009). Does this reflect a government belief that e-learning in Australian higher education institutions has arrived and is now 'business as usual'? This assumption is also reflected in the Australian Learning and Teaching Council's (ALTC) move away from funding provision for technology-enhanced projects. However, it is the belief of the authors of this chapter that the transformation of Australian higher education through technology-enhanced learning is still a work in progress.

TECHNOLOGY-ENHANCED LEARNING – AN EXAMPLE OF AN AUSTRALIAN REGIONAL UNIVERSITY

Australian distance education evolved from an educational tradition based on an independent learner model. A small population spread over large geographic distances meant that traditional distance education experiences were historically based on self-contained and predominantly print-based learning packages. The distance education courses were designed as a stand-alone learning package, based on the presumption that remote learners would be unable to access other resources or have easy contact with peers or teachers. In the independent learner model, students worked independently

through course materials that were designed on the idea of a student/content interactive approach. They submitted assessment items and received feedback and grades, with minimum interaction with teachers and fellow students, unless an on-campus residential school was scheduled as part of the programme (McDonald and Mayes, 2007).

Brown, Anderson and Murray (2007, p.79) argue that a notable feature of most e-learning policy is "the disconnection with the rich and long tradition of distance education" meaning that research in distance learning and implementation of approaches to learning and teaching outside the classroom boundaries tend not to have informed the application of emerging technology. This however, has not been the case for the University of Southern Queensland, (USQ), an Australian regional university that has offered distance education for more than 30 years and has approximately 25,000 enrolments, including over 7,000 international students. USQ offers undergraduate and postgraduate programmes on campus, and nationally and internationally using flexible delivery. USQ's 2020 vision "to be recognised as a world leader in open and flexible higher education" (USQ, 2009) is reflected in the institutional mission to enable broad participation in higher education.

USQ's development as a flexible learning provider has evolved through a number of significant initiatives. USO delivered its first course solely online in 1997, and then in 1999 a major online initiative called USQOnline was introduced, which enabled the delivery of multiple courses via the Internet to students worldwide. From this point on, USQ has moved through a number of technology-enhanced phases; hybrid, multimodal, blended learning, fleximode. USQ has also created the position of Principal Advisor, Learning and Teaching within the Division of ICT Services to bridge the gap between the academic community and the delivery of ICT services in the university. USQ has also entered the OpenCourseWare (OCW) arena with the aim of making a sustainable contribution to meeting the exponential demand for higher education. However, the OCW movement has the opportunity to expand its vision and operations to enable the OCW learners to have access to academic support, to have the opportunity to be assessed and to have the potential to gain credit towards recognised qualifications awarded by a credible accreditation agency. Taylor (2007) notes that "such innovation is not intended to threaten existing models of higher education provision, but to create a 'parallel universe' capable of ameliorating the apparently insurmountable problem of meeting the worldwide demand for higher education". Yet another initiative at USQ has been the establishment of the Open Access College, which aims to reach a broader student base through technology-enhanced learning opportunities thus contributing to a social justice/ equity agenda and Federal Government budget imperatives. The Centre for Research in Transformative Pedagogies (CRTP) promotes and supports research related to learning and teaching across multiple discipline areas with research conducted in a face-to-face classroom settings, flexible and online learning environments, workplaces and wider social settings. This diversity of membership encourages the formation of inter-disciplinary research teams and the application of varied perspectives.

The latest in USQ's technology-enhanced learning initiatives is the establishment of the Australian Digital Futures Institute (ADFI). ADFI's focus is on two areas of activity: e-research and e-learning. Included in the scope of the ADFI is the support of USQ teaching and learning technology requirements, fulfilling e-research requirements of USQ research centres and forming networks nationally and internationally with like-minded research and development groups and individuals. The strategic focus of ADFI is to identify, test and promote the application of new and emerging technologies with a view to transforming learning and teaching practice.

CONCLUSION

The pattern of development of Australian e-learning policy outlined in this chapter has noted a three-stage development: the first stage relates to governments acting to make e-learning possible, the second as they work to mainstream e-learning, and the third stage is a transformative role where the aim is to change views of learning and teaching and the nature and operation of tertiary institutions and the tertiary system. An astounding observation by Friesen (2009) in his reference to a paper by McLuhan and Leonard written in 1967 is the similarity of many arguments made today to those made 42 years ago: "that schools are as outmoded as the mass production model on which they are based, that the very nature of this age of new technology ... will [unavoidably] shape education's future, that the walls between school and world will continue to blur and that future educators will value, not fear, fresh approaches, new solutions". Are McLuhan's statements, restated by Friesen, prescient, premature, preposterous, or all of these? What does this say about current predictions and current situations in the higher education sector?

Despite a strong indication by the Australian Government that Australian higher education has indeed 'arrived' and that technology-enhanced learning is now business as usual (demonstrated by the change in budgetary imperatives away from a focus on e-learning initiatives), this view must be challenged. Do the management and administrative structures and processes in Australian higher education institutions acknowledge the collaborative learning ideals of the post-industrial era or are they continuing to subscribe to management techniques that fit with the industrial era that of the lockstep, independent learner constrained by administrative timelines and institutional processes? Are the assumptions about learning in the post-industrial era out of sync with the administrative and managerial models still applied vigorously in most higher education teaching and learning contexts? The authors propose that much of the application of technology-enhanced learning in Australian higher education is strategic but perhaps not transformative. As participants in the higher education arena, we need to engage in critical dialogue and challenge traditional mindsets about teaching and learning (and management models that enshrine them) in order to achieve the post-industrial ideals of transforming higher education through technology-enhanced learning.

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6

AN EXPLORATION INTO KEY ISSUES IN THE ADOPTION OF GOOD PRACTICES IN VIRTUAL CAMPUS AND E-LEARNING-RELATED INITIATIVES

MARK STANSFIELD
AND THOMAS CONNOLLY

INTRODUCTION

In this chapter we explore a number of key issues and guiding principles concerning the adoption of good practices in virtual campus and e-learning-related initiatives. Examples of common failings found in e-learning initiatives are highlighted in areas of market research, financial planning, identity and definition, and links between learning and commercial activities. Our aim is to identify some key guiding principles underpinning good practice within organisational, technological, pedagogical, learner, financial and sustainability contexts.

In recent years, e-learning and blended learning have become widely adopted within many higher education establishments across the world and accepted as a largely popular means of providing flexible learning opportunities to diverse groups of learners using a range of Internet-related technologies and applications. Here we focus particularly on virtual campuses where several higher educational institutions, as well as educational-related organisations provide joint programmes through the establishment of partnerships at national, European and global levels. The term 'e-learning related' is being used in this chapter because many of the initiatives and projects reviewed here utilised blended approaches to learning that comprised both e-learning elements and periods of face-to-face contact.

The evolution of virtual campus and e-learning-related initiatives since the mid-1990s has been described by Connolly and Stansfield (2007) as comprising three generations. The first generation (1994 to 1999) was characterised essentially by the passive utilisation of Internet technologies and basic mentoring in relation to student/learner support. The second generation (2000 to 2003) was characterised more by the adoption of advanced technologies facilitated by higher-bandwidth access, rich

streaming media and virtual learning environments. The third generation (since 2003) is characterised by more collaborative learning environments facilitated by the adoption of tools such as wikis, blogs, e-portfolios and smart phones enabling more flexible access to groups of learners and learning materials, as well as the facilitation of more reflection and sharing of learning experiences. The development of virtual campus and e-learning-related initiatives have provided opportunities that might not have previously been possible for diverse groups of learners across transnational boundaries

In order for virtual campus and e-learning initiatives to be sustainable in the long term, it is important that a better understanding is gained of key factors that underpin success and sustainability, as well as better awareness of some of the common reasons why initiatives fail. For many years, the technology (the 'e' part) of e-learning seemed to dominate debates and developments in the field, it is only fairly recently that there appears to be a wider recognition that the learning is more important (Connolly and Stansfield, 2007).

This chapter will draw on some of the issues explored and lessons learnt from a two-year European Commission co-financed project that the authors' co-ordinated: 'Promoting Best Practice in Virtual Campuses' (Stansfield and Connolly, 2009; Stansfield et al., 2009a; Stansfield et al., 2009b). In relation to common failings of e-learning and virtual campus initiatives more generally, the European Commission co-financed the 'MegaTrends in E-Learning Provision' project to conduct an analysis of prestigious European and American e-learning initiatives and identify those that did not reach their targeted goals. A number of key common failings identified by this project are highlighted below.

EXAMPLES OF COMMON FAILINGS IN E-LEARNING INITIATIVES

In a report entitled E-Learning initiatives that did not reach targeted goals, Keegan et al., (2007) identified a number of areas where failings often occurred:

LACK OF ADEQUATE MARKET RESEARCH

Many e-learning initiatives that failed to reach their targets were seriously overestimating the numbers of students that they planned to attract. There was often an untested assumption that overseas markets would be attracted to courses offered by institutions from the UK and the US. Evidence to justify this assumption was usually missing.

LACK OF ATTENTION TO ADEQUATE FINANCIAL PLANNING AND SUSTAINABILITY

A reason for the failure of a number of e-learning initiatives centred around their lack of sustainability in relation to being able to develop and implement high quality courses at prices that students and institutions could afford. Many developers of e-learning course materials appeared to have underestimated the sheer scale of the costs involved in providing both the materials and the tuition services. Many initiatives were unable to continue to operate once initial seed funding expired.

LACK OF IDENTITY AND DEFINITION

A number of e-learning initiatives were considered to have failed as a result of a lack of clarity in the institutional model adopted and its unclear position in the marketplace in relation to well-established providers of e-learning courses. This lack of clarity created confusion and uncertainty in the potential student market.

FAILURE TO ESTABLISH LINK BETWEEN EDUCATIONAL AND BUSINESS ACTIVITIES

An e-learning initiative may be successful from an education perspective, but unless it is able to plan and manage its business activities and provide for sufficient income once initial external or government seed funding has expired then its sustainability will be in serious doubt.

Examples of initiatives that failed through both inadequate market research and a lack of attention to sustainability were cited by Keegan et al., (2007) as including the Alliance for Lifelong Learning, the California Virtual University, Scottish Knowledge, the Scottish Interactive University, the UK e-University (UKe-U) and the Open University of the United States. Examples of initiatives that lacked identity and definition were cited as including the California Virtual University, the Open University of the United States that was competing with many American universities and the UKe-U competing against the well-established Open University of the UK. The California Virtual University was also singled out as an example of an initiative failing to base its educational activities on a long-term business plan.

The following sections of this chapter will highlight a number of key lessons from an investigation of several virtual campus and e-learning-related initiatives conducted by the authors from 2007 to 2009. Interviews and questionnaires were conducted with a range of virtual campus and e-learning stakeholders associated with several initiatives. Examples included the eLene Network, which comprises several institutions involved with three previous large European Commission virtual campus-related projects, namely eLene-TT (teacher training and the innovative use of ICT in higher education), eLene-TLC (preparing universities for the ne(x)t generation of students) and eLene-EE (economics of eLearning). Other examples included: VCSE (Virtual Campus for a Sustainable Europe), E-Urbs (European Masters in Comparative Urban Studies), eTTCampus (European Teachers and Trainers Campus) and eduGI (Reuse and Sharing of eLearning Courses in Geographical Information Science Education).

THE EXPLORATION OF KEY ISSUES UNDERPINNING VIRTUAL CAMPUS AND E-LEARNING-RELATED INITIATIVE SUCCESS

During the interview sessions with the various stakeholders, including project coordinators, learning technologists, tutors, researchers and external evaluators, a number of key elements emerged relating to the success of the virtual campus and e-learning-related initiatives. The interview data were also explored in relation to various codes of practices and guidelines on e-learning that have been previously produced. Such work includes: the UK Quality Assurance Agency for Higher Education (QAA, 2004), who have produced a code of practice; Phipps and Merisotis (2000) from the Institute for Higher Education Policy (in the US) in association with Blackboard and the National Education Association, who established a list of 24 benchmarks; Connolly and Stansfield (2007), who identify a number of guiding principles for the development of online constructivist learning environments; and Wright (n.d.; 2006), who provided a detailed set of criteria for evaluating the quality of online courses.

The key issues are explored through the use of guiding principles that have been identified both from the interviews and from the wider literature. The guiding principles are explored using six main subheadings – namely organisational, pedagogical, technological, learner, financial and sustainability – that cover the range of areas that stakeholders must address for the long-term success of an initiative. Also considered are examples of how specific European Commission co-financed virtual campus projects have demonstrated good practice in these areas.

KEY ORGANISATIONAL GUIDING PRINCIPLES UNDERPINNING GOOD PRACTICE

Some of the key guiding principles underpinning organisational aspects of good practice are highlighted in Figure 1. Having detailed knowledge of the size and scope

of the target market of the initiative is vital in securing long-term sustainability. As Keegan et al., (2007) point out, this is an area that many failed initiatives did not sufficiently address. Detailed market research and establishing strong partnerships with internal and external stakeholders will help an initiative better to understand the actual potential of the market as regards attracting possible revenue, as well more realistic calculations of the costs of providing the technological platform, learning materials and tutor support, and whether the initiative can afford to provide the level of services and functions originally planned. Establishing close links with relevant stakeholders enables new market opportunities to be explored and allows the initiative better to identify the real needs of students. Detailed evaluation at each stage is crucial. This ensures that the needs of the stakeholders are more likely to be met and that issues can be identified quickly. Clearly, intra-project communication must be effective.

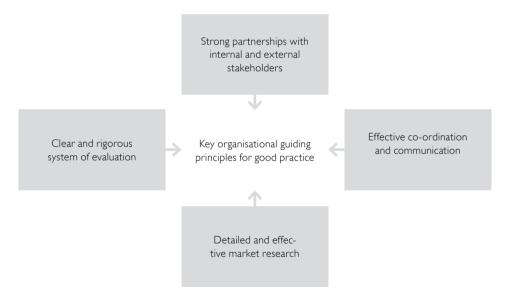


Figure 1: Examples of key organisational guiding principles in establishing good practice in e-learning and virtual campuses

REAL-WORLD EXAMPLES OF GOOD PRACTICE: ORGANISATIONAL ISSUES

The VCSE (Virtual Campus for a Sustainable Europe) project adopted a clear strategy in relation to which issues were handled at a partnership level, such as formal agreements, evaluation and technical facilities, and which issues were handled locally, such as specific local courses and administrative issues in relation to local learners. Thus, the 'bottom-up' approach to organisational issues using the concept of subsidiarity provided for an open and flexible network based on distributed responsibilities in which matters were handled by the lowest competent authority. This provided for greater effectiveness and efficiency with regard to the operational running of the virtual campus, while allowing key decision-makers to focus on important strategic goals without being distracted by micro-management issues.

The E-Urbs (European Masters in Comparative Urban Studies) virtual campus project highlighted the importance of organising several face-to-face meetings among project partners and invited representatives from administrative departments to address complex legal and administrative issues and foster a greater sense of teamwork.

The e-Move (an operational concept of virtual mobility) virtual campus project set up a Network of Experts comprising Deans, teaching staff, administrative staff, technical staff, employers and educational policy-makers as a means of sharing knowledge and ideas, as well as gaining feedback in relation to the efficient running of the virtual campus project.

The eTTCampus (European Teachers and Trainers Campus) virtual campus project established peer review and effective partnerships with relevant stakeholders through the setting up of the Training of Trainers Network (TTNet), a European forum in which key decision-makers in the field could share examples of good practice.

KEY TECHNOLOGICAL GUIDING PRINCIPLES UNDERPINNING GOOD PRACTICE

The technology underpinning a virtual campus and e-learning-related initiative provides the platform by which student/learners interact with each other and tutors, as well as engage with the learning materials. Figure 2 highlights some of the key guiding principles underpinning good practice in its development. Involving users early in the development process is essential good practice. The technical functionality should be designed to support and even enhance the pedagogy – this is the essence of a user-centred approach, but one that is too rarely achieved. Equally, it is important that suitable maintenance and technical support agreements are signed with vendors to ensure the virtual campus or e-learning platform is available to users when they need it. The platforms should also enable scaleability of its functionality. In addition, it is highly desirable that platforms allow for interoperability with university student administration and assessment.

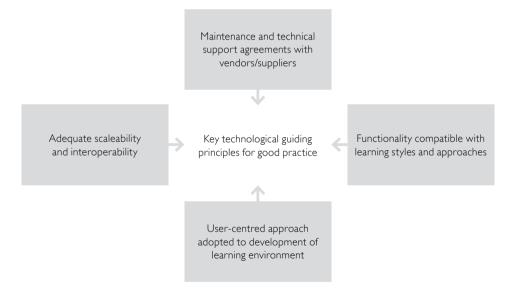


Figure 2: Examples of key technological guiding principles in establishing good practice in e-learning and virtual campuses

REAL-WORLD EXAMPLES OF GOOD PRACTICE: TECHNOLOGICAL ISSUES

The VCSE (Virtual Campus for a Sustainable Europe) virtual campus project left the selection of specific tools within the virtual campus platform to the individual tutors and instructors. Thus, adopted technology was based on a 'need to use' basis in ensuring that learners were not left overloaded and confused by using virtual campus tools for their own sake. In relation to the choice of virtual campus platform, decisions were based on cost-effectiveness and interoperability so that the virtual campus could be integrated on university servers enabling permanent operation, as well as being covered by existing maintenance agreements ensuring that any technical problems could be quickly addressed. In addition, system security was maintained through the adoption of university security firewalls, policies and procedures.

Similarly, the eduGI (Reuse and Sharing of eLearning Courses in GI Science Education) virtual campus project adopted an e-learning platform based on an existing e-learning platform as used by one of the partners. As a result effective maintenance agreements were already in place. In addition, cost-effectiveness was provided through the reuse of existing resources and materials from previous European Commission co-financed projects thus keeping costs and overheads low.

The E-Urbs (European Masters in Comparative Urban Studies) virtual campus project adopted an e-learning platform that had been developed over several years of collaboration with an IT company, which meant that the platform had been rigorously tested and evaluated over a number of years. In addition, the e-learning platform was based on open standards, which enabled modules and learning objects to be developed in a rapid and effective manner as required.

KEY PEDAGOGICAL GUIDING PRINCIPLES UNDERPINNING GOOD PRACTICE

Some of the key pedagogical guiding principles are highlighted in Figure 3. It is clearly vital that if a virtual campus or e-learning initiative is to be successful, then learners should feel engaged and stimulated in relation to their learning experience. Crucially, in line with constructivist principles, learners should be encouraged to take responsibility for their own learning. A problem encountered by many virtual campus and e-learning initiatives can be high drop-out rates (Carr, 2000; Rovai, 2002). Constructive, timely and relevant feedback to learners is paramount. Indeed, it is important that the pedagogy underpinning an initiative is based on recognised and credible quality standards and principles. This is particularly relevant within the context of transnational partnerships where practices and standards may be different across the partner institutions. Thus, an agreed set of standards and principles should be adopted to ensure a fair and consistently high standard across the partnership in relation to the learner experience.

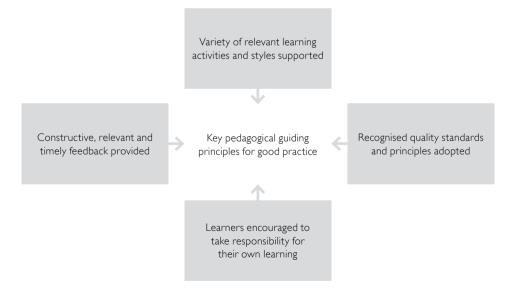


Figure 3: Examples of key pedagogical guiding principles in establishing good practice in e-learning and virtual campuses

REAL-WORLD EXAMPLES OF GOOD PRACTICE: PEDAGOGICAL ISSUES

The E-Urbs (European Masters in Comparative Urban Studies) virtual campus project adopted a policy of establishing face-to-face contact between teaching staff and students, before introducing the fully online component. This acknowledged the social underpinning of good pedagogy.

The eTTCampus (European Teachers and Trainers Campus) virtual campus project considered that traditional quality indicators and standards might not necessarily be appropriate to a virtual campus learning environment. As a result, eTTCampus adopted specific quality indicators for online pedagogy, namely: Structural Indicators that assess enablers, Practice Indicators that evaluate how the virtual campus utilises resources, and Performance Indicators that assess the results of the interaction between work practices and enablers.

KEY LEARNER GUIDING PRINCIPLES UNDERPINNING GOOD PRACTICE

Since the learner should be the key focus of any virtual campus or e-learning initiative, it is vital that sufficient support and encouragement is provided throughout their learning experience. Some of the key learner issues are highlighted in Figure 4. Learners should be given clear guidelines regarding of what is expected of them and how they should interact and conduct themselves within an online learning environment. This is particularly relevant where learners may be from diverse transnational and cultural backgrounds that have different standards of what may be deemed acceptable behaviour and language. In addition, activities should be aimed at ensuring that learners feel engaged and motivated with the learning environment and that sufficient support both online and offline is provided. Capturing the views of the learners in relation to the learning activities, learning materials, assessment, support and technology platform is vital in gauging whether the initiative is achieving its goals. If learners are encountering problems with the learning experience it is obviously more likely that they will drop out. In addition, high drop-out is likely to have a knock-on effect on attracting new learners.

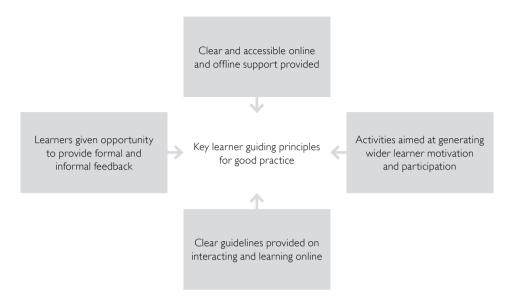


Figure 4: Examples of key learner guiding principles in establishing good practice in e-learning and virtual campuses

REAL-WORLD EXAMPLES OF GOOD PRACTICE: LEARNER ISSUES

The VCSE (Virtual Campus for a Sustainable Europe) virtual campus project sought to enhance the student experience through the courses sharing common attributes that included: (i) an introduction to the learning environment, (ii) the formation of intercultural and inter-disciplinary groups, (iii) the active involvement of e-moderators and e-tutors, (iv) the pacing out of activities, and (iv) the rewarding of participation by earning credits.

The E-Urbs (European Masters in Comparative Urban Studies) virtual campus project established a monitoring and assessment working group with the aim of measuring the learning effectiveness of the blended approach and monitoring the overall learning process. The concept of 'co-opetition', which combines competition and co-operation, was explored.

KEY FINANCIAL GUIDING PRINCIPLES UNDERPINNING GOOD PRACTICE

The ultimate cause of the failure of a virtual campus or e-learning initiative is always financial. Some of the key financial issues are highlighted in Figure 5. It is vital that initiatives are able accurately to cost their learning provision and realistically estimate fee income. Rather than facing such issues once the period of seed funding has expired, the management of virtual campus and e-learning initiatives should undertake risk management, as well as formulate financial contingency plans at the start of the development process.



Figure 5: Examples of key financial guiding principles in establishing good practice in e-learning and virtual campuses

REAL-WORLD EXAMPLES OF GOOD PRACTICE: FINANCIAL ISSUES

The VCSE (Virtual Campus for a Sustainable Europe) virtual campus project financial model minimised financial risks by following a 'bottom-up', 'quid pro quo' approach that was based on an exchange of courses, students and know-how on e-learning. A risk analysis had been conducted. In addition, open-source software was used for the virtual campus platform. The costs and risks of new partners joining VCSE are kept low and new partners are given the opportunity to join at one of three levels of involvement: (i) observer status – providing a period of time to decide, (ii) partly active member – providing an opportunity to admit students to VCSE courses, or (iii) full member – contributing new e-learning courses to VCSE and admitting students to VCSE courses.

The eduGI (Reuse and Sharing of eLearning Courses in GI Science Education) virtual campus project business model was based on two pillars: (i) reusing existing resources gained from previous projects and (ii) sharing resources in an international network within a specific subject area. As a result the consortium agreed to exchange e-learning courses on a non-fee basis, and partners receive access to two or more courses for the cost of developing a single e-learning course. eduGI conducted a detailed costbenefit analysis of developing and delivering its e-learning courses. It was found that while the costs of developing e-learning courses are higher (about double the costs of an equivalent face-to-face course) due to the costs of the e-learning environment and infrastructure, rerunning an e-learning course is much less. Thus, eduGI reported a positive return on investment when e-learning courses are delivered at least twice and given the fact that a partner is able to deliver at least two e-learning courses for developing one e-learning course of its own.

KEY SUSTAINABILITY GUIDING PRINCIPLES UNDERPINNING GOOD PRACTICE

Some of the key issues underpinning the sustainability of virtual campus and e-learning initiatives are highlighted in Figure 6. Central to sustainability is a continued engagement with stakeholders and the conducting of continued market research to ensure that the demand for the courses and services of an initiative is fully understood and evaluated. The perceived demand that might be estimated at the planning stage may not remain the same two or three years later when courses and learning materials have been developed and implemented. In addition, initiatives need to be continually aware of new and emerging trends in technology, pedagogy and in the subject domain that they are supporting. Initiatives need to be able to attract new learners, offer new experiences to existing learners, as well as being commercially viable. Thus, initiatives need to implement a marketing and commercialisation strategy that identifies and engages with the market, as well as being able to generate sufficient revenue to allow it to continue operating in a cost-effective manner. This can be a very difficult balance to achieve.



Figure 6: Examples of key sustainability guiding principles in establishing good practice in e-learning and virtual campuses

REAL-WORLD EXAMPLES OF GOOD PRACTICE: SUSTAINABILITY ISSUES

The eTTCampus (European Teachers and Trainers Campus) virtual campus project identified a number of sustainability scenarios: (i) Federated — an extension of existing collaboration among partners, (ii) eTTCampus consortium — an expansion in scope of the collaboration and a more structured co-ordination among project partners beyond the project lifecycle, (iii) Embedded — partners use the outcomes of eTTCampus and embed them in national initiatives dedicated to teacher training, (iv) Awarding body — eTTCampus becomes a qualifications awarding body for teachers and trainers, and (v) Virtual Mobility — eTTCampus partnership applies for other funding opportunities related to virtual mobility of teachers and trainers.

The eduGI (Reuse and Sharing of eLearning Courses in GI Science Education) virtual campus partners agreed to continue with the exchange of e-learning courses for a minimum of three years. eduGI has been working with partner networks to enable the exchange of e-learning courses across a wider set of collaborations.

CONCLUSION

The purpose of this chapter has been to highlight a number of key issues and guiding principles that the authors consider to underpin good practice in relation to virtual campus and e-learning initiatives. Examples of actual good practice have been provided to illustrate how certain initiatives have addressed challenges and sought to engage learners in an effective manner. The issues relating to good practice that have been highlighted are certainly not a complete set; however, they do illustrate a discernable pattern across these initiatives, which should be given greater emphasis if current and future initiatives are to become more sustainable. It is in nobody's interest that seed funding should fail to germinate.

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THE HIGHER EDUCATION ACADEMY



7

BENCHMARKING E-LEARNING IN UK UNIVERSITIES: THE METHODOLOGIES

PAUL BACSICH

INTRODUCTION

The term 'benchmarking' was first applied to e-learning in the UK by the Higher Education Funding Council for England (HEFCE) in its e-learning strategy (HEFCE, 2005); however, there had been work on benchmarking e-learning in universities across Europe as long ago as 2003 (ESMU, 2003).

HEFCE observed:

We agree with the respondents to our consultation that we should know more about the present state of all forms of e-learning in HE. This is essential to provide a baseline to judge the success of this strategy. However, understanding HE e-learning is not just a matter for HEFCE. Possibly more important is for us to help individual institutions understand their own positions on e-learning, to set their aspirations and goals for embedding e-learning — and then to benchmark themselves and their progress against institutions with similar goals, and across the sector (emphasis added).

This led to the setting up of the Higher Education Academy/JISC Benchmarking of e-learning Exercise – usually called the Benchmarking Programme. The main programme ran in three phases (Pilot, Phase I and Phase 2) from late in 2005 until early 2008, each lasting somewhat less than a year, each phase rapidly following the previous one. This was followed by a Welsh phase in 2008, called *Gwella*, which benchmarked the four institutions in Wales that had not been benchmarked in earlier phases – thus completing the benchmarking of all 11 Welsh universities. In all, 81 institutions were benchmarked.

The Programme is at the operational level very well documented, even by the standards of similar programmes in the UK and elsewhere. There are over 15 reports that are relevant including an overview document (Higher Education Academy, 2008) covering both Benchmarking and Pathfinder, a summary report on each phase (Mayes (2006) and then Adamson and Plenderleith (2007, 2008)) and reports from the various consultancy teams that supported one or more methodologies in each phase (Bacsich (2006c, 2007a, 2008a), Chatterton (2006) and OBHE (2006, 2007a, 2007b)). There are also a small number of public reports from institutions, including long reports from Oxford Brookes University (2006a, 2006b), the University of Derby (2007), the University of London External System (2008) and the University of Worcester (2008). A few more analytic papers are now appearing but they are often written from the point of view of one methodology – e.g. Pick&Mix (Bacsich, 2009a); one constituency – e.g. distance learning (Bacsich, 2008d); or one institution – e.g. Northumbria University (Bell and Farrier, 2008a, 2008b).

This chapter provides a brief summary and a comparison of the benchmarking methodologies for e-learning. Five methodologies were deployed, three on a large scale, two on a more limited basis. The methodologies were OBHE (from the Observatory on Borderless Higher Education), Pick&Mix (so named because of the mixed ancestry of its criteria), ELTI (Embedding Learning Technologies Institutionally), eMM (the e-learning Maturity Model) and MIT90s (named after the prestigious US university). The best evidence so far is that a medium-sized or large institution could effectively run any of the methodologies used — which is not to say that they do not differ in 'footprint', quality of analytic outcome or ability to generate information for policy-makers.

THE METHODOLOGIES THAT WERE USED

The benchmarking exercise was conducted by each institution with the help of benchmarking experts contracted by the Higher Education Academy. Table I shows the number of institutions using each methodology across the phases of the programme.

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Table	1: Methodologies u	isea across the	tour bhases	of benchmarking

Methodology	Pilot	Phase I	Phase 2	Gwella	Total
ELTI	3	6	0	0	9
eMM	I	0	7	0	8
MIT90s	I	4	0	0	5
ОВНЕ	4	21	10	0	35
Pick&Mix	3	7	10	4	24
Totals	12	38	27	4	81

The methodologies cluster into four main groups:

- 1. the public criterion-based methodologies Pick&Mix and eMM;
- 2. the survey methodology *ELTI*;
- 3. the audit-based methodology OBHE; and
- 4. the methodological container and change management regime MIT90s.

Very little has previously been published on comparison of methodologies, but some hints of recent thinking can be found in Glenaffric (2008) and in the end-of-phase reports by Adamson and Plenderleith (2007, 2008).

PICK&MIX

Pick&Mix is a modern example of a public criterion-based methodology. These are distinguished by the following features:

- 1. The methodology contains a number of 'good practice statements', normally referred to as criteria. These criteria are available for public scrutiny ideally but not necessarily via an open source license. Typically there are from 17 to 70 or so criteria, but several systems cluster round the 20 to 30 range for reasons largely to do with the number of criteria that a senior management meeting can effectively process for details see Bacsich (2009a).
- 2. An institution is asked to rate its performance on each criterion, ranked on a scale with a standard number of *levels*. There are many arguments about the 'best' number of levels, with many systems choosing to have four, but five- and six-level systems are also found (and three- and seven-level systems were used in the past).

Pick&Mix was developed by the author in 2005 (Bacsich, 2005a-d, 2008b) by producing a 'reasoned rationalisation' of various other systems into one with 20 criteria and six levels. Within the Benchmarking Programme it was used by 24 institutions. The specification of each release of Pick&Mix – plus associated documentation – is released into the public domain via a Creative Commons license. As Pick&Mix developed, aspects of MIT90s were incorporated (Bacsich, 2006f) – this hybridisation is a common aspect of benchmarking. Pick&Mix also accreted a large number of supplementary criteria, often adapted from other systems (Bacsich, 2006b, 2006d, 2006g), which were used by groups of HEIs, several to a substantial extent.

E-LEARNING MATURITY MODEL (EMM)

The methodology eMM was developed by Stephen Marshall and Geoff Mitchell in New Zealand in the period 2002 to 2004 and first used to benchmark all the universities in New Zealand in 2005. Interestingly, it was initially called a 'maturity' methodology – but by 2005 it also was being articulated as 'benchmarking'. It consisted initially of a set of 42 criteria (later 35) – which eMM calls processes. However, each criterion is split into five separate sub-criteria by considering the criterion against five specific dimensions. The dimensions are delivery, strategy, definition, management and optimisation. These are derived from an underlying theory from software engineering, the Capability Maturity Model (Marshall and Mitchell, 2004). Thus in practice there are 42 x 5, i.e. 210, sub-criteria to score. Because of this added complexity, the system can give a very detailed analysis of the 'process maturity' of an institution with regard to e-learning. This, plus the international aspects of the methodology, appear to be what attracted the University of Manchester to use it in the Pilot phase (the sole institution to do so). Out of this trial came a reduction to 35 criteria.

By the time of Phase 2, the basic eMM system had been enhanced by an underlying survey system of practices – each practice feeding into one of the 35 x 5 process-dimension cells. Essentially a survey system was grafted in underneath the process level – with a similar philosophy to ELTI, but with very different questions. There were a large number of practices, but scoring was made easier by the development of a sophisticated spreadsheet that handled scoring of practices and aggregation of practices scores into sub-criterion scores. Various unpublished attempts were made to reduce the number of criteria below 35 to 24 or so – summarised by Bacsich (2009b); there was no consensus on what these should be, but several institutions in Phase 2 in reality focused their attention on a 'lens' of 17 or so criteria.

There is one methodology derived from eMM that used dimensions – DSA as used once for Scottish FE (Sero, 2007) – but no other explicit use of the dimension concept in benchmarking e-learning is known. Nevertheless, dimensional thinking is an undercurrent in a considerable amount of benchmarking and in fact can be regarded as an extension of slices – segments of an institution's activity.

The eMM methodology is still active in New Zealand, most recently with the polytechnics, and use is increasing in Australia and the US, with some interest also from Japan. Marshall (2008b) provides a brief overview of global developments, and May (2009) presents an interim report on Penn State benchmarking using eMM.

ELTI

ELTI was developed over the period 2001 to 2003 by a small group of universities (and some colleges) including the University of Bristol, primarily using funding

from JISC¹. Its original purpose was to be a survey on staff development needs for e-learning, but around the beginning of the Benchmarking Programme it was repurposed into a benchmarking system.

ELTI has a set of 82 questions, usually called *indicators*, grouped into 12 topic areas, usually described as *categories*. Most indicators are scored on a five-level scale. In addition to the questions, ELTI is embedded in a wider framework of change management for an institution – which is essentially independent of the questions.

ELTI was used by three institutions in the Pilot and by six in Phase I (but none in Phase 2), making nine in all. At the end of the Pilot some indicators were updated and rendered more student-centred. Variants of this newer version were used in Phase I, with institutions increasingly focusing on the framework rather than on a specific common set of indicators. An excellent Final Public Report was produced by Nottingham Trent University (2008), with well-constructed staff and student surveys, but little trace remained in it of the original ELTI indicators. A question for later work is to analyse the extent to which ELTI had in fact turned into an approach similar to MIT90s by the end of Phase I.

Unlike Pick&Mix and eMM, ELTI suffers from not having a champion and has sustainability issues – despite some theorising to the contrary, no methodology thrives if only universities support it. The clear evidence from the Programme is that a methodology must remain current to remain relevant – this maintenance effort is considerable.

Although ELTI is little used now, the concept of survey systems for use in benchmarking is still valid. Many institutions carry out staff and student surveys as part of the information gathering for other methodologies, and the Becta Generator² system for use by the English FE sector is a 'pure' survey system. For a 'survey' approach in Scotland oriented to general teaching and learning, see Schofield (2007).

OBHE

OBHE is the eponymous methodology from the Observatory on Borderless Higher Education (OBHE)³. The Observatory has for some years been running benchmarking clubs for universities across Europe on various topics and more recently some of these have been focused on benchmarking e-learning. Thus it was natural for the Higher Education Academy to propose this methodology for consideration. OBHE is a very different approach from the other methodologies – in particular, it requires the setting up of a group of universities into a benchmarking club, typically with at

I www.jisc.ac.uk/whatwedo/programmes/programme jos/project elti.aspx

² www.generatorfeandskills.com (requires registration)

³ www.obhe.ac.uk

least ten members. However, OBHE became popular, especially, but not only, with research-led universities.

The OBHE process starts with requesting each university in the club to complete an Institutional Review Document (IRD). This has some similarities to the documents used in the more general quality assurance process overseen (in the UK) by the QAA, but in this case focused on e-learning. The IRD contains a list of topics grouped by categories (a different set of categories from ELTI – in fact, each benchmarking system typically has its own unique set of categories). Completing the document is by no means an easy task, nor is it supposed to be, but the document gives the OBHE team a very good picture of e-learning in each institution in the club.

The institutions then come together in their club – the main purpose of the meeting is to jointly develop a set of criteria called *good practice statements*. These statements are then published, with a commentary on the group. This provides a good description of the state of play of e-learning in the institutions in the club in a way which does not identify any particular institution. As an optional feature, each institution is then offered the chance to score its performance against the good practice statements in a way reminiscent of Pick&Mix, but using a scheme of five levels. The scores are then collated and presented back anonymously to the institutions in the club.

Many institutions found the OBHE process very comfortable: the process was similar to those they were used to with quality assurance procedures; the consultants did not drill down deeply into the institution; and the general tone of the final report was similar to that of the QAA where praise is given but criticism is mild and nuanced. The process was also informative to funding councils and their agencies, as a general report was produced that gave some information (even if muted) on 'how e-learning was going in the sector'.

Although it is possible to criticise this method for the opaque way in which the good practice statements are derived, key aspects of the OBHE approach rapidly became the norm for all the other methodologies. These included the use of clubs, the production of a report by each institution, and an overall 'end-of-phase' report. In summary, OBHE has had a strong influence on the programme, both by being used by nearly half the institutions and by providing valuable methodological improvements to the way the other methodologies were deployed.

MIT90S

MIT90s started life as an approach to envisioning technology-based change. It was developed in the early 1990s by a research group at MIT⁴ (Scott Morton et al., 1991) along with the associated concept from Venkatraman of five levels of progress

⁴ www.mit.edu

towards full change using technology (Henderson and Venkatraman, 1993). The approach made occasional forays into e-learning thinking and gained some traction in Australia as an analytic method – e.g. Uys (2000) and Wills (2006) – but in UK the main use of MIT90s thinking was as background to the DfES e-learning strategy in the early 2000s, in particular the use of MIT90s five levels (with revised names) (see Bacsich (2006e) for a thorough discussion and MIT90s-specific bibliography). The five levels then worked through to a number of benchmarking methodologies including ELTI and later Pick&Mix – and also several in the FE sector.

The MIT90s concepts were also used in a few JISC projects associated with the University of Strathclyde, and it was this that seems to have led them to propose its use for benchmarking in the Pilot Phase. It was not clear at the time just how it was to be used, but Strathclyde got value from framing their internal dialogue in these terms; although it became evident at the end of their work that it did not help to generate criteria (good practice statements) and these had to be created (Bacsich, 2006h) or imported separately, in Strathclyde's case from work by Steve Ehrmann (Durkin, 2006).

The reputation both of the institution and of the methodology – and perhaps the feeling of freedom it offered from both the quality-style reporting of OBHE and the explicit criteria of Pick&Mix and the others – led four institutions to choose MIT90s for Phase I. Faced with this support challenge – and no real idea how to 'productise' the MIT90s approach for use in benchmarking – the Academy commissioned some instant work from the BELA team to provide a justification and a usable engagement approach for the methodology. This was duly done (Bacsich, 2006e), and the four institutions started work. The sub-approach of MIT90s used in Phase I was later described as 'loosely coupled' – in which institutions agree to share each institution's set of criteria with each other, for comment and information, without necessarily agreeing to harmonise criteria.

Part of the value of MIT90s is that it does set a good context for further work in the change area – such as Pathfinder – indeed all three English institutions all went forward into that work. However, there was a major issue with reporting as there was no common basis for reporting on outcomes (even if there had been enough institutions to ensure anonymisation).

No doubt for this and other reasons MIT90s was not used in Phase 2. However, the MIT90s categories were imported into Pick&Mix (Bacsich, 2006f) and some institutions in Phase 2 did use them for reporting. There is no current direct use of MIT90s in benchmarking, but the MIT90s approach remains of interest in some areas of strategy and change management (Bacsich, 2007b; Re.ViCa, 2008a; Avila et al., 2008; Mistry, 2008).

METHODOLOGICAL ENHANCEMENTS

From the experience gained from the programme, the author would identify the following refinements:

- I. Modalities of MIT90s: At a theoretical level there are four 'modalities' in which MIT90s cohorts can be run, ranging from the loosely coupled approach that was used in the real world, to strictly coupled, in which each institution shares its set of criteria with the others, for comment and information, so that they can agree a common list of criteria that each uses, exactly. The strictly coupled approach would provide a reality check on the provenance of the Pick&Mix criteria.
- 2. OBHE with pre-given public criteria as a basis: The author's preference would be to run the OBHE scheme with an initial pre-given set of criteria and use the process to get the institutions to co-develop refined wording of the pre-given criteria, plus insertions of new criteria and demotions (not deletions) of some pre-given criteria seen as no longer relevant to all institutions. This would provide an alternative development path to Pick&Mix for new and revised criteria.
- 3. Modalities of eMM: There are several lines of development in eMM that could be further followed up not only the standard simplified subset but also a reduction in the number of dimensions. Some recent work by Marshall (2008a) suggests that there are just three of the dimensions (not the full five) that give the most useful information, so in situations where cost of compliance is an issue these would be the ones to focus on. Cutting down the practices level to a more feasible number would also be very popular.

OTHER METHODOLOGIES OF INTEREST THEN AND NOW

Despite benchmarking e-learning being a fairly new-seeming subject, as it certainly is in HE terms, in fact there is quite a history of activity before the Benchmarking Programme started, especially in the FE sector in England (Weedon et al., 2002; Bacsich, 2005b). In particular, the e-Learning Positioning System (eLPS)⁵ – was used until as recently as 2008 (JISC RSC London, 2008). The tool comprises 31 criteria (called 'elements' in eLPS) grouped into five categories ('themes' in eLPS), not unlike the MIT90s categories. Criteria are scored on a five-point scale as regards the fullness of the 'embedding', a more modern variant of the MIT90s 'transformation'

⁵ www.rsc-northwest.ac.uk/acl/eMagArchive/RSCeMag2008/BidWritingSupplement/ACL_eLPS.doc

concept and much in line with the concept used by HEFCE until the 2009 revised strategy. There are also some variants of eLPS tuned to adjacent subsectors to FE (Adult and Community Learning etc).

An alternative strand of development led in time to the E-Maturity Framework for Further Education (EMFFE), first piloted in 2007 with around 12 FE colleges. EMFFE had five categories divided into 18 sub-categories and 64 criteria (later 61), each scored across five levels. In that sense, apart from having rather too many criteria, it was fairly mainstream. However, the compliance cost was seen as rather high and in some later work, oriented to the PCDL subsector in England (Personal and Community Development Learning, dominated by smaller providers) this scheme was cut down to a scheme with 42 descriptors and the number of levels was cut to four in order to be more compatible with some related schemes, by coalescing the original levels I and 2. Misleadingly, the scheme was called EMF43 (one criterion was dropped at the last minute) and in this form details can be found in the final report of the study (Sero, 2008).

As a general point, FE and its agencies seem to demand a larger number of criteria than HE does, presumably because of the much more regulated and target-oriented nature of the sector. Development of EMFFE was not taken forward by Becta, and a new scheme, confusingly called EMF in some contexts, has been developed. This is in fact more correctly called Generator.

More significant to HE were the developments in the EU and the wider world. About the same time that HE work started in the UK, various EU projects started work, in part based on an older project called BENVIC⁶. This project, whose full title is 'Benchmarking Virtual Campuses', was an EU project that flourished in 2000 to 2002, and developed a scheme with eight categories and 72 indicators; indicators are scored (where they can be scored) on a three-point scale. An interesting feature is that criteria are of three types (structural, practice and performance). This approach has not (yet) been followed by other HE benchmarking schemes used with institutions, but it is validated by the literature - e.g. Jackson (2001) - and is not dissimilar to the mix of process indicators and survey questions found in some current FE schemes (such as EMF43 and current FE Survey work). BENVIC had a considerable effect on EuroPACE, and one can see traces of the approach in their recent EU projects such as MASSIVE and UNIQUe as well as the current project Re.ViCa⁷, where it is seen as relevant to the finalisation of a list of 'critical success factors' for large-scale e-learning, including for benchmarking of national e-learning initiatives (Bacsich, 2006a).

⁶ www.benvic.odl.org

⁷ MASSIVE – www.europace.org/rdmassive.php; UNIQUe – www.europace.org/rdunique.php; and Re.ViCa – http://revica.europace.org

A somewhat different but related tradition led to the system E-xcellence (2009). The two-year project⁸ that developed this ran from 2005 to 2006 under the management of the EADTU association, but there is a follow-on phase E-xcellence+ now under way. Originally E-xcellence was not envisaged as a benchmarking methodology but as a quality monitoring tool; however, about a year into the project there was a shift in emphasis and benchmarking is now *one* of the uses for E-xcellence. E-xcellence has six categories with 50 criteria of which 33 are characterised as 'threshold'. Criteria are graded currently on a four-level scale, but numeric scores are not used. (That is how eMM started – coyness about numeric scores is common when methodologies start, rare when they are being used seriously.) It has to be said that several of the criteria in the current release are essentially bundles of 'atomic' criteria and ideally need to be decomposed into these.

A workshop presenting E-xcellence was held in February 2009 under the auspices of the QA-QE SIG⁹ and was well attended, with apparent support from QAA. Of course, the QAA have their own precepts (QAA, 2004) providing a potential framework for benchmarking e-learning from a 'quality' standpoint. There is other European work in this 'quality' vein, including that by the Swedish National Agency of Higher Education (2008) and the UNIQUe association including EuroPACE, the well-regarded EFMD and EFQUEL (the European Foundation for Quality in eLearning)¹⁰.

Further afield, there is the e-Learning Guidelines¹¹ work, which in New Zealand is seen as complementary to eMM. Nearby there is the Australian ACODE¹² scheme with its interesting concept of sub-criterion and coverage of more general IT aspects. Moving continents, none of the various US benchmarking schemes are having any obvious current influence on UK HE benchmarking, but the early US 'Quality on the Line' scheme for distance e-learning (Institute for Higher Education Policy, 2000) has been a strong and overt influence on Pick&Mix, eMM and E-xcellence.

ALIGNMENT TO NATIONAL INDICATORS

In countries where the funding bodies provide strategies for e-learning, there is often a set of national indicators that are relevant. This is the case in the UK in England and Wales, but not Scotland (Scottish Funding Council, 2007). In England, HEFCE (2005)

⁸ www.eadtu.nl/e-xcellence

⁹ www.qe-sig.net

¹⁰ EFMD - www.efmd.org and EFQUEL - www.qualityfoundation.org

II http://elg.massey.ac.nz

¹² www.acode.edu.au/resources/acodebmguideline0607.pdf

introduced in its national e-learning strategy – recently revised (HEFCE, 2009) – the eight Measures of Success; for example, Measure A (on page nine of its report) said:

ICT is commonly accepted into all aspects of the student experience of higher education, with innovation for enhancement and flexible learning, connecting areas of HE with other aspects of life and work.

More recently in Wales, HEFCW introduced 22 Indicators of Success (HEFCW, 2008) – see section 9.4 of its report. The same has happened in the English college sector with the Becta *Harnessing Technology* strategy and the Balanced Scorecard (Becta, 2007) containing 19 indicators.

In Phase 2, work was done in both the eMM and Pick&Mix teams by Bacsich, Marshall and some institutions to map the two systems into the National Indicators, and the results were reported on at the final cohort meetings (Bacsich 2007c, 2007d). This work was interesting and a technical challenge, but not very enlightening as there were at least three important differences between the benchmarking criteria and the national indicators. Firstly, the meaning of national indicators is often unclear. Second, the indicators often miss out key features that are taken for granted. Third, the lifetime of national indicators is quite short, less than that of university planning cycles. Thus experience has taught that it is much more important to be *informed* by national indicators rather than *dominated* by them — or worse, to construct a whole benchmarking system out of such indicators.

The effort involved in keeping methodologies up to date was not just because of national indicators. Other changes were required because of more general policy moves in the four home nations of the UK – such as the increasingly rapid move towards employer-focused criteria (work-based learning and, more generally, work-related learning) and student-focused criteria because of the increasing relevance of the student experience in current discussions.

THE FRAMEWORK FOR ENGAGEMENT

By the end of Phase 2 the methodologies were converging around certain aspects of process (Bacsich, 2008c).

The first aspect is the use of *cohorts* or *clubs*. This is arguably the greatest innovation in benchmarking. The second is the use of *public criteria*. The third is the use of scores, at least with regard to all the benchmarking systems extant at the end of Phase 2 – Pick&Mix, eMM and OBHE. Pick&Mix is upfront about scoring; eMM is more discreet (colours not numbers – in theory). Scores are less publicly evident in OBHE, but institutions are 'invited' to score themselves, not compelled to. The fourth was the use of *carpets*, representations in colour of the scores on benchmarking criteria for a group of organisations. The idea of a carpet comes from eMM, where from the time of his original work in New Zealand, Stephen Marshall

used various shades of blue and black to avoid the controversy of having explicit numeric scores. In FE in England, coloured carpets spread rapidly across the analytic field – see in particular Sero (2008).

Institutions agreed that the Pick&Mix carpet Phase 2 would be public – see below – originally published by the University of Worcester (2008).

Table 2: The Pick&Mix carpet for Phase 2

#	Criterion name	Α	В	С	D	Е	F	G	Н	1	Av
	Adoption (phase, in Rogers sense)										3.6
2	VLE stage										5.1
3	Tools (beyond the core VLE set)										2.8
4	Usability (of the e-learning system)										2.5
5	Accessibility										2.0
6	e-Learning strategy										3.9
7	Decisions on projects (IT, e-learning)										3.4
8	Pedagogy										2.9
9	Learning material										2.0
10	Training (staff development)										3.1
П	Academic workload										1.6
12	Cost (analysis approaches)										1.4
13	Planning annually										2.7
14	Evaluation (e-learning)										3.4
15	Organisation (of e-learning teams)										2.9
16	Technical support to staff										3.3
17	Quality assurance (e-learning)										2.8
18	Staff recognition and reward										2.1
19	Decisions on programmes										2.7
20	Quality enhancement (e-learning)										3.5

The fifth and final aspect of convergence was the concept of a reflection meeting 13 .

¹³ http://elearning.heacademy.ac.uk/wiki/index.php/reflection

CONCLUSION

Despite the lack of agreement on an overall framework for benchmarking, by the end of the programme all methodologies were coming to somewhat similar broad conclusions about the sector. However, it must be stressed that there is still a richness of variation in the sector, which comes out most tellingly in the Pathfinder journeys, as noted by the Higher Education Academy (2008).

Overall, there is an emerging consensus that values the *process* of benchmarking over any particular methodology. It is encouraging to note that many of the institutions who have participated in the benchmarking programme have signalled their intention to repeat the exercise at regular intervals and some have already rebenchmarked; for example, as reported by Mukherjee (2007). Also as a consequence of engaging with a benchmarking methodology in a systematic way, many institutions have started to rethink their own internal quality procedures – sometimes in the context of the QA-QE SIG.

Thus the benchmarking programme may have raised awareness across the sector of the real value to be gained through systematic and probing questioning of one's own approach. This may well turn out to be an outcome of lasting and significant value.

The chapter concludes with a set of references cited in this chapter. More widely, there is, it is hoped, an increasingly comprehensive bibliography (140 items as at 15 May 2009) for the core papers and reports in benchmarking e-learning in universities in the UK (but not for all presentations or all papers on wider benchmarking issues). In the open source tradition, this will be available separately via several repositories – an early version is on the Higher Education Academy wiki¹⁴.

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8

INTERMEDIARIES AND INFRASTRUCTURE AS AGENTS: THE MEDIATION OF E-LEARNING POLICY AND USE BY INSTITUTIONAL CULTURE

LAURA CZERNIEWICZ AND CHERYL BROWN

INTRODUCTION

This chapter may be considered a response to the call for "a more measured and reflective approach to e-learning policy, the need to account for an organisational context and in particular to deal with the clash between different cultural perspectives" by Conole, Smith and White (2006, p.39).

The focus of the chapter is on institutions. There is a small literature about e-learning policy at national level (Smith, 2005; Cross and Adam, 2006, for example) and a substantial literature about institutional change, which generally incorporates culture, and use as expressed by e-learning adoption. However, there is less emphasis on institutional policy specifically in relation to culture and use. We are specifically interested in: the relationship between institutional e-learning policy and use; the differences in how the relationships play out in different institutional types; the ways that organisational culture might mediate these relationships; and the key agents of that mediation. We want to know what this means especially for change agents and learning technologists.

In this chapter, we review how these issues have been addressed in the literature and describe the framework we developed to investigate these issues in four South African universities. We describe the study undertaken and the findings of the research. We then discuss the implications of the findings in the light of the framework and the broader e-learning change, culture and policy literature.

FRAMING THE ISSUES

There is acknowledgement in the literature that specific institutional contexts and cultures are central to a discussion about e-learning adoption and institutional change. The challenge is how to talk about these contexts in generalisable ways, which do not become 'bogged down' in specific local politics. This leads to a need for a taxonomy of institutions, not only in the field of e-learning, but especially for higher education research. The literature and the bureaucracy in different countries provide the possibility of several classification systems, the most common being researchled and teaching-led institutions. This is a flawed dichotomy for several reasons, not least of which is the existence of excellent internationally recognised research in teaching-led institutions, and excellent teaching in research-led institutions. In South Africa, the Higher Education Qualification Committee (HEQC) classifies universities as traditional or comprehensive, but these can be considered structural and strategic categorisations that do not refer to cultural contexts. Other classification types also tend to the structural rather than the cultural; these include distinguishing between mechanistic and organic organisations, with these forms representing the two extremes in organisational structure (Burns and Stalker, quoted in Clayton, 2008, p.8) and Mintzberg's technostructure matrix with complex/simple structures on one axis and stable/dynamic environments on another (ibid, p.10). Clayton et al. also point to the possibilities of classifying and describing organisational cultures from a range of literatures including the social sciences, corporate commerce, change management, management and leadership studies, and diversity studies (2008).

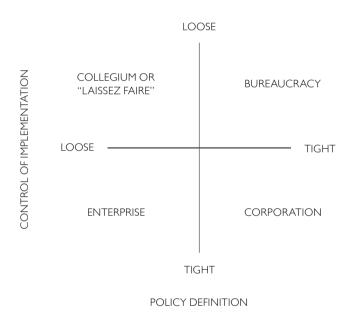
A study on policy and institutional culture in universities might draw on Bergquist's (1992) work on institutional culture, which was used effectively by Kezar and Eckal (2002) to describe the effect of institutional culture on change strategies. This uses four different academic cultural archetypes: collegial culture, managerial culture, developmental culture, and negotiating culture. While these archetypes are promising, they do not include a specific policy dimension, which is of particular interest to the research we undertook, described later in this chapter.

The framework we developed was based on McNay (2005), who proposes four cultural types – collegium, bureaucracy, enterprise and corporation – along two axes both ranging from loose to tight. The axes are control of implementation and policy definition. The collegium type is characterised by loose institutional policy definition, informal networks and decision arenas, and innovation at the level of the individual or department. The organisational response could also be as considered 'laissez faire', as it has few targeted policies or processes (Rossiter, 2007). The bureaucratic type is characterised by loose policy but strong regulation, dominated by committees or administrative briefings. This high regulatory environment is not conducive to rapid change and can be "contaminated by political authority" (McNay, 1995, p.107). The corporate type is characterised by tight policy definition, tight implementation and a culture of strong top-down directives, implemented by institutional or senior

management. The enterprise type has a well-defined policy framework with the students as client being the dominant criteria for decision making. Leadership is devolved and the market is a strong focus.

It must be noted here that because no institution falls neatly into one grouping, it is more useful to consider an institution having a dominant culture at a particular point in time. Also, the dominant cultures within institutions may well change classification over time.





An attraction of McNay's framework is that it has been used by others in the field interested in e-learning adoption and institutional cultures, and change. This framework has been used to discuss the changing roles of universities due to digital technologies (Mackintosh, 2005); to analyse e-learning implementation (McNaught and Vogel, 2006); to frame discussions of the impact of e-learning on organisational roles (Conole, White and Oliver, 2007); to discuss e-learning and organisational management (White, 2007); and in very interesting ways to demonstrate how the introduction of digital technologies can generate pressures for more corporate institutional forms that may effectively change institutional culture (Cornford, 2002).

The fact that this framework underpins research in different countries (UK, Hong Kong and Southern Africa are represented above) also suggests that it offers a generalisable way of describing university cultures in ways that can be shared.

As others have done¹, when developing an analytical tool, we extended McNay's framework for our particular purposes. We needed to take into account the descriptors of institutions that account for the existence (or non-existence) of specific e-learning formal policy documents, structures and systems. While it can be assumed that UK universities will all have such elements in place, the same cannot be said of the South African context, nor indeed of other countries in the world².

We understand policy to refer to the allocation of goals, values and resources³ and to be expressed in overt support, structures and systems. We divided institutions into two e-learning types: Structured and Unstructured as illustrated in Table I. These types are categorised on the manifestation of the formal structures and regulations aligned with policies.

	Structured *	Unstructured
Senior-level formal support	Policy document	No policy document
E-learning structures	Centralised support unit	No formal support unit (possible fragmentary or ad hoc support)
Institution-wide systems**	Institutionally supported online learning management system (LMS)	No (or ad hoc) online learning management system (LMS)

^{*} In order to consider an institution as 'Structured', all three dimensions had to be present.

^{**} The institution is assumed to be the university as a whole, although it is possible that sections of a university exist formally as separate institutional entities.

I Kezar and Eckel, for example, combined Bergquist's archetypes with Tierney's 1991 individual institutional culture framework.

It is of note, for example, that a report of a developed country, Holland, stated as recently as 2005 that only one of 36 Dutch institutes for higher education had a written e-learning policy in place (Simons, P. (2005) E-learning research and policy. Presentation at Universiteit Utrecht Twynstra Gudde).

³ The definition is adapted from Codd (1988, p.235) who said: "Policy is taken here to be any course of action (or inaction) relating to the selection of goals, the definition of values or the allocation of resources."

There is no indication in the literature that the specific locality of e-learning structures is relevant to adoption, thus for our purposes structures simply had to exist, whether as distinctive units or subsumed within related departments (Nichols, 2008). Likewise, there is no evidence one way or the other for a need for e-learning policies to be distinctive or integrated into related policy documents (Inglis, 2007). What is more important is that when an institution is defined as 'Structured' it does not necessarily imply a centralised approach to change, nor a lack of on-the-ground innovation, as policies can develop in response to micro-level change, which scales up across institutions (Rossiter, 2007).

Research indicates that e-learning policy is not the only factor necessary for successful e-learning institutional adoption. 'Bottom-up' change driven by e-learning champions or innovators and early adopters is also shown to be important (Cook et al., 2007; Holt and Challis, 2007), and pedagogical strategies that create a climate of collaboration can also drive organisational change. However, several studies have found that institutional policies are essential for successful organisational change. As the expression of senior leadership commitment, policy statements articulate the top management commitment and strategic ownership needed at the highest level for the uptake and rapid diffusion of e-learning in institutions across the world (Boezerooij et al., 2007; Nichols, 2008). In the South African context, research has shown that staff consider themselves explicitly constrained in their ICT use by lack of institutional support and vision (Czerniewicz and Brown, 2009b).

Of course, other factors beyond e-learning policy are relevant to ICT takeup, including institutional champions and students as drivers (Weeden et al., 2004, Czerniewicz and Brown, 2005), as well as individual staff innovators. Indeed, the argument is accepted that a system-wide approach is fundamental to successful integration of e-learning (Rossiter and Crock, 2006). In order for it to be truly embedded within an organisation, the institutional "acceptance, sanctioning and legitimisation" of e-learning (ibid, p.286) must be accepted at the individual level. We are also mindful of the crucial difference between policy statements and meaningful practices, as well as the distinction between usage (as reported in quantitative terms in this study) and internalisation of the importance of e-learning, which would be captured by more qualitative research processes.

CASE STUDY

The research reported on here forms part of a larger study of use of ICTs for academic purposes in South African universities. For this case study (full details of which are reported in Czerniewicz and Brown, 2009a), we analysed four institutions representing a variety of policy and organisational types and for which we had captured both staff and student perspectives. There were 2039 usable student responses to the survey used for the research (a realised response rate of

27%) and 216 usable staff responses (a realised response rate of 16%). According to our framework (based on McNay as discussed above), we were able to report on examples of three institutional types: Structured Corporate (named here as A-S-Corp, B-S-Corp), Unstructured Collegium (C-U-Coll), and Unstructured Bureaucracy (D-U-Bur). We report on two Structured Corporates because of the interesting differences that exist between them.

Neither of the Structured Corporates had a separate e-learning policy. In both cases e-learning was embedded in broader teaching and learning policies; we are reminded by related research that this is not a problem in itself. Both institutions appeared to have used a top-down approach to the adoption of e-learning; however, in one case there was a sense of ownership on the ground and in the other there was a sense of uneasy compliance. Staff at A-S-Corp felt enabled by the overall institutional approach, and reported a sense of senior level buy-in and commitment, whereas for staff at B-S-Corp there was a sense of being compelled to use ICTs combined with perceptions of lack of management support. Both Structured Corporate institutions reported very positively with regards to adequacy of computers for their needs.

The two Unstructured institutions had no policy, of course, and with regard to the necessary resources, reported less than adequate access to computers and the Internet. In particular, staff from Unstructured Institutions said that lack of infrastructure made teaching with ICTs very difficult indeed. The Unstructured Collegium was better off than the Unstructured Bureaucracy where lack of fundamental campus-wide infrastructure in the form of functional computers and stable Internet access seriously inhibited desired use.

More students from Structured Corporate institutions reported that their courses used ICTs compared to the other two institution types. This was highest in B-S-Corp, followed by A-S-Corp and lowest in the Unstructured Bureaucratic institution. It is of note that the two Corporates report more use of ICTs for learning. This suggests a relationship between policy (including structures and resources) and use. At the same time, the use reported is not necessarily varied; overall the most common reported ICT uses were information-seeking activities (from the Internet to course notes/information). Of course, these mainstream applications have value in varied ways; for example, they may free staff time and may lead to more innovative activities and should not be scorned. It is of note that the lowest frequency of use is reported in the Unstructured Bureaucracy indicating that the organisational cultural climate is a further restraining factor. In the Unstructured Collegium, networks exist and implicit practices are shared even when policies do not formally exist; in Bureaucratic types red tape and regulations can be seriously constraining.

There is an interesting anomaly in the frequency of individual use. On the one hand student use is more frequent in Structured institutional types where two-thirds of students have an above-average use, indeed 20% higher, than students from the Unstructured Collegium type. Yet staff use is in fact more frequent in

the Unstructured Collegium type, where 71% of staff report above-average use, compared to 40 to 45% of staff in the Structured Corporate types. One explanation is the likelihood that staff respondents may have been more likely to be those with an existing interest in ICTs, unlike students.

These findings about variation of use are especially noteworthy, as staff from the Unstructured Collegium institution exhibited more variation of use, as manifest in the number of different types of ICT-enabled learning activities they asked their students to engage in. There was less variety of use reported by staff in the Structured Corporate institutions and lower still reported by the Unstructured Bureaucratic institution's staff.

Variation of use is a very important indicator given that it is argued in academic settings that variation of learning and teaching activities and variation of ICT use related to those activities is essential to the gaining of knowledge and mastery of specific subjects (Laurillard, 2000). It is interesting that among students more variation is reported in the two Structured institutions, while some variation is evident in the Unstructured Collegium institution and very little is reported by the Unstructured Bureaucratic institution. This implies that policy (in its broadest sense) is perhaps more enabling for students than staff.

The differences in frequency and variety of use, and the differences reported by students and staff raise a number of questions that are considered below. They also provide directions for future research.

DISCUSSION

The findings from the South African study, and from the literature, suggest key issues that are relevant to both institutional policy-making and organisational responses. These issues involve the process of organisational change management with regard to e-learning, and impact on the work of learning technologists within universities.

THE ROLE OF INSTITUTIONAL POLICY

The case study reported on in this chapter confirms to some extent those studies in the literature that state that policy is enabling. The study shows that having a policy is a 'good thing', in that more happens where there is a policy (or that policies emerge when there is more happening). Policy is associated with frequency of use, and indeed policy is associated with critical mass as is evident from these findings where the Structured institutional types report more courses online, a higher frequency of individual use, better support and more resources available. However, while critical mass is largely about numbers, it does not tell us about the quality of use, nor about the extent of genuine integration, nor the extent to which usage is truly embedded. Nevertheless, while it is acknowledged as the first dimension of widespread adoption

or use of e-learning, it has, however, been observed that critical mass only becomes integration when it is widely used and widely valued without any sense of coercion (Rossiter and Crock, 2006).

As others have noted, however, the use of policy can be 'a double-edged sword' (Stiles and York, 2006, p.264). While policy can be effective in creating critical mass, it can potentially create barriers to the facilitation of pedagogical exploration and the sustainability of innovation. It is therefore important that policy is not seen as a directive, but rather that it provides what Clayton et al. call "organisational glue" (2008). Top-level policies should not be conflated with a top-down management style, as policies that are perceived to be instructions may lead to a kind of passive compliance as suggested in the South African case study. It is illuminating that at A-S-Corp, where there was evidence of more buy-in and ownership, there also seemed to be more specific and seemingly appropriate use.

Clearly, then, policies are not an automatic good; their efficacy depends on how they are mediated through institutional cultures. Policies indeed can be meaningless when they are generic, universal or merely compliant to government requirements (a tendency likely to occur in 'policy-weary' contexts such as 'the new South Africa'). Institutional policies may even have negative effects when they are 'kneejerk responses', as noted by Conole, Smith and White, who have expressed concern about the fundamental, radical and artificial effects that policies, especially those that come with funding, can have on practice. The implication in this case is that it is dangerous for the cause of long-term sustainability when funding tied to policies become narrowly specific drivers rather than enablers of improved, creative and responsive practice on the ground.

Our study shows that policy is desirable, but its mediation by institutional culture is also crucial.

INFRASTRUCTURE AS AGENT

Prescriptive polices are problematic and the top-down strategies often employed by corporate institutions are likely to lead to breadth of use; however, depth remains a problem. Rather than telling academics what to do, and worse still telling them how to do it, policy principles would be more usefully manifest in an enabling infrastructure and systems that encourage and reward exploration. Certainly the South African case study highlights how important adequate resource allocation is in facilitating e-learning. This is not merely a matter of having facilities and resources available, but pertains to the management and maintenance of those resources. The imperative for resource allocation exemplified in centralised structures (Marshall and Mitchell, 2005) and institutional systems (Marshall and Mitchell, 2005; Nichols, 2008) is confirmed in the literature. In addition, research indicates that student ICT use is undeniably enabled by institutional on-campus infrastructure (Czerniewicz and Brown, 2009b).

For South Africa, this means rethinking the notion of infrastructure, support and enabling systems, casting them as agents rather than simply as scaffolds. It means the provision of hardware and software that is customisable to local conditions, in specific classrooms and disciplines, and is easily responsive to specific teaching and learning problems. The form of adequate, sufficient and equitable material resources (infrastructure including hardware, software, facilities and support) would differ in different contexts. At the level of facilities this might mean easy access to data projectors and webcasters in every teaching space, at others it might mean flexible learning environments that can be supported in multiple configurations.

A similar observation has been made by fellow commentators in Australia in relation to support, which is often portrayed as a reactive force underpinning university administration and the teachers at the chalkface. These researchers make the case that 'support' or infrastructure can play a proactive rather than a passive role, driving change from the middle and facilitating a connection between "central vision and chalkface practice" (Cummings et al., 2005, p.6).

All this suggests an important tension that arises from findings from the South African case study: the need for institutional control or centralising to ensure equity and standardisation versus the need for a material environment with maximum flexibility and decentralisation, which facilitates innovation.

TENSIONS BETWEEN STANDARDISATION AND FLEXIBILITY

The findings of the study reported in this chapter suggest that a collegial culture is best suited to innovation and a variety of e-learning use. As McNay describes it, a collegial culture has "a relative lack of co-ordination, a relative lack of regulations, a lack of structure between structure and activity ... infrequent inspections and the invisibility of much that happens" (1995, p.105). Such a culture works well for ad hoc, unsystematic activities undertaken by individuals responding to very specific local problems.

Such a culture can be matched by the flexibilities of social software and cloud computing, which put technological choices more readily into the hands of users. This is especially pertinent when it comes to users who are confronted with inadequate computing resources. Yet these users will still expect that the flexibility they enjoy – and the non-standard fragmentation thereby engendered – will at some point be supported by organisational systems. Indeed, in the Unstructured Collegium institution in the South African case study, lack of these systems was considered seriously constraining for academics, who, as they innovated, also bore the brunt of what they saw as poor institutional planning and support. In other words, they personally subsidised their own innovative and creative strategies, making the efforts ultimately less sustainable and especially challenging to scale up.

Ironically, the effective use of new kinds of tools is likely to require tightening up across institutional systems, as Collis (2005, p.221) illustrates using one potentially

valuable educational tool. She notes: "for example, for the use of electronic portfolios to make an impact in education, standards and procedures for integrating these as assessed processes and products within courses and accreditation procedures are needed and must be applied in a consistent way for marking and grading." However, within an Unstructured Collegium institution this may have other consequences as academics feel that by centralising and streamlining, their institution is decreasing their independence of choice.

This is the crux of the challenge: an infrastructure that enables sustainable flexibility must by its very nature be constructed with standard, formal tools. Indeed, Cornford demonstrates the irony of the introduction of e-learning systems that may well have the very opposite effect from that intended, leading to the tightening up of roles, procedures and policies that will not only apply locally but across the whole university – in effect shaping a more corporate institution. He notes that "the price that the university may have to pay for the flexibility which information brings is a newer and harsher environment for some of those values around which it has traditionally cohered" (Cornford, 2002, p.312).

The central challenge is to manage what seem to be competing imperatives: the creation of consistency, the maintenance of standards, formal explicit processes and procedures on the one hand, with ad hoc, flexible on-the-ground activities on the other hand. Taken together, our case study and the wider literature argue persuasively that top-down policies, understood as coercive in corporate cultures, are least effective for varied responsive pedagogical change. At the same time, fragmented, on-the-ground activities cannot be scaled up to larger success without systemic support. This leads to the crucial role of the middle layer in universities; to what has been termed 'middle-out' approaches.

THE 'MIDDLE OUT'

Top-level policy statements are useful as formulations of intent, as underlying principles and ideally as organisational glue. They are important but can produce problems when represented as coercive directives, when there is no associated resourcing attached and when allied funding rigidly prescribes specific activities. An adequate, efficient (yet flexible) infrastructure is fundamental to sustained diverse and response ICT-enabled pedagogical activities. How is this to happen across large and complex institutions?

We have seen the challenges of complexity in the case study presented in this chapter that is the Unstructured Collegium type, where a high variety of use is reported. This, we have emphasised, is an essential element of good pedagogic practice. This is the culture characterised by informal networks and innovation taking place at the level of the individual or department, one which is more conducive to bottom-up change processes and pockets of excellence. However, this culture can also shelter pockets of chronic inactivity. Interacting in such a 'laissez-faire'

atmosphere, as a national document notes, can create problems of unrealistic expectations and unsustainable costs (Depts of Communication and Education, 2001, p.6). In addition, in the South African context, where many current institutions are the recent result of mergers, there is the danger that pockets of innovation are growing predominantly in those departments and centres arising from previously advanced structures (in advantaged universities) (Barnes et al., 2009). Thus, without some kind of institutional oversight there is also the danger of the inequalities expressed in the different parts of the pre-merger institutions remaining in place. A necessary redress and redistribution function could be ensured in these situations by both the provision and development of equitable infrastructures and the oversight provided by middle management.

In our study, it is perhaps not a coincidence that the Unstructured Collegium type is at an early stage of using ICTs for teaching and learning, and indeed it is possible that the variety of use being explored is being undertaken by the institution's early adopters and innovators. Thus, while the organisational culture and early stages of the process makes such innovation possible, there is as yet no evidence of critical mass being achieved. At this early stage, the institution also does not seem to have the requirements for scalability in place.

Studies on scalability suggest that truly embedding ICTs into a university's core business has four dimensions: critical mass with regard to adoption; integration into organisational values; legitimisation; and sustainability (Rossiter and Crock, 2006). We understand integration to include a sense of ownership and legitimatisation to include supportive equitable procedures and processes, and fair resource allocations. Our argument is that institutional middle managers play this role: the heads and staff of libraries, ICT services, learning centres, educational development units and the like. Even where policy exists in the form of clearly articulated principles, a mediation role between policy intentions and practice is needed. It is usually middle managers who are the key change agents and the most likely to interface effectively between standardised institutional-wide infrastructures and systems and the needs of academics in classrooms. Middle managers have a vital role to play in ensuring smooth allocation, management and maintenance of e-learning resources and infrastructure; an important component of the overall policy framework. Indeed, in the South African case study the differences in adequacy of support and the role of middle managers, made a real difference to the academics and their sense of ownership. It has been noted that policy being made in practice may lead to policy formation at the highest levels of the university, and indeed "middle managers became leaders and, through a combination of personal inspiration and policy based on emergent practice, have changed the university environment sufficiently to force both high level policy change and change in practice among teaching staff" (Cummings, 2005).

Terming the approach "the middle out", Cummings et al. explain that such approaches are characterised by "problem solving, problem-oriented, best fit, facilitation, operational, collaboration, opportunistic, negotiated, functional and

operational, low level funding, project management and professional development" (Cummings et al., 2005, p.14). While this approach is useful for reinterpreting the role of implementers, it is also valuable for opening up the possibilities in instances where there is limited top-level vision (or where other strategic issues are given priority), insufficient resources or empty policy documents.

Even beyond such contexts, in answering questions about how policy intentions can be meaningfully integrated into institutions, where foresight might arise, and where organisational involvement should be, we suggest that focus should be placed on the central role of the middle manager, who is most likely to be at the fulcrum of this complex balancing act. Rather than mere bureaucrats, it is these change agents who may be truly creative thinkers. The imagination often shown at this interface may even be a form of innovation, as it is often the deep knowledge of the interplays between ICT affordances, organisational dynamics and local culture that these intermediaries bring to bear.

CONCLUSION

The case study and review in this chapter suggest that the use of McNay's taxonomy, together with the Structured/Unstructured e-learning policy categorisation, indeed provides a useful framework for analysing the relationship between policy, culture and the use of ICTs.

In South Africa, as elsewhere, the ultimate goal for all involved in ICTs in education is the successful integration of e-learning into the warp and weft of institutional life. Our study has contributed to and confirmed some central tenets emerging from the broader literature on e-learning and institutional change: the importance of institutional leadership in providing the 'glue' that holds institutions together culturally; the ambiguous role of central policy in encouraging innovation without stifling it; the crucial role of middle management as mediators, interpreters and change agents; and the need for state support and equitable resource allocation. We have also argued for a reconceptualisation of institutional infrastructure, which claims its space as an agent of change.

There is, however, a further aspect to our findings. If the taxonomy we have used is analytically useful, it means that there is a great deal of diversity of institutional culture between national institutions (there is also, of course, diversity within those institutions).

Thus, in the discussion of the South African context above, we have shown that the strength of a Corporate Structured institution is that it obtains critical mass of policy adoption. However, since this cultural type is less likely to enable innovation and variety of use, additional strategies would need to focus attention and resources on incentivising and rewarding local mould-breaking practices. Conversely, the many institutions that are likely to self-define as Unstructured Collegium types can feel

encouraged, as their looser and more informal networks and practices encourage innovation. For these institutions, though, take-up, critical mass and across-the-board technical support are the long-term challenges.

Perhaps the resolution of these tensions will echo what McNay describes as an enterprise culture, although the market discourse this implies is no longer as dominant as when the typology was first penned, and the connotations may no longer pertain. Possibly the resolutions may play out in what Clark (2000) calls "collegial entrepreneurism" with its strengthened steering core, enhanced development periphery and stimulated academic heartland. Such a culture will be both responsive and enabling; while it may not quite exist, it is an aspirational ideal where flexibility and responsiveness, and structures and standards, are symbiotic. Institutions priding their collegiality and grappling in these turbulent times with the agential opportunities of infrastructure and intermediaries, may yet create something new: a facilitated collegial culture.

The many layers of diversity and differentiation imply that policies that are designed to engender change and the institution-wide adoption of e-learning must not be conceptualised in narrow, 'cookie-cutter' ways. A 'one size fits all' set of policy provisions will be inadequate to the task. The integration of e-learning into the dynamic and complex cultural ecology of higher education institutions demands structured elasticities in policy and implementation processes that echo the flexibility of ICTs themselves.

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9

MIND THE GAP: STAFF EMPOWERMENT THROUGH DIGITAL LITERACY

SUSAN WESTERMAN AND WAYNE BARRY

INTRODUCTION

In this chapter Susan Westerman and Wayne Barry provide an account of the DEBUT (Digital Experience Building in University Teaching) project. This staff development programme was created and piloted by Canterbury Christ Church University as part of the Pathfinder Programme, and subsequently embedded as an integral element of the support for technology-enhanced learning within the institution. The aim of DEBUT was to evaluate whether a situated, contextualised approach to staff development, grounded in the concepts of literacy, could be successful in raising the overall confidence of a group of academic staff in using and exploiting digital tools.

This chapter offers an overview of the institutional factors that led to the development of a new approach to staff development in the use of technology. These factors will be discussed in the wider context of the sector, as we believe that in common with other institutions, many of our staff lack the confidence to exploit digital technologies, and we need to reappraise how we develop their confidence and the institution's capacity to enhance learning through technology. Equally, all institutions are affected by the extent and pace of the digital revolution, how younger students are using digital tools and the ambitions of the UK Government for a "digital Britain" (Department of Culture, Media and Sports, 2009).

The chapter will then provide an overview of the DEBUT methodology, along with the results to date. This evaluation strongly suggests that a situated, contextualised approach can be a successful and transferable method of enabling academic staff to raise and then maintain an increased confidence to evaluate and use a wide range of digital tools – to be digitally literate.

DIGITAL LITERACY

In 2006, we came across the work of Allan Martin and colleagues on the DigEuLit project. The goal of this project was "to develop a European Framework for Digital Literacy which comprised a definition, generic structure, and set of tools which enable educators, trainers and learners to share an understanding of what constitutes digital literacy" (Martin, 2005). These tools could be applied in an individual way, based on the context and situation of the individual or group of learners. Martin (2003) referred to digital literacy as "a way of life". He suggested: "It is about knowing what information is available and where to find it. It is about understanding what is right for you. It is about using it (responsibly) in your daily life."

Social, community-focused views of literacy and learning are central to understanding that digital literacy is a socially situated concept. New Literacy Studies first promoted the idea that literacy could only have meaning within the social context of the individual – i.e. literacy is not a universal technical skill. Meanwhile, theories around communities of practice, introduced by Lave and Wenger (1991), highlighted how we learn through a process of apprenticeship through to expert within a community of shared practice and understanding.

While the DigEuLit project provided a framework to support digital literacy among learners, we began to consider whether a situated approach could provide an alternative, potentially more successful model than the de-contextualised, tools-based training then provided by the institution, to develop the confidence of staff in using digital tools. Our thinking was not in isolation. The notion of learning within the context of professional practice was well established and informed not only by theories around communities of practice but also by theories of "affinity spaces" (Gee and Hayes, 2009) and situated cognition (Brown, Collins and Duguid, 1989, cited in Ferman, 2002, p.147).

During the mid-1990s, Brew and Boud noting that universities were creating "more tailored" courses for their students to help them in the workplace put forward the idea that: "such a workplace-sensitive framework can equally be applied to programmes of staff development ... with lecturers designing their own forward looking strategies for ongoing development" (1996, cited in Ferman, 2002, p.155). By the beginning of the new millennium, Ferman (2002, p.150, citing Mott, 2000) was quite emphatic that "for continuing professional education to be effective, it needs to be dynamic and reflective of a changing work context; to be authentic; to be based in practice". Moving forward to 2005, an individual, situated approach was developed by the Department of Educational Development at Napier University, which piloted its first fully online staff development course on online teaching and learning. As Mainka (2007) explains, the focus of the course was not teaching e-learning theory, but instead to provide an opportunity to immerse and expose the enrolled participants to a range of learning technologies.

Today, the concept of digital literacy features prominently in debates about education and learning across the globe. This discussion initially focused on the

apparent characteristics, noted by Prensky (2001), of the "net-gen" (Oblinger and Oblinger, 2005). More recently, thinking on digital literacy has moved on, acknowledging the diverse experience and skills of students, and focusing on what skills and characteristics are required to be a successful learner. The Government's controversial *Digital Britain* interim report of 2009 puts forward an ambitious action plan with the aim of securing the UK's place at the head of the new media age. One of the five objectives or challenges for 'Digital Britain' is to ensure that every UK citizen has the necessary "digital literacy to enable near-universal participation in the digital economy and digital society" (Department for Culture, Media and Sports, 2009, p.5).

WHY DEBUT?

There are lots of bits of technology that could make my teaching more interesting, exciting, interactive, and memorable. If I don't hook into some of it, it is going to escape me. (DEBUT participant)

The development of support for e-learning in Canterbury Christ Church University has over the last 15 years to a large extent mirrored that of the sector. Since 2002, responsibility has rested with the Learning and Teaching Enhancement Unit (LTEU). Prior to this time, support initially involved the creation of online learning materials by technical staff for academic colleagues. Although a key way of moving the institution forward, the weakness of this approach was illustrated by the outcomes of the Teaching and Learning Technology Programme (TLTP) in which Canterbury Christ Church was involved. A synthesis of TLTP3 reports (Sommerlad, Pettigrew, Ramsden and Stern, 1999) concluded, "We suggest that TLTP in the main has paid insufficient heed to a user-centred developmental process that takes real user need as the starting point."

As learning technologies became more useable, so our support for e-learning moved to an empowering role, providing training on the institutional tools available to staff to build their own online resources. Virtual learning environments (VLEs) have their supporters and detractors, but it is difficult to deny that their ease of use has transformed the use of the web in learning and teaching in higher education. It was the relative technical ease of use of the institutional VLE that allowed the team of five learning technologists at Canterbury Christ Church to concentrate their efforts on pedagogic and strategic consultancy rather than technical support.

By 2007, technical empowerment, supported by pedagogic consultancy had resulted in all academic programmes within the institution using the VLE to support learning and teaching. Nevertheless, we were aware that as long as staff lacked the confidence in using digital tools, the majority required technical training from us (the centre) to them (the faculties) on each tool as it came along. This systems-

led 'training' model was not resulting in the incremental rise in staff digital skills generally. We were acutely aware that the digital world was one of constant change, with the number of tools available to use growing more rapidly than ever before. Our staff would need to be able to exploit a range of tools not just the VLE. The weakness in our model of support was summed up by Jacobsen (2001), who in discussing teacher education suggested that, "transformed teaching practices will not occur as a result of three-hour workshops that are often de-contextualized from the teacher's local context".

The functionality of many of these new digital tools was also changing how many students were using the web, in more social, collaborative and interactive ways. Nevertheless, we saw that many of our students, despite making extensive use of technology, were not doing so in critical, reflective manner and that academic staff would need to be at the forefront of developing these skills. This picture has since been illustrated by many JISC projects (CIBER, 2007; Ipsos MORI, 2007; Ipsos MORI, 2008; JISC, 2007; JISC, 2009) and through the work of the Committee of Inquiry into the Changing Learner Experience (CLEX). What these findings illustrate is that student support will be a key issue as use of technology in learning and teaching increases: "Young people's approaches to technology tend to the unsystematic and unreflective – trial and error. They're also uncritical. They need support in search and evaluation of information in particular" (CLEX, 2008).

Our concerns regarding the support for and development of e-learning in the institution were evidenced through our participation in the Higher Education Academy e-Learning Benchmarking Exercise. This exercise confirmed that there were only limited examples of e-learning strategies that fully exploited a range of technologies within the institution. Most staff were not generally aware of other digital tools, nor how many 'net-gen' students were using them.

Our institutional picture was mirrored in the 2008 UCISA Technology Enhanced Learning Survey, which illustrated that academic staff are now facing a number of pressures at national, sector, institutional and personal levels to engage with the digital world and to impart 'digital wisdom' upon their students. The sector is facing a vast array of new digital demands that are or will be coming its way, while at the same time being aware that it lacks the time and academic staff knowledge to exploit these digital tools.

Despite now being central to debates on engaging and supporting students, and despite the support for situated, contextualised staff development, we cannot find significant evidence of a literacy approach being widely adopted in higher education as a methodology to support the development of digital skills among staff. The DEBUT project was developed as a result of our belief that we can only enhance our student experience of technology enhanced learning by first helping our staff to be more aware of the digital world, more confident to exploit its tools, and more flexible and adaptable in the face of a constant state of change.

THE DEBUT APPROACH

In DEBUT we sought to evaluate whether a more holistic, situated approach to staff development grounded in the concepts of literacy could raise the overall confidence of participants in using and exploiting digital tools to a greater degree than a skills/ tools-based approach. It was hoped that DEBUT would also begin the process of building a community of 'digital envoys', better able to exploit digital tools and support their colleagues, making the institution's support for technology-enhanced learning more sustainable.

The first cohort of DEBUT commenced in June 2007, completing in March 2008. The group contained 25 participants, selected from over 60 expressions of interest. Together, this group represented the academic and demographic profile of Canterbury Christ Church University, and contained a variety of levels of digital literacy. At the outset of the project, participants were asked their reasons for wanting to be involved in the programme. The key reason provided was to gain an awareness and appreciation of the burgeoning digital world. Some viewed this world with anxiety, many did not. All wanted to try and better understand the digital world and make more effective use of its tools, and not to be 'left behind'. Participants revealed that all had used the institutional VLE, email, PowerPoint and used the web to undertake research. However, only 10% of the participants had used other types of technology to support learning of their students.

A suite of digital tools was assembled for DEBUT. Some tools were standard learning technologies already available within the institution, including tools within our VLE and Microsoft Office Suite, some were external web 2.0 tools such as Netvibes, Flickr and Delicious, others were technologies new to the institution including podcasting and desk-top video conferencing. Each participant was asked to select six digital tools that they would explore within DEBUT. Participants were helped to make their selections through an interview at the outset of the project, to discuss their needs and context. The DEBUT team also provided a 'tools event', at which each tool and its potential applications were demonstrated.

The DEBUT tools were supported by a variety of staff development approaches, and depending on the popularity of the tool among the participant group this development was offered at a number of different times during the project. In this way we aimed to enable our participants to undertake a holistic CPD programme comprising of a range of digital experiences that had meaning for them at a time that best suited them.

In this first cohort of DEBUT a wide variety of staff development approaches were adopted to support the tools on offer. The staff development approach for each tool was based upon the complexity and nature of the tool. Some tools were introduced and supported by hands-on workshops, others by demonstration workshops; some through one-to-one consultancy, others a manual. In this way we hoped to evaluate not only which methods proved the

most successful for participants, but also which were the most sustainable methods to resource.

Peer support facilitated and encouraged throughout the initial pilot of DEBUT. The DEBUT team facilitated this process through the introductory events, at group tool workshops and through specially arranged get-togethers during the DEBUT year.

A range of evaluation methodologies was used to evaluate DEBUT. Our key evaluation tool was a digital literacy scale based on Martin's elements of e-literacy. The aim of using this tool (Table I) was to provide a benchmark against which participants could position themselves on a digital literacy scale at the outset and end of the project.

Table 1: Digital literacy scale

	Complete beginner I	2	3	4	Expert 5
a) awereness					
b) confidence					
c) evaluation					
d) reflection					
e) adaptability					

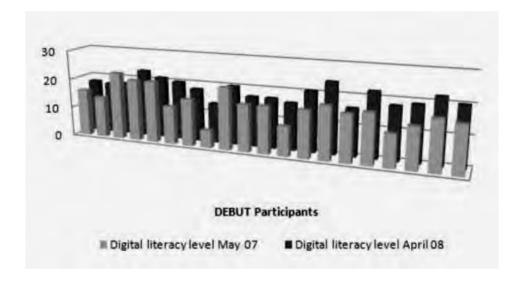
In addition to completing the digital literacy rating, participants were interviewed at the outset, mid-point and end of the project to gain their views of the DEBUT experience and discuss their overall digital journey. For each digital tool experience, participants were also asked to complete a questionnaire to evaluate the staff development that had been provided, and to reflect on whether they saw themselves using the tool in the future.

INITIAL RESULTS

I feel much more confident ... if I just fiddle around then something will come up and at the end I can just get rid of it and unfiddle it. Before I was so petrified about ... I don't know ... it not working out. (DEBUT participant)

The key indicator of whether the DEBUT approach was successful was evidence of a marked increased in the digital literacy levels of the participants. It was clear from the evaluation data that all but the most experienced participants in the initial cohort had made progress on their digital journey, very significant progress in a

number of cases, with participants commenting on their increase in ability not only on the tools they had experienced as part of DEBUT, but with digital tools generally. Figure 2 illustrates this story, showing participants digital literacy score at the outset and end of the pilot programme.



The data stemming from the interviews with these initial participants along with their digital experience evaluations reinforced the picture of increased digital literacy with evidence of increased awareness, understanding and confidence.

The evidence gained from the DEBUT project highlights the benefits of contextualised staff development. For participants, the opportunity to choose which tools they wanted to use, based upon their own situation was a key success factor in enabling them immediately to apply what they had learnt. The most popular tool choices were PowerPoint, digital video, Flickr, Netvibes and Refworks. The reasons given for choosing these tools was that they were immediately useful to participants' professional practice and built upon what they already knew. Most participants started using the tools they had learnt in DEBUT immediately. As one participant commented, "When it is relevant and you need it, you do it." DEBUT corroborates Beetham's (2003, p.4) view that CPD for academics interested in learning technologies is effective when "participants set their own learning objectives, plan their own curriculum development project and undertake evaluation and/or critical reflection of their own work".

What marked out the DEBUT pilot participant group was a desire to learn new ways of supporting learning, and supporting learning with technology. However,

where a participant could integrate their DEBUT activities with work that they were already engaged in, it appeared to give a greater impetus and more time in which to explore a tool. These findings support Ferman's (2002, p.146) conclusions that professional development for academics, "is best approached not as something extra but rather in a directly work practice-embedded way".

As the project hoped, exploring a range of different digital tools was another key factor for most participants in enabling them to raise their digital literacy level. As one participant concluded, "Being taught to use different tools and thinking about how you use them and embed them ... just makes you more digitally aware and literate overall." The DEBUT experience is, therefore, similar to that reported by Mainka (2007, p.159) at Napier University, where exposing participants to a range of educational technologies empowered each "to identify the potential for technology in teaching and learning".

The support provided within DEBUT was highly appreciated. Participants valued people contact, whether this was in the form of support from a staff developer or another participant. Staff development that involved group activities was preferred over self-directed activities. It was also evident that DEBUT participants preferred telephone or face-to-face support over online communication. This mirrors the 2006 study by Knight, Tait and Yorke of how Open University (OU) full-time tutors learned to teach, where "online activities had the lowest satisfaction and importance ratings" (Knight, Tait and Yorke, 2006, p.325).

A further key factor to success was where staff development involved sharing of practice and peer support. The comment from one participant is illustrative of the views of many: "People from different disciplines approached it in a totally different way. It was quite amazing and very interesting to see what they were doing." This type of approach not only represents a more desirable way to develop digital literacy skills among our participants, it represents a more manageable way for developers to support HE staff in enhancing their digital literacy through this type of programme. As with support from developers, participants, however, preferred to share practice face-to-face and not online.

The most highly praised method of staff development supporting a DEBUT tool was a group workshop, where there was hands-on practice of using the tool with its pedagogic uses being explored, and where a small activity or 'homework' was given, which was followed up by either a one-to-one or a small group coaching session. As has already been indicated, the opportunity to share and learn from each other's approaches was highly valued. In addition to this, participants commented that the 'homework' element acted as a motivator, while this and the follow-up session reinforced learning: "The thing that has been most useful in terms of the training I have had has been a fairly immediate follow up session where I have been forced into doing something and forced to put it into practice."

The follow-up session also allowed participants to 'play' with a tool, see its benefits and then receive highly personalised support. This approach appeared to give

participants a 'quick win' – a good experience with technology that rapidly built their confidence. The benefits of this are summed up by a digitally advanced participant: "IT must work the first time and every time, particularly with new users."

For the DEBUT team, this was also good news, as the group workshop was also a more sustainable approach than one-to-one support. One of the reasons for our participants wanting better to understand digital tools was to make better use of their time. As one participant commented: "I have a theory that if I can just use these things properly it will save me time." However, DEBUT illustrated the difficulties staff encounter in trying to learn new skills. The most significant barrier for participants was time.

A lack of access or a lack of easy or appropriate access to technologies can also easily deter staff in using digital tools. DEBUT illustrated the need for responsive support from Computing Services departments. DEBUT participants were quickly and understandably frustrated when equipment was not available or software was not installed in time. DEBUT also highlighted that with the increase of mobile working, staff want technology which they can use not only 'on campus' but from home, on the road and from partner organisations.

As a corollary of preferring contact with other people, it was perhaps not surprising that staff development methodologies that involved manuals (on or offline) and/or working on one's own were not as favoured by DEBUT participants. The preference for collaborative approaches was noted by a number of the staff developers in their reflections. They noted how many participants were more than able to approach a tool on a self-directed basis, but did not get as much out of the experience, simply due to the isolation of the approach.

FUTURE DEVELOPMENT

Experience from DEBUT would suggest that in developing their digital literacy skills, staff very much value a contextualised/personalised approach, and value follow-up sessions and support in the form of people contact. The question for institutions is how this type of programme can be delivered in a manageable and sustainable way. The findings from the initial pilot of DEBUT suggested some answers, and with the overwhelmingly positive evaluation from year one, the Canterbury Christ Church University committed to running further annual cohorts of the programme to further evaluate and enhance the programme and embed it as a key element in the drive to build capacity for technology-enhanced learning within the institution in a more sustainable way.

The second cohort of DEBUT ran from the summer of 2008 to summer 2009. The third cohort commenced in May 2009. Evaluation of the second cohort of DEBUT reinforced many findings from the first cohort, and again there was evidence of significant increases in the digital literacy levels of participants. In particular

we found that staff with low-to-medium digital literacy levels showed a far more significant increase in their digital literacy level relative to their position at the start of the programme than those staff who already had relatively high levels of digital literacy at the outset.

It has been indicated earlier in this chapter that the locus of support for technology-enhanced learning has very much been within the Learning and Teaching Enhancement Unit. However, as the institution grows this is not sustainable. The longer-term aim of DEBUT is to foster a community of digitally confident staff within the institution, whose understanding can enable them to exploit technology themselves, and alongside the LTEU, enable them to support colleagues. With this in mind we have continued to support participants from the first cohort of DEBUT and evaluate their continuing digital journey.

Participants from the initial cohort were welcome to attend any of the sessions in the second programme. In addition to this they could call upon the support of their learning technologist to further explore a tool or develop their use of it. Evaluation a year on from the completion of their DEBUT programme, has shown that many of these participants have explored more digital tools and continue to grow in digital confidence.

It has also been evident that staff from the first cohort have been instrumental in moving their departments forward in their use of technology by supporting colleagues directly, by influencing and informing curriculum planning decisions and by working with their learning technologist to promote and support the use of digital technologies.

At Canterbury Christ Church University, the model of learning technologists based in a central learning and teaching unit but aligned to a specific faculty has proved very successful with regard to the institution's enhancement of learning and teaching with technology. Over the years each technologist has built up very close relations with their faculty – they are often seen by their faculty as a member of it, not part of a central support service. We see this close relationship as a major contributing factor to the success of DEBUT. Many members of the DEBUT team are well known to participants prior to joining the programme, and are available to support and facilitate further development once an individual has completed their DEBUT year. Through these well-established relationships and now the development of a community of digital confident subject experts, the development of digital literacy is not seen as a centrally driven process, but rather as an organic, continual and collaborative effort.

CONCLUSIONS

In 2009, the higher education sector is clearly moving away from seeing e-learning as a separate, different approach purely to support 'distance' learning. This trend is apparent in the report on the Challenges and Realisations from the Higher Education

Academy/JISC Benchmarking and Pathfinder Programme, which notes that many participating institutions have moved on from discussions about e-learning and "focused their attention on the use of technology to enhance learning and teaching, to support all aspects of the institution's business" (Higher Education Academy, 2008, p.15). This development is also reflected in the change of language in the sector from e-learning to technology enhanced learning.

However, as the Universities and Colleges Information Systems Association (UCISA) 2008 Technology Enhanced Learning Survey suggests, if new technologies are really to be exploited and embedded within learning and teaching in higher education, it will be essential to meet the challenge of raising the digital literacy levels of its staff. The CLEX (2009) Higher Education in a Web 2.0 World report addresses this challenge by recommending that "HEIs support staff to become proficient users of an appropriate range of technologies and skilled practitioners of e-pedagogy, incorporating both into initial staff training and CPD programmes" and that they "provide ongoing support for staff to maintain the currency of their information literacies". From our experience of having now supported over sixty staff across three cohorts of DEBUT, we believe the approach could potentially provide a sustainable, transferable model for the continuing digital development of staff within higher education.

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10

THE CARPE DIEM JOURNEY: DESIGNING FOR LEARNING TRANSFORMATION

ALEJANDRO ARMELLINI, GILLY SALMON AND DAVID HAWKRIDGE

INTRODUCTION

Anyone who has been in touch with the University of Leicester over the last few years will know that its teaching and learning profile has been on a rising curve¹. Most relevantly to this chapter the University has recently been awarded the UNIQUe (European University Quality in eLearning) certificate, the first and only one in UK to date. While it may be difficult to trace this success back to specific actions, it is a fact that the University decided in 2005 to launch a strategic initiative to transform its e-learning and distance learning and the first pedagogical innovation strategy was accepted by Senate in July 2005. It set up the Beyond Distance Research Alliance (BDRA) to provide evidence and leadership for the changes. The pedagogical innovations introduced and researched by BDRA and its partners under this initiative have built up institutional capacity for evidence-based change, both at Leicester and elsewhere. In particular, they have transformed course design through low-cost, high-value-for-learning approaches. We are deeply involved in this initiative and would like to tell you in this chapter about the journey so far and what we have learned.

I The University of Leicester was awarded the title of University of the Year 2008–09 by Times Higher Education. The Times Good University Guide 2010 ranks Leicester 15th and that follows top 20 rankings for Leicester in the 2008–09 academic year by the Independent, The Sunday Times and the Guardian. In the 2008 National Student Survey, 92 per cent of full-time students taught at Leicester were satisfied with their programme. This is a level of satisfaction exceeded only by Cambridge among mainstream universities teaching full-time students in England.

The key concept in the University's evolution is that change should be evidence-based. Research generates the evidence: academics can relate to that. We and they find evidence more convincing than targets, and direct support for transforming learning design better than staff development. They can move from research into practice. With this concept in mind, BDRA set out to create research and development projects and to obtain external funds for them. We saw transformation as happening at four different levels:

individual > course team > departmental > institutional

The journey started in a fortunate way: the University had just adopted a new open, forward-looking vision for its teaching and learning. At the same time the Higher Education Academy had announced that it would support benchmarking of e-learning across several universities.

BENCHMARKING OF F-LEARNING

Much has happened since 2006, when the University was invited to join a benchmarking exercise funded by the Higher Education Academy (see Figure I). It soon became clear that our own institution would derive real benefit from this process, both directly and in observation of other institutions on their similar journeys. The first e-learning benchmarking, conducted in early 2006, was a pilot for the subsequent programme, since nothing quite like it had been done before. We undertook bidding to be in the first, pilot tranche of benchmarking and were allocated an Academy consultant, Paul Bacsich, and became part of a small club exploring the use the 'Pick&Mix' methodology.

A great advantage of benchmarking is that you can see how you compare with your partners, as well as seeing which are your strong points and which are the weak ones, if any. In this case, our university identified – through the benchmarking – 'Instructional design/pedagogy' and 'Learning materials' as the key criteria on which it scored lower than others. The second benchmarking, a year after the first, showed success. On a scale of 1 to 6, 'Instructional design/pedagogy' had moved up from 2.0 to 4.0, while 'Learning materials' had gone from 3.0 to 4.0.

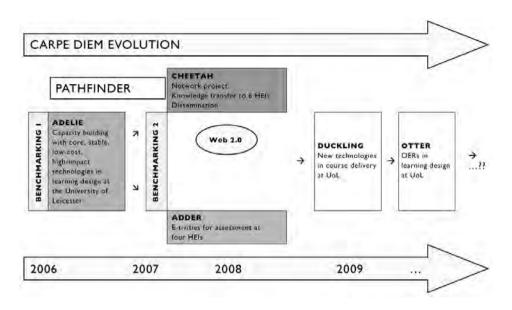


Figure 1: Transforming course design through e-learning, 2006 to 2009

PATHFINDING: ADELIE

It was logical for the University to build on the benchmarking results. ADELIE (Advanced Design for E-learning Institutional Embedding) was an Academy-funded Pathfinder project, led by BDRA and designed to develop capacity in learning design throughout the institution (Figure 1). For two years from October 2006, ADELIE fostered incremental change in e-learning design and online teaching practice at Leicester.

ADELIE included a key change process, called *Carpe Diem* (Armellini and Jones, 2008; Salmon, Jones and Armellini, 2008), grounded in partnerships that grew between the project team, learning technologists, subject librarians and academic subject teams. *Carpe Diem* workshops enabled these teams to understand, develop and implement effective e-learning designs, making use of low-cost, high-impact stable technologies such as the University's virtual learning environment (VLE: Blackboard) and the e-library. *Carpe Diem* also enabled teams to apply a 'design once, deliver many times' approach for the benefit of tutors and learners alike.

Carpe Diem promotes and supports change in learning design and assessment, builds institutional capacity and fosters scalable pedagogical innovation (Salmon, Jones and Armellini, 2008). At the heart of this intervention is a two-day workshop in which course teams, in collaboration with subject librarians and learning technologists, design e-tivities for effective e-learning and assessment within their online and face-to-face courses. On the first day, the team produces a blueprint

and storyboard for the course, identifying the purpose and main features of the e-tivities they will design. On the second day, participants turn the prototypes into fully functional e-tivities (see below), which they upload to their institutional VLE. Also on the second day, a 'reality checker' (a student or staff member external to the *Carpe Diem* process) reviews the e-tivities and provides feedback from the user's perspective. The team uses this feedback to adjust and improve the e-tivities.

At the end of the workshop, teams have a series of reality-checked e-tivities running on their VLE, a storyboard showing the purpose and location of those e-tivities within the course design, and an action plan. The workshop is preceded by an initial contact meeting between the facilitator and the course team for preparation and motivation, and is followed up by a meeting designed to plan for the embedding of the changes into the course (Figure 2).

The Carpe Diem facilitator's main role is to ensure that the workshop deliverables meet the pedagogical challenges identified by the course team, drawing on appropriate input from all participants. The facilitator challenges established notions and offers new perspectives in technology-enhanced learning design and assessment. Carpe Diem differs from traditional staff development approaches insofar as it focuses on the learning design needs specific to an academic course team taking responsibility for a programme of study. Its outputs can be used by the course team immediately and can inform the development of other course components.

Carpe Diem is not a 'how to use my VLE' workshop. While participants become more skilled in the use of a range of VLE features, they do so in the process of addressing a pedagogical design challenge that the technology may help them to resolve. Learning technologists and subject librarians provide additional input and support during the intervention.



Figure 2: The Carpe Diem process

ADELIE also included three-week asynchronous 'Barefoot e-moderator' online courses, based on Salmon's five-stage model (Salmon, 2004) and her e-tivities framework. E-tivities are "frameworks for enhancing active and participative online learning by individuals or groups" (Salmon, 2002, p.3). We invited *Carpe Diem* participants and other academic and support colleagues to take part in these online courses to transfer the key e-moderating skills (welcoming, encouraging participation, weaving and summarising) needed to maximise the impact of the new e-tivities during course delivery. We worked on the principle that the better the design of e-tivities, the easier the e-moderation.

The uptake of ADELIE represented a significant success: it generated change across the University. First, 16 course teams from 11 departments, including 87 academics, five subject librarians and five support staff were involved in *Carpe Diem*. Of the 16 teams, 12 focused on distance learning, a priority for the University. Four Barefoot e-moderator courses were run, involving 38 academics from 18 departments.

Within BDRA we had set up a 'Media Zoo'. The Media Zoo concept is based on the four quadrants of our innovation strategy and is a highly accessible way of communicating evidence and research findings in design and technology.

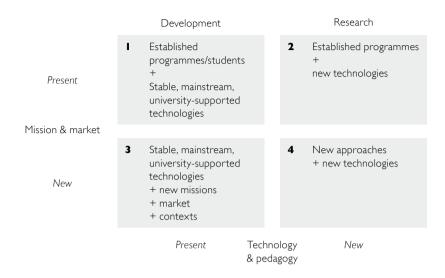


Figure 3: The Learning Innovation Strategic Framework for UoL

- Quadrants 1, 2 and 3 represent the deployment of UoL's existing core capabilities and capacity through incremental innovation.
- Quadrants I and 2 suggest deployment of UoL key strengths in teaching excellence, but with adjustments to new technologies.
- Quadrant 3 suggests deploying the understanding of technologies already in place to promote business development, solve problems and increase quality of all kinds.
- Quadrant 4 represents a more radical view of change using peripheral technologies, new products, new markets and missions.

There are currently three manifestations of the Media Zoo: a physical 'laboratory' space available to all staff, a web-based Zoo² and a 3D Media Zoo island in Second Life. There is soon to be another laboratory Zoo for students³.

A 30 per cent increase in the use of the physical Zoo was observed as a direct result of ADELIE. Among these new visitors, 60 per cent used the Zoo three times or more and many brought other academics with them. When in May 2007 BDRA presented ADELIE to the University Council at a special meeting about learning technologies, it received considerable support. ADELIE provided an appropriate

² www.le.ac.uk/mediazoo

³ Animal names for all research projects continue the zoo theme.

context, which continues today, for sustainable change and innovation in e-learning design. Counting from November 2006, there have been 35 *Carpe Diem* workshops, involving 210 staff across 14 disciplines. We estimate these have resulted in 42 redesigned courses and 130 redesigned e-tivities. By working with the prevailing culture, ADELIE has fostered change, development and capability building across disciplines and delivery modes. Academics, learning technologists and librarians gained key pedagogical understanding. ADELIE also generated transferable models and frameworks, such as *Carpe Diem*, from which the wider e-learning community in higher education now benefits.

KNOWLEDGE TRANSFER AND NETWORKING: CHEETAH

Born out of ADELIE, CHEETAH (Change by Embedding E-learning in Teaching Across HEIs) was a knowledge-transfer and networking project (see Figure I). We developed partnerships with six HEIs that had been in the Benchmarking and Pathfinder Programme (University of Bath, University College Falmouth, Leeds Metropolitan University, Newman University College, Oxford Brookes University and University of Worcester) to enable them to develop and enhance their institutional capability in e-learning design. We set out to transfer to them from ADELIE our key know-how, models, frameworks and lessons learned about how to support course teams by embedding good practice in e-learning design.

Perhaps not surprisingly, given the earlier success with Carpe Diem, we decided to use the same process again. It was by then a well-researched, well-rehearsed and proven instrument for capacity building in successful student-centred design for e-learning. We wanted to facilitate the cascading of the Carpe Diem model to all our partners. We also expected there would be opportunities for additional knowledge transfer, support and dissemination within CHEETAH and across the Academy's wider Networking Programme. CHEETAH ran from March to October 2008. We held a Carpe Diem workshop at each of the six partner institutions. Before, during and after each workshop we collected from course teams data that we analysed using Kirkpatricks' four-level evaluation model (Kirkpatrick and Kirkpatrick, 2005): (I) reaction, (2) learning, (3) behaviour and (4) results. Based on this evidence, CHEETAH's achievements are summarised in Table I.

As a very worthwhile extra, BDRA invited colleagues from Oxford Brookes University to run a two-day 'intensive' workshop at Leicester. Intensives share features with *Carpe Diem* such as focus, overall aims, target audience and duration, but differ in relation to structure, methodology, pre- and postworkshop activities, resources and deliverables. Both we and our Oxford Brookes colleagues benefited from this exchange: it provided insights into alternative ways to conduct an effective two-day workshop on e-learning design for course teams.

Table 1: Achievements of the CHEETAH project

Original project aim	Comment		
Improve Carpe Diem by incorporating lessons learned from other Pathfinders	Practice informed by Oxford Brookes 'intensive' workshop		
Six Carpe Diem workshops at six institutions	Completed		
Evaluation of impact on e-learning design at partner institutions	 — Analysis of survey data — Reflections during CHEETAH symposium on 15 July 2008 — Analysis of additional data collected through telephone interviews post-symposium — External evaluation 		
Cascade model to enable others to repeat and sustain interventions locally	Pre- and post-workshop meetings Capacity building through 'shadowing': transfer of workshop facilitation skills Presentation, reflections and discussions on sustainability at symposium External evaluation		
Effective dissemination and further collaboration	— CHEETAH represented at events and conferences — CHEETAH symposium — Project website and blog — Higher Education Academy Pathfinder and Network Projects websites and blogs — Partnerships for future projects being explored — Journal article in preparation — Academy reporting and networking		

ADELIE showed us that multiple *Carpe Diem* interventions were needed in an institution if the cascading of the model was to be effective and long lasting. Wouldbe facilitators need to attend more than one *Carpe Diem* where they can watch an experienced *Carpe Diem* facilitator. Colleagues who went to two or more *Carpe Diem* workshops had the chance to shadow and lead on some workshop components, and they gained the confidence to facilitate customised in-house *Carpe Diem* sessions.

There is no doubt that the process developed local expertise and built institutional capacity, essential for effective cascading and change. All the partners found their CHEETAH experience most valuable and enjoyable, and two said their Carpe Diem was the biggest enabler of the change process. They told us that course teams were willing to commit their time to a researched, tried and tested approach: Carpe Diem was vital in securing these teams' participation. They gained new e-learning design skills and had practical exposure to pedagogical benefits of web 2.0 technologies in course redesign. All the teams designed e-tivities in their institutional VLEs. They now have plans to customise and cascade Carpe Diem internally.

ASSESSMENT IN LEARNING DESIGN: ADDER

Next, funding from the Academy was granted for ADDER (Assessment & Disciplines: Developing E-tivities Research), which compared and contrasted uses of e-tivities for assessment in three disciplines (Inter-Professional Education, Media Studies and Psychology). We worked with four universities (De Montfort University, the University of Derby, London South Bank University and the University of Northampton) over I2 months to September 2008. In ADDER (see Figure I), we set out to investigate the similarities and differences in assessment practices that make use of e-tivities in those three disciplines, and the impact of these practices on the learner experience.

Carpe Diem was again the key intervention used to generate change in e-learning design and e-tivity-based assessment at all the partner institutions. Seven full Carpe Diem workshops were run (as well as pre- and post-Carpe Diem interventions) during which we observed and recorded what happened. Afterwards, online surveys were used to capture tutors' views of e-tivities and assessment. Further than that, we conducted interviews with six tutors, before and after the workshops, and constructed cognitive maps (Eden, 2004) from these. The course teams designed e-tivities during and after the workshops, and wrote module handbooks and programme specifications and we had access to these resources.

From our analyses we built up a research-based typology of e-tivity use in assessment (Table 2).

Table 2: The ADDER typology of links between e-tivities and assessment

Links between e-tivities and assessment	Rationale
I. All output of e-tivities is summatively assessed	All student work should count. May replace all or part of traditional assessment tools (e.g. essays)
E-tivities are optional, but their output explicitly builds towards assessment	E-tivities are explicitly aligned with the requirements of a subsequent summative assessment
3. E-tivities are compulsory and their output builds towards assessment. The tutor 'ticks a box' when each e-tivity is satisfactorily completed by each student ('done' or 'not done'). Individual contributions are not assessed	E-tivities are aligned with the requirements of a subsequent assessment. As they are compulsory, e-tivities generate additional learner engagement and participation
A. All e-tivities are optional and not explicitly linked to assessment	Keen students are given the opportunity to learn more without assessment pressures

The typology accommodates uses of e-tivities for assessment that had not been identified in ADELIE (Armellini, Jones and Salmon, 2007). There was significant use of collaborative web 2.0 technologies to enhance learner interaction and collaboration.

These technologies facilitated the use of multiple feedback-loop processes in e-tivity designs (Armellini and Jones, 2008), which took pressure off the tutors and involved students as 'feedback providers'. ADDER enabled cascading of *Carpe Diem* within and across the ADDER partner institutions as well as informing the assessment approaches for future *Carpe Diems*.

NEW TECHNOLOGIES IN LEARNING DESIGN: DUCKLING

The journey continues. The JISC-funded DUCKLING project (Delivering University Curricula: Knowledge, Learning and INnovation Gains) began in November 2008 and will run for two years (see Figure I). It develops advanced delivery, presentation and assessment processes to enhance the work-based learning experience of students studying remotely. DUCKLING demonstrates the practical marriage of sound approaches to deploying new technologies and work-based pedagogy for learning support, communication and assessment for professional adult learners. Figure 4 captures the strategic challenge for DUCKLING.

The strategic		Enhanced		The transforma-		Evidence for
challenge:		learner-centred		tion of work-	and provides	sustainable
effective and		curriculum		based student		embedding of
sustainable	maguinas	delivery deploy-		learning oppor-		innovations in
delivery of work-		ing the VLE and		tunities, which		curriculum deliv-
based learning		well- established	which	are at least		ery, plus tangible
programmes	requires	peer and collab-	results in	equivalent to (or	provides	beneficial project
in a dual-mode		orative e-tivities,		exceed) those of		deliverables
university		together with		campus-based		for institution,
		learner- centred,		students		employers and
		technology-ena-				sector
		bled innovations				

Figure 4: Addressing the strategic challenge: the DUCKLING project in context

DUCKLING capitalises on the affordances of three technologies (podcasting, e-book readers and Second Life) to enhance the University's delivery of two distance learning MA programmes in Occupational Psychology and one in the School of Education in Applied Linguistics and Teaching English to Speakers of Other Languages (TESOL). All three programmes faced similar challenges: the need to improve the quantity and quality of interactions between students and tutors, the quality of the course materials (perceived as 'too dry' by learners), personalisation and the provision of added mobility and flexibility. Specific pedagogical challenges in Psychology revolve around assessment, including dissertation and essay support and guidance, supervision, research methods

and feedback. In Education, the focus is on using each medium for what it does best for learning and teaching, e.g. audio for varieties of spoken English and discourse analysis.

To date, podcasting has been used extensively to enhance the delivery of the three DUCKLING distance learning programmes. The course teams had already undertaken *Carpe Diem* workshops, so for DUCKLING we created a shorter intervention to enable them to design, produce and integrate effective podcasts into their courses. These went live almost immediately and the impact is being researched. Early indications suggest that podcasting has made a very significant difference to the quality of the learner experience in both disciplines. With the course teams we are planning changes to course delivery using Second Life and e-book readers. Subsequent design and delivery interventions will be informed by the project's action research loops, and full or mini *Carpe Diems* added wherever necessary.

OPEN EDUCATIONAL RESOURCES: OTTER

On our journey, BDRA and its partners cover more and more ground. The Academy and JISC-funded Open, Transferable and Technology-enabled Educational Resources (OTTER) project pilots and evaluates systems and processes designed to enable individuals, teams and departments to release high-quality open educational resources (OERs) for free access, reuse and repurposing by others, in perpetuity. OTTER will contribute a body of high-quality OERs from nine departments at Leicester. Equivalent to 360 credits, these OERs will be free to access online, use, adapt and repurpose under an appropriate open licence, and will be valuable to academics, past, current and future learners, funding agencies and professional organisations in the relevant fields worldwide. OTTER makes extensive use of learning technologies and will maximise the affordances of the JorumOpen platform and Leicester's institutional open source platform, Plone. OTTER will in due course inform institutional and sector policy on the release of existing digital content as OERs.

OERs have played a significant role in *Carpe Diem* since 2006. Course teams have integrated materials from a range of sources (including reusable learning objects as well as OERs), which have improved course design and very significantly reduced the amount of time, cost and effort with regard to development and production. OTTER and its sister projects will offer a set of additional resources for enhanced learning design, all readily available for immediate repurposing (if appropriate) and reuse. OTTER OERs will offer a significant low-cost, high-value resource for all future Carpe Diems for Leicester and any HEIs using the model.

A STRATEGY FOR THE NEXT THREE YEARS

At the time of writing this chapter the University's Senate is about to adopt a new Learning Innovation Strategy, underpinned by sector-wide policies, informed by the

latest evidence for the deployment of learning and technology and by current and future learners' expectations and needs. It is built upon existing strengths of the University of Leicester, including the lessons and the successes of the first E-learning and Pedagogical Innovation Strategy (2005–2009). It leads on approaches to developing institution-wide capabilities and capacities for learning design and delivery heavily dependent on *Carpe Diem* to build capacity for the future. It continues to promote institution-wide engagement, collaboration and cross-institutional teams' achievements, including throughout Colleges, services and cross-disciplines.

SUMMARISING THE LESSONS LEARNED

Strategic transformation has happened at all four levels: individual; course team; departmental; and institutional. We know that individuals are responsible for changing their own practice and welcome these changes. However, it is also clear that 'one academic doesn't make a transformation'; neither do many academics in isolated situations in a wide variety of departments. Therefore, we continue to encourage and maximise individual contacts to lead towards *Carpe Diem* workshops and teamwork wherever achievable.

There are positive feedback loops from the spark of interest from individual or small groups of academics, who usually first approach the 'Media Zookeeper', to the *Carpe Diem* workshops and back again. (Figure 5).

Media Zoo: research to practice and dissemination

- Evidence for exploitation of low-cost high value for learning technologies
- Wide range of exemplars and resources immediately available
- Learning design and learning technology needs of individuals and course teams identified and developed
- Learning technology skills developed
- Radical and incremental innovation, core and peripheral technologies
- Knowledge practically transferred
- Learning design and learning technology support

Carpe Diem: structured, low resource, interventions in learning design

- Pedagogical innovation through team-based approaches
- Effective, learner-centred, task-based design
- Low-cost, high-impact technologies to design once and deliver often
- Capacity building in e-learning design and delivery
- Generation of evidence for further change
- Areas identified where further support in design and production is needed
- Academic and pedagogical 'ownership' by course teams maintained

Figure 5: Leicester's Media Zoo and Carpe Diem

One course team undertaking a *Carpe Diem* frequently results in others visiting the Media Zoo or requesting support in departmental workshops in e-learning. Highly influential was the research to practice and collaboration focus around the Pathfinder and its follow-up projects.

From August 2009 the University of Leicester will be restructured into four Colleges offering a renewed opportunity to engage and influence within broad discipline areas. The new Learning Innovation Strategy will run from 2009 to 2012. The outcome from the first strategy (Pedagogical Innovation) informed the new strategy. The principles on which the strategy is based are:

- evidence for and evaluation of benefits of enabling innovation across the institution for students' learning;
- collaboration across the institution within strategic frameworks and through funded research and development projects;
- raising the capability of all members of the University students and staff to exploit and benefit from the learning technologies of the 21st century;
- exploring 'beyond the obvious' to prepare for the future in unseen, unknown and uncharted territory for learning and teaching.

We now recognise the complex links, communication pathways and lines of influence from individuals to institutional capacity. From 2009 we are exploiting this increased understanding in planning for an enhanced permeation process. An extensive 'involvement' plan is under development for the effective communication of the Learning Innovation Strategy to all units and staff across the University of Leicester as it deploys the new College structure. We plan that the special benefits of *Carpe Diems* will continue to build towards positive and successful transformation of the experience of all Leicester's learners.

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11

THE CHANGE ACADEMY AND INSTITUTIONAL TRANSFORMATION

IRENE ANDERSON AND PETER BULLEN

INTRODUCTION

This chapter presents a case study of institutional change. The University of Hertfordshire participated in the Higher Education Academy/JISC pilot e-Learning Benchmarking project in 2005–06 and a subsequent pilot Pathfinder project. The outcome of benchmarking led to the development of a local 'change academy' to achieve a more embedded approach to blended learning across the institution. This chapter provides the institutional context for this development together with its relationship to the national Change Academy. The local change academy, referred to as the Change Academy for Blended Learning Enhancement (CABLE), and its transformative effect on the institution is then discussed in more detail. Finally some insight into transferring the University of Hertfordshire experience to other institutions is provided.

UNIVERSITY OF HERTFORDSHIRE (UH) CONTEXT

The University has a strong background in the development of its learning resources both in relation to virtual and physical spaces. In 1995 it adopted an ambitious strategy, which included three key elements: the full-scale integration of computing, library and media services; the provision of diverse 24/7 study environments in Learning Centres; and the exploitation of information and communications technologies. StudyNet, the University's bespoke managed learning environment (MLE), grew from this strategy together with an implementation plan to enable all staff to develop their learning and teaching use of the MLE. This was the context for the establishment of an institutional

Blended Learning Unit (BLU)¹ funded through the CETL initiative². Part of the remit of BLU is the evaluation of the University's blended learning activities, and it was therefore natural that BLU should apply to be part of the e-learning pilot benchmarking programme in 2005³. The outcomes of benchmarking showed how well established e-learning had become in the institution, but also demonstrated that it tended to be used as an addition to face-to-face teaching rather than being fully integrated with it. There was a need to work directly with staff to help them understand more deeply the principles of blending technology-enhancement with face-to-face teaching.

This benchmarking exercise also coincided with a delegation of management responsibility, whereby Schools were now asked to operate autonomously as strategic business units. There was thus a readiness for change. In parallel with this the BLU had adopted a partnership approach, aiming to work closely with academics to provide support and encouragement for academic staff to develop their blended learning capabilities.

The need for change was established. The method adopted was that employed by the Higher Education Academy Change Academy, largely because of its track record of success, but specifically because of the success of UH Change Academy projects. There was therefore some pre-existing institutional experience of, and acceptance for, this method for change.

CHANGE ACADEMY

Change Academy⁴ is a year-long programme of support for teams from higher education institutions that is designed to enable them to develop the knowledge, capacity and enthusiasm for achieving complex institutional change. It provides opportunities for team-based learning and professional development that focus on the strategic interests and needs of the participating institutions.

The HEFCE Interim Evaluation of the Higher Education Academy found that "Change Academy is consistently remarked on by those who have participated as a successful and effective process that delivers on its stated aim that it enables them [HEIs] to develop the knowledge, capacity and enthusiasm for achieving complex institutional change" (Oakleigh Consulting Ltd, 2008, p.32). At UH the focus was on blended learning enhancement. There were strong parallels with the national Change Academy with regard to objectives and approach, but UH's needs were focused at a local level, concentrating specifically on e-learning and integration with face-to-face teaching, with the additional aim of developing

I www.herts.ac.uk/about-us/learning-and-teaching/blended-learning-institute/home.cfm

² www.hefce.ac.uk/Learning/Tlnits/cetl/

³ www.herts.ac.uk/about-us/learning-and-teaching/blended-learning-institute/projects/blu-national-projects/hea-benchmarking-e-learning-pilot-project/benchmarking-report-executive-summary.cfm

⁴ www.heacademy.ac.uk/ourwork/institutions/change

partnership between the academic Schools and the BLU. Thus, the idea of CABLE was born and the Change Academy model was applied to the University's own Schools.

The main objective of CABLE was to develop a more blended approach to engaging students with the curriculum. This contrasted with the general approach taken by other institutions, concentrating directly on curriculum design. The reasons for this are based on the prior experience of the staff in the BLU who had found that direct approaches to curriculum design were hampered by other issues and perceptions not directly related to e-learning or related in a peripheral way. Examples were issues associated with quality assurance procedures, programme validation and monitoring, staff skills and understanding about e-learning and resources. The BLU experience supported a systems view of the problem, embracing a global change approach, which might involve curriculum design as an outcome.

CABLE

CABLE is both a project and a process: a model for changing practice. A key objective was to develop a toolkit that can be used by anyone engaged in the change process. Participants experience the techniques used and receive guidance on when and how to use these techniques in the future. An adjunct to the toolkit is a diagnostic tool for curriculum design: the opportunity to appraise the current curriculum and plan for development. The toolkit of techniques used in CABLE are well known in business settings but not so well used in academic institutions, so CABLE was an ideal environment to assess their usefulness It was envisaged that participants would meet the objectives of their projects and would also, in turn, become change agents. This proved to be the case and a network of support, collaboration and motivation for change has developed (Anderson et al., 2008). See Table I for the elements and stages of CABLE. These are linked to Lewin's (1951) change model⁵ and the divergent and convergent stages are highlighted. The process, resources and agendas are available online⁶.

The process is not completely linear and Table I serves as a framework, which is adapted according to the focus and needs of each individual team. Teams are supported by the CABLE management structure (section 4.7) and by four key supporting resources:

- project co-ordinator;
- facilitators;
- project resources;
- project site.

⁵ www.changingminds.org/disciplines/change_management/lewin_change/lewin_change.htm

⁶ www.herts.ac.uk/about-us/learning-and-teaching/blended-learning-institute/home.cfm

Table 1: The CABLE process

	Key elements of CABLE	Key stages of CABLE	
	Identifying the challenge	Expressions of interest	
		Selecting the bids	
Unfreezing	Constructing a team	Team leaders' meeting	
	Exploring the issues	Team meetings	_ Divergent phase
	Staff development		
	Building partnerships and collaborative links	Preparatory work by teams	
Transition	Action planning	Residential event	
	Evaluation and dissemination strategies	Post-residential meetings	Converge
	Developing change agents	Ongoing support	phase
	Maintaining momentum	Final event	
	Rolling out projects	Final reporting of outcomes	
Refreezing	Evaluation		
	Disseminating outcomes		
1	Supporting others		

STRUCTURE OF CABLE

EXPRESSION OF INTEREST

The call for expressions of interest initially went out to Heads of School in September 2006. This was dictated by the timing of the pilot Pathfinder. The Head is invited to consider an issue that needs to be addressed. It is explicit that identification of the challenge is a starting point and that the teams will refine projects. A student is required to be a full member of the team. Expressions of interest must identify a team leader who has agreed to the role and an outline of who other personnel are likely to be. The call for bids highlights the potential benefits to Schools including a small amount of funding, partnership working with BLU, staff development and participation in a high profile project.

SELECTING THE BIDS

Criteria for selecting the bids involve determining the extent to which the aims of CABLE are likely to be addressed, does the bid identify a problem or challenge, and is there scope to change practice in learning and teaching? Bids were turned down if it was clear that the focus would be solely on primary research. Additional criteria for bid selection were based on potential synergy with other bids and the extent to which the project might influence practice elsewhere in the School or institution.

TEAM LEADERS' MEETING

CABLE is an academic-led process, and the team leaders are encouraged to be as autonomous as possible within the process guidelines. Once bids are accepted, the project co-ordinator has individual meetings with each team leader to discuss the process and consider the make-up of the team. In the first CABLE project (2006) it became clear that some team leaders were uncertain about the approach of the project, how they would manage the time commitment and in some cases their own perceived lack of skills to lead a project team. Individual meetings helped address these misgivings. In subsequent CABLE projects Heads of School are asked to confirm that bids have been discussed with potential team leaders and team members, although this can still be problematic. On at least two occasions the team leader has changed at this point and, in negotiation with the Head of School, a new leader has been appointed. This invariably has been effective, and the initially nominated leader has been a positive influence in a supporting role.

Once confirmed, the team leaders attend a joint meeting (four to five hours): an important opportunity to get to know each other and to meet the core CABLE team and some of the facilitators. The agenda for this meeting comprises discussion of the original expression of interest clarifying the CABLE process, the make-up of the team and likely stakeholders. A communication strategy is also agreed, team leaders being required to produce an initial action plan.

TEAM MEETINGS

Once the team leaders are established each team has its own facilitated meeting. In some cases team members have never previously worked together and may not even have met. The event is potentially daunting for the student members who would see their lecturers in a different context. Efforts are made to make them feel welcome both by the core CABLE team and the School team; they tend to be 'buddied' by the member of staff they know best.

I was a bit concerned about the student, what if we started arguing, how would that look? In fact it was fine and we were so busy we soon forgot.

As a student I found it interesting to see how much detail goes into curriculum design and how much the needs of the student are considered.

Excellent feature — invite a student, we had such a useful/enjoyable time with our student.

I felt my opinions, comments and presence were valued.

As well as activities designed to explore issues and ideas, a needs analysis is conducted and the outcome is collated across all the teams to ensure the residential event and ongoing support addresses the staff development needs throughout the project. A recurring theme among some participants was 'we don't know what we don't know', and this highlighted the importance of conducting skills needs analysis across all the teams⁷.

TEAMS

Around five or six teams per year have participated in CABLE. Teams normally have six to seven members including a team leader, a student and senior member of the School. This latter member is important to ensure that decisions and plans, which may impact on resourcing, can be taken quickly. To date there have been few difficulties with this role conflicting with the team leader role. Other members of the team comprise mainly academics, but according to the identified issues have included technologists, learning resource consultants and stakeholders (e.g. NHS manger).

Table 2: The participation of the academic schools from 2006-07 to 2008-09

Year	Schools					
2006/07	Education	Nursing and Midwifery (post qualifying)	Health and Emergency Professions	Accounting and Finance	Art and Design	Computer Science
2007/08	Aerospace, Automotive and Design Engineering	Business	Film, Music and Media	Law	Continuing Education and Partnerships	
2008/09	Life Sciences	Health and Emergency Professions	Education	Nursing and Midwifery (pre qualifying)	Combined Studies	

The structure of the team is very important, and all team members have their Belbin role preference identified. The teams generally find this beneficial as it helps them to be aware of strengths and weaknesses in the team and also gives some participants confidence to volunteer for roles.

RESIDENTIAL EVENT

The residential event is the key event of CABLE. It follows the Change Academy model quite closely. The two days are structured; workshops are available focused on the needs analysis outcomes, and facilitators are on hand to help with planning and discussions. However, the emphasis is on time for teams to discuss and plan. Each team has a designated area in the venue as their own space. A facilitator is assigned to each team and people skilled in various areas are available for input and advice. This includes expertise in project and change management, creative thinking techniques, curriculum design, academic quality and enhancement, and leaders of previous CABLE teams. The atmosphere is intense at times but generally relaxed and informal; it is important that people have time to mix and share ideas. A social event helps engender this atmosphere and aims to ensure people feel valued and not constrained by hierarchical issues.

MANAGEMENT OF CABLE

A core CABLE group is responsible for the overall management of CABLE, with the project co-ordinator responsible for the day-to-day management of the teams. Managing current teams, monitoring outcomes of previous teams and co-ordinating

the development and supporting roles is increasingly complex. Each residential event involves 50 to 70 staff and students. Efficient administrative support is essential as well as a robust and detailed project plan. The Higher Education Academy project planner is used to detail and monitor the project⁸, and the teams use the same document for team projects. Updated team work plans and other outputs are posted on the internal project website at regular intervals.

ONGOING TEAM MEETINGS

Each team is responsible for its own workload and meetings. The co-ordinator and facilitator keep in touch with the team leader, but are not usually required to attend all meetings. It is important to pick up issues quickly; for example, conflict, different perspectives of teams and School management, work overloading etc. Sometimes teams get 'bogged down' and need help to refocus. Systems barriers need to be identified and either addressed or worked around – the need to involve key institutional people is very important and is helped by the contacts developed at the residential event.

TEAM PROJECTS

Since 2006 16 Teams have participated in CABLE with a range of outcomes. Three projects are outlined here as case studies illustrating the breadth of projects. This trio illustrate, respectively, projects focused on staff development in blended learning, enhancement of traditional laboratory-based teaching and continuing professional development for health graduates.

An important outcome of the CABLE process was the cross-team links for support and also for skills development and resources⁹.

BUSINESS SCHOOL

Within the UH Business School is the Department of Accounting, Finance and Economics (AFE). This team's project focus was on a blended learning approach for staff and students in core modules with large student cohorts. The department has a high number of visiting lecturers and new staff. The team wanted to explore the concept of 'digital natives and digital tourists' and to ascertain whether their students were actually the 'digital natives' they were assumed to be.

⁸ This and other example resources are available from: http://cable-transfer.net (registration required).

⁹ http://elearning.heacademy.ac.uk/weblogs/pilot1/?m=200709

Staff and student views were sought via focus groups and online surveys. The team explored views from learning technologists both internally and in other institutions. Students were not always confident with information technology and required support, and staff reported insufficient time and support to develop the skills needed. Their challenge, though, was to find new ways of engaging large cohorts of students. Referral rates were significant and there were differing approaches from staff. CABLE enabled the team to become change agents for a blended learning approach, focusing on working with module leaders. The team developed training and support for new and visiting lecturers and a module checklist, which was adopted across the School. Staff were consequently more enthusiastic about blended learning and the aim is to continue the support until blended learning becomes the norm. Most lecturers are now using learning technologies, and this has been a significant change. Visiting lecturers are realising they are expected to use technologies: 'This is what we do'.

One unexpected outcome was the initial difficulty the team had in using their allocated budget. This difficulty was common across most teams and was instrumental in the core CABLE team realising that the grant allocation to teams is an attraction but not a major driving factor for projects.

AEROSPACE, AUTOMOTIVE AND DESIGN ENGINEERING (AADE)

This team aimed to support campus-based students by exploring the potential of learning technologies in laboratories. This was driven by the need to manage increasing student:staff ratios and decreased contact time. The team also wanted to engage more staff in blended learning, share good practice and explore methods of giving more timely feedback to students engaged in laboratory work.

By using technologies such as video, Camtasia® and SMIRK¹⁰, it proved possible to capture laboratory activity, thus enabling students to revisit material at their own pace rather than having a single opportunity in class time. The introduction of video streaming across the university overcame initial technical difficulties.

Students were required to maintain logbooks and a system of anonymous peer assessment was developed. This benefits the student receiving the feedback and the assessing students who feel they gain more from this process. The team did acknowledge that while students were happy with more timely feedback, there was a time issue for staff setting up the assessment mechanism, but it is anticipated this will be less onerous in future years.

The project team emerged with clear ideas about disseminating their outcomes and ideas.through School awaydays, events and seminars. The team had initial

reservations about the CABLE residential event, but came to see that this was a very important time for their project. Despite some initial reservations these team members have developed as effective ambassadors for the CABLE process and have inspired other teams to consider how they design and support their own practical sessions.

HEALTH AND EMERGENCY PROFESSIONS (HEP)

This team aimed to embed blended learning in postgraduate modules to enhance continuous professional development (CPD) for health care professionals. At the time of the project a review of postgraduate provision was running alongside a joint validation of radiography, physiotherapy and dietetics. School strategy was to meet the requirement for CPD in the health professions and to enhance opportunities for flexible modes of learning that minimised time away from the workplace. The team wanted to focus activity via the MLE and to ensure that there was a mechanism whereby alumni could remain part of the university throughout their professional career. Having an advisor from the strategic health authority as a team member enhanced the multi-disciplinary project team and ensured a strong stakeholder focus. The project highlighted the need for provision at Masters level, for flexible and manageable opportunities and for some provision to be available in the workplace.

For this project the CABLE core team brokered the active involvement of external experts, such as a representative from quality assurance and enhancement. A key outcome of this for the HEP team was formation of smaller units of study enabling health care professionals to combine work and study in smaller components. This team, more than any other, engaged with stakeholders; identifying key players within the strategic health authority, health care managers and potential postgraduate students.

TEAM OUTCOMES

All teams have experienced positive outcomes from participation in CABLE. There have been notable successes such as understanding and applying new technologies to practice, increasing engagement and successful outcomes for students. There have also been challenges such as increased workloads for project groups and some resistance from colleagues. However, staff have been encouraged by the enthusiasm with which students have received new teaching methods and the support that students have given staff to develop new skills. Key lessons have been learned as the CABLE process has been refined since 2006. It is important that team leaders are fully supported through personal contact and staff development activities and that teams are given sufficient time together to plan and try out new ideas, take risks and work in as autonomous a way as possible. It is also important that teams have a named facilitator who is a source of support and a gateway to other resources, but does not seek to 'take over' the group. The key objectives from the original Pathfinder project was to encourage partnerships between academic

Schools and the BLU, and to ensure that blended learning becomes part of the learning and teaching strategy within strategic business unit plans, both of which have been achieved.

CABLE DEVELOPMENTS

The initial success of CABLE in the Pathfinder Pilot project encouraged the University to embed CABLE as a UH annual project, so that 2009–10 will see the fourth round of CABLE projects. To date 16 teams have participated in CABLE at UH involving over 90 staff in the core teams plus additional staff in the wider teams and directly involved 19 students. The teams represent 12 of the 20 academic Schools/ Departments in the University (as of 2009). Over the last two years a number of changes, improvements and refinements have been made:

a) Changes to funding

The initial funding allocated to the project allowed significant funding to be offered to the participating teams in addition to the core funding allocation to the CABLE events. This was designed to attract Schools to participate, to cover the staff costs of participation and to provide funding for equipment and staff development (additional to the core CABLE activities). The level of funding for the teams was reduced by 80% in the second year, recognising that a continued high level of team funding was not sustainable. There was no measurable effect of this reduction in funding, as the number of Schools submitting expressions of interest to participate in CABLE was exactly the same in the second year as the first year. Schools recognised that the value of participating was not predominantly a financial one and in fact was found not to be necessary for the success of the project.

b) CABLE timetable

The first CABLE was aligned to the academic year in that expressions of interest were invited at the beginning of the academic year, i.e. in September. This meant that the start-up time for the School teams was relatively slow and led to the residential event being held around February time in the following year. A review at the end of the first year indicated that all of the teams would have benefited from an earlier residential event. This has led to an adjustment in the CABLE timetable so that expressions of interest are now invited in Spring towards the end of one academic year meaning School teams are established and ready to start at the beginning of the academic year. The residential event has been brought forward to November/December. A review of the second year's projects indicated that this was a positive change

c) Additional awayday

At the end of the first year of CABLE all of the project teams requested the opportunity to share project outcomes. The core team decided to include an awayday in July to meet this request. This event was used primarily for the teams to present their work and to stimulate discussion across all teams as well as identify areas for improvement for future CABLE activities.

d) BLU facilitator development

A clear aim of the CABLE process is to strengthen partnerships between BLU and the academic schools. One way of achieving this was to nominate facilitators for each of the project teams from BLU staff. Initially the facilitators were introduced to their role through published terms of reference and a brief discussion on the role of the facilitator.

FUTURE DEVELOPMENTS OF CABLE

CABLE 4 will run in 2009–10 and changes are already planned based on developments over the past three years and on future learning and teaching strategy. Experience of involving students in the projects has produced very positive outcomes with staff commenting that students provide an invaluable contribution and a different perspective from staff. In 2008–09 one of the teams involved the University's consortium colleges and therefore had four students in a larger team, which proved very beneficial. The benefits of students supporting each other has led to the proposal that in the future all teams should include two students.

The other major change for the forthcoming year is that the projects will be more focused on curriculum design and assessment for learning under the umbrella of blended learning enhancement. This aligns with the University's strategic learning and teaching aims and objectives.

Finally, as CABLE is now well established in the University, consideration is being given to withdrawing funding directly to the Schools for their participation in CABLE. The residential event will continue to be funded centrally as it is the key component of the process.

II The presentations at this event at the end of the first year are available at: www.herts.ac.uk/blu.

CABLE TRANSFER TO OTHER UNIVERSITIES

The Pathfinder project concluded with a Pathfinder Network project enabling UH to develop a process for working directly with other institutions to develop their capabilities to run a CABLE activity. This became known as CABLE Transfer¹². An evaluation of the project indicated that all institutions saw clear benefits of using CABLE and the CABLE toolkit. However, the length of the project militated against developing effective CABLE teams in the institutions, highlighted the issue of institutional readiness for CABLE and confirmed the importance of involving staff who had the appropriate seniority to champion change. This latter point is similar to the recognition of involving senior School staff in the academic School project teams participating in CABLE referred to earlier. Guidelines for CABLE are available on the CABLE Transfer website and would be useful to institutions interested in adopting this local change management approach. Some institutions recognised the value of CABLE, but needed more time to appraise the developments and changes required in their own context. However, CABLE Transfer 'taster' activity was a catalyst to generate enthusiasm and potential for change, thus highlighting CABLE as a valuable resource for the sector.

LOCAL CHANGE ACADEMIES WITHIN THE SECTOR

A recent SEDA report (Flint and Oxley, 2009) summarises a survey of institutions that have developed a local change management approach based on the national Change Academy. This involves seven institutions whose reasons for engaging with the Change Academy approach and its methodologies are all broadly similar. All had very positive experiences of participating in the national Change Academy. In most cases the institutions were not only interested in the outcomes of various projects, but were also interested in the process of change and in developing change agents. There was some variation in the local change academy processes with some aimed at open attendance rather than being team based. There were also detailed variations in the sequencing and length of the various activities, but the overall structures were broadly similar. All encouraged the active participation of students mirroring the findings from CABLE. All used facilitators, but the CABLE aim of developing stronger partnership between the institutional BLU and the academic Schools appeared to be unique.

CONCLUSION

Through CABLE there is evidence of significant changes in staff culture, attitudes to blended learning and team working. Every team has experienced blended learning enhancement through course and programme design, staff development, development of learning materials and improved communications. There is also significant networking and collaboration across Schools. School teams have much more awareness of the BLU and the personnel associated with the unit. This has enhanced partnership and opportunities for collaborative activities. It also means that BLU has more key contacts within Schools and greater understanding of the needs of staff in support for using technologies and the understanding of pedagogical and logistic issues¹³. The project is teaching and learning led, intent on transformation within Schools and not just focused on technology. CABLE engenders an air of excitement and expectation about the way in which curricula may be delivered in the future, also the anxieties associated with such change are surfaced, illustrating the need to have staff and students fully involved in the process (and sufficiently skilled to use the technologies available). School projects, supported by the CABLE process, have created a network of change agents equipped with experience and resources to influence practice. Other institutions have developed their own local Change Academy processes, many of which focus on learning and teaching, with positive outcomes. Sharing experience, resources and case studies will influence and enhance practice across the sector.

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¹³ See http://elearning.heacademy.ac.uk/weblogs/pathfinder/?cat=7 [July 2007].

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12

THE ROLE OF RESEARCH IN INSTITUTIONAL TRANSFORMATION

HARVEY MELLAR, MARTIN OLIVER AND CHRISTINA HADJITHOMA-GARSTKA

INTRODUCTION

In the public statements of research-led universities the idea that there is a strong link between research and practice is either taken as axiomatic or, at the very least, as a goal to be achieved. However, there are those who argue that there is little connection between research and teaching, or that the relationship may actually be antagonistic, or that in the changing university we must face a more complex world with a range of kinds of research with different forms of relationship to teaching, and a variety of teaching paradigms implying different relationships between research and teaching (see, for example, the range of contributions in Barnett, 2003). There have long been those who have pointed to the difficulty faced by academics in trying to maintain commitment to both teaching and research, seeing them as competitors for time and resource rather than as complementary aspects of scholarly endeavor (Fox, 1992).

An examination of the reports and briefings produced by the Pathfinder projects showed that three-quarters of the reports referred to research in one way or another, and there were many different ways in which research was seen as connected to the Pathfinder projects and/or the implementation of e-learning:

- Pathfinder projects were often conceptualised as research;
- projects often saw their work as being informed by research, as building on previous research, or identified pieces of research that they needed to carry out before they could implement their Pathfinder project;
- projects sometimes identified areas of research that needed to be done, and this sometimes led to new research projects starting up;

- the Pathfinder work was sometimes seen as enhancing the institutional research capacity;
- teams often saw their role as to inform teaching staff about research in the field of e-learning, so that staff could incorporate this research in their teaching. This was sometimes conceptualised as the construction of evidence-based practice in the area of e-learning;
- technology was seen as enabling the dissemination of research, and as enabling access to research expertise situated elsewhere (e.g. via video-conferencing);
- action research was sometimes developed by projects as an aspect of professional development, and as the basis of the development of e-learning communities of practice;
- some projects used technology in support of the teaching of research methods.

This chapter explores some of the discussion in the literature about the nature of the teaching-research link, and then goes on to discuss two examples of ways in which these have been related within the e-learning context: the Pathfinder project From Pedagogic Research to Embedded E-Learning (PREEL) and EvidenceNet, developed by the Higher Education Academy.

RESEARCH AND PRACTICE IN HIGHER EDUCATION

There are a number of suggested reasons for tensions between research and practice in higher education (HE). The gap between education and research is explained as arising from a conflict between the cultural values of research and teaching in a range of educational contexts (Kincheloe, 2004; Osher and Snow, 1997). As for HE, Kezar (2000) argues that "the culture of the academy, the reward system of tenure, the socialization of faculty, the disciplinary orientations" separate research from practice (p.18). Other proposed reasons relate to the perceived characteristics of research itself, namely that it provides too much detail, or conflicting evidence, and does not address the immediate issues that concern practice (Hirschkorn et al., 2008; Hargreaves, 1996). The specialised vocabulary used by researchers makes interpretation of disseminated research findings difficult for practitioners (Kezar and Eckel, 2000). Hirschkorn et al. (2008) describe practitioners as lacking in an appreciation of what constitutes sound research knowledge, and lacking interest in theory because it doesn't apply directly to them.

Various external influences in recent years have brought changes in academia, and academics' work, that have also contributed to widening the gap between research and practice. Carnoy (2005) argues that the globalisation of HE and the increase in education of women has resulted in an increased demand for university education. The internationalisation of HE has led to the development of offshore campuses, virtual universities, distance education and an increase in international

students' programmes and support services, as well as internationalisation of the curriculum and research (Blight et al., 2000). This internationalisation of activities, and the emergence of a global market where demand for studies exceeds the capabilities of the institutions, has resulted in a position where academics are often employed on a temporary basis, and where their role has changed from that of an academic professional to that of a knowledge-worker (Stromquist et al., 2007).

Universities have come to be conceptualised as producers of economic productivity (Carnoy, 2005), and there has been a "shift from activities ... aiming at the acquisition of scientific and academic capital to activities intended for income generation" (Naidoo, 2005, p.29). In his case studies of two English and two Swedish universities, Taylor (2007) describes the perception of university staff that the growing impact of market forces and competition was leading to difficulty in maintaining a commitment to both teaching and research, and to a growing specialisation in the separate areas of teaching, research, technology transfer etc. He describes how international and global competition has led to research excellence being seen as the badge of international status and hence to differential funding arrangements (in the UK at any rate).

There have been changes in the nature of academic education. Taylor (2007) describes an increased focus on preparing graduates with skills immediately applicable in the marketplace. The move towards mass higher education, Dearing's influential report into teaching in higher education (National Committee of Enquiry into Higher Education, 1997) and the introduction of tuition fees have impacted on attitudes towards university teaching, and have led to the development of teaching-centered units within UK universities (Harland and Staniforth, 2000).

The different processes of quality assessment and assurance for teaching and for research (institutional audit by the Quality Assurance Agency on the one hand, and the Research Assessment Exercise on the other) and funding resources separately calculated and identified for teaching and research have led to widening the gap between research and teaching (Watson et al., 2007; Harland and Staniforth, 2000).

WAYS FORWARD

The literature on the relationship between research and practice in higher education show that this relationship can be conceptualised in a number of different ways (e.g. Barnett, 2003; Barnett, 2005; Dempster, 2003; Jenkins and Healey, 2005; Jenkins, Healey and Zetter, 2007; Kezar and Eckel, 2000; Roach, Blackmore and Dempster, 2001). Keller (1998) distinguishes between scholarship (research that is meaningful, important and insightful) and research in general, while Peterson (2000) suggests a trichotomy (theory-research-practice) rather than a dichotomy (research-practice). Hughes (2005) suggests the importance of defining the contextual factors that can influence the development of research and teaching relationships: the type, level

of research and academic discipline; the mode of delivery of teaching; the learning philosophy; the individual's teaching, scholarship and research role; the students' ability and level of study; the type of university and its strategy; and national culture and politics.

Meanings given to this relationship between research and practice include: using the results of research to inform teaching (either in relation to content or pedagogy), teaching as research, teachers as researchers, students as researchers and learning as research. Perhaps the commonest way of conceptualising the relationship is to view teaching as one way to disseminate research findings. Kezar and Eckel (2000) outline some of the standard problems encountered in this approach:

- researchers and practitioners have very different expectations from research reports;
- research dissemination is often by presentation conference papers and research reports;
- practitioners are expected to do the hard work, they have to interpret the research in their own terms, as researchers are not funded to do this;
- some researchers begin as practitioners and as they become researchers in the area they have to develop specialised vocabularies and ways of writing precisely to differentiate themselves from practitioners.

They identify some possible techniques to start to address these issues, and specifically focus on the development of communities of researchers and practitioners through reading groups and reflective action research. The e-learning Pathfinder project 'From Pedagogic Research to Embedded E-Learning' attempted to develop this notion of communities of researchers and practitioners, and we describe this in the following section.

FROM PEDAGOGIC RESEARCH TO EMBEDDED E-LEARNING (PREEL)

During the summer of 2006 the e-Learning Benchmarking project at the Institute of Education (IOE) pointed up the existence of several e-learning research communities as well as pockets of outstanding practice in e-learning within the institution, but found that these groups were only minimally co-ordinated, and that this limited the deployment of research and good practice more widely across the IOE. The PREEL project was set up with the aim of connecting e-learning research with e-learning practice at the IOE. It sought to use a variety of strategies to link research and practice in e-learning, in particular building collaborations between researchers and practitioners and supporting course teams in a process of reflective redesign of their courses informed by research. There were four main activities in the project:

- I. A scoping study to identify research carried out at the IOE most likely to impact on e-learning teaching practice in HE. This study identified some 24 researchers and 43 research projects at the IOE that offered findings, approaches and issues that could support and improve the work of HE practitioners when designing, delivering, assessing and evaluating courses using e-learning.
- 2. A staff development programme, consisting of sessions during which e-learning researchers and practitioners met to discuss research and its implications for practice. The core programme included six workshops during which a selection of the projects and initiatives identified in the scoping study were presented and discussed by their primary investigators.
- 3. The redesign of modules to embed e-learning. Module leaders were invited to submit proposals, and II academic teams redesigning I4 modules between them were selected. The process of redesign was carried out by the course teams with the support of the project research officer who used this role to mediate the research findings identified in the scoping study (cf. Elton, 2001).
- 4. The final stage of the project moved back from practice to research, completing the circle, with the course teams reflecting on their own course development work, written up and published in a special issue of the online journal *Reflecting Education*¹.

A project evaluation based on interviews with the practitioners was carried out towards the end of the redesign activity but before the reflective writing activity. This showed generally positive feedback about the staff development researcher-practitioner workshops, indicating that they were found to be enjoyable and useful for generating ideas. However, most interviewees also stated that the sessions did not significantly impact on the redesign process, and a number of problems in establishing links between research and practice through this programme were identified. The research that was presented was sometimes felt not to match the realities of practitioners' own approach to teaching, and it was argued that this made it difficult to translate the research into effective practice. The timing of input about research was another crucial aspect, if the input was to be effective then it was very important to match it both to the practitioner's stage of development in thinking about the use of e-learning, and also to the stage of development of the course redesign, so presenting

www.reflectingeducation.net/index.php/reflecting

research on approaches to planning an e-learning course might be given too late after the course design was well under way, or accounts of research about students' experience of e-learning might be presented while a team were still working on the outline of the course and had not really got to the stage of thinking about the details of how the students would react to it. This was an important issue in the workshops, since it was not realistic to keep the development of the various course redesigns in step, though this was not a problem where the research officer was working with a specific course team. Researchers (even those who also teach) always found it a challenge to present research in such a way as to make it applicable. This arose from the stance they adopted as researchers, pursuing generalisable knowledge, in contrast with the practitioners' particular needs for applicable teaching guidance. Research was generally conceptualised as problematics rather than solutions or 'how-to' formulae, so could be seen as addressing the researcher's concerns rather than the practitioner's. From the practitioner's point of view the research was often seen as too specialised. covering a relatively marginal aspect of practice, a choice that from the researcher's point of view was often motivated by a desire for methological rigour. Finally the formulation of the PREEL project with regard to 'putting' research 'into' practice was seen to link to professional and institutional hierarchies between research and teaching practice, and hence to reproduce those hierarchies to some extent.

Positively the interviews showed that the research did shape the redesign process in two ways: first, practitioners were led to reflect as researchers on their own modules, and second, the practitioners' interaction with the research officer provided opportunities for the mediation of e-learning research, so, for example, the research officer was able to call on research on task design, on embedded evaluation and on tutor peer observation while working with practitioners on those specific aspects of their courses. The research officer was therefore not perceived to have 'conveyed' her knowledge, but rather to have facilitated a process of reflection and exploration informed by research.

The interviews also provide evidence that one effect of linking research and practice in the way that it was done in the PREEL projects was that participation in the project gave the project team's teaching, and their redesigned modules, a certain level of credibility, increasing their status in their department and their own confidence in the module's future delivery.

Pelletier and Jara (2008) described the outcomes of the project in the following way:

The PREEL project was designed to connect e-learning research and practice more effectively. Practitioners' accounts suggest that this connection did not work in quite the way it had been planned to. Research from the staff development workshops and the research report was used pragmatically, strategically, as a legitimating device, rather than primarily, it seems, to shape the re-design of the modules. The evaluation interviews raise important questions about the distinctions, values and hierarchies implied in the notion of 'connecting research

and practice' in higher education, given how research and teaching are organised in relation to each other. This article has explored reluctance, resistance perhaps, towards 'importing' research 'into' teaching practice, and a more favourable perception, in contrast, towards 'researching teaching practice', with such research occasioned in this instance by a specific kind of interaction.

This is one of the positive outcomes of PREEL. Although the connection between research and practice was not made in quite the way it had been planned for, it seems, the project has generated reflection and research on practice, an outcome which is likely to benefit the design as well as the delivery of the new modules. According to the accounts presented in this article, e-learning research shaped the re-design process, including its validation, in significant ways; notably in generating confidence in the re-design process, as well as in facilitating and informing the externalisation, examination and development of practitioners' assumptions and knowledge.

THE HIGHER EDUCATION ACADEMY'S EVIDENCENET

The difficulties of linking research and practice illustrated by the PREEL project are echoed in work undertaken nationally. There has long been an interest in the kinds of evidence that practitioners working with technology have drawn upon; for example, Beetham et al. (2008) report on observatory services used to find e-learning research. The organisations most frequently mentioned were: Joint Information Systems Committee (36), Higher Education Academy (28), Association for Learning Technology (16), EDUCAUSE (7), Becta (6), Observatory for Borderless Higher Education (6) and Centre for Recording Achievement (5).

The kinds of things that participants in Beetham et al.'s study produced as evidence included, in order of frequency mentioned, research papers, project reports, guidance materials and conference papers/presentations, with other less frequently mentioned items including books and book chapters, research reviews, discussion papers, working papers, dissertations, theses, policy documents, strategy papers, briefing papers, websites, web resources, learning objects, workshops, training materials, teaching materials, newsletters, media interviews, datasets, demos/prototypes, design principles, models and patterns. With regard to using evidence, participants turned to three main sources: technology-mediated solutions (web searches, databases etc); academic publications (e.g. journals and books); and other people (either conveniently and informally, or through networks, conferences, email lists and so on). The kinds of evidence accessed were, therefore, fairly similar to the kinds of evidence participants said they generated, except that the importance of social sources of evidence demonstrates how influential informal accounts are as source of evidence.

Whether formal or informal, however, all these kinds of evidence have been difficult to build upon in any systematic way for e-learning. Oliver and Conole (2003)

describe the field as being fragmented, strongly influenced by policy and funding (rather than building coherent theoretical structures) and typified by practitioner research. Such research could provide a rich source of evidence to inform practice, but its contextual focus and methodological variability make it hard to synthesise. The rational model epitomised by descriptions of 'evidence-based practice' in some medical contexts, which has been advocated (e.g. Alsop and Tompsett, 2007), does not fit well with current patterns of research or teaching in e-learning.

Ironically, however, the same characteristics that make it hard to draw general principles from the work can also make it credible to practitioners. Sharpe and Oliver (2007) explored the kinds of resources that practitioners found useful in helping them to change their practice. The most highly valued resources were described as being usable (understood as being functionally accessible, expressed in relevant language etc), being contextualised (having a clear purpose, acknowledging the complexities of the educational setting, and allowing practitioners to work on issues relevant to them), supporting professional learning (especially supporting new conceptions of learning and teaching), connected to processes of learning design (building from an educational approach to practice) and were felt to be owned by, or at least 'authentic' to, a specific existing community. While not every useful resource could meet all of these criteria, these were seen as strong influences on the value of any particular piece of research or evidence to practitioners. This echoes the list of kinds of evidence used in Beetham et al.'s study (2008). Although people drew on formal outputs, they placed great importance on personal communication within small groups, seeing this as the most effective way to support the communication of research outcomes.

In line with the outcomes of PREEL, the most powerful connections between research and practice arose when the teachers themselves worked with the research, rather than just receiving it. When the relationship between research and teaching was viewed as one of appropriation and reinvention (involving contextualisation, making resources accessible and so on), rather than just a matter of dissemination and receipt, more work was involved but there was also a much stronger chance that practice would change.

This repositions the use of research as a social achievement, not simply a matter of efficient transmission (or accessibility) of research outputs. This became the starting point for the development of a national service to support evidence-informed practice. EvidenceNet is being developed by the UK's Higher Education Academy. This was piloted under the name of the Research Observatory. The initial scoping work for this development explored the social practices around evidence use in e-learning, seeking to specify the kinds of system and support that it would be most helpful to provide.

Within this scoping work, Beetham et al. (2008) drew on data from a survey of II6 users of research to provide information on the needs of UK HE staff members. These included demand for a single point of access to e-learning research and

evidence; an efficient way of keeping up to date with research (of different formats, by different organisations in various places); the need for reviewing, evaluating and synthesising the research available; and identifying gaps. This was echoed by a review of six other observatories or observatory-type organisations (both UK and international), which identified their functions as: "meeting the needs of different audiences, providing a one stop shop for access to e-learning research, helping staff keep up to date, providing an interpretative layer, supporting communities and supporting researchers and future research" (p.6).

Subsequent interviews (with 11 stakeholders representing national organisations) clarified the image that participants have of research, as persuasive evidence that has the ability to influence practice. However, exactly what might count as 'persuasive evidence' was highly ambiguous, with formal, large-scale and experimental research being called for because it was seen as 'credible', but not believed to actually influence practice. By contrast, evidence-based practice, such as case studies, was felt to be able to influence others' practice but was not necessarily seen as 'credible' or high status, particularly in relation to policy-making. Again, this highlights the complex and social status of evidence use, and the importance of considering the rhetoric of evidence in relation to particular audiences, echoing the work of evaluators such as Patton (1997).

Furthermore, the study indicated that the preferred ways to communicate research outputs were face to face in small, practical events characterised by interactivity, which could enable collaboration and discussion among practitioners. Reports, case studies and publications were also mentioned, but it was noted that they should be clear, jargon free, digested and brief. The ways in which these might be taken up to change practice, however, were less clear.

Building on this work, the current design of EvidenceNet focuses on the provision of both tools and spaces. The tools are provided to support the management and sharing of evidence – for example, a repository provides a way of searching for and sharing evidence, while wiki functionality allows syntheses of evidence to be produced in a collaborative, distributed way. The spaces are intended to support the social use of evidence – for example, social networking functionality allows users to find communities of researchers and practitioners (such as special interest groups) working on particular topics, while meetings can create records of discussion or publish work that was presented, to create a public record of the event. However, while this design builds on the scoping work and on pilots run as part of the development, it has yet to be formally evaluated. Whether it will be able to support evidence-informed practice, or even go beyond this to encourage others to engage in evidence-informed practice for the first time, remains to be demonstrated.

CONCLUSIONS

Kezar and Eckel (2000) concluded that the most effective ways of moving beyond the gap between research and practice were through the development of communities of researchers and practitioners through reading groups and reflective action research, and these remain important pointers as to the way forward, although perhaps the reading groups of ten years ago may more often manifest themselves in online communities today.

The PREEL project demonstrated ways in which research can impact on practice, though direct interaction between researchers and practitioners was found to be less effective than mediating this relationship through an intermediary supporting practitioners in using the research: someone who was therefore not perceived as 'conveying' knowledge, but rather as facilitating a process of reflection and exploration informed by research. Research also impacted on the course redesign process by encouraging practitioners to reflect as researchers on their own modules.

The thinking underlying the development of EvidenceNet (Sharpe and Oliver, 2007) also points to the importance of teachers working with research, rather than just receiving it. When the relationship between research and teaching is seen as one of appropriation and reinvention, rather than just a matter of dissemination and receipt, then there is likely to be a greater impact on practice.

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13

THE IMPACT OF LEARNER EXPERIENCE RESEARCH ON TRANSFORMING INSTITUTIONAL PRACTICES

RHONA SHARPE

INTRODUCTION

The last few years have seen a marked rise in the amount and sophistication of research that is being conducted into learners' experiences of e-learning. Prior to 2005, most evaluative e-learning research focused on perspectives of the course pedagogy and tutors (Sharpe et al., 2005). This chapter presents an overview of learner experience research that is being conducted within the e-learning field, and the aspirations for this growth area. Three trends in learner experience research are identified. First, a shift towards research that is more holistic, including that which examines the impact on their study of the pervasive use of technology in learners' lives; second, attempts to conceptualise the observed variation in learners' experience, and third, a more strategic use of learner experience research. Policymakers and managers are watching this field closely and looking for evidence that can help inform decisions they need to make about how best to support learners within their institutions and sectors (Melville, 2009). This chapter explains the role of learner experience work on such decision making, with case studies of institutional transformation selected from members of the Evaluation of Learners' Experiences of E-learning special interest group (ELESIG).

AIMS OF LEARNER EXPERIENCE RESEARCH

Learner experience research arose from a need to discover how learners view the technology that is provided for them. There has been a great deal of such work looking at learners' opinions of e-learning. For example, the Higher Education

Academy's review of the undergraduate experience identified over 300 studies that had assessed the impact of blended e-learning at UK higher education institutions between 2000 and 2006 (Sharpe et al., 2006). These studies are valuable because they can help us see where our efforts are most appreciated by learners. The Academy review was reassuring in its finding that undergraduates are positive about the use of virtual learning environments (VLEs) for the provision of supplementary course information and was able to make recommendations for more consistent use between modules. However, there are limits to the recommendations that can be derived from studies of students' opinions of, or satisfaction with, e-learning. Positive evaluations can equally be interpreted as learners' understandable reluctance for a service to be withdrawn. Findings will also be limited by the number and range of questions asked, so we might only gain insight into experiences with the technology that has been asked about.

Some evaluations have been more open and exploratory. Lyons and Thorpe (2009) report one study, within a series of evaluations of institutional VLE provision, which made use of a diary interview approach. This study is typical of current practice in institutional evaluation that takes a more open view in scope and methodology, well expressed by the authors themselves:

... our research was designed to consider the holistic student experience whilst placing an emphasis on engagement with the virtual learning environment and other technologies used to support student learning. The aim was to gain a greater understanding of how our students are engaging with technology to support their learning and for this to influence policy and practice at the University. (Lyons and Thorpe, 2009)

Such openness in research techniques allows for the uncovering of unanticipated perspectives, most notably in Creanor et al.'s vivid descriptions of the scale of learners' technology-mediated social networking, which had up to that point not been reported, and the emotional aspects to technology use:

I use my laptop. I take it away, it's attached to me. I couldn't survive without it. Emma, undergraduate business student (Creanor et al., 2006)

Such open approaches have proved to be of use when investigating technological innovations about which there might be few existing expectations. Learner experience research has been of value in identifying unexpected barriers to technology use, such as the following learner's reasons for not making use of an e-portfolio system:

I find that quite frightening – the idea of a centrally stored database for life which contains everything I do and my world view (Sharpe and Benfield, 2007)

This potential to examine learner perspectives that are not well understood is increasingly being used to good effect. The LexDis project used a participatory research approach to engage disabled learners in their study over a period of time (Seale et al., 2008). This approach enabled them to reach unexpected conclusions about the agility of disabled learners to adopt and appropriate technology in creative and purposeful ways. Other studies have examined the experiences of subgroups of learners at particular times in the student lifecycle, including transition from further to higher education (E4L, 2009; STROLL, 2009), the pre-entry period into higher education (Currant and Keenan, 2009), the first year experience (LeAD, 2009) and Masters study (Thema, 2009). It is noticeable that these more focused studies are developing data collection techniques that facilitate the elicitation of learner perspectives within the limits of short, funded research projects. Such techniques include card sorts for guided recall within an interview context (Towle and Draffan, 2009), and 'talking walls' within a focus group setting (Support & Synthesis project, 2009). This research is of value because it is able to make clear recommendations about what support learners need at times when they might be particularly vulnerable. It has, for example, the potential to reduce the risk of withdrawing (Anagnostopoulou et al., 2009).

TRENDS IN LEARNER EXPERIENCE RESEARCH

It is clear from the brief summary of the reasons for undertaking learner experience research, that this field has much to offer institutions reviewing their e-learning strategies. Higher education institutions have and continue to undertake significant investment in resourcing and promoting technology-enhanced learning. Evaluations of these implementations must assess the impact on the learner experience as a measure of their success, alongside evaluations of say, the impact on quality of provision and efficiency. However, studies have found that learners' experiences are not limited to institutional provision. Learners make use of a great deal of personally owned and publicly available technology alongside that provided for them by their institution (IISC, 2007; Melville, 2009). Learner experience research now encompasses not just the impact of blended/online courses and institutional technology provision, but also the influence of the rise of personal ownership of technology (especially laptops, mp3 players and mobile phones) and the availability of free online tools (e.g. Facebook, Skype, YouTube). We have seen that learners are interested in how easy it is to get course materials for their home computer or download them to their own mobile devices. Institutional evaluations that take account of this research might be asking not just about experiences of using the VLE, but how easily it integrates with personal technology. We might also expect to see research that helps us to understand the experiences of the minority of students who do not have access to their own technology.

A second trend has been in the rise of research that attempts to explain the wide range of experiences reported by learners. One of the results of asking learners to talk freely and openly about their experiences is that a wide variety of perspectives are reported. Put simply, some learners use technology to good effect to support their studies, others find it a barrier and a distraction. Where once there was a tendency to generalise to some majority view, some researchers are now undertaking careful analysis of such differences. For example, there are now suggestions that the popular descriptions of 'net-generation' learners (Oblinger and Oblinger, 2005) are not applicable to all, or even most incoming undergraduates (Kennedy et al., 2008). There are developments in the design of questionnaires and studies that allow for the analysis of patterns of use by different groups and attempt to determine the factors associated with different patterns (Ramanau et al., 2008). When combined with qualitative studies that encourage learners to give explanations for what they do, there is huge potential here to assess the roles of, for example, prior experience, current context and individual difference on the widely reported variation.

As the data collection and analysis tools and research designs that are being used become more rigorous, learner experience research becomes more powerful. The third and final trend then is towards a more strategic use of both the processes and findings of learner experience research. Research that asks learners to give feedback is important as a process as well as for its ultimate findings. Projects that have undertaken research within their own educational context have reported an impact from simply doing the research. An immediate benefit is the emphasis given to the learner voice in institutional decision making, as described, for example, in the case studies below. Some projects have concentrated their efforts on developing data collection methods to improve validity. Williams et al.'s development of a 'nested narratives' biographical interview method is a good example, as this helped learners to articulate their tacit understandings about how they learn (Williams et al., 2009). There is also a welcome trend towards drawing more from established research methodologies such as ethnography (Browne, 2003; Dujardin, 2009). This methodological development gives us more confidence in making decisions based on the findings of the work.

THE ROLE OF ELESIG

In 2008, the Evaluation of Learners' Experiences of E-learning special interest group (ELESIG) was formed, initially as a Higher Education Academy Pathfinder Network project, to bring together those Pathfinder projects that had been working in learner experience research. As of April 2009 there are over 400 members. The group members recently reviewed their statement of identity and described the group thus:

ELESIG is an international community of researchers and practitioners from higher and further education who are involved in investigations of learners' experiences and uses of technology in learning. ELESIG members work together to share knowledge and practice and develop a shared repertoire of resources which will be of benefit to the community and the sector. (ELESIG, 2009)

ELESIG is intended to build capacity for undertaking learner experience research. The group organisers have argued that capacity building comes through being a member of an active community (Sharpe and Mackness, 2009). The intention is to build capacity at all stages of research from ideas generation, research design, data collection, analysis, interpretation and publication. As well as the online presence where community members can make contact with others working in similar areas, the group has run face-to-face and online events on specific research methods and a writing workshop. In 2008, this support culminated in the publication of a special issue of the *Brookes eJournal of Learning and Teaching* (Sharpe and Currant, 2009), edited, reviewed and authored by ELESIG members.

A review of ELESIG members' projects shows that learner experience research is aiming to have transformative impact in the following ways:

- assessing the impact of new tools and environments on the student experience (e.g. DMU Pathfinder, ELP2, R3, Cardioverse) including web
 2.0 (e.g. UCL Pathfinder), Videoconferencing (e.g. University of Exeter Pathfinder) and online communities (e.g. Web Autism);
- evaluating the impact of an institutional blended learning strategy (University of Glamorgan);
- providing advice and guidance from students to students (e.g. LexDis and STRIDE);
- taking a learner-centred approach to the design of new tools (e.g. AWESOME);
- producing strategic guidelines (e.g. e-learning Strategies in International Environments (ELSIE));
- embedding the student voice into quality management processes (e.g. Direct);
- developing new ways of conducting impact evaluations (e.g. L&T Development Grant, Sheffield);
- improving the experience of groups of students at specific times (e.g. Making Connections, DevelopMe).

Further details of all these projects are available from ELESIG projects wiki¹, which houses details of more than 40 current research projects. What this shows is

http://elesig.ning.com

that researchers are well aware of the transformative effects of learner experience research in a range of ways. Just three of these ways are explored in more detail through case studies provided by ELESIG members in the next section.

This focus on the impact of learner experience research led ELESIG to coordinate a series of seminars during 2009 on the impact of learner experience research on practice and policy. The impact symposia have shared work on the impact of learner experience research on policy generally, on quality assurance and enhancement processes, as well as the specific areas of defining, auditing and supporting the development of learning literacies, and improving the student experience of feedback and assessment.

In bringing together interested researchers through the ELESIG community, we aimed to build capacity for undertaking research, with a focus in our first year on methodologies in this field of research. What is also clear is that researchers are using the community to locate their findings within a wider literature and practice, to rehearse the dissemination of their findings and test out their recommendations. ELESIG should support its members through all these stages of the research process, from design right through to implications. Building on previous work on what is needed for e-learning research to have impact (Beetham, Sharpe and Benfield, 2008), this will require ELESIG to expand its current activities beyond those that promote networking and develop research skills. We would need additionally to provide efficient ways for members to keep up to date with current research, easy ways for members to find and access relevant research and, crucially, interpretative overlays of current research.

EXAMPLES OF THE TRANSFORMATIVE EFFECTS OF LEARNER EXPERIENCE RESEARCH

The preceding review of the scope of the field of learner experience research and the directions in which it is developing, show the potential for learner experience research to have a transformative effect on higher education. The summary of ELESIG members' activities and projects demonstrates the ambition of researchers for their work to have such impact. It is also likely that institutions will want to conduct their own learner experience research. Technology, and the way people use it, changes quickly and institutions need to embed systems of regularly monitoring learners' experiences to enable responses to be made promptly when needed. The first case study shows how the University of Bradford has devised an annual regime of student surveys administered from pre-arrival to the end of the first year in order to monitor learners' experiences of transition and provide appropriate support. Combining learner experience research that shows the significant use of online social networks (e.g. JISC, 2008), with their own findings of the value of online transitional support, the University of Bradford has developed a suite of learning support initiatives to help learners through this period of transition into higher education.

Learner experience research is also having a transformative effect on the support that is offered to students beyond transition, and throughout their learning journey. The second case study shows how Oxford Brookes University is continuing to develop its e-learning strategies in light of the findings of learner experience research. Noting the variation in learners' abilities to use digital technologies, the suggestion that this matures over time at university and the influential role of context on such development, Greg Benfield and Richard Francis explain their institutional response to develop digitally literate learners across all programmes.

Finally, the University of Glamorgan has embarked on a large-scale programme to seek feedback from learners on a number of aspects of university provision. This approach to conducting a university-wide, learner-centred evaluation enables the team to make a convincing case for change and is already having real, practical impact.

CASE STUDY I:

SUPPORTING LEARNERS IN TRANSITION AT THE UNIVERSITY OF BRADFORD, PREPARED BY BECKA CURRANT, HEAD OF LEARNER DEVELOPMENT AND STUDENT ENGAGEMENT

Over the last three years, the University of Bradford has changed how it enhances the learning experience of its students by embedding learning development activities throughout the institution. These changes have been underpinned by local and national research and implemented by a new Learner Development Unit (LDU). The LDU is not designed to act as 'remedial' support to struggling students, but offers an opportunity for all students to access our services in order to achieve the very best they can. In order to understand the expectations and experiences of students during transition into higher education, I initiated a system for annual data collection. Questionnaires are distributed prior to arrival at university and twice during the first year (week 3 of semester I and week 6 of semester 2).

The pre-arrival questionnaire focuses on expectations, asking a range of questions about previous study and preparedness for university-level studies, students' expectations of themselves and of the University, how they felt about using social networking to meet other people and how well they understood their skills. The pre-arrival questionnaire revealed a wide variety of expectations and experiences, familiar from the Academy's review of the first-year experience of higher education (Yorke and Longden, 2007). Some arriving students expressed feelings of isolation and uncertainty about how to meet other people. In response to this, Develop Me!² was created, which includes an open online community to support students through this period of transition³.

² www.brad.ac.uk/developme

³ http://developme.ning.com

The First-Year Experience questionnaire deals with issues of transition, adjustment to university-level studies and how students are managing their learning experiences. Running the questionnaire twice allows the data to be tracked across the year. This has revealed issues of integration into university life in both practical and academic spheres. Students expressed frustration with the things that prevent them from understanding how the University works and engaging in university life - from car parking to timetabling. Having the surveys completed and analysed early in the first semester has enabled changes to be made promptly and their impact evaluated within the same year. As just one example, the teaching of Law students has been consolidated onto a single site in response to students concerns about the split-site timetabling of sessions. The research has also highlighted the experiences of some learners who express their lack of confidence about being at university and feeling that they are the only ones who feel this way. In response to this, SaPRA (Skills and Personal Development Activity) was developed. This is an online selfassessment tool that enables students to share and discuss their experiences and gives them a framework for how they will progress in development of academic skills throughout the year.

Having a system and tools in place regularly to monitor the student experience has led to a fundamental shift in the ways in which I, and other members of the senior management team, view the student body and undertake changes to policy and practice. Most recently, a new induction framework has been approved by the learning and teaching committee that draws on the work of LDU and others in the sector. This framework makes a series of recommendations of good practice; for example, each course to have a presence on the DevelopMe social network and to organise a face-to-face discussion of ground rules during the induction period. This is another example of how we have listened to what students have told us about their experiences and have established effective practical systems to enhance student learning and support student transition.

CASE STUDY 2:

A STRATEGY TO DEVELOP DIGITAL LITERACIES AT OXFORD BROOKES UNIVERSITY, PREPARED BY GREG BENFIELD AND RICHARD FRANCIS

Oxford Brookes University's e-Learning Strategy 2008–11: Personal Learning Environments for digitally literate learners (Oxford Brookes University, 2008) marks a major shift to a personalised, learner-centric model (PLE) of technology-enriched education. This derives from our involvement in research of the student experience of e-learning at Oxford Brookes University under the Pathfinder Programme and nationally in the JISC Learner Experiences of e-Learning programme.

The latter shows how pervasive technology is in our students' lives, mediating many if not most of their learning activities. We see that learners' abilities to use digital technologies mature over their time at university, but that the process is uneven,

sometimes haphazard and that "the digital divide may be getting narrower but deeper" (JISC, 2009). Our Pathfinder study of patterns of undergraduates' use of technology gave us persuasive evidence of the influence of the institution and students' course contexts over their use of technology (Benfield et al., 2009; Ramanau et al., 2008).

Consequently, we perceive a need and an opportunity to support all students to develop their digital abilities or become digitally literate. Recognising that acquisition of digital and information literacies go hand in hand, we developed a conceptual model for digital literacy that builds on an established model for information literacy (SCONUL,1999). In the digital age, along with proficiently handling information, Oxford Brookes graduates should be adept at managing human interactions and knowledge building using digital tools. Specifically, they should be:

- self-regulating citizens in a globally connected society;
- able to handle multiple, diverse information sources and media;
- proficiently mediating their interactions with social and professional groups using an ever-changing and expanding range of technologies; and
- able confidently to use digital technologies to reflect on, record and manage their lifelong learning.

While some digital literacies can and should be specified at a generic, university level, many will be discipline-specific. Therefore, we are codifying digital literacies for Oxford Brookes graduates at the programme level. We have asked programme teams to audit current practice and identify gaps and aspirations, supporting them with curriculum redesign and development activities, primarily in the Course Design Intensive (CDI) workshop format. The CDI format facilitates radical rethinking of programme rationales in expanded teams and is flexible enough to accommodate a wide range of contexts (Benfield, 2008). We have initiated university-wide consultations aiming to develop a more detailed taxonomy of digital literacies, involving our e-Learning@Brookes special interest group, and a variety of high level university committees and forums.

CASE STUDY 3:

INVOLVING LEARNERS IN DECISION MAKING AT THE UNIVERSITY OF GLAMORGAN, PREPARED BY HAYDN BLACKEY

The University of Glamorgan has initiated a project to determine what students, in all their manifestations, expect from university life. The research has been undertaken by three different task groups, who have been investigating the undergraduate, postgraduate and international student experience respectively.

The research took place over seven months and involved utilising over 75 items of secondary research and compiling the views of 2,277 University of Glamorgan students, applicants and sixth-form students. Each task group produced a report of

the expectations of their specific cohort of students and subsequently developed possible recommendations to address these. These reports were then considered at an awayday attended by the whole project team and summarised into a final report, which had a series of 125 recommendations.

The recommendations have now been synthesised into six themes:

- physical space on campus;
- access and transportation;
- facilities:
- learning, teaching and assessment;
- technology-enhanced learning; and
- general technology support.

Each of these themes has a task group made up of key stakeholders, which includes 'student voice' representatives to aid the interpretation of the findings. These task groups are charged with addressing each of the recommendations. The chairs of the task groups report to a steering group, chaired by the PVC Learning and Student Support, which reports to Academic Board. The work of the task groups is ongoing. They have, however, already been able to make significant changes in practice and policy.

Practice changes include the work of the transportation group, which has worked with local rail companies to review the number of trains on the line at peak times. This has led to the scheduling of an additional train an hour between 8:00 and 16:00. Car sharing arrangements have also been implemented to address problems with queues for car parking space.

The development of the 'student voice' representatives role also emerged from the report's view that student representation tended to be only programme committee representations and the participation of students in surveys. The University, responding to these growing expectations, invested in a scheme of 'Student Voice Representatives' (SVRs). Working in partnership with the Students' Union, the intention is to equip a selected group of students to take forward issues to a senior level within the institution. The SVR scheme is innovative in many ways including its selection process, which involves University and SU representation. These students now have direct relationships with senior management within their faculties and across the institution, building the student voice into the way the institution makes decisions.

Policy changes include the development of an 'Assessment for Learning' policy⁴ to ensure that the students' concerns about assessment and feedback are addressed more explicitly throughout the institution. One of the impacts of the policy has been a significant increase in online methods of assessment, both formative and summative.

⁴ http://celt.glam.ac.uk/Assessment/university-of-glamorgan-assessment-policy

Another policy change has been the development of a Social Software policy. Students had requested clarity about the use of social software in communication between themselves and the University given the use of Facebook and Twitter by some academic staff and corporate support departments. The policy provides guidance and best practice advice on using social software tools, encouraging academics to recognise the difference between formal communication tools and informal engagement with students in their personal networks.

CONCLUSIONS

Research into learners' experiences of e-learning is developing from a field that provides vivid and engaging insights into learners' lives, to one that can provide credible evidence on which to base policy and practice that has a transforming effect on institutions. Bringing together interested researchers through the ELESIG community has enabled a range of institutional practices to be collected in this chapter. These examples of institutional learner-centred practices have demonstrated the involvements of learners in decision making, supporting learners through a time of transition and helping learners to mature into digitally literate learners. It is hoped that seeing these examples within the context of existing learner experience research enables other institutions to consider how they could make use of current research findings and/or set up their own monitoring and evaluation processes to ensure that learners' voices are able to impact upon many different parts of institutional practice.

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14

A BLUEPRINT FOR TRANSFORMATIONAL ORGANISATIONAL CHANGE IN HIGHER EDUCATION: REAP AS A CASE STUDY

DAVID NICOL AND STEVE DRAPER

INTRODUCTION

In this chapter we discuss a large-scale development project in a higher education institution, the REAP project (Re-engineering Assessment Practices)¹, in relation to transformational organisational change. In earlier papers (Draper and Nicol, 2006: Nicol and Draper, 2008) we discussed innovation at the level of course redesign. Here we focus on change at the level of the whole institution. The following are the questions we wish to address: what are the obstacles to achieving transformational change in teaching and learning across a whole institution? What were the strengths and weaknesses of the REAP approach in this respect? What lessons have we learned and what advice would we now give to other HE institutions or to national agencies that fund projects to improve teaching and learning across a whole institution? We first provide some background, identify barriers to institutional change and give an overview of the REAP project. We then discuss aspects of REAP that proved effective in addressing these barriers.

THE E-LEARNING TRANSFORMATION PROGRAMME

In 2004 the Scottish Higher Education Funding Council, since renamed the Scottish Funding Council (SFC), launched its e-Learning Transformation Programme. Bids were invited from higher and further education institutions in Scotland for projects

l www.reap.ac.uk

that would promote 'transformational' change in teaching and learning facilitated by information and communication technologies (ICT). The definition of transformation given by the SFC was the following:

Transformational change will require a conscious and deliberate decision made by one or more institutions to do something differently in a systematic way across the whole institution, on a defined timescale of two or more years.

Thus, projects funded under the e-Learning Transformation Programme were expected not only to demonstrate enhancements in teaching and learning, but also to show the strategic embedding of changes across the whole institution.

BARRIERS TO TRANSFORMATIONAL CHANGE

The SFC programme was ambitious in seeking changes in teaching and learning that would impact across a whole institution. In the list below we identify some of the obstacles to this kind of internal institutional change. This list owes a debt to Lindquist (1978), but it is derived from our own experience of over 20 years in trying to promote and support academic innovations.

- Major disciplinary differences in teaching and learning.
- Isolation of academics from the educational research literature.
- Weak linkages between local innovations and strategy developments.
- Low levels of senior management buy-in after funding is secured.
- Little evidence about the benefits of innovations.
- Funding diverted to supporting development activities already underway.

A significant barrier to institution-wide change in HE is the organisation of teaching and learning into departments and disciplines. The lives of academics, their ways of knowing and investigation, their affiliations, career prospects and reward structures are almost all bound up in disciplinary cultures, norms and behaviours. The SFC was interested in projects that involved "doing something differently in a systematic way across the whole institution". However, this seems to require some kind of uniformity of approach, even though most successful educational development projects usually work with, rather than against, the diversity associated with disciplinary cultures.

A second barrier to institution-wide transformational change is that most academics working in the disciplines are not knowledgeable about research on teaching and learning in HE. Even if they have read literature on teaching and learning generally or that which exists in their discipline (e.g. Journal of Chemical Engineering Education), they may have little experience in translating educational ideas into effective teaching and learning practices. So a key issue is how to support academics in making informed changes in teaching and

learning without having to study the educational literature, which is a discipline in itself with its own theories, terminology, discourse and approaches to evidence.

Thirdly, institutional embedding of change implies a strong linkage between local innovations carried out in departments and institutional strategies and policies for teaching and learning. Yet this linkage has proved difficult to achieve through traditional educational development projects where the motivation for change is normally to address local not institutional needs, which in turn often seem to the academic staff involved to be different across disciplines.

Fourthly, senior management buy-in is important if an educational idea is to take root across a whole institution. Senior support is needed to facilitate commitment at decision-making committees and to ensure that any project successes lead to changes in policy and strategy documents and to subsequent action within the institution. Yet senior management support for academic innovation, while often strong at the planning stage when external funding is being sought, often dissipates after the funding has been secured. Also, few HE institutions have organisational structures in place that enable them to learn from, and build on, their own successes in locally developed projects. Indeed, a characteristic of most HE institutions is that innovative practices are rarely shared, or even known about, across departmental boundaries.

Fifthly, while it is easy to recruit early adopters to projects where funding is available, it is much more difficult to bring the late majority on board if the project is not perceived as successful. One reason for this is that most projects are not systematically evaluated and thus provide little good evidence of benefit. This makes it difficult to persuade others across the institution, and particularly those from different disciplines, to get involved or for senior managers to use the findings convincingly to inform strategic developments. Finally, many funded projects get sidetracked away from their original goals. Instead of the funding being used to carry out project activities, those receiving funds use them to advance improvements in projects already underway before the new funding stream became available.

OVERVIEW OF THE REAP PROJECT

The REAP project was one of six projects funded by SFC. REAP was a collaboration across three HE institutions – the University of Strathclyde (lead institution), Glasgow Caledonian University and the University of Glasgow. The REAP project set out to redesign assessment and feedback practices in departments and faculties across the three institutions with the explicit aim of developing in students the ability to monitor, manage and regulate their own learning.

This chapter focuses on the University of Strathclyde, as the work in that institution is most relevant to our present focus on institution-wide change. At Strathclyde, REAP involved the planned and supported redesign of assessment and feedback practices in nine large first-year modules and one third-year module

with student numbers ranging from 190 to 560. Course teams from nine different departments representing disciplines across five faculties carried out the redesigns. The spread of departments across all faculties had a dual purpose: to demonstrate that the models developed through REAP could be applied within any discipline and to ensure impact across the whole institution.

The REAP redesigns involved changes such as shifting some of the responsibility for assessment and feedback from academic staff to students, enhancing opportunities for students to monitor and self-assess their own learning and to participate in assessment processes such as peer feedback. All the redesigns were systematically evaluated in relation to input (staff time), process (changes in methods of teaching and learning) and output measures (exam results, student and staff perceptions). Of the ten redesigned modules, six showed measurable gains in student attainment, including improvements in the overall exam pass mark of between 6% and 16% and reductions in the number of students failing exams. None of the redesigns increased teacher workload, after allowing for the cost-to-change, and some redesigns showed reduced workload. Student satisfaction was high across all implementations and academics were also positive about the teaching benefits to the department. Brief descriptions of three course designs are provided in the Appendix.

As the project progressed, REAP ideas began to spread across the University as evidenced by recruitment of new course teams, discussions in departments and faculty committees, and through a new university policy for assessment and feedback. This policy, which was approved by Senate, was derived directly from REAP, but was also informed by, and refined through, extensive consultations across the whole institution. REAP funding ended in 2007, but its legacy continues. At the time of writing, many whole departments and faculty groups are redesigning modules and programmes using these principles. Further work is taking place in collaboration with Registry and Planning to align course validation and approval processes to the underlying educational ideas embedded in the assessment policy. Resources are being piloted to support staff development in course redesign with a focus on assessment and feedback.

The REAP findings have attracted considerable attention across the HE sector. Many UK universities have adopted or adapted the REAP principles and embedded them in strategy documents. Numerous UK projects have secured research funding based on plans to implement the principles. REAP findings have been shared with institutions in Europe, Australia and the US, with some using the principles to steer development activities.

THE REAP APPROACH TO TRANSFORMATIONAL ORGANISATIONAL CHANGE

REAP had significant educational success within the University of Strathclyde as measured in improved learning achievements, high levels of student satisfaction across a number of redesigned courses and, in some cases, reduced teacher workload. REAP

also demonstrated successful organisational change as indicated by: the number of courses redesigned across the institution (at least two in each faculty); changes in the institutional strategy for assessment and feedback; and explicit reference back to the REAP project in ongoing developments in departments, faculties and the institution (e.g. quality enhancement, credit restructuring). So what were the key features of the REAP approach that contributed to its success in moving beyond individual courses to change at the institutional level?

The project started with a conceptual foundation that brought together a theoretical analysis of assessment and feedback at a number of levels and published empirical findings of effective practice. From this analysis we formulated a set of short summary statements that were used to communicate what the REAP project was about and to gain commitment from a range of different stakeholders. Key elements of the conceptual framework were also used to guide and support a range of implementation activities across the institution. In the next section we sketch out the conceptual groundwork behind REAP. Later, we describe the deployment of REAP ideas, rhetorically and pragmatically.

CONCEPTUAL GROUNDWORK

The conceptual basis of REAP was first articulated in Nicol and Macfarlane-Dick (2006). That paper laid out an educational argument for redesigning assessment and feedback, identified a goal, a range of bottlenecks in practice and a set of initial guiding principles based on a review of research. It also made suggestions about how these principles might be used to improve practice.

Building on this work, on a further analysis of the research and drawing on many years experience in educational development work, the REAP proposal for funding to the SFC included: (i) the identification and analysis of a problem domain, (ii) the articulation of a clear educational aspiration and (iii) the formulation of a set of practice-oriented educational principles.

THE PROBLEM DOMAIN

In REAP, assessment and feedback was chosen as the focus for development because it is recognisable as an area of concern to most stakeholders in higher education. Most teachers are neither pleased with the results of the feedback they provide nor with the workload that marking and feedback involves; this is particularly true with large first-year classes. Students are also dissatisfied with assessment and feedback as shown by the UK National Student Survey where this subscale receives the lowest ratings. Many other learning and teaching issues in HE can be related to bottlenecks in assessment and feedback.

THE ASPIRATION

An innovation project that is aimed at changing ways of doing things across a whole institution benefits if there is a message, vision or aspiration that has meaning and can be acted on across a range of disciplines. This educational aspiration provides the overall rationale for development activities and for some stakeholders it gives a sense of value and coherence to the project. An aspiration is a long-range goal (or ideal), something that most people believe is important, an outcome that if achieved would be grander than the project itself. A large project might, for example, have as its aspiration to enhance critical thinking or to foster an inquiry-based approach across the whole institution.

The educational aspiration in REAP was 'self-regulation': the long-range aim was to help develop in students the ability to monitor, evaluate and regulate their own learning processes. In REAP this aspiration was also linked to practice, to 'what teachers do'. The REAP proposal to the SFC in 2004 stated:

The educational purpose of the REAP project is to develop students' capacity to self-regulate their learning. This will be achieved through the enhancement of teaching and learning practices that support reflection, self and peer assessment and through devising higher quality, and more strategically aligned, assessment and teacher feedback.

In most HE institutions, as at the University of Strathclyde, the development of learner autonomy or independence is a stated aspiration or core value within the teaching and learning strategy. However, institutional strategies rarely say how autonomy is to be developed. This linking of project aspiration to the academic strategy was a distinctive feature of REAP.

THE ASSESSMENT AND FEEDBACK PRINCIPLES

Teachers need to be able to translate educational ideas into actual teaching and learning practices in their discipline if the educational aspiration is to have any meaning and if change is to transcend disciplinary boundaries. This was a key purpose of the 11 assessment and feedback principles shown in Table 1. These 11 principles define the pedagogical basis of REAP. They are deliberately expressed as short phrases or statements that point towards practical action rather than being too abstract. Each principle is backed by substantial research about how their application improves student learning.

Table 1: Principles of good assessment and feedback design (based on Nicol and Macfarlane-Dick (2006) and Gibbs and Simpson (2004))

Good feedback practice should:

- 1. help clarify what good performance is (goals, criteria, standards);
- 2. facilitate the development of self-assessment and reflection in learning:
- 3. deliver high quality information to students about their learning that helps them self-correct;
- 4. encourage teacher-student and peer dialogue around learning;
- 5. encourage positive motivational beliefs and self-esteem:
- 6. provide opportunities to act on feedback;
- 7. provide information to teachers that can be used to help shape their teaching (to student needs).

Effective assessment tasks should:

- 8. capture sufficient study time in and out of class;
- 9. distribute student effort evenly across topics and weeks;
- 10. engage students in productive learning activity;
- 11. communicate clear and high expectations to students.

Principles 8 to 11 are primarily about 'time-on-task'. Research shows that the more time students spend studying in and out of class, the more they learn (Gibbs and Simpson, 2004). Importantly, time-on-task is not just about active engagement in learning: research shows that time-on-task also triggers the conditions whereby students reflect on their own learning and get informal feedback from peers. In REAP, these four principles meant redesigning first-year modules so they encouraged regular and structured learning activities; for example, replacing one or two large assignments at the end of the academic year (e.g. a large essay) with series of small regular assignments (e.g. 500-word essay) throughout the year.

The seven feedback principles (I to 7) are primarily about designing learning in ways that that would give students practice in managing and evaluating aspects of their own learning (Nicol and Macfarlane-Dick, 2006). Redesigns might involve students constructing a better understanding of assessment criteria through analysis of model answers, creating structured opportunities for reflection and self-assessment, organising for peer feedback or sequencing assignments in ways that ensure that feedback is used to improve subsequent work.

The 'time-on-task' principles provide steers to students about how much work to do and when, whereas the seven feedback principles provide steers about the kinds of work required if students are to become better at regulating their own learning. While the principles can be applied separately, different combinations would be required in different contexts (e.g. first-year versus later undergraduate years).

During the REAP project these conceptual resources were developed and improved through contributions in many different formats including research papers, presentations, publicity materials, short and long reasoned arguments for each

principle, over 100 examples of their implementation, and conference materials. Some resources highlight the principles and the research, and link these to examples of practice, while others highlight assessment bottlenecks and discuss how these might be addressed by application of the principles (Nicol, 2009).

RHETORICAL RESOURCES

The success of the REAP project required repeated acts of persuasion with regard to stakeholders across the whole institution and beyond. It was therefore essential to develop a way of presenting the messages behind the project in a convincing way that would ensure buy-in. In REAP, we used the three fundamental components of the conceptual framework described above, namely:

- the problem domain (i.e. assessment and feedback);
- the deep and worthwhile educational aspiration (i.e. the development of learner self-regulation); and
- the underpinning educational principles (i.e. the II assessment and feedback statements shown in Table I);

... as entry points or rhetorical resources, rhetoric being the act of persuasion.

Our experience in recruiting course teams, in canvassing senior management support, and in numerous dissemination activities, was that these entry points or, more accurately, headline summaries, and the different arguments embedded in them, helped capture attention and gain commitment: they also acted as memory aids that stakeholders often returned to. The problem domain and the principles are perhaps most striking in that they attracted considerable interest during discussions and presentations. Importantly, however, deeper messages, arguments and resources could be accessed if academics or other stakeholders chose to drill down into the complex resource base.

While these resources were deployed in different ways at different times to secure buy-in from stakeholders with quite different needs, exactly how stakeholders responded to these headline arguments and in what combination is not clear. However, the following paragraphs illustrate some observations based on experience.

We found that some academics with practical teaching concerns were best persuaded to participate in the project by expressions of the problem domain (assessment and feedback). These academics might already have identified problems (e.g. giving feedback to large numbers, poor time-management) that they wished to address. However, later on, they might find value in the II principles especially when they realise that behind each principle are practical approaches that might help address their problems. The successful applications, documented in the research literature, might also be convincing as would the realisation that implementing these ideas is not just a stopgap measure to address immediate problems, but instead actually helps realise a longer-

term educational goal: the development of learner autonomy. Other academics might initially be attracted by the principles and their educational power, especially if they hear how others have applied them; for example, many academics have been attracted to the idea that when students spend regular time-on-task that they are more likely to self-identify areas worthy of further study and to discuss their work with peers.

Still others, for example a vice-chancellor, might be more interested in promoting a general educational aim (or graduate attribute) across the whole institution and might be persuaded first by the aspiration of self-regulation then by the principles perceived as practical ways of developing this. The target of assessment and feedback might then be seen as the aspect of courses in which this development would be best pursued.

As noted earlier, we gave numerous presentations on REAP both internally and externally. What happened at these events also provides insight into the way academics responded to these rhetorical resources. For example, at the end of a presentation, some participants would invariably approach us to discuss ideas that had been triggered by the presentation, such as how they might apply the principles in their own contexts. Importantly, the ideas they formulated would often go beyond what we could have suggested, given our lack of knowledge of their teaching and disciplinary context. Disseminating REAP ideas was not about transmitting a suggestion, a principle or a way of addressing problems, which is then fully understood. Rather, understanding required a constructive act by the recipient: something would come out of the conversation that neither party 'had' or could construct by themselves.

This experience, which was repeated at almost every presentation no matter which of the REAP team presented, reinforced our belief that certain elements of the REAP message were captivating to stakeholders across all disciplines. The different entry points, and the balance between specificity versus generality in the format of the principles, seemed to draw stakeholders into the process of making practical sense of the ideas. Indeed, a degree of indeterminacy might be part of the effectiveness of these resources as rhetorical devices.

USING THE CONCEPTUAL RESOURCES TO SUPPORT CHANGES IN PRACTICE

How the conceptual resources underpinning REAP were used in working with course teams and other stakeholders was as important as the way they were deployed to canvass and maintain commitment. The educational success of REAP depended not just on being able to recruit course teams, but also on being able to maintain their active engagement in the redesign process. Making a decision to participate is not the same as actually participating in change-making activities. Moreover, whatever success was achieved through the redesigns, this should have an impact beyond the local course teams and lead to changes at other institutional levels (a stated goal of the SFC funding). Four activities underpinned developments intended to achieve these goals:

- a tight-loose approach to course redesign was supported within each discipline;
- local project funding was tightly linked to the application of the principles;
- an evidence base was developed to enhance credibility of the project messages to a wider group of stakeholders; and
- internal and external dissemination were deliberately used to multiply commitment across the institution.

A TIGHT-LOOSE APPROACH

The REAP project team (which had educational and technical expertise) worked collaboratively with departmental course teams to achieve multiple changes but with a substantial common element right across the institution. The format of the conceptual resources was important in maintaining commonality as well as supporting this collaboration. Especially relevant here were the principles and the analysis of bottlenecks in the problem domain.

Firstly, the principles were not promoted as a fixed template or set of rules to be followed. Rather, course teams were encouraged to, and did, adapt the principles to their own disciplinary context. The implementation process might be described as 'tight-loose': course teams were encouraged to maintain fidelity to the pedagogy behind each principle (tight), but they were also encouraged to tailor the application of the principles to their own disciplinary context (loose). For example, a self-assessment technique that worked well in Pharmacy might look quite different from self-assessment in Psychology. The tight-loose strategy provided a way of accommodating salient differences across disciplines while using a common underlying educational framework.

Secondly, we provided a range of examples of the implementation of each principle in different disciplines. This helped academics understand how the principles could easily be translated into specific disciplinary contexts. Like other learners, academics are more likely to grasp what is required if the same concept or principle is supported by many examples of application. (Indeed, this idea might be seen derivation of the first feedback principle in Table I – help clarify what good performance is.)

Thirdly, we did not require that all of the principles be applied within each course redesign or that each principle be applied to the same extent. The principles are inter-dependent and overlapping in their effects, and operate as building blocks for each other. For example, implementing self-assessment (principle 2) encourages students to pay more attention to goals and criteria (principle I), or enacting regular and distributed learning tasks (principles 8 and 9) creates more opportunities for students to reflect on and evaluate their own learning (principle 2).

Fourthly, different approaches were adopted while working with course teams. This was largely determined by the perceptions and needs of course teams themselves. Some academics might be attracted by the principles, the thinking behind them and how they might be applied, whereas others came with problems they wished to tackle in their own courses uppermost in their minds.

Table 2 shows one representation of the problem-principles relationship, although this is a simplification as it seems to point to a one-to-one mapping. It is better to think of the principles as interdependent and whole course design as involving a complex interaction of many components.

Much remains to be learned about what the optimal format is for rhetorical devices like these. For instance, in Table 2 the remedies to consider in the target domain are listed alongside the common problems. This seems to highlight the problems faced by staff and would mesh better with the idea of immediate practical action: 'Do you have any of these problems? If so, here are some solutions to consider for your context.' However, having only a single way of presenting these ideas might leave less space for the innovative jumps we have seen and benefited from in REAP.

Table 2: Relating problems to solutions using the principles

Remedies (drawn from the principles)
Active engagement with criteria and standards
Collaborative projects and peer critiquing
Sequencing assessment tasks or drafts and redrafts
Asking students to reflect on the strengths/ weaknesses in own work
Lots of assignments evenly spread throughout the year
Online tests or one-minute papers

In summary, while the principles enabled course teams to address their own needs, their application across all the redesigns enabled the REAP team to maintain coherence across all the course redesigns and with the strategic level.

LINKING FUNDING TO APPLICATION OF PRINCIPLES

In the first year of REAP, five course teams engaged in module redesign and in the second year a further five teams participated. Each course team was given a grant. Importantly, what emerged during auditing was that the funding allocated to the first five teams was overgenerous. Few teams had spent their grant: it seemed that for many the funding was more of a legitimiser than a necessity. It allowed groups legitimately to engage in redesign activities and to justify the time they spent to heads

of department and others, rather as research grants legitimise the spending of time on research. These findings, and other considerations (potential project drift), led us to rethink the funding and management of the round two redesigns.

In round two, funding was reduced and was more closely aligned to the use of the resources. The grant was paid in two instalments. We asked course teams to produce a plan describing how they currently taught the module, the issues they wished to address and the changes they proposed to make. To receive the first instalment the REAP team had to be convinced that the redesign, while addressing the course team's needs, also embodied REAP principles and that it could be successfully implemented. However, it was made clear that the REAP team was prepared to work closely with the course teams and would provide as much advice on learning design as was required to produce a convincing plan. A second instalment was released when a final report was received, which had to include an evaluation of the project outcomes. In this way, funding support was used to 'buy' the deliverables required by REAP. By requiring a well thought-out plan we also reduced the likelihood of failure at the implementation stage. By requesting alignment to the principles we raised awareness about their educational value as a tool for course redesign.

BUILDING AN EVIDENCE BASE

A transformational project is measured by its practical achievements. REAP is one of the few UK large-scale projects to produce substantial data (e.g. exam results) showing that module redesign using technology can improve student learning without increasing costs. Twigg (2003) has shown this in the US, although under different conditions.

In evaluating REAP we commissioned an independent team to work collaboratively with course teams to devise suitable evaluation plans. The evaluation team then implemented these plans: they administered questionnaires, held focus groups and interviews with students, teachers and support staff and analysed course documentation. They wrote reports for departments that were subsequently discussed in teaching and learning committees. This contrasts sharply with the action-research approach favoured within many educational development projects where teachers themselves carry out all the evaluation.

The evaluation team also collected data directly related to the change process, rather than only about learning gains and student satisfaction. This was achieved by comparing every module redesign against what it replaced using the 11 principles. This information showed the ways in which each redesign had increased opportunities for self-assessment, for peer dialogue etc. Taken together across all modules this provides measures of changes in educational processes across the whole institution.

The production of an evidence-base added to the credibility of the principles and the framework of resources surrounding the REAP project. Such evidence of educational and cost-effectiveness was important in recruiting subsequent course teams beyond the first round and in raising the profile of the project in the minds of

senior staff. We have become convinced that collecting evidence is essential for the embedding of change and in encouraging others to adopt a similar approach.

MULTIPLYING INSTITUTIONAL COMMITMENT THROUGH DISSEMINATION

A key goal of REAP was to foster change at local and institutional level. The dissemination strategy was intended to address this goal. Internally, we created opportunities so that the early dissemination of project outputs would influence and spread to other departments. To achieve this, we asked the course teams to share their findings at informal 'brown bag' lunches and at internal events. This worked better than expected: some teams were so enthused by the results of their redesign that they acted as advocates for REAP through their own departmental and faculty committees. For many academics, the redesigns revitalised their own experience of teaching. Some made presentations outside at conferences both in the UK and abroad. Also, whereas in round one the course teams were selected because they already had a track record of innovation, round two course teams were self-selected: this was very likely the result of the high visibility of REAP across the University.

External dissemination involved systematically lodging all developing outputs from REAP on the website. The REAP team also made more than 50 external presentations at conferences and events over 18 months, published papers, held workshops and organised an online international conference, which attracted over 400 participants from 32 countries. Arguably, this external dissemination had as powerful an effect as the evidence of internal change in getting senior managers on board. Not only was there a buzz about REAP within the institution, but when senior managers attended external events they also reported hearing positive feedback about REAP.

ADDRESSING THE BARRIERS

How did REAP address the barriers to transformational organisational change? The main difficulty in achieving co-ordinated change across a university is the fundamental division of HE into disciplines. REAP addressed this through a common set of principles to support redesign and by working with project teams to help them apply them in their own disciplinary context. The isolation of academics from educational research was addressed by providing numerous entry points into the research, while at the same time making it easy for academics to drill down deeper into the network of concepts and arguments when needed.

The normally weak linkages between local innovations and institution-wide strategies were overcome by basing the project on a single set of educational ideas and by tying each separate course redesign to that set. We also ensured that funding didn't drift towards activities that were useful locally but not institutionally. Requiring that evidence was collected from every course redesign made embedding of the

changes more likely, made it more likely that new course teams would become involved and that senior management buy-in would persist after the project funding was secured. Finally, the dissemination activities ensured that the evidence and other celebrations of success had as wide an impact as possible, internally and externally.

CONCLUSION

In this final section we propose a blueprint (or, dare we suggest, a set of principles) for how to construct a large-scale project that generates transformational organisational change across a HE institution.

A large project that depends on communication, persuasion and co-ordination across a whole institution would benefit from having its conceptual groundwork and structure well worked out in advance. At the very least, the project should identify and analyse a problem domain, formulate a worthwhile aspiration and develop a set of educational principles backed by research. These components would provide entry points or headline summaries that will enable the communication of the project messages successfully to all stakeholders; to academics, senior managers and funding bodies. Behind these summary messages, however, interested stakeholders should be able to drill down deeper if they wish.

These same conceptual resources will be needed to support academics in redesign activities, which will invariably involve academics in deeper elaboration of the principles and of the problem domain. Four activities would be required to ensure a high probability of achieving the goal of transformational organisational change. Specifically, a tight-loose approach should be adopted in working with teams engaged in course redesign, project funding should be linked to the core educational principles, an evidence base should be developed, and internal and external dissemination should be used to bring new teams on board and gain continuing commitment from senior managers. So the recommendations are:

- I. focus the project on a widely recognised problem area;
- 2. ensure that there is a long-range and worthwhile educational aspiration that is grander than the goals of the project itself and that is related to the strategy;
- 3. develop a set of simple practice-oriented principles based on research that specify but do not over-specify what needs to be done;
- 4. support academics in implementing the principles in their own disciplinary context using a tight-loose methodology;
- 5. tightly link project funding to the use of the principles in redesigns;
- 6. build a convincing evidence base to enhance credibility of the project messages and to support diffusion of innovation; and
- 7. multiply institutional commitment through co-ordinated internal and external dissemination.

APPENDIX

EXAMPLES OF FIRST-YEAR REDESIGNS

Psychology (560 students). Lectures were cut by half and replaced by a series of six structured online collaborative essay-writing tasks over the year. Student groups took responsibility for their own working methods and feedback was provided from multiple sources (through model answers, peer dialogue and the teacher). A significant overall improvement was evidenced in the quality of written essays, in the end-of-year exam marks and in student satisfaction. Many students requested this format for other first-year classes.

Mechanical Engineering (250 students). Electronic voting technology was used to support interactive peer dialogue and feedback in lectures, online testing was used to enable 'just-in-time' responsive teaching and an online homework system enabled independent learning. This redesign led to a 60% reduction in staff assessment workload, improved retention and raised achievement of weaker students.

French (200 students). Introduced regular online formative self-testing linked to summative tests, reduced tutorials by 50% and replaced with online tasks. Enhanced face-to-face contact with electronic voting technology. Reported a reduced exam failure rate (12% to 2.8%). Students reported that the online tasks established important study habits necessary for language learning.

APPLYING THE RHETORICAL FORMAT TO OTHER PROJECT TOPICS

EXAMPLE I

Problem domain:

The first-year student experience.

Aspiration:

More academically meaningful activities and experiences.

Possible principles:

- I. Organise a group project in the first week.
- 2. Have students work together in the same groups throughout the year.
- 3. Encourage students to form their own study groups.
- 4. Ensure personal contact with a permanent member of academic staff.
- 5. Use motivating assessments that draw on real life scenarios.
- 6. Communicate high expectations.
- 7. Ensure feedback on early learning activities.

EXAMPLE 2

Problem domain:

Critical thinking across the disciplines.

Asbiration:

To have all learners understand when a critical approach is inappropriate and when useful.

Possible principles:

- I. Support students in articulating the benefits of critical thinking.
- 2. Drill learners on the surface markers of critical thinking (e.g. reasons, counterarguments, points of view).
- 3. Give experiences of critical thinking in a variety of tasks where the immediate benefit can be seen.
- 4. Instil the habit in students of writing down not just conclusions but reasons.
- 5. Provide opportunities for learners to identify logical inconsistencies in what they and others write.

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LEARNERS IN CONTROL: THE TESEP

APPROACH
ANDREW COMRIE, KEITH SMYTH

INTRODUCTION

TESEP (Transforming and Enhancing the Student Experience through Pedagogy)1 was a two-year project funded from 2005 to 2007 as part of the Scottish Funding Council's e-Learning Transformation Programme (see Glenaffric, 2008). The project's primary aim was to initiate a distinctive and sustainable approach to e-pedagogy throughout its three partner institutions (Edinburgh Napier University, Edinburgh's Telford College and Lauder College, Dunfermline). The project set out to demonstrate a transformative effect by involving students more directly in shaping and taking responsibility for their own learning, and by exploiting the opportunities for personalised and social learning offered by new technology. TESEP addressed the need to prepare and equip students who enter Scottish higher education, and much of further education, with confidence about taking control of their own learning using the new tools that they will encounter in our rapidly changing educational institutions and beyond, in employment, and almost all other 21st-century learning contexts. The approach to learning that TESEP requires is a challenge not only to teaching staff but also to many students, some of whom will have fluency with new technology, but will nevertheless harbour expectations of a traditional teaching-centred approach in the new setting of college or university. The transition required is as much concerned with attitudes and expectations as it is to do with knowledge and skill.

The need for transformation can be largely attributed to the great increase in

www2.napier.ac.uk/transform/

the demands for flexibility in the provision of further and higher education, and in the gradual stretching of teaching methods that were designed for very different circumstances. Since the 1970s, Scotland has led the rest of the UK towards a mass further and higher education system. Before this expansion, teaching was conducted almost entirely through a standard model of provision, with full-time, state-funded students engaged in unbroken study of one of a traditional range of disciplines delivered conventionally in comparatively small groups on a single campus. There was no concept of flexible delivery, and no real concept of pedagogy. Post-compulsory education is now almost unrecognisable by comparison. The development of mass further and higher education has been accompanied by a huge increase in the diversity of students, institutions, subject matter, mode, timing and place of study. Programmes are modular, and the attainment of qualifications advances by progressive accumulation, which can be interrupted and resumed. Students have modularised packages of information delivered to them as commodities, and are offered only very limited opportunity for any real dialogue about their learning. Flexible delivery – through part-time study, distance learning, work-based methods – allows access to study to many who would otherwise not have the opportunity, but it achieves this too often at the expense of the informal and socially based learning that is experienced by full-time campus-based students.

TESEP, then, set out an ambitious programme of change through a social-constructivist pedagogy, enhanced by new technology. It was never likely that transformational change could be demonstrated directly during the short lifetime of the funded project, but it was hoped that the project would serve to establish within the partner institutions a coherent and widely accepted set of principles that would underpin a policy framework for sustainable change. In short, TESEP aimed to be a Pathfinder project. This short chapter considers the extent to which it achieved this aim.

THE TESEP PRINCIPLES

The approach to learning and teaching promoted by TESEP is not in itself particularly original, reflecting as it does the modern pedagogical consensus of socio-constructivist thinking. This approach emphasises both the need for greater learner autonomy and control, and engagement in learning communities characterised by peer-to-peer learning and support, where peers may be learners on the same course, or peers in wider local and global contexts (Mayes, 2007). The challenge for TESEP was not so much in articulating this set of principles, but in the much more demanding business of getting them accepted in three disparate and hard-pressed institutions, staffed across a wide spectrum of disciplines by teachers, very few of whom overall (notwithstanding those holding or studying for Postgraduate Certificates in Education) had a grounding in pedagogical theory. The role of technology in the project was at first widely misunderstood, and throughout the project the TESEP team sought to emphasise that

technology was an enabling factor, making it easier to implement the learning principles that underpinned the approach. Social software, for example, would help facilitate learning that was shared, personally relevant (fostering the development of the skills the learner would require in the professional sector) and which was sensitive to the ways in which knowledge is being created and shared today.

The TESEP website² refers to a number of papers that set out the theoretical grounding for the TESEP pedagogical position, but the approach that the seconded practitioners were encouraged to embed in the redesign of their courses can be summarised in the following five principles:

- Ensure every learner is as active as possible. Design tasks that address this question: how can we challenge learners to think more deeply about what it is they are learning?
- Design frequent formative assessment. Encourage the learners to test their understanding regularly and ensure they get responsive feedback including from peers.
- Put emphasis on peers learning together. Create small groups who will work together to produce something – a report, a lesson, a demonstration. Consider where groups can teach each other about their chosen topics. Try to engender a sense of ownership.
- Consider whether learning tasks can be personalised. Allow the individual learner, or a small group, choice over what is to be achieved. Negotiate with learners wherever possible. Aim for project-/resource-/discussion-based learning – not direct instruction.
- Consider how technology can help to achieve these principles. Online, learners can be actively carrying out tasks, taking formative tests, producing class resources or group outputs, discovering new content for themselves, and through social software discussing and sharing all this with each other, the tutor, and other peers and experts.

The call for a greater emphasis on self-regulation and what is being increasingly referred to as *learning* (or *academic*) *literacy* is also very much part of the TESEP message, not in the form of 'bolt-on' courses, but rather in preparing students for self-moderated learning, partly through raising their confidence as users of social software and digital media, and partly through encouraging an e-portfolio culture for assessment. The most general TESEP assertion is that institutions should shift to a demand-side approach to education, focusing their resources on preparing their learners rather than on their 'provision'.

2

There are two enabling concepts that underpin the approach TESEP adopted: these are *empowerment* and *engagement*. An empowered learner is one who has the skills and knowledge to operate successfully as an autonomous learner, and has access to the environment and tools that will allow learning to proceed. An engaged learner is one who proactively seeks to attain the negotiated learning outcomes, and who will encourage peers to do the same. Empowerment and engagement are themselves learning outcomes. TESEP represents an attempt to explore realistic ways in which these outcomes might be achieved early on in a learner's experience of a transition into the new educational environment.

The overarching aim of putting these principles into practice is to put 'learners in control', which was the strapline for TESEP. In fact the TESEP team struggled to find a way to communicate the principles in a way that balanced succinctness and accessibility against the possibilities for misinterpretation. Within TESEP the idea of 'learners in control' raised many questions, some of which reflected very practical concerns about how the idea could be implemented in practice. Some of the teaching staff in the TESEP institutions felt that the term implies possibilities that could be counterproductive for learning. Much of the project resolved itself around finding a common understanding about the limits of the concept, with the practitioners and the TESEP team working together to find some of the answers.

Much of the debate in TESEP was centred on the practical implications of attempting to achieve personalisation while encouraging the locus of control to move towards the learners themselves. Essentially TESEP argues that institutions can integrate these principles in the following ways:

- Focusing resources on an extended induction emphasising the need to prepare students for active learning. Individual attention should be focused on the very early stages, with the scaffolding removed as soon as possible.
- Establishing a culture of autonomous, active, reflective learning asking students to take more responsibility for their own learning from the beginning of their studies.
- Facilitating collaborative and co-operative learning in which the individual learner is frequently placed into the role of teacher of peers.
- Raising each learner's digital literacy to a high level, enabling them to use the web as a powerful resource for social learning.
- Providing learners with opportunities for frequent formative assessment.

The practical difficulties associated with personalisation increase greatly with the increase in the diversity of the learners. This is an inevitable consequence of widening participation. Many of the students entering the three TESEP institutions lack the kind of understanding about what it takes to succeed as a student that will come with a family background in HE. Associated with this is the confidence to take responsibility as an autonomous learner. Even digitally literate students who are at

ease with using current and emerging technologies in their everyday lives, often for informal learning, can hold fairly traditional conceptions of what learning at college or university is going to involve (JISC/Ipsos MORI, 2007). This challenge is addressed in TESEP by moving resources to the beginning of a course, by providing help only where it is needed, and by encouraging a culture of peers learning from each other. During the early stages of the learner's experience there should be a diagnosis and profiling of learning needs (in the way best practice in FE achieves). PDP should be introduced at this stage and an e-portfolio approach encouraged. The key to all this is flexibility. TESEP implicitly argues against the model of a standard 'delivery'.

TESEP IN PRACTICE

The TESEP project was realised in three phases:

- Phase I involved developing the approach, which outlined key learning and teaching principles to enhance the learning experience.
- Phase 2 involved implementing and evaluating the learning and teaching principles with a pilot group of practitioners.
- Phase 3 involved cascading the principles to the widest possible group of colleagues within the institution.

Each partner institution identified a member of staff to join TESEP's cross-institutional Expert Group. The Expert Group provided support to the practitioners who were seconded to TESEP to make changes to their own teaching practice during Phase 2 of the project.

A host of staff development activities were designed to help the practitioners learn from each other while they worked on their projects, guided by members of the Expert Group and other 'critical friends' from the wider FE and HE sectors who joined workshops, online seminars and discussions via the Project's Online Community of Practice.

The FE and HE practitioners who were seconded to TESEP in Phase 2 were drawn from subject areas that included Art, Law, Joinery, Healthcare, Computing, Building, Engineering and Drama. As tutors, they were supporting students on courses that spanned all levels from national certificates through to final-year undergraduate, and with a range of students that included high school entrants, apprentices, mature students and direct entrants.

As well as differing in their subject disciplines and the level they taught at, the practitioners were also a very diverse group as regards teaching experience, preferences for different teaching approaches and IT literacy. In working with such a diverse group of educators, and considering the rationale for the TESEP project, there was a strong commitment from the outset to supporting the seconded

practitioners through a staff development process that was in itself truly learner-centred and modelled the principles outlined above.

To help contribute towards further embedding of the TESEP approach each practitioner was responsible for disseminating information about TESEP internally; for example, at School meetings and events. The TESEP project team worked with the seconded practitioners to identify the ways in which they could most effectively disseminate and cascade within their own area, including how they could continue to promote TESEP-influenced activities post project.



Figure 1: Online community resource for TESEP practitioners

Staff development support provided for the Phase 2 practitioners started with a dialogue with each individual about their teaching and learning experience, how they came to be involved in TESEP and what they most hoped to gain. This informed the design and facilitation of initial staff development support, although the group quickly came to play a role in collectively deciding upon the focus of workshops and online sessions. Collaborative learning was facilitated within cross-institutional mentor groups, and supported in the online community resource set up for the practitioners (Figure I). The online community resource featured ongoing pedagogic and practical discussions, with guest experts from within and beyond the partner institutions

participating as 'critical friends'. It also featured links to the reflective blogs some practitioners were maintaining, and links to various tools and models.

The lessons learned in Phase 2 influenced a change of emphasis for Phase 3 as TESEP was opened up to a second wave of practitioners. There was now a more concerted effort to make sure the opportunity offered through TESEP was seen as an opportunity to build upon existing good practice and find ways to make what was already working well even better. Furthermore, to address concerns and questions around what the TESEP approach might mean for the tutor and their students, the TESEP 3E Approach was developed (Smyth, 2007). This envisaged, with examples, the process of transformation in teaching and learning as a continuum of enhanced, extended and empowered learning opportunities. It also provided guidance on the implications for tutors and learners, and underlined the need to think about how much learner control is appropriate within any specific context. Along with the TESEP principles, the 3E Approach has subsequently been adopted for various means within Napier and the other TESEP partner institutions (including in the redesign of learning and teaching frameworks and strategies, and the design of an MSc in Technology-Enhanced Learning for education professionals seeking to harness the potential of emerging technologies).

By the end of Phase 3 of TESEP, around 50 practitioners from across the three partner institutions had been supported directly in enhancing one or more courses through being formally seconded to TESEP, or being a member of course team or academic unit that was being supported directly. Through wider internal cascading and dissemination initiatives many more staff have since been introduced to the ideas of TESEP, and since the conclusion of Phase 3 further initiatives, including some of those outlined above, have continued to have an impact on the teaching and learning culture and experience.

EXAMPLE IMPLEMENTATIONS OF TESEP PRINCIPLES

A sense of the nature of enhancements that the Phase 2 and Phase 3 practitioners made in redesigning their teaching approaches can be drawn from a few examples across the range of FE and HE subject areas:

- The redesign of an undergraduate Legal Research Methods module from being largely lecture-based to involving inquiry-based activity, with students investigating case studies, using blogs and wikis to compile case notes online, and participating in online discussion of what they had discovered.
- Beginner-level college language students studying Spanish improving their written and verbal skills by connecting online with Spanish-speaking English language class students from across the globe.
- Joinery apprenticeship students using mobile phone cameras to capture the work they were doing on placement, posting images online to seek tutor and

- peer advice and discussing technique on the institutional VLE.
- Drama students using a blended approach involving print and online resources to research and share findings about the work of particular playwrights, in preparation for further classroom activities.
- Nursing students in a very large cohort being meaningfully supported in problem-based learning through harnessing online communication tools and resources to work in learning sets.

Evaluation of the teaching and learning experience was central to the work of TESEP, and involved reflective tutor diaries, video interviews, student focus groups and other means. Overall, the student reaction to the innovations was very positive. Feedback from tutors was similarly positive, and many commented on how much more engaged their students were in their subject, the quality of their work, and also how teaching in a way that was underpinned by the TESEP principles made their own role more enjoyable. However, not every tutor had an entirely positive experience, and several commented on the difficulties some students had in assuming more responsibility for their learning. As one practitioner commented: "Having students learn in this way is the way forward ... but introducing it when they are in their third year is two years too late."

THE COMMISSIONED CASE STUDIES

Apart from its own interventions TESEP also commissioned case studies of projects and initiatives from other institutions that echo the principles that TESEP was promoting. One of the case studies was the University of Glasgow approach to student IT skill. This has required all students graduating from the University of Glasgow (and other Scottish HEIs that have adopted the Glasgow approach) to attain a certificate of competency in the baseline IT standard before graduating. The certificate is achieved through undertaking a standardised assessment; the provision of help for an individual student to achieve that level, however, is highly flexible, varying with the circumstances of the student including their course of study, and offering no provision at all if the student can achieve the required standard on entry. In a sense this offers a radical learner-centred model that could be applied more widely within the curriculum. 'Provision' is tailored to the individual learner's assessed need and only 'delivered' where needed. This idea, of course, drives a coach and horses through our traditional model of progression through standardised curriculum stages, with assessment to accredit satisfactory progress at the end of each stage. With a criterion-based approach like the case study presented from the University of Glasgow then students would progress entirely at their own pace. With such a system it would be logically possible for a student to graduate in weeks (though both teachers and administrators would blanch at the prospect of a continuous exam diet). At least consideration of this model would raise in a stark way issues about what

HE is for. If one accepts that HE has much broader cultural goals than accrediting understanding, skill and knowledge in a particular discipline, then a minimum period in HE independent of individual attainment seems necessary.

Since commissioning this case study there has been a tendency for those institutions that had adopted this approach to retreat from the position that all students must attain the certificate in IT skill before graduating. The University of Glasgow itself has postponed a proposed extension of the approach to the wider and more powerful set of skills and knowledge that constitute digital literacy (Martin and Madigan, 2007), and a proposed integration of this with PDP. This proposal would have taken a Scottish institution a considerable distance down the TESEP path, but the case study was written up before its wider message was entirely clear – that a compulsory requirement for generic skills attainment asks for flexibility in the system that is not yet in place.

A second case study focused on the empowerment of new teaching staff. This is based on the development of Glasgow Caledonian University's Postgraduate Certificate in Learning and Teaching in Higher Education. This is also a genuinely learner-centred approach, with each learner (in this case a member of teaching staff) having personal guidance from both a member of a central learning and teaching unit, and from a mentor from within the learner's new department. The programme has been designed to offer staff the experience of negotiating and taking control over their own learning objectives and gaining an insight into how such an approach could be used with their own students. Learners negotiate with experts, both generic and discipline specific, and, using the pedagogy of negotiation, become active participants in designing their own approach.

Further case studies were produced by the University of Hertfordshire and Queen Margaret University. The University of Hertfordshire case study described some trials using web 2.0 technologies in mainstream undergraduate courses. One study looked at the use of blogging in the University of Hertfordshire's BEd programme, which focused on the explicit building of learning communities. A second study focused on an effective and novel use of wikis (using Jotspot) on a second-year Information Systems Development module. The Queen Margaret case study describes how undergraduate and postgraduate experiences were enhanced through programme redesign. The case study describes a shift in the locus of control from staff to learners, spreading across all the programmes in a field previously dominated by external pressure for 'coverage' and using a transmission model centred on lectures.

TESEP AND TRANSFORMATION

TESEP was a very ambitious project, attempting as it did to achieve change in quite a fundamental way across three HE institutions, across a wide range of discipline areas, and even across sectors. It is difficult to judge impact when so many interactions

are occurring simultaneously, and in any case change would happen even without specific interventions like TESEP. Change initiatives in teaching and learning require commitment at every level of an institution, but must be endorsed at the senior level for the possibilities on offer to be realised (Ashwin, 2006; Blackwell and Blackmore, 2003). The TESEP project was in the fortunate position to be led by one of the vice-principals of the FE partners, with the Steering Group chaired by the Senior Vice-Principal at Napier. Both held a common vision of what the project should set out to achieve, and both were proactive in recruiting the support of other senior managers including Associate Deans who were responsible for policy implementation in their respective areas. Without this senior support in place, TESEP would arguably have achieved little. At a tactical level, it is school and departmental heads who need to be convinced of the benefits on offer if they are to free up staff time and other resources to work on an initiative like TESEP. Although some academic managers were enthusiastic, others were less so. The TESEP team made a deliberate attempt to understand the key teaching and learning challenges in particular departments, and then liaised with the academic managers to identify in detail how the teaching could be enhanced along TESEP lines. TESEP also explored the ways in which it might be able to align with and contribute to other initiatives that were already underway. At Lauder College, for example, the TESEP principles were embedded into the practical guidance and support that was being redesigned for staff who have teaching roles. At Napier a major initiative happening in parallel with TESEP was the move from a 15 to 20 credit module system, the purpose of which was to provide greater depth of learning and encourage the further development of Napier students as autonomous learners. In this case, TESEP provided the language and concepts that were used in providing pedagogic guidance to staff in how to redesign their modules for 20 credits, with Napier's 20 Credit Handbook explicitly articulating TESEP's five main principles and the 3E Approach concept of enhanced, extended and empowered learning opportunities as the key ideals. As a direct result of TESEP, Napier has piloted an Online Learning Advocate (OLA) initiative in which one member of academic staff from each of the University's nine schools worked alongside staff development colleagues to develop and implement a project in blended or online teaching and learning that illustrates what is possible in particular subject areas and highlights practice that can be shared across the University.

FINAL THOUGHTS ON TESEP

Right across the college and university sectors we see enacted a kind of power struggle between a learner-centred pedagogy agenda, of which TESEP is a clear example, and the more traditional subject-based curriculum delivery approach. In late 2008 one strand of the TESEP approach was the focus of a symposium: 'Learners in the Co-Creation of Knowledge' (Comrie et al., 2009). This symposium made it

clear that the ideas on which TESEP was based were now widely accepted in the educational development community, and were gradually making an impact in pockets of mainstream teaching.

The requirement for a more learner-centred pedagogy serves only to intensify the importance of properly preparing learners for independent learning. This preparation need not occur generically, indeed the embedding of skills development in the mainstream subject-based curriculum is favoured in many approaches. Some of these issues are the focus of discussion across the sectors in quality enhancement debates led by Her Majesty's Inspectors of Education (HMIE) in Scottish colleges, and in HE by the Scottish QAA enhancement themes . In HE the QAA themes have been facilitated by events, discussion papers and web resources, and have focused in the last three years on student support, integrative assessment, employability, flexible delivery, research-teaching linkages and the first-year experience. In all of this activity it is possible to discern the same thinking that has informed TESEP: the need to move towards a constructivist pedagogy with a personalised yet socially grounded approach.

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SCOPING THE CONNECTIONS BETWEEN EMERGENT TECHNOLOGIES AND PEDAGOGIES FOR LEARNER EMPOWERMENT

RICHARD HALL AND HEATHER CONBOY

INTRODUCTION

The educational impact of emergent web-based and mobile technologies is a central focus of current e-learning research (Becta, 2009; Conole et al., 2006; New Media Consortium (NMC), 2009; Trinder et al., 2008). In particular, the pedagogic implications of deploying web 2.0 tools, or the read/write web, for the enhancement of learning and the development of personalised, user-controlled learning spaces has come under scrutiny (Anderson, 2007; Ravensbourne, 2008; Rollett et al., 2007). In line with the precepts of social learning theory (Bandura, 1989; Driscoll, 1984; Piaget, 1970; Vygotsky, 1978), this work indicates that engaging students with the practices of higher education (HE) in safe, trustful contexts may reduce their academic anxiety and increase their mastery of new learning situations. Furthermore, it has been argued that active participation within personalised spaces enhances agency and decision making in HE (Hall, 2008).

Personalisation has created opportunities for the fusion of user-centred technologies and new approaches to curriculum design and delivery, content creation and analysis, and educational networking. As a result, an array of pedagogic innovation projects has been catalysed across UK HE. These projects aim both to engage learners with an integrated set of emergent networks and tools that are personally meaningful, and to understand the resultant cognitive and affective impact (Franklin and van Harmelen, 2007; Higher Education Academy, 2009; Joint Information Systems Committee (JISC), 2009).

The De Montfort University (DMU) Pathfinder project (DMU, 2009) formed a strand of this evolving strategy for engaging learners and academic staff with emergent technologies. It aimed to address how a HE institution might begin to make

sense of the proliferation of read/write web tools and approaches available to both its staff and students, alongside the growth in networking opportunities, in order to lever pedagogic gains. To achieve this, seven work packages were developed, which focused upon engaging students, academic practitioners and managers, and support staff, with a range of read/write web tools, in order to evaluate their impact on the student experience and to investigate new approaches to professional development. The overarching aim for these work packages was to develop a read/write culture more broadly across DMU.

This chapter will place the outcomes of these work packages in the wider context of research into the pedagogic deployment and impact of emergent technologies within HE. The pedagogic potential of these tools for empowering tutors and learners will be evaluated in relation to the design and delivery of personal learning environments (PLEs). These educational spaces can extend and enhance situated, individual, educational outputs (Ravensbourne, 2008). It will, therefore, be argued that through effective planning for the student-centred use of emergent technologies, within the context of social learning theory, the learner can be empowered to make decisions about her/his learning.

THE READ/WRITE WEB

The profusion of user-centred, participative and networked tools that can be updated from the web or via mobile technologies is commonly known as web 2.0 (O'Reilly, 2005) or the 'read/write' web. The term 'read/write' stresses the fusion of broadcast and interactive tools within a personalisable environment, and these applications deliver opportunities for:

- relationship-development and participation: both through tools that focus upon extant connections and interests, like Facebook, Ning or SKYPE, and through technologies that enable interest-driven and serendipitous associations that are asymmetrical, like Twitter (Lacey, 2009; O'Reilly, 2009);
- resource and content management that are at once personal and social; for example, through (geo-) tagging, bookmarking, the use of QR codes, the syndication and aggregation of content (NMC, 2009);
- communal and individual, user-generated content production, presentation and sharing, which enables socially constructed, dynamic, hybridised and derivative knowledge to be developed. This involves mash-ups, blogging, the management of wikis and the generation of multimedia; and
- virtual representation of the self and engagement with alternative reality games (Whitton, 2009), for instance in massively multi-player online environments and virtual worlds.

These tools have prompted educationalists to re-evaluate curriculum design and delivery, valuing students both as producers of content and as co-creators of learning environments (Napier, 2008). As a result, Sharpe (2006, p.16) argued for a new emancipatory, democratic approach to educational development: "As digital technology pervades everything around us, we can enrich each encounter to harness the global resources of the information world and of learning communities, to make it more appropriate in that moment to that individual." More prosaically McGee and Diaz (2007, p.32) have highlighted that "these applications have great potential to be used in way that is learner-centred, affordable and accessible for teaching and learning purposes". Through the control of code that is open source or open standards, and through the integration of media presented in multiple applications, individuals have the opportunity to rethink the spaces and places in which they represent themselves (Hodgson and Reynolds, 2005; Franklin and van Harmelen, 2007)

However, Trinder et al. (2008, p.6) raise a note of caution, especially for the role of staff as facilitators of learning within user-centred learning networks, particularly where: "There were misconceptions surrounding the affordances of the tools, and fears expressed about security and invasion of personal space." Academic concerns about security, safety, privacy, control of data and plagiarism impact upon the relationships between emergent, web-based tools and innovative pedagogies (Anderson, 2007). This matters because some students are reportedly "frustrated at the misuse or lack of use of [read/write web] tools within their institutions" (Conole et al., 2006, p.95). Therefore, identifying how emergent technologies impact the relationships between tutors-as-facilitators and learners-as-partners is pivotal in enhancing the student experience of HE.

STUDENT LEARNING AND EMPOWERMENT AND THE READ/WRITE WEB

The development and assessment of independent learning skills in HE can be supported by a range of formal and informal social networks or associations (University of Ulster, 2008). The connections and cognitive maps that individuals make between these social networks and read/write web applications, enable learners to come together to discuss, share, produce, make decisions and act. A byproduct of their social development is a more respectful understanding of personal differences. At its most radical, energising these personal connections underpins the creation of a more democratic pedagogy, through which individuals are empowered to ask meaningful questions about their world (Friere, 1972; Illich, 1971; Kansas State University, 2009). Moreover, it might also emancipate the learner's role in her/his educational experience (Haggis, 2006; Sullivan et al., 2008).

The growing availability of user-centred technologies coupled to opportunities for personal participation within multiple social forums and associations, prime the

possibilities for creating partnerships between learners, mentors and institutions. In particular, the fact that the read/write web starts from the user and her/his social networks enables academic teams to consider the design of meaningful, whole programme curricula that make sense to the learner and her/his context, rather than focusing upon atomised modular courses. Empowering the learner to make sense of how units in a curriculum might build to something holistic can then underpin personal involvement in decisions about: materials to be analysed and produced; tools to be utilised; educational networks to be developed (possibly from social networks that already exist); and tasks and activities that enable actions to be taken.

An outcome of this flexibility is a greater opportunity for negotiated, personalised assessment to emerge, for instance through patchwork assessments and portfolios (Smith and Winter, 2003). In turn, this personalisation can include and celebrate informal learning opportunities (i.e. beyond the classroom), and be represented in multiple media forms (i.e. beyond text). Linked to this is an engagement with an enquiry-based curriculum for personal change, and more of an emphasis on learning agendas set by individual students. Negotiating a curriculum, or a set of problems, that will support change in the individual, and enable that individual to achieve a set of personal outcomes requires the type of socio-constructivist scaffolding that is central to the use of social media. Such scaffolding underpins autonomous learning through: independence; informed decision making; self-direction and personal ownership of learning; confidence in taking control over the means of production; and developing domain-specific and personal mastery (Yorke and Longden, 2008). Critical in this emergence of a learner-centred curriculum is the partnership role of an experienced adult working as a mentor or facilitator. This enables the co-development of situated, self-managed learning contexts that can empower personal understanding and change (REAP, 2008).

These personal, socio-constructivist (Driscoll, 1994; Vygotsky, 1978) elements are arguably fused through connectivism (Siemens, 2009), which recognises that individuals learn by making personal connections between items of information and then modelling and extending these connections within social networks. Siemens (2004) argued that the "cycle of knowledge development (personal to network to organization) allows learners to remain current in their field through the connections they have formed". Where individual autonomy is strong enough to empower personal learning, and where networks are strengthened to enable knowledge construction, information sharing and decision making, then the capacity and capability of individuals to build personal and social knowledge is extended.

In enhancing the student's capability for autonomy and agency, the Ravensbourne Learner Integration project (2008) has developed an assemblage model that focuses upon the individual's transition from private to public learning in the context of social software and communities of practice (see Figure 1).

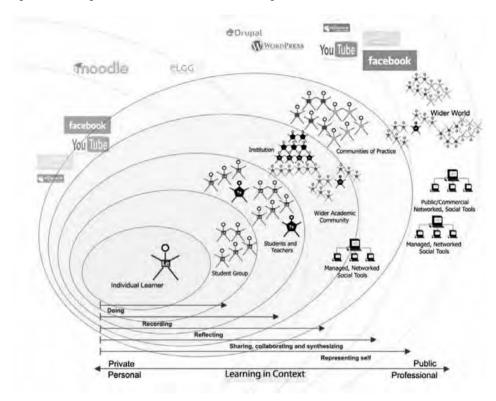


Figure 1: e-Learning in context, the Ravensbourne Learner Integration model

The Learner Integration model highlights the links between: personal mastery in specific domains; social learning in communities of practice; and social media and technologies. It demonstrates how autonomy is enhanced through active participation with user-centred media and within groups that make sense to the individual. However, users negotiate and transit between contexts, facilitated by their personal motivation and need to do so. For Anderson (2007), the relationships between individuals, their PLEs and their networks will become more important both socially and educationally, because they will "challenge conventional thinking on who exactly does things" (p.57). Managing a possible disconnect between old and new cognitive models of the curriculum will need thoughtful planning, so that flexible curriculum strategies can be implemented. This, in turn, requires a shared institutional framework for understanding the rationale for change.

This process of challenging and re-conceptualising the curriculum, and its implications for developing autonomy and the control of tools, will force practitioners and institutions to monitor developments from primary and secondary education, and in the workplace

and voluntary sectors, in order to identify how formal and informal learning are developing, and how learners are engaging with the rules of online networks. This also has implications for marginalisation and participation within a range of networks, and the facilitation of critical, learning literacies both within and beyond the curriculum (Milner, 2009).

THE DMU PATHFINDER PROJECT

The De Montfort University (DMU) Pathfinder project aimed to align pedagogic innovation with organisational capacity, in order to build capability for technology-enhanced learning. It focused upon enhancing the learning experience, as set out in the DMU e-Learning Strategy (DMU, 2007):

e-Learning @ DMU will connect people, technologies and resources, in order to nurture, stimulate and enhance our capacity for creativity and innovation, and thereby improve student learning.

To achieve this, the strategy expected learners and tutors to experience:

... a range of appropriate technologies in their practice, in order to extend learning opportunities and improve the quality of contact between learners, tutors and information.

The Pathfinder explicitly tied into the core precepts of the Strategy, namely: supporting people; building shared learning and teaching spaces; and delivering a range of e-Services. It also made use of the University's extant networks of e-learning coordinators and champions, operating within a hub-and-spoke mechanism, which were working towards innovation and change in all five faculties. These networks were highlighted during a previous benchmarking process (Higher Education Academy, 2008) as effective practice, and they gave the Pathfinder team a structure across the institution that enabled a multi-disciplinary view of e-learning to be mapped. This was important because the DMU benchmarking process highlighted that the mainstreaming of e-learning had raised staff and student expectations, especially with regard to read/write web technologies, which demand innovation in professional development. It was envisaged that any blueprint for change would span the interface between institutional and non-institutional technologies (HEFCE, 2009).

In retrospect, therefore, the central problem that the DMU Pathfinder project set out to address was:

How can an HEI begin to make sense of the proliferation of read/write web tools and approaches available to both staff and students, and the concomitant growth in networking opportunities available to users, in order to lever pedagogic gains?

To answer this question, seven work packages were developed. These focused upon: engaging Postgraduate Certificate in HE (PGCertHE) practitioners with read/write web tools; engaging University leaders and managers with read/write web tools; developing professional development opportunities for support and academic-related staff; podcasting; evaluating read/write tools to support student retention and progression; investigating new approaches to professional development; and building links with other Pathfinder projects. Broadly, the overarching aim was to develop a read/write culture within DMU. One of our Faculty e-Learning Co-ordinators and work-package leaders noted:

... many of the outcomes of the project are intangible changes in informal processes, attitudes, willingness to engage and revolve around perceptual changes in culture and goodwill more generally.

More specifically, the project aimed at creating deeper 'communities of inquiry' (Garrison and Anderson, 2003), which could motivate students and staff to engage with the learning opportunities afforded by the read/write web. It was envisaged that spin-off benefits would include strategies for managing assessment, IPR, data management and privacy, alongside:

- the integration of academic-related and support staff into broader pedagogic teams;
- understanding how informal learning networks, and the tools that are used by staff and students outside the University, impact traditional modes of learning.

The remainder of this chapter will map the deployment of read/write technologies in two institutional contexts, namely: PGCertHE participants engaging with user-centred technologies; and Level 2 Media Technology students building social media projects. The brief case studies examine the impact of pedagogic innovation on these very different learners.

CASE STUDY I:

UTILISING USER-CENTRED TECHNOLOGIES TO EXTEND A PGCERTHE

Academic and support staff who participate in the University's PGCertHE are central to the development of pedagogic innovation. This is important given increasing student expectations for: enhanced contextual control over the tools that support learning; a variety of modes of access to PLEs; different approaches to managing participation for learning; and the possibility for new associations that are made in those contexts (Hall, 2008). Therefore, the PGCertHE team focused upon e-pedagogy to enable lecturers to make enlightened decisions about how to incorporate these tools effectively into their teaching.

The PGCertHE at DMU focuses upon curriculum delivery mechanisms that bring about participant engagement and pedagogic change (Fry et al., 2004) within a constructivist learning context (Driscoll, 1994). In turn, this is predicated upon experiential learning and reflection (Kolb, 1984; Schon, 1987), as part of enquiry-based, professional practice (Bruner, 1966; Eraut, 1994). In order to generate appropriate spaces for such enquiries to flourish, the delivery team stimulate socially situated learning, where students can define and discuss strategies for overcoming specific curriculum issues (Lave and Wenger, 1991).

Developmental activities that address these theoretical positions in practice include: modelling teaching behaviours in small groups; team-based analysis of the language and concepts of education; hands-on synchronous and asynchronous sessions; learning-set activities; formal and informal pedagogic discussion, including blogging; and peer observation of teaching and mentor support. The aim is for participants to experience and develop places of engagement (learning spaces) where they can analyse relevant materials and experiences (learning tasks) and thereby build their professional identities. Within these spaces they can also find ways of making their actions matter (learning partnerships). These emergent, influential institutional networks or sub-cultures are designed to seed innovative practice in their own programme delivery.

In order to foster an appetite for experimentation with read/write web tools and approaches, participants were encouraged to engage with four sets of ongoing activities:

- I. Blogging as reflection: participants developed a baseline study of their technological practice at the end of the first workshop, and posted their reflections to a shared blog. This functioned as a tool for engaging these learners in the practical and technical use of new media, as well as enabling some to take the step of actually participating. The blogs were maintained across the academic session, and acted as personal learning logs that enabled staff and participants to build a common approach to solving specific problems.
- 2. Participants kept wikis as action-planning tools, and commented on those developed by their peers in their learning sets. Differentiated strategies enabled students to carry out their plans: faculty champions were available for one-to-one help in designing learning activities; small group, face-to-face and synchronous sessions focused upon particular technologies in context; and review sessions enabled students to engage with issues like assessment. The overall summative assignments focused on enabling individuals to evaluate the implementation and impact of her/his action plan.
- 3. A five-week course entitled 'Web 2.0 for Teaching and Learning the Basics' was offered to participants. The course tasks included analysis, discussion and reflection on the implementation of a range of read/write web tools in the

curriculum: the 'WebEx' web conferencing software was used to facilitate weekly, online synchronous classroom sessions; blogs (using blogger.com), wikis (using wikispaces.com), social bookmarking (using delicious) and RSS feeds (using Google Reader) framed weekly asynchronous learning tasks, feedback and reflection; and Ning social software was the basis for an informal learning network.

4. A programme-based, Ning social network was made available. This was used by tutors to disseminate multimedia and stimulate discussions about learning set activities, and read/write web technologies. It was also available for students to use to customise and manage group interactions and tasks.

The model for these tools and approaches (see Figure 2) highlights how the learner places her/himself within the context of a learning set and action plan that is driven by active learning principles and supported by the read/write web tools noted above. Learners are strongly encouraged to engage in a range of reflective practices, in order to enhance their summative assignments.

Reflective Practitioner Networks Personal Learning Set Action Plan Permeable Learning Environment [Tools] [Activities] Blog Dialogue Wiki Problem-solving Synchonous Spaces Modelling Social Bookmarking I to I

Figure 2: The DMU PGCertHE pedagogic framework (Conboy et al., 2009a)

The majority of participants claimed heightened awareness of read/write web approaches, with 40 out of 65 academics developing action plans for the implementation of innovations in their own teaching between 2007 and 2009. Read/write approaches framed personalised spaces for reflection on pedagogic practice and enhanced the potential for peer-to-peer interaction. Initial baseline evaluations highlighted that participants already used a wide variety of read/write technologies in their social and professional lives, and had a high level of potential expertise for embedding these tools in the curriculum, to stimulate their own students' critical discussion and reflection. As one practitioner argued, "things have changed and I am considering how these technologies can not only enhance my teaching, but also how they can help me with my specific learning needs too".

However, the lack of full engagement in the wiki-based action plans needs to be acknowledged. Academics need to consider the best ways to motivate and enable all learners to integrate the use of these tools into the assessment process. Further changes will include the observable, summative use of read/write web tools in assessments, focusing upon the participants' PLEs linked to a range of shorter patchwork assessments. Developments will also include further opportunities to engage in online synchronous discussion, as well as offering an introduction to other forms of delivery, such as podcasting, based around focused tasks.

Social literacies, attitudes and motivations for engaging with participatory environments were confirmed as crucial in the uptake and development of read/write approaches. A challenge for the delivery team is to develop tasks creatively, so that participants are motivated to find a sense of 'use' or value for themselves and/or their students. Furthermore, practitioners need to accept that their engagement in curriculum design and innovation will not follow an orchestrated, linear progression. Time needs to be allowed for reflection and transition, facilitated by an interactive, read/write exchange of practice. A critical element is managing uncertainty, and this was evidenced through the wiki-based action plans. In this respect, participation in professional development managed over time using read/write web tools offers prolonged and deeper opportunities for activating knowledge and motivation both formally and informally.

CASE STUDY 2:

THE IMPACT OF SOCIAL MEDIA ON LEVEL 2 MEDIA TECHNOLOGY STUDENTS

On the Media Production programme in the University's Faculty of Technology, the development of digital media shifts both the subject area and how it can be studied. This is achieved through proactive, 'hands-on' participatory learning experiences that are experimental, student-centred, collaborative and enquiry-oriented. Blackboard, the University's virtual learning environment (VLE), is used as the backbone for learners to access proprietary online tools and services, and this creates a fused social media space where students can create, document and share project experiences (Hall, 2009). This fused social media space enables learners to connect

read/write web tools like real-time, synchronous classrooms, blogs, wikis and podcasts with the VLE. One learner highlighted that this provides 'incredible ways of documenting our work and also recording all of our findings'.

The learners' wiki-based homepages are used to personalise new media project plans and deliverables that are defined by the annual NMC Horizon Report (NMC, 2009). These homepages are extended through a range of multimedia content and tasks, co-authored with students, using synchronous, participative tools like Coverltln, Slideshare, YouTube and Twitter. The homepages link to other websites beyond the University that are used for coursework assignments. For example, two students drew on their experience of using online video games to evaluate their roles as 'newbies' in two games they had not played before. They recorded in-game video, using a blog and a wiki, and published their research online as a slideshow on Slideshare. All these tools were co-ordinated from their project homepage on the VLE to stimulate participation by other students.

The tutor recognises that students are apprentices in reflective practice and social learning, and so negotiates a curriculum where learning-by-doing supports progression. As a formative, socialisation exercise students exchange digital CD mixtapes that enable them to think about the personalisation of media and how consumption can become an act of production. They then negotiate a digital media project, which critically enhances and extends their talents. These projects build on emergent personal interests and involve engagement with read/write web tools, in order that learners experience new forms of media literacy and document and reflect upon what they learn. As a result, one student created a mash-up between their blog and a Google mapping application to create 'skatespots' for online participation in skateboarding culture. This approach allowed students to reflect about the demands of being creative with read/write web technologies and sharing personal experiences with others.

As a result, these students engaged as key agents in producing, scripting and editing mash-ups and multimedia for themselves and others, with a focus on positioning their theories and ideas in context. One student valued this pedagogic approach as the tutor: "pushes the boundaries in innovation with new media. We get to develop what works for us and have an opportunity to progress and apply the tools." This learning culture facilitates student-ownership through the customisation of learning spaces that are linked to a social hub. This enhances enquiry-based learning for all.

CONCLUSION

DMU's involvement in the Higher Education Academy Benchmarking and Pathfinder Programme highlighted how far institutional maturity for the uptake of e-learning or technology-enhanced learning has moved. From a simple assurance that all modules use an institutional VLE for baseline communication and information sharing with students, DMU is now in a position where innovation in read/write web approaches

and technologies can underpin learning enhancement strategies (HEFCE, 2009). Mechanisms that respect the needs of curriculum delivery teams, rather than isolated individuals, highlight that trustful, pedagogically focused engagement can be a catalyst for contextually significant, continuous improvement.

It is also clear that both staff and students have expertise in engaging with non-institutional technologies that has been developed in their everyday lives, and this potentially provides a basis for inspiring new contexts (Conboy et al., 2009b). This aligns with the developing research into PLEs (Ravensbourne, 2008) and around student expectations (Trinder et al., 2008; Yorke and Longden, 2008) that demonstrates possible synergies between learning in informal associations or networks and the spaces that academics create for formally assessed learning. As a result, professional development needs to focus upon harnessing the use of emergent technologies, in order to enhance critical, learning literacies in the classroom.

A broader understanding of emergent models for extending engagement with the wider curriculum became evident, particularly where read/write tools enhanced the development of personal learning literacies. As a result, the following key principles for extending HE curricula emerged:

- 1. Students are increasingly personalising access to, and development of, their learning. This is bounded by the contextual dynamics of: who sets the agenda for the use of a particular space with regard to the tasks and tools that shape its boundaries; who controls access to that space and whether its users feel able to participate therein; and, the external networks that users create and within which they operate. Enabling learners to frame their own approaches to the development of critical, learning literacies is an emerging issue for curriculum designers.
- 2. Issues of power and control within and across HE curricula are impacted by user-centred read/write web technologies, where the learner is able to become a co-author and co-manager of her/his personal learning context. As these technologies are used to drive enquiry- or problem-based learning, or portfolio-based assessment, and as personal, mobile or web-based technologies are folded into a PLE, issues of control are amplified and need to be addressed by delivery teams.
- 3. Academic staff need to engage with the interface between institutional and non-institutional tools, in order to facilitate: structured learning tasks that help students to make the most effective use of their technology-supported learning; student reflection on their own learning in a range of formal/informal contexts, for the purpose of formally assessed learning; and timely approaches to feedback and formative assessment in informal learning contexts.

4. Strategic and operational risks exist for curriculum design and delivery teams. The impact of informal learning using emergent technologies on summative outcomes in HE needs to be managed so that it does not disenfranchise some learners. Academic and support staff also need to identify how these technologies impact transitions and progression, induction and access. Moreover, the inter-relationship between PLEs and institutional VLEs, and the concomitant impact on staff-student and student-student relationships needs analysis.

Within the context of social learning theory, the DMU Pathfinder project demonstrated that the learner can be empowered to make effective decisions about their learning where read/write web tools are used to catalyse pedagogic innovation (DMU, 2009; Napier, 2008). Such innovation is driven by learning and teaching cultures that emphasise starting with the learner and her/his aspirations and conceptual understanding, and encourages students to find spaces within which their personal, critical, learning literacies can be enhanced and extended.

Such an active, enquiry-oriented approach can empower the learner to define and own their learning. In validating individual stories and beliefs, and in crystallising themes around control, participation and external association, emergent technologies afford opportunities to ameliorate marginalisation. Read/write web tools and approaches promote dialogue and a sense that the power relationships within any space have a chance to be democratically framed. Through direct experimentation and engagement with pedagogic innovation, catalysed by a mix of institutional and non-institutional applications, learner empowerment can be prioritised and active engagement with curricula encouraged. In this way, the read/write web can proactively shape the means for the production of educational outputs by shaping the creation of personal learning spaces.

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PODCASTING FOR PEDAGOGIC PURPOSES: THE JOURNEY SO FAR AND SOME LESSONS LEARNED

JETHRO NEWTON AND ANDREW MIDDLETON

INTRODUCTION

This chapter examines the potential for pedagogy of a technology that has emerged recently and with surprising impact: podcasting. The Podcasting for Pedagogic Purposes Special Interest Group (PPP SIG) has emerged as a facilitative body to discuss and refine the sector's understanding of podcasting as a transformative tool. At the centre of the chapter are issues that have been of paramount concern for PPP SIG: the educational benefits of podcasting, and the transformative potential for higher education of podcasting technology.

The chapter opens by contextualising podcasting and its use in education, and assessing its value and potential as seen by contributors to an emerging body of literature. It is proposed that if the barriers often associated with new technology can be overcome, then podcasting, or digital audio, can fulfil its potential for assisting pedagogic transformation. This discussion is followed by an account of PPP SIG's origins in the Pathfinder Programme, its achievements to date and future directions. Challenges involved in building a self-sustaining community of practice are considered, and the case is made for a communal approach to the exploration of educational podcasting. A reminder is provided of the difficult choices faced by post-compulsory education institutions, not least in the area of support for digital media and preparedness of infrastructure.

The chapter concludes with an assessment of the potential future of digital media in educational contexts, along with some of the institutional requirements for effectively supporting its use. Implications for institutional planners are briefly sketched out. The lessons and messages from PPP SIG's journey to date have implications for national funding and enhancement bodies, policy-makers, senior managers and academic leaders, for students, and for front-line practitioners.

UNDERSTANDING EDUCATIONAL PODCASTING

"Podcasts set to knock lectures off the podium" was the bold headline that appeared in *Times Higher Education* (Attwood, 2007). It hints at the transformative potential of podcasting technology to higher education. Underlying the activity of the PPP SIG is this essential question: to what extent can educational podcasting usefully challenge traditional teacher centred forms of pedagogy still evident in higher education today?

To answer this we first need to understand the technology and the theories of learning at a higher level. Only then is it possible to imagine and evaluate technology-enhanced pedagogy. Biggs (1999) provides a strong argument for constructive alignment in which the learning outcomes determine the nature of the constructivist pedagogy used, with the implication that technology is selected because of its capacity to fit closely with the pedagogy and the delivery of the learning outcomes. If we aspire to a learner-centred, well-aligned, constructivist paradigm, we need to be creative and open in evaluating the potential of new and emerging technologies.

In asking whether podcasting can be a transformative technology, it is implied that education can be understood as a coherent, uniform space that needs to be universally transformed, and that educational podcasting can also be conveniently explained and then demonstrated as a useful technology. However, this chapter proposes that podcasting's potential to education is in its adaptability, particularly in looking beyond its capacity to transmit information, in promoting discursive engagement and meaning making. It is also suggested that, in evaluating its educational potential, we should not be constrained unnecessarily by podcasting's technical specification, but appreciate only the technical attributes that can further pedagogy in the 21st century.

ABOUT PODCASTING IN AN EDUCATIONAL CONTEXT

As with other technology, initial understandings of the use of podcasting have tended to be either rigidly techno-centric or too simple to communicate a clear sense of what is involved. As Beetham and Sharpe (2007) note, it is urgent that we evaluate digital technologies properly because teachers interested in technology are prone to disregard the long tradition of evidence around effective pedagogy. Educational podcasting is typical of the breed of digital technology often referred to as 'new and emerging'. A brief history of podcasting in education shows that it is not so much the technology that is emerging, but its application, with the technology gradually being redefined and becoming subservient to learning theory, practice and evidence.

Early writers on the subject of educational podcasting (e.g. Meng, 2005; Campbell, 2005; Thomas, 2006) explained its essential function: to distribute digital media using an RSS feed to which the end-user subscribes using a *podcatcher* or aggregation tool. However, a clearer sense of podcasting's educational benefits has gradually evolved. Chan et al. (2006, p.11) identify podcasting as a technology

that "allows audio content from one or more pre-selected feeds (channels) to be automatically downloaded to one's computer as it becomes available, then later transferred to various types of companion media such as iPods and MP3-capable mobile phones, for listening to at a convenient time and place, or 'on the move'". Nevertheless, a shift from emphasising its mobile potential soon occurs. Several studies (e.g. Lane, 2006), begin to report that students listen, not on mobile devices via subscription feeds, but directly through the VLE in their web browser in the same way that they access other online academic material.

Copley (2007, p.387) points to a transition from a techno-centric position to a pragmatic and creative one: "... podcasting refers to the distribution of media files by syndication feeds, through which new files are automatically downloaded to subscribers, but media files downloaded manually from the Internet are also generally referred to as podcasts". In a further example of this, Draper and Maguire explain how their learner-generated assignments were made available as both podcasts and as MP3 files, feeling the need to make a distinction between the two (2007, p.44). More recently Maguire (2009) has explained that they felt it was now less important for students to understand the distinction.

A university-wide pilot case study at Sheffield Hallam University (Middleton, 2009) found that neither academics nor students were interested in the concept of the RSS feed at the moment, but had nevertheless applied podcasting in different ways in a range of disciplines. The study concluded that audio "demonstrated a capacity to facilitate authentic engagement, allowing students to connect in various ways to the outside world, both as listeners and publishers [and the] ease and speed with which digital audio can be deployed was used to support timely interventions and in some cases promoted information currency and responsiveness".

Salmon and Edirisingha's book (2008) on podcasting provides case studies on digital storytelling (Jenkins and Lonsdale, 2008) and audio feedback (France and Ribchester, 2008), techniques that recognise how the use of digital voices can heighten personal engagement and reflection. Indeed, as our interest in podcasting has matured we have become more confident in evaluating new and emerging technologies and shaping them to our purpose. This chapter argues that what was also new about podcasting, and what was most important, was the access to voices it offered. The techno-centric view was slow to recognise this.

THE NEED FOR TRANSFORMED, LEARNER-CENTRED PEDAGOGY

Leaders in higher education have for many years attempted to support the sector in moving away from teacher-centred pedagogy towards a learner-centred paradigm. The concurrent emergence of electronic learning technology has not always been helpful in that shift, where theory and technology may have been "working in opposite directions" (Mayes and de Frietas, 2008, p.18).

While acknowledging the need properly to align technology with theory and learning outcomes, it is also important to note that technology inevitably affects the way we engage as learners (Beetham and Sharpe, 2007). Prensky (2001), Dede (2005) and Oblinger and Oblinger (2005) have introduced us to the *Digital Natives*, the *Neomillennials* and the *Net Gen Learner*, respectively: generational views of learners who have grown up among digital technology. Nevertheless, we should be opportunistic, yet constructively critical, of the technologies that become available. This vigilance is especially important in an age where there is both a convergence of technologies and increased personal ownership; trends that are not necessarily compatible with enhancing access to learning. Indeed, Margaryan and Littlejohn (2008) caution us that the 'Google Generation' may not be demanding a pedagogic revolution quite yet and that their apparent confidence with digital technology may obscure a lack of technical and academic literacy. We should be clear, as academic innovators, therefore, why podcasting does interest us.

FALSE START ON THE JOURNEY TOWARDS TRANSFORMATIVE PEDAGOGY

The simple application of podcasting technology to teaching was initially based on the assumption that podcasting was a version of broadcast, didactic media, perfectly suited to teacher centred practice. The result was a proliferation of 'coursecasting,' especially in the United States (e.g. Anwar, 2006; Dale, 2007; Kadel, 2006; McKinney et al., 2009). Studies of coursecasting have demonstrated that it can bring benefits to learning in a lecture-driven paradigm; for example, supporting asynchronous re engagement with lecture content for revision purposes (Evans, 2008).

The notion of further amplifying the teacher's voice through the recording and redistribution of lectures can hardly claim a transformative affect on pedagogy. Similarly, others have seen the value of educational podcasting in its capacity to offer 'supplemental' material (e.g. Abt and Barry, 2007; Dale, 2007; Frydenberg, 2006). Chan et al. (2006, p.113) use supplementary as meaning "not directly examinable".

Understanding educational podcasting as a mechanism for adding new content channels to a teaching system, established many centuries ago, neglects the real opportunity. Henshaw (2008, p.3), in looking ahead, suggests that learner-centred models of education will inevitably be less-structured and "will assign more importance to informal resources that have previously been viewed as supplemental to the lecture and the course textbook". Henshaw's view of a transformed learning landscape captures the real shift that educational podcasting can bring to the blended environment: the production and distribution of locally generated material that is not necessarily examinable content, nor supplemental, but that can be understood as significant digital artefacts or media interventions that affect learning by promoting active learner engagement.

RECOGNISING THE IMPORTANT QUALITIES OF EDUCATIONAL PODCASTING

If the technological view of podcasting is put to one side and we consider podcasting as a medium rather than a mechanism, its potential to education immediately becomes clear: podcasting offers education access to asynchronous voices.

The PPP SIG has occasionally proffered definitions for discussion. For example, it might be useful to describe educational podcasting as a medium for the academic designer that supports the distribution and sharing of locally developed or sourced digital linear media, which heighten access to, and engagement with, the learning community and their learning focus. However, this detailed and correct description offers no sense of what actually happens and what is actually used, and so a simple technical definition of educational podcasting is still required. For example, educational podcasting involves the simple production and distribution of digital audio or video files so that learners can use them when and where they want on their computers or the other devices they prefer to use.

Neither of these two explanations mentions terms like 'RSS feed', 'subscription', 'MP3 player' or even 'iPod'. For higher education it is important to recognise the generalisable qualities of educational podcasting and avoid being unnecessarily constrained by the detail if we believe educational podcasting has a future.

ACCESS TO ASYNCHRONOUS VOICES

Access, timeliness and personal connection are three qualities that give an indication of where educational podcasting's value lies when considering it as a transformative pedagogic device.

As noted by Campbell (2005), the recorded voice can be carried into almost any situation, though research conducted by Evans (2008) questions whether students will deeply engage in content on the move. However, listening to media on the move can be powerful because, by definition, the learner is consciously deciding to engage with it, possibly on their own device, and this suggests a heightened receptivity. The portability of media also allows content to be taken into situations where it has a particular resonance, as in the case of Nursing students using refresher videos while on clinical practice to reduce anxiety (Middleton, 2009) or Geography students on a field trip (Downward et al., 2008).

The value of captured voice is recognised in much of the educational podcasting literature, but particularly in the literature on giving audio feedback to students, where the sincerity found in the prosody of the voice contrasts with the indecipherable handwritten feedback that is sometimes found on students' work. France and Ribchester (2008), for example, note that students view such feedback as more personalised and understandable, so encouraging a deeper engagement with it. More generally, the recorded voice is a resource for further scrutiny. Thus the captured dialogues between tutor and student in the tutorial can offer new meaning on each

listening (Cryer and Kaikumba, 1987).

Lee, McLoughlin and Chan (together with other colleagues) have written extensively about the value of students producing audio learning objects; for example, where learner production was used to not only foster generic attributes such as teamwork and digital literacy skills, but also to facilitate personal and group enquiry, enabling the students to express and conceptualise their understanding of subject matter (Lee et al., 2007).

Diamond and Middleton (2009) described a first-year Journalism module in which audio had been used pervasively. Tutor summaries, topic preview and review, peer feedback, external expert voices and a student podcast gallery were some of the ways in which audio was used to create an aural learning environment. They note audio can extend the learning situation, make authentic connections to the world beyond the classroom and scaffold the articulation of conceptual knowledge.

Digital audio is also cheap, disposable and semi-formal in nature. These qualities suggest that, if the psychological and practical barriers often associated with new technology can be quickly removed, higher education might have found a device that can alter educational models and encourage pedagogic transformation.

PPP SIG: ORIGINS, PURPOSES, AND EMERGING DIRECTIONS

It was the proliferation of students equipped with their own mobile phones, MP3 players and laptops that first attracted the University of Chester to explore the potential of podcasting technology. Derek France set out to "explore the enhancement of learning opportunities through extending assessment feedback for students via the use of podcasting" (France and Wheeler, 2007) in the University's Pathfinder Pilot project.

By September 2007 the Chester podcasting project, drawing upon a growing evidence base and with the engagement of external examiners, had successfully devised an approach to the use of audio feedback. The initiative, viewed positively by staff and students (France and Ribchester, 2008), was subsequently extended, post-Pathfinder, to investigate student-generated video podcasting and digital storytelling. Here again, the evaluation has been positive, with 82% of students agreeing that 'creating video podcasts enhanced my learning experience of the subject', and 86% agreeing that it 'encouraged better group interaction' (France et al., 2009). Beyond the direct benefits to Chester's own curriculum, however, the University has been instrumental, through Higher Education Academy Pathfinder funding initially, in developing the PPP SIG. Pathfinder had instigated an environment that was supportive of the further extension and dissemination, institutionally, of initiatives such as the Geography audio podcasting project. It prompted local discussion and reflection on wider questions around the pedagogic benefits of podcasting and the sector's possible interest in collaborative exploration of that potential. The opportunity to engage

with the Pathfinder Network initiative provided a further stimulus to this thinking, and synergies were explored with the University of Hertfordshire's Blended Learning Unit (BLU). Lessons from Hertfordshire's 'podcasting campaign', and their 'handson' guidance programme, provided an exemplar for advising institutions on staff development and how to achieve impact. These ideas eventually coalesced around the idea of a national PPP Special Interest Group.

The PPP SIG was established in January 2008 as a six-month Academy Pathfinder extension project to explore the feasibility of building a self-sustaining SIG focused on educational podcasting, related staff development and research. It also aimed to provide a showcasing forum for practitioners, enabling further discussion and dissemination of its potential.

An initial survey of work on podcasting in the sector was conducted. Individual initiatives and projects were identified, and a directory of practitioners was developed. The 'enhancement of pedagogy' and 'the student experience' were fundamental concerns among those attending the February 2008 launch event. Attendees also stressed the importance of reflecting the 'student view', recommending student involvement, where possible, in future SIG activities. Similarly, there was clear consensus showing the SIG's role in catering for both 'experts' and 'novices' and the need to showcase both learner- and staff-generated podcasts. It was clear not only that case studies and guidance on digital media, audio and video podcasting would be welcome, but that those attending could contribute to such a resource base.

The PPP SIG devised a dissemination strategy that included the use of a wiki¹, which now forms an important part of the PPP SIG post-project sustainability strategy. It is used to disseminate events, project information and resources, as well as Steering Group terms of reference and contact information. It also provides: a facility for members to create their own pages and share expertise; resources for members such as examples of audio and video podcasts, 'how to' guides and examples of student-created podcasts; and links to other resources.

The question of how to sustain and refresh the SIG has been particularly important. Formal feedback from 70 members attending the third PPP dissemination event informed a plenary discussion, which confirmed the proposition that the community as a whole could work collectively to further the sector's understanding. This had been evidenced earlier in the day during a session in which all those attending generated 170 techniques for using educational podcasting in post-compulsory education. Collectively the participants drew upon their own practice and their own imagination. The output of this endeavour was shared more widely on the wiki and is to be published in a synthesised version in *Creative Voices* (Middleton, 2010).

I http://ppp.chester.ac.uk/index.php?title=Main_Page

ACHIEVING CHANGE AND TRANSFORMATION THROUGH TECHNOLOGY-ENHANCED PEDAGOGY: SOME LESSONS LEARNED FROM THE PPP COMMUNITY

The initial project achieved its central objective of exploring the potential for establishing a self-sustaining SIG in the area of educational podcasting. Linked objectives of the initiative – to add value, build capacity and stimulate partnerships across the sector in an emerging area of innovative practice in technology-enhanced learning – were also achieved. Similarly, students and staff have directly benefited from the SIG with its impact affecting those who use, support or deliver educational podcasting. Over 300 practitioners are now engaged with PPP SIG, with each regional event fully subscribed.

Various examples of progress and impact can be identified; however, the SIG is particularly proud to have placed the student experience at the centre of, not only the SIG's own focus, but the focus of each person who has made connection with its work. The SIG, in discussion with JISC and the Academy, has gravitated towards a focus on digital media, rather than podcasting per se and activities have evolved to reflect this.

In this section, PPP SIG's achievements are considered through an assessment of some of the lessons learned to date. Each has implications for wider debates about achieving change and transformation through technology-enhanced pedagogy. First, the challenges inherent in building a viable and sustainable community of practice are considered. Secondly, the case is put for a communal approach to the exploration of educational podcasting.

BUILDING A VIABLE AND SUSTAINABLE COMMUNITY OF PRACTICE

One emergent feature, of importance in policy terms, has been the debate around how a sustainable community can actually be achieved, and what the key ingredients might be for success. The sustainability challenge was tackled in two ways. Firstly, by undertaking a needs analysis approach, referred to in the previous section; secondly, by exploring various models for organising ourselves as an emerging, sustainable network.

MEETING THE SUSTAINABILITY CHALLENGE: FINDING THE RIGHT MODEL

Throughout, there has been a clear recognition that most 'communities of practice' go into rapid decline when key individuals 'move on', or when funding ends. The Steering Group has been acutely aware of a number of linked considerations. For example, the need to:

- ensure linkage with relevant agencies and networks;
- move towards a position whereby SIG members/practitioners take ownership, contribute, and become proactive; and
- secure sufficient resources to support administration and co-ordination when funding ceased.

Arguably, the principal challenge for PPP with regard to seeking to influence and even transform academic practice has been the identification of a model that would provide an effective vehicle for supporting the aims of capacity building and dissemination, but that would also provide a realistic basis upon which to deliver the ownership and involvement necessary for sustained, proactive engagement. Various mechanisms were considered, including Lewis and Allan's (2005) three models for virtual learning communities – 'simple', 'managed' and 'complex'. A consensus emerged around adoption of a 'Hub and Spoke' model (Nason and Wooding, 2006) as a means of organising the PPP SIG as an emerging, sustainable network. Structure, leadership and co-ordination were deemed to be critical ingredients for sustainability.

CREATIVE VOICES: THE NEED FOR A COMMUNAL APPROACH TO THE EXPLORATION OF EDUCATIONAL PODCASTING AND DIGITAL MEDIA TECHNOLOGY

PPP has adopted a collaborative and communal approach to the exploration of educational podcasting. This has wider implications for national enhancement bodies, for other SIGs, and for those seeking to encourage a community of practice in educational contexts. A significant and unexpected PPP outcome — a 'project within a project' almost — is the edited collection of papers, *Creative Voices: exploring the potential of educational podcasting and digital audio*' (Middleton, 2010). This has been informed by the underlying principles that not only should practitioners' 'creativity' and 'voices' be showcased in the form of case studies, but SIG members and other practitioners should be actively and collaboratively involved in shaping the ideas.

THE FUTURE OF DIGITAL MEDIA: RECOGNISING THE TRANSFORMATIVE POTENTIAL OF PODCASTING TECHNOLOGY FOR POST-COMPULSORY EDUCATION

Since its inception, the PPP SIG has been exploring the question of the transformative pedagogic potential of podcasting technology. It has gravitated towards the view that this potential is considerable and realisable. In this section it is argued that if the use of digital media is to be effectively supported, institutional infrastructure must be appropriately aligned and adequately resourced. Consideration is then given to the future of digital media, and the likely implications for senior managers and institutional planners. It is argued that an unplanned future is not really an option.

SUPPORTING THE USE OF DIGITAL MEDIA: THE IMPORTANCE OF INSTITUTIONAL INFRASTRUCTURE

An important facet of PPP SIG is its contribution to the debate around the resourcing and infrastructure implications for institutions of the increasing ubiquity of digital media technology in educational contexts. A workshop discussion considered the issue of: 'Infrastructure for digital media: what is required to support and facilitate educational podcasting?' A previous debate had overwhelmingly concluded that educational podcasting, in its various guises, could be valuable to all academics and in all disciplines. The workshop that followed, involving 22 participants from UK HEIs, concluded, however, that institutional infrastructure is a weak link and that, as such. it will hold back academic innovation in the widespread use of digital media. The conclusion drawn was that, if podcasting is to be more than a niche activity, HEIs and FEIs need robust and transparent infrastructure. A range of 'infrastructure hotpoints' was identified, and participants were invited to consider how 'fit for purpose' their institution was in each of the areas, and to identify any points that were particularly weak. The areas identified were: infrastructure co-ordination; institutional drivers; file storage; robust network; production team; ICT literacy; access to kit; drop-in help; educational development; student support; and academic support.

In gravitating towards the conclusion that the alignment and development of institutional infrastructure were not well placed to support the growing use of digital media, a number of pertinent issues emerged. These are of particular significance for institutional managers, policy-makers and funding bodies alike. Each of the infrastructure areas was identified by participants as showing signs of weakness. It was reported that development priorities were not understood or shared across the institution, and that institutional infrastructures had been "designed for a different era". Most saw a lack of infrastructural co-ordination and inadequate harnessing of institutional drivers as critical, and inadequate development was seen as being compounded by continuous organisational 'chopping and changing', including changes in senior management personnel and portfolios. A widely recognised picture emerged of too many unco-ordinated 'silos' of activity, slowing the development of comprehensive, accessible and understood infrastructure arrangements. Implementation was also seen as a problem. Those participants with responsibilities for staff development found that even where they managed to get the message across, converting that to implementation often seemed a challenge too far.

THE BENEFITS OF DIGITAL MEDIA: SOME POINTERS FOR INSTITUTIONAL STRATEGY AND PLANNING

An important message to emerge from PPP SIG is that there is both a business case and a pedagogic case to be made for podcasting. The availability of re-usable objects and resources, the potential impact on student achievement and retention, the

enhancing of assessment feedback, the easing of transition to university, all provide persuasive possibilities for cost savings.

One PPP debate has been centred around the following issue: 'Do we believe that audio provides a niche opportunity or one that can permeate the whole student experience?' Discussants were asked to look ahead over the next five years and to consider the likelihood of the following propositions. By 2014:

- a VLE dominated by text-based content and discussion will seem very outdated;
- most students will access the VLE using powerful, portable, user-owned devices;
- most students will expect a large percentage of course material to be in digital media formats (e.g. content, announcements, feedback, student presentations etc);
- students will be expected to own, carry and use a digital audio and video recording device for making personal notes as well as collaborative presentations;
- most students will be assessed in part on their ability to communicate their ideas fluently using digital audio or video technologies.

What makes these propositions especially pertinent is that, given that higher and further education institutions' strategic plans and learning and teaching strategies are developed for a five-year planning cycle, albeit being reviewed annually, the period 2009–10 to 2013–14 is one that is very much in their sights. Moreover, it can be assumed that institutions will have set out at least some corporate goals and objectives that bear, directly or indirectly, on e-learning. In view of this, the following proposition, agreed by PPP participants at the University of Leicester event, is especially noteworthy: 'Digital audio's potential to higher education is as a ubiquitous and flexible medium that can be adapted by any academic to enrich the learner experience.'

CONCLUSION AND IMPLICATIONS

Notwithstanding the discussion of possible future scenarios in the preceding section, who knows what the future holds? Will it be about digital media? In this context, the value of PPP SIG to the development of educational technology in the UK is considerable. The anticipated potential of digital media, the infrastructural considerations, the sustainability challenges, and PPP's contribution to debates in each of these areas, all point to the message that has emerged from the SIG to date. That is, that digital media can address many drivers in the sector, but that, to date, there is no adequate way in our institutions of supporting this. Accordingly, a community of practice is required to co-ordinate this important development work for the next five years or so, and PPP SIG is well placed to fill this role.

It remains to be seen how others beyond the emerging PPP community will position themselves on some of the issues raised here. For funding bodies and educational institutions, an assessment needs to be made of the place of digital media in enhancing the student experience in post-compulsory education. For managers seeking to intervene purposefully in universities, routinely characterised by uncertainty, there are resourcing and infrastructure challenges. For national enhancement bodies, encouraging and supporting innovative projects and initiatives is one thing, but the real test lies in sustainability, continuity and the building of the emergent communities of practice that sometimes result from such initiatives. For academics and those who directly support or deliver learning, where innovation in enhancing the student experience is present, institutions should ensure appropriate alignment of strategy and infrastructure.

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DIGITAL STORYTELLING AND ITS PEDAGOGICAL IMPACT

PHIL GRAVESTOCK AND MARTIN JENKINS

INTRODUCTION

This chapter introduces the topic of digital storytelling and presents four case studies from the University of Gloucestershire, which outline some of the ways that digital storytelling has been used within different disciplines and pedagogical contexts. The chapter starts by briefly considering the use of storytelling before discussing the pedagogical implications of digital storytelling.

It seems sensible to begin by defining what is meant by the term 'digital story', and ideally this would be done through the use of a digital story itself. Although it is not possible to reproduce a digital story as part of this publication, outlined over the page is a series of images and a script that could be used to describe this process.



Digital storytelling combines a narrative with images that support and enhance the narrative. The emphasis of digital storytelling is on the story, not the technology.



The technology and software required to create a digital story should be low cost (or no cost), easy to access, learn and use. The use of technology allows the story to be captured and disseminated to a wider audience. Although most digital stories are produced on a computer using software such as Photo Story, MovieMaker or iMovie, it is possible to produce stories using mobile devices such as cameras or phones (e.g. 'The Joy of Man and Tree': www.youtube.com/watch?v=bc9QjaBS1GE).



A 'typical' digital story will be created by a single author, will last for two to three minutes and will consist of no more than 15 still images with a narrative of 250 to 300 words. The advantage of this technique is that it is flexible, allowing users to adapt this template for more creative and adventurous digital stories; for example, through the use of video clips, the addition of a music soundtrack, or digital stories created by groups.



The use of digital storytelling in higher education allows students and staff to express their thoughts and ideas in a different, hopefully creative, way. Digital storytelling is being used as a method of promoting students' reflection on their learning, and can be used as a process to support reflection and/or as a method of assessment.



Although digital stories may be regarded as 'fun' or 'lightweight', particularly if being used as a form of assessment, the cognitive processes involved in developing a digital story – for example, selecting, rejecting, ordering, structuring text and images – are similar to those involved in text-based outputs such as essays or reports.



It is only by creating a story that you can fully appreciate the work that is involved. Before creating your own digital story it is a good idea to view some of the stories available on the Internet. A good place to start is the Capture Wales project: www.bbc.co.uk/capturewales.

STORYTELLING AND REFLECTION

It is necessary to make two admissions at this stage:

- I. Digital storytelling is not new; it is simply an adaptation of the storytelling tradition that has existed for more than 6,000 years (Abrahamson, 1998).
- 2. The 'digital' aspect is the least important part of the process. The emphasis of digital storytelling has to be on the story itself, rather than the technology. "Story without digital works, but digital without story doesn't" (Ohler, 2008, p.xviii).

Both these admissions bring us back to the same point: the fundamental importance of the *story*. Stories are used to convey information and help us to make sense and meaning of our experiences (Abrahamson, 1998; Matthews-DeNatale, 2008; McDrury and Alterio, 2000; 2003). When a story is used to inform, to teach about something not already known or understood by the listener, then it becomes a way of demonstrating what has been learned by the storyteller. Thus, digital storytelling can be a medium for learning by teaching. This connects directly with the pedagogy of learner-created knowledge.

Creating a story is a powerful stimulus for reflection. Sharing experiences with others allows a different perspective to be introduced and new questions to be asked, which can potentially prompt further thoughts and reflections. The sharing of stories is an important element: "For a story to be a story, it must be shared" (Orech, 2008). It is by sharing our stories that we can obtain a deeper insight into their meaning.

McDrury and Alterio (2003) outline a 'Learning through Storytelling' framework, which consists of five stages:

- I. story finding;
- 2. story telling;
- story expanding;
- 4. story processing; and
- 5. story reconstructing.

The act of sharing, rather than simply telling, occurs at Stage 3 of this framework. It is necessary to engage in the process of sharing in order to progress through the final stages of the framework and to gain greater learning benefits through storytelling. To highlight the development of the reflective processes when engaging with the later stages of the 'Learning through Storytelling' framework, the five stages can be mapped against the 'Stages of Learning' that form part of Moon's 'Map of

Learning' (1999) (see Table 1). These stages describe a progression from relatively simple to more complex learning processes, as indicated by the descriptions of representation of learning at each stage.

Table 1: Mapping McDrury and Alterio's 'Learning through Storytelling' framework (2003) with Moon's 'Map of Learning' (1999)

Learning through Storytelling	Map of Learning		
	Stages of learning	Representation of learning	
Story finding	Noticing Memorised representation		
Story telling	Making sense Reproduction of ideas; ideas not well lin		
Story expanding	Making meaning Meaningful, well integrated; ideas linked		
Story processing	Working with meaning	Meaningful, reflective, well structured	
Story reconstructing	Transformative learning Meaningful, reflective, restructured learner – idiosyncratic or creative		

One specific application, which highlights the role of sharing stories, is within disciplines where critique is common practice for providing formative feedback, often through a peer assessment process. Digital stories can be created by students and then displayed to the group as a whole for feedback. One of the benefits of this approach is that the author of the story is able to observe the story and is therefore detached from the presentation, as opposed to an oral presentation where the author is part of the process. This allows the author to participate in the critique with their peers (see Case study I).

CASE STUDY I: LANDSCAPE

As part of the Landscape Design programme, first-year students are required to develop designs for a small-scale landscape development. Reflections on the learning and design process had not been traditionally made explicit through the course. Digital storytelling was introduced to encourage the students to reflect, in words and images, on these processes. As well as reflecting on how their designs evolved over time the students were also asked to reflect on themselves as designers: how they generated their ideas; how they developed the specific designs; and what this says

about them as novice landscape designers. Students were able to draw upon their portfolio of work, importing digital photographs of 3D models and directly importing 2D drawings, which could then be overlaid with their commentary on the design's evolution inter-linked with reflections on their own personal development.

In this particular application the personal development 'story' is important as this articulates the tacit learning. This articulation is part of the process of professional learning, developing the students' awareness of themselves as landscape designers and how they meet design challenges. So while images are obviously important to this technique, and especially so to design-based students, the driver for the development of the digital story is the 'narrative'.

The stories were created as individual reflections. Landscape students are used to working in a studio culture where open discussion and sharing is part of the assessment process, where staff and students critique work. The digital story fixes individual student's reflections at a particular time, yet using them as the basis for discussion and critique means they provide a basis for further development. Used in this way digital storytelling has been found to reinforce the culture of the design studio.

Storytelling fits well within a constructivist framework (Barrett, 2004; McDrury and Alterio, 2003; McKillop, 2005), whereby students make sense of interactions based on their own past experiences and can generate stories as a means of assisting with the process of reflecting upon these interactions. Rather than simply asking students to reflect upon a particular issue, the use of storytelling provides a recognisable framework to assist students in the process of reflection and to relate their thoughts to other experiences that they may have had. This approach closely matches the description of reflective activity as defined by Boud et al. (1985):

- returning to experience;
- attending to (or connecting with) feelings;
- evaluating experience.

There is an explicit link here to feelings, and storytelling is a process that values the affective domain and allows students to consider their emotions when reflecting upon their experiences (McDrury and Alterio, 2000).

Case study 2 describes an individual reflection upon experience that encouraged students to consider and incorporate their feelings and emotions.

CASE STUDY 2: SPORT

The second-year module 'Football in the Community', with a cohort of 60, had traditionally included a reflective essay as one assessment point. For this assignment students had to reflect on the relationship between their own identity and how it had developed through contact with different communities, in this case the sport of football. After seeing examples of the digital stories created by students as part of the active learning induction activity (see Case study 3), staff opted to replace this essay with a digital story. (This illustrates how once staff are introduced to digital storytelling they can easily transfer its application into their own teaching context.) To prepare the students the module tutor created his own digital story on the role that football had had on his own personal development. Experiences suggest that it is valuable for members of staff to create a digital story, both to understand what they are asking students to produce and for students to be able to see a relevant example.

The results of using digital stories both surprised and challenged the staff. The surprise was positive in that the quality of the students' work improved. With regard to the staff getting to know their students they found that the students were more reflective and revealing of information through the digital stories than they had ever been in essay form. The power of reflections being presented using the student voice had a big impact in achieving this. The students on the module responded extremely positively to this new and different form of assessment, to the extent that students wrote to the module tutor to thank him for using it and asking if there were other modules that made use of this technique. The challenge presented to staff came through the creativity that it had released in the students. Existing assessment criteria were felt to be insufficient for the digital stories, not only in the fact that they did not explicitly recognise the creative elements of the digital stories but also raised the issue of assessing creativity more generally. In response to this a framework for assessment has been developed at the University and is currently being tested and evaluated (see Reflections: assessment).

Returning to Moon's 'Map of Learning', it should be possible to determine from a digital story whether a student has moved from 'noticing' to 'making sense'; however, as noted above, moving beyond the 'making sense' stage is more likely to be achieved if a story is shared with others, thereby introducing additional perspectives and prompting further reflection. This is where the application of digital stories to group

work may become important (see Case study 3), which provides the opportunity for individual members of the group to question each other about their perspectives and beliefs as part of the process of generating a story.

CASE STUDY 3: STUDENT INDUCTION

The Faculty of Education, Humanities and Science runs a week-long student induction programme centred on an academic activity. This programme uses academic activities as a means of socialising students into the University and to introduce them to the University's academic philosophy, which is centred on active engagement.

Students work in small groups to complete the full cycle of an academic activity and are provided with an 'inquiry', which they have to investigate and synthesise, before presenting their findings and receiving feedback from academic staff and peers. A number of disciplines within the faculty have used digital storytelling as the means for students to present their findings from the inquiry. One such activity was the 'Voices from the Flood' project.

In July 2007 Gloucestershire experienced severe flooding which had a major impact on the local region. On their arrival in September 2007, 80 students in the Criminology, Sociology and Community Development disciplines were engaged in the 'Voices from the Flood' project during their induction. Acting as social researchers they were to investigate the impact of the floods on local communities in Gloucester, Tewkesbury and Winchcombe. Working under the guidance of academic staff the students were able to choose the particular focus for their group inquiry; for example, impact on communities, housing or crime.

Students were introduced to the activity at a briefing session on their second day at the University. At the same time they were given an introduction to digital storytelling, being shown examples and introduced to the relevant equipment and software. Following the briefing the students had time to prepare their approach, the questions they wished to ask locals, and to conduct initial background research. The next day they were transported to the local communities where they interviewed local people and took photographs of the still-visible flood damage. On the third day, with other induction activities such as discipline and personal tutor meetings happening around this, the students had time to put together their digital story; staff were on hand to support this activity. On the final day of the activity the digital stories were shown to the group as a whole. This provided students with an opportunity to view each other's work and provide feedback and comment.

THE APPLICATION OF TECHNOLOGY TO STORYTELLING

Although the emphasis has to be on the story, the application of technology to storytelling is an important development of this technique. The availability of easy-to-use software for combining images and narrative means that anyone can create a professional-looking product with a minimum amount of equipment and technical knowledge. The benefit of the technology is that it provides a 'portable' product that can easily be distributed and disseminated to a wider audience.

It is the addition of images to the narrative that is perhaps one of the main developments of the storytelling process, and adds to the cognitive strategies required when creating a digital story. The choice of images that enhance, rather than detract from, the story is crucial. It is important to stress to students that the quality of images is more important than the quantity (Orech, 2008), and that the story should drive the images rather than the other way round. Similar recommendations apply to the application of a soundtrack.

The ease of use of the technology, and the simplicity of the 'typical' digital story design, means that it is easy for both staff and students to adapt and expand upon this template in order to match the purpose for which it is being used. For example, rather than a series of still images it may be appropriate to add video footage, or a mixture of the two, or to create a digital report as opposed to a digital story. Ohler (2008) introduces the phrase "new media narrative" to acknowledge the fact that there are many variations on the theme of digital storytelling and to highlight the fact that although all stories are narratives, not all narratives can be classed as stories. Case study 4 provides an example where the tutor expanded upon the typical digital storytelling template.

CASE STUDY 4: BM303 MANAGING CHANGE

"I was looking for something that would be enabling ... to perhaps be more free thinking." (Module Leader)

Concerned that final-year students can potentially become strategic in their learning, the Module Leader for the BM303 'Managing Change' module wanted students to both investigate change and also experience change for themselves. This was done by introducing digital storytelling as one of the assessment points in this module.

Working in small groups the students, a cohort of 120, were asked to produce a digital story that emerged from their engagement with the theoretical aspects of the subject and how they make sense of managing change in the current environment. The expectation was a documentary-style story that captured the evolving contexts and knowledge that students would encounter. It should be noted that this work coincided with the dramatic changes in the economic climate in late 2008. The tutor encouraged the students to be creative and use more 'dynamic' media including video and music. There was also no specification regarding the length of the final product, and most stories lasted 10 to 12 minutes. The students were, in effect, being asked to replace a presentation with a creative, multimedia presentation. Students captured extracts from media reports from the Internet, radio and television, which they used in conjunction with their own academic research and analysis to put together their 'narrative'. In addition to the digital story students also submitted a reflective essay that revealed how they had engaged with creating the story.

The tutor response, and feedback from colleagues, to the use of digital stories has been very positive. The quality of the student work, with regard to analysis of their chosen topic as well as the creativity that it has encouraged, has been well received. Analysis of the student reflections shows overall that the students responded very positively to this approach, but some comments reveal some initial uncertainty. The table below provides some of the students' comments on the use of digital storytelling.

Initial reaction	Reflections	
Challenge Hard to come up with a concept that would work as a story	Used it to do a presentation in another of my modules	
Biggest challenge	Really helped me to understand the complexity	
Obscure form of assessment	I found it to be very exciting	
Originally I was unsure non-academic	Engrossing method of study new skills	
I did not know what was required normally academic paper	An opportunity to think outside the box	
Beneficial novelty unnecessary worry	Created a level of interest and discussion that might not have been there otherwise	
Daunting and unclear	Enjoyable	
Initial thoughts negative	Enjoy the process more and more would like to see more in modules	

In considering ways in which digital storytelling, or new media narratives, could be used, Ohler (2008) introduces a range of continua that highlight some of the common variables (see Table 2).

Table 2: Continua for use (from Ohler, 2008)

Story type, purpose, or impact			
Clear, like an essay	\leftarrow	\rightarrow	Challenging, like a poem
Metaphor, genre clear	\leftarrow	\rightarrow	Not clear
Universal resonance	Niche resonance		No resonance
Story	\leftarrow	\rightarrow	Report
Passive viewing	\leftarrow	\rightarrow	Active viewing
About author	\leftarrow	\rightarrow	About content
Reflection	\leftarrow	\rightarrow	Presentation
Assessed	\leftarrow	\rightarrow	Not assessed
Story elements			
Ist person, involved	\leftarrow	\rightarrow	3rd person, detached
Emotionally engaged	\leftarrow	\rightarrow	Detached, objective
Tone boundaries	Ap	propriate tone diversity	Unclear boundaries
Narrative a focus	\leftarrow	\rightarrow	Narrative not a focus
Music supportive	\leftarrow	\rightarrow	Music distracting
Performance, video info	\leftarrow	\rightarrow	Still images, voice-over
Creativity, originality valued	\leftarrow	\rightarrow	Not valued
Constraint, economy valued	\leftarrow	\rightarrow	Economy not valued
Process	\leftarrow	\rightarrow	Product
Story production			
Low production values	\leftarrow	\rightarrow	High production values
Media grammar sound	\leftarrow	\rightarrow	Media grammar unsound
Technology low end, available	\leftarrow	\rightarrow	High end, or not available
Help is part of process	\leftarrow	\rightarrow	Help is not allowed
Individual	\leftarrow	\rightarrow	Group

Note: Text in italics represents additions to the Ohler (2008) continua.

Staff thinking about using digital storytelling as part of their teaching, learning and assessment can work through these continua to help them to clarify the purpose for using this technique, and to communicate this information to students.

THE APPLICATION OF DIGITAL STORYTELLING IN HIGHER EDUCATION

When considering the application of digital storytelling to higher education, it is important to stress the cognitive strategies involved in developing an appropriate story, which is why all staff who are thinking of introducing this technique should create their own story first. Ohler (2008) discusses the multiple literacies associated with digital storytelling - digital, visual, oral and written - and describes this process as "a portfolio unto itself" (Ohler, n.d.). Processes such as evaluating, selecting, rejecting, structuring, ordering, presenting, synthesising, assessing the message to be conveyed, and appreciation of the audience, apply not only to the story narrative itself, but also to the other aspects of the production such as the images and sound. It is true that many of these processes are involved in the development of other teaching, learning and assessment strategies, such as posters or oral presentations, but digital storytelling has yet to be considered by many as one of the tools that can be used to support students to develop these skills (lay, 2006). The difference between digital storytelling and other approaches is that it appears that students are more willing to take ownership of this process and to convey more about their own personal development and learning. The exact reason for this greater ownership requires further investigation, but it may be due to a combination of factors such as the personal reflective nature of many digital stories, the use of the student's own voice in the production of a story (see Case study 2), and the fact that the final product can be easily shared with others for comment and feedback.

Although ideally suited to reflective activities, digital storytelling can be used for other purposes such as the development of students' presentation skills (see Case study 4). For example, first-year Accountancy students at the University of Gloucestershire were asked to create a group-based digital story instead of giving an oral presentation in front of the whole student group; the purpose was to allow the students to develop their presentation skills without having to worry about the fear and nerves associated with standing in front of a group of their peers. This is not to suggest that creating a digital story should replace formal presentations, simply the fact that perhaps this technique could be used as a way for students to recognise and work on these specific skills in a safe environment, and to then introduce the factor of presenting live once these skills have been developed. Used in this way it allows students, including disabled students or international students for whom English is not their first language, to concentrate on their presentation skills, and to be able to record and re-record their narrative if necessary. This highlights the inclusive nature

of digital storytelling as a process, and one which is recognised by students from a range of cultural backgrounds (Alterio, 2003).

Depending on how it is used, the *process* of creating a digital story is likely to be as important as the end product (Freidus and Hlubinka, 2002). There may be some applications where it is clear that the product is the main topic of interest (e.g. perhaps as part of a media-based course) or is intended to be a point of discussion (e.g. use in a critique – see Case study I), but there are other occasions where the purpose of the activity will be to promote student reflection, and in this situation it could be argued that the final product may not always adequately represent the level of learning or understanding that was developed through the process of creating the story. Depending upon the purpose of the digital story, it may therefore be appropriate to consider whether some form of additional evidence is required, for example a reflective journal outlining the steps taken to create the digital story, as it may be possible for a student to engage in quite high levels of learning and reflection – as indicated by Moon's 'Map of Learning' – but for this not to be manifest within the final digital story.

If, however, the end product is the focus of the activity then it will be important to consider what quality is required for the final product. For example, for a media-based course it is likely that the quality of the final product will be important, in which case it will be necessary to use appropriate equipment such as high quality microphones and digital cameras. If the focus is on the quality of the reflection, rather than the digital product, then the use of cheaper microphones may be permissible, provided that the quality of the sound recording does not detract from the story being told. The continua presented in Table 2 provide useful guidance when considering use.

While discussing the development of a digital story as an end product, it is worth emphasising the importance of copyright legislation. Many students are proficient in obtaining images from the Internet, but do not always appreciate the potential restrictions on their use, which might include publication in a digital story. Students should therefore be encouraged to use appropriate sources; for example, image and sound files that have been published under an appropriate creative commons license.

REFLECTIONS: ASSESSMENT

One of the most challenging aspects of introducing digital storytelling has been the assessment of students' stories. Within the University of Gloucestershire, digital storytelling has been introduced into disciplines that would not necessarily be considered 'creative', and the assessment of creative products has sometimes required the revision of assessment criteria. It should be noted that not all digital stories have to be assessed, but they may be used as a replacement for a reflective-based assignment, such as an essay (see Case study 2).

As with any assessment task, when assessing digital stories it is important to consider what the purpose of the assessment is and to ensure that the criteria match this purpose; however, there may be some additional aspects that need to be considered that relate to the use of the technology, such as use of voice or appropriate use of images to support the story. Table 3 contains a list of considerations that may be helpful as a starting point for developing criteria.

Table 3: Considerations for assessment (based on Ohler, n.d.)

Project planning	Evidence of storyboard, critical evaluation, map against 'Learning through Storytelling' framework	
Story	The success of the story, evidence of reflection against 'Map of Learning'	
Media application	Appropriate use of media, image selection	
Literacies	Blend of different literacies	
Technical delivery	Length of story, sound, music	
Flow, organisation and pacing	Is the story well organised?	
Creativity	Evidence of originality (to the student)	
Emotional impact	Evidence of personal engagement with the story	
Citations, permissions	Permissions obtained, correct citations	
Academic understanding	How well the story meets the academic goals	

REFLECTIONS: FINDING THE STORY

The experience of using digital storytelling at the University of Gloucestershire has highlighted the importance of supporting students in the development of a story. In the initial stages of use the emphasis was on supporting the students with the technical aspects of creating and publishing a digital story, yet evidence has shown that many students are fairly comfortable with this process or may require only a small amount of training in order to produce a suitable product. What has become clear is that some digital stories may be technically proficient, but do not always engage the audience. This relates to the earlier discussion about the importance of the story itself, and highlights a potential assumption that everyone can tell a story. Whereas students have been supported with the technical aspects of the process, it transpires that in some cases more support should have been provided for the development of their stories. This may involve identifying some 'hooks' upon which the students can develop their stories; for example, images or items that provoke

an emotional response. It is important to realise that while everyone may have a story to tell, it might take a while to identify, and develop, this story. It is during the process of finding a story that group activities can be helpful, particularly using peers to ask questions, provide prompts and to support the ongoing development of a story once one has been identified.

CONCLUSIONS

Digital storytelling is a potentially powerful tool for supporting teaching, learning and assessment in higher education. Although this technique is ideal in supporting students in the development of personal reflections on their learning, it is also an effective tool for the development of other skills such as group work, critique, peer assessment and creativity. The simplicity of the digital storytelling process, easy accessibility of relevant software and hardware, and the focus on the story, rather than the technology, means that this is a technique that is inclusive to a wide range of students currently studying in higher education.

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