

# International perspectives on e-learning: mapping strategy to practice

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## Introduction

This paper provides an overview of international perspectives on e-learning. It begins with an outline of the main areas of current e-learning research and development activities and the associated research questions. It builds on two related publications – a review of e-learning in the UK (Conole, Smith and White, 2007) and an international review of e-learning (Conole, 2007).

## Defining the nature of e-learning

In the introductory chapters of the recently published ‘Contemporary perspectives on e-learning research’ Conole and Oliver (2007) note the changing terminology associated with this field.

Perhaps not surprisingly, given that this is a new and emerging field, terminology is in a constant state of flux – changing according to both current trends, fads and political drives and as new understanding emerges from the research findings. Even the overarching term for the area is contested. It has been referred to as educational technology, learning technology, Communication and Information Technologies (C&IT), Information and Communication Technologies (ICT), and e-learning, amongst other terms. In the last few weeks before submitting this manuscript, funding initiatives in the UK have attempted to introduce yet another term: technology enhanced learning. This evolution is clearly not over.

They also identify six overarching themes that are associated with e-learning:

1. *Interdisciplinarity*. e-Learning is by its nature multi-faceted and interdisciplinary in nature, drawing on a wide range of disciplines (computer science, education, psychology, information science, as well as discipline specific inputs).
2. *Access and inclusion*. Issues around the widening participation agenda, barriers to access, equity and inclusion, and issues around the nature and extent of the digital divide.
3. *Change*. This concerns understanding the dynamics of change and its relationship to learning technologies.
4. *Commodification*. Issues of the commodification of knowledge and of technologies and the increase in convergence towards integrated and interoperable institutional systems and underpinning international standards.
5. *Interactivity and social interaction*. The new opportunities that new technologies offer and their impact on individual roles and identities and organisational structures.
6. *Political aspects*. E-learning is inherently political and there is an important balance to be struck between strategy and practice.

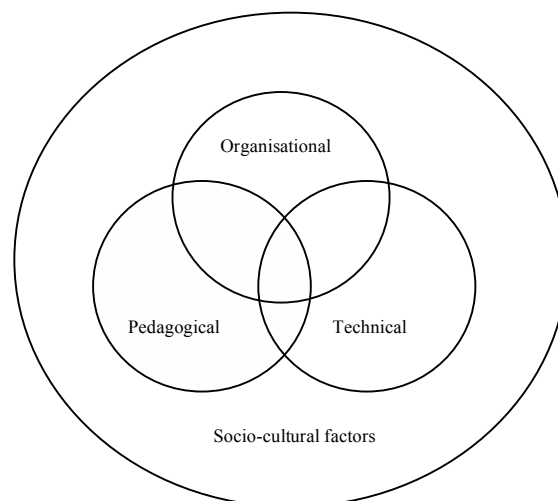
Conole and Oliver (2007) argue that e-learning is still a relatively young field of research. A review of research areas that have developed in the last hundred years shows a similar pattern of emergence, involving the stages outline below (Rekkedal 1994):

1. Pre-subject area – no evidence of the area or perceived need or interest.
2. Beginnings – individuals begin to research or ask new questions or issues arise which are triggered by some event or catalyst.
3. Emergence – more researchers begin to work in the area and a community begins to develop.
4. Diversification – the area starts to mature and different schools of thought emerge and the area begins to align or take place alongside more established areas.
5. Establishment – the area becomes recognised in its own right with a defined community, experts, associated journals and conferences, perceived of as ‘respected’ research with associated professional status, courses and career routes.

In terms of researching the use of technologies for learning, there was a marked shift around a decade ago, fuelled in part by the substantive impact of the Internet on learning as well as by a number of national initiatives and policy drivers. Conole and Oliver (2007) argue that e-learning currently falls between stages three and four since it is eclectic in nature, covering a broad church of research issues and is as yet not a rigorously defined area. But the area has not arisen in isolation and feeds on a number of cognate disciplines; research into technologies for learning per se has been an active area of interest with a long history.

### **E-learning research questions**

E-learning research raises a plethora of questions which can be grouped around four main themes – pedagogical, technical, organisational, and wider socio-cultural factors.



### *Pedagogical research*

The first of the themes is around the pedagogy of e-learning, and in particular the development of effective models for implementation, as well as the development of mechanisms for using the understanding gained from theory in the design of learning delivered through technology. These aspects are drawn out in particular in chapters six, seven and eight. This area also focuses on guidelines and good practice to support the development of the e-learning skills of tutors and students, as well as understanding the nature and development of online communities and different forms of communication (including issues of overload), forms of collaboration, the increasing flexibility and modularisation of learning opportunities and an exploration of the impact of new technologies such as games and the phenomenal growth in interest in mobile learning. A current area of significant interest is how learners learn with technology and their perceptions of the use of technology. Also important are the instructional aspects such as understanding effective design principles and promulgating good practice in the development of materials, exploration of different models for online courses, understanding cultural differences in the use of online courses, identifying requirements in terms of tutor support needs and time investment, mechanisms for improving the student learning experience and improving retention rates. Of particular importance is the extent to which pedagogical models are being used by course development teams and whether these are being made explicit; and identifying how the pedagogical model informing the design of the e-learning platform enhances or inhibits the models used by the course developers..

### *Technical research*

The second area is research into the technology of e-learning, including the development of technical architectures to support different forms of learning and teaching, mechanisms for monitoring and tracking activity online, exploration of different types of virtual presence, consideration of the impact of wireless, mobile and smart technologies and the development of context sensitive and flexible environments tailored to individual needs and working patterns. It is important that technological developments are continually reviewed and their implications for the development and use of the platform considered. In addition work on metadata, specifications and standards, interoperability and learning objects needs to be incorporated into the development of e-learning platforms.

### *Organisational research*

The third area concerns issues that arise at the organisational level, including effective strategies for integrating online courses within existing systems, development of organisational knowledge, new methods and processes for developing learning organisations and for the seamless linking of different information processes and systems. Additional questions include how e-learning initiatives align with other e-learning activities within institutions, how the experience gained from involvement in the programme are fed into strategies, the impact of these activities on roles and functions within the institution, who is involved in the process, and how different institutions are dealing with these changes.

### *Socio-cultural factors*

The fourth area cuts across the pedagogical, technical and organisational issues, focusing on the wider context that these developments occur in, including influences ranging from policy drivers and funding steers through to current or local agendas

and initiatives. In particular it is important to understand the socio-cultural context within which e-learning activities are occurring and differences in institutional approaches and cultures, which is addressed in chapter two. Specific examples of the impact of socio-cultural factors include the ramifications of the unintended consequences of new technologies (such as the rise of plagiarism) and the impact of new legislative requirements (such as the new disability laws in the UK). In addition, e-learning activities need to be mindful of aligning with related initiatives nationally and internationally, and this point is picked up in chapter three on policy directives in this area. This area also looks at how technology mediates/plays a role in constructing identity and the power and implication of technology-supported communication of various kinds.

Table 1 lists a set of research questions, which Conole and Oliver (2007) listed as indicative of the field at the time of writing the book. It is notable that in just a short space of time the field has already moved on – in particular the explosion of interest in and research on social networks and virtual worlds are conspicuous by their absence in this list. Whilst it would be impossible to address all of these questions (and indeed these questions in themselves are only indicative of some of the research in this area) they demonstrate the breadth and complexity of the area. Furthermore it is increasingly evidence that the questions in each of the strands are intimately interconnected; technological issues cannot be separated from pedagogical or organisational issues and vice versa.

<b>Research focus</b>	<b>Research and evaluation themes and questions</b>
<b>Pedagogical aspects</b>	<p><b>Understanding the learning process</b></p> <p>What is effective pedagogy in terms of using learning technologies?            Will the use of ICT result in new forms of pedagogy?            What are students experiences of using technologies and which did they use and for what purpose?            What are the inherent affordances of different technologies?            In what ways can new technologies be used to support and enhance organisational learning?            What forms of collaborative activities were occurring and how can these be supported?            Are current teaching and assessment activities appropriate in an e-learning context?            How do current assessment practices enable the students to demonstrate what they had learnt and what is the role of e-assessment?</p> <p><b>Development</b></p> <p>What are the design and development issues associated with the production of e-learning materials?            Who is involved in course development and what is their involvement?            How much time do developers and practitioners spend on course development?            What pedagogical models are course development teams using, how explicit are they and how effectively do they translate in practice?            How are courses being design to address different learning styles and cognate levels?            What pedagogical models are being used and how explicit were these?            How well do the teaching and assessment methods map to the course learning aims and outcomes?            What assessment methods are used?</p> <p><b>Delivery and integration</b></p> <p>What are the best methods of integrating the use of ICT within the broader learning and teaching context?            Are there pedagogical models underpinning different e-learning platforms and how do these influence the way these systems is used?            How are different tools available within learning platforms being used to support learning?            What are students' views of different learning systems?            How useful do students find e-learning resources?            How much did they use additional resources and the internet?            What are students' experiences of online courses?            Which aspects of learning platforms are students using and for what purposes?            What communication mechanisms were used to support courses and for what purposes?            What types and degree of interaction (administration, social, task related) do the students have with each other, with the tutor?</p> <p><b>Support</b></p>

	<p>What new forms of literacy are emerging for students and teachers/  What effective mechanism can be used to provide support the enable teachers make effective use of technologies for their teaching?  What is the baseline skill set of staff needed and what staff development is there?  What is the baseline skill set of students and what support mechanisms do they need?  What support mechanisms are in place to support the development and delivery of e-learning and how effective are they?  What are the initial entry skills of students and what forms of support do they need to use e-learning?  How do students receive feedback on their progress and is this appropriate?  What e-learning expertise do tutors have?  What support do tutors get in the development of courses?  What online support is available to students?</p> <p><b>Evaluation and quality assurance</b>  What methods are being used to evaluate e-learning courses?  What quality assurance procedures are needed for course incorporating e-learning?</p>
<p><b>Underpinning technology</b></p>	<p><b>Standards and architecture</b>  What are the current trends in the development of underpinning standards and what are the associated interoperability issues?  How interoperable are current tools, how well do the link with institutional systems such as student records, finance, library, local VLEs and admission systems?  What research is being done into the development and testing of technical infrastructures and architectures?</p> <p><b>Tools and technologies</b>  What are the new and emerging technologies and how can they be used to support learning and teaching?  What learning platforms are being used and how do they compare?  What are the emerging new software and hardware systems and how might they be used?  What will be the impact of emergent mobile and smart technologies?  In what ways are in-built tracking mechanisms within e-learning systems giving rise to surveillance issues?</p> <p><b>Functionality and uses</b>  How is technology constructing new forms of identity?  What are the new forms of power afforded by technologies and what are the implications?  What can we learn from in-built tracking and monitoring facilities and how might this knowledge be used?  How easy are different systems to navigate and use?  How can we better understand the different multiple forms of representation that new media now provide?  What functionality of different tools is being used by tutors and students, for what purposes?  What do tutors and students think of different learning platforms and what are the perceived benefits and limitations?  How much is multimedia being used in current practice and for what purposes?  What security mechanisms are available for authentication?  How are different forms of multimedia (images, audio, and video) being used to support learning and teaching?  What do we know about the different characteristics of multimedia?  How usable are different learning platforms and how easy are they to navigate around?  How adaptable are current learning platforms to incorporation of new functionality and technologies as they emerge?  What tracking and monitoring mechanism are available in learning platforms and how are they being used?  How much multimedia is being used across courses and for what purposes?  How usable are different tools and learning environments?  How well do different learning platforms interoperate with institutional systems and platforms?</p>
<p><b>Organisational issues</b></p>	<p><b>Users</b>  What is our current understanding of how stakeholders (academics, support staff, administrators, senior managers and students) work?  What mechanism and procedures are appropriate for developing shared knowledge banks of expertise and information?  What are the different emerging roles and responsibilities associated with e-learning activities–management, technical, research, dissemination, evaluation, training?  What are the different views of e-learning and its role amongst academics and support staff?  How are institutions dividing roles and responsibilities for e-learning and how much training and support is staff getting?</p> <p><b>Structures and processes</b>  How can we better evolve map current institutional structures and skills and roles to capitalise on the potential use of technologies within our organisations?  What do we understand about how institutions are currently structured in relation to implementation of e-learning?  How do e-learning activities align with institutional courses and procedures?</p>

	<p>How can we build a picture of what changes will be required to make the shift to using online learning systems to support e-learning?  How is the knowledge gained from the development and delivery of e-learning courses being used to guide e-learning practice more generally across institutions?  How is experience gained on one course been translated to other courses?  What institutional issues are arising as a result of e-learning activities?  What institutional support issues arose as a result of the development and what are the strategic implications?  What quality assurance methods were developed and used?  What e-business models are being used in institutions?</p> <p><b>Context and culture</b>  What are the key organisational issues and challenges associated with implementing large-scale e-learning initiatives?  How do we manage the bulk of existing materials and information on university web sites which have little or no coherence and consistency?  How can we ensure that different stakeholders engage with e-learning in a meaningful way?  How can we manage the transition from existing practices and processes to effective use of new systems?  What are the accessibility issues associated with new technologies and how can these be addressed?  What are the mechanisms needed to provide remote access to a variety of different users  What are the institutional barriers and enablers to these kinds of developments?  How can e-learning be harnessed to promote lifelong learning and widening participation?</p>
<b>Contextual factors</b>	<p>What are the legal and ethical issues (data protection, confidentiality etc) associated with the e-learning  How is plagiarism being detected and dealt with in an e-learning?  How are accessibility being addressed?  What are the ethical issues associated with e-learning?  What are the specific security issues associated with different learning platforms and technologies?  How students being authenticated and what are the potential loopholes?  How are different institutions dealing with the issue of copyright and ownership of material  What gender differences are emerging in the use of different technologies and the ways in which e-learning is being used?  What are the cultural and linguistic issues and how are these being addressed?  What subject discipline differences are evident in the use of the tools and the types of activities associated with different courses?  How are the new disability laws being addressed in terms of e-learning activities?  In what ways is e-learning being used to promote widening participation?  How are special educational needs being addressed in e-learning?  In what ways is and might e-learning be used to support lifelong learning?  How does our e-learning developments compare with international developments?</p>

### **International perspectives on e-learning**

Conole (2007) provides an overview of international perspectives on e-learning research, focusing in particular on the relationship between different national strategies and policies on e-learning and their impact on practice. A brief chapter of this kind could never fully do justice to the complexity of e-learning developments in different countries, nonetheless it is useful as it provides us with a broad brush overview highlighting the different approaches each country has adopted.

Conole (2007) identifies three different types of intervention associated with e-learning – educational, technological and organisational. Educational interventions are those that focus on applying the potential of technologies for learning and teaching and might include some new pedagogical approach for using technologies. Technological interventions focus on a particular technology, for example there have been extensive activity around the use and implementation of Virtual Learning Environments (VLEs)/Learner Management Systems (LMS) and more recent interest in the use of social networking tools for teaching. Organisational interventions tend to be either top-down directed through the formulation and implementation of strategies (such as e-learning, teaching and learning, or information strategies) or in response to external requirements (such as quality assurance).

Conole (2007) goes on to provide a snapshot of different policy directives in different countries; a summary of this is provided below.

#### *E-learning in the UK*

E-learning is a central aspect of UK policy, a fact which is reflected in the range of funding initiatives specifically focusing on the development and use of e-learning. Conole *et al.* (2006) provide a critique of the relationship between policy and practice in e-learning in the UK. This is contextualised in terms of the relationship between e-learning and other current policy directives such as widening participation, accessibility and quality assurance. They provide a critique of the relationship between policy and practice and consider the gap between the rhetoric and reality. Conole *et al.* extend Smith's (2005) earlier work which reviewed e-learning policy in the UK over the past forty years, tracing the development of the area from Flower's report (1965), which was the first policy paper which discussed the use of computers in higher education. Conole *et al.* divide the policy arena into four timeframes (centralised mainframes - 1965-1979, desktop computers - 1980-1989, networked technologies - 1990-1999, and consolidation - 2000 and beyond). They describe the characteristics of each; highlight predominant technologies of the time and key policy documents and funding initiatives.

#### *Policy directives in mainland Europe*

Social inclusion is at the heart of much of the rhetoric behind European policy directives. A central issue for Europe is that of language and local culture and how these can be maintained in an increasingly English-language dominated online environment. This is driven through the major EU framework initiatives

#### *Policy directives in the United States*

In contrast to the common vision presented in the rhetoric from Europe, the United States adopts a more fragmented approach driven by local agendas, complex partnerships and business imperatives. In many respects the US provides a snapshot of the myriad of different policy directives evident in other countries. Much of the discourse talks of the potential of e-learning in offering greater access, flexible and cost-efficiency, however there are also concerns that e-learning is pedagogical unproven and that it raises fundamental issues about quality control and mechanisms for federal funding. E-learning is seen as both providing opportunities for career development and lifelong learning.

#### *Policy directives in Australia*

Australia, because of its size and dispersed population, has a long history of distance education. Australia shares much in common with both the UK and America; the predominant discourse in the development and use of e-learning is about independence and innovation. There is evidence of a strengthening of partnerships to meet the challenges of ICT in Australia; these include collaborations between the States, Territories and Commonwealth and in the development of a national action plan for ICT in education and the *Le@rning Federation*.

#### *Policy directives in China*

China is experiencing an intense period of change and this is particularly evident in education. China has put in place an ambitious programme for change in education, within which e-learning is seen as playing a central role.

### *Policy directives in Africa*

Policy in Africa is dominated by the continent's strive towards development, amidst a complex and mixed cultural heritage and a history dominated by poverty and political instability. Africa faces challenges of immense proportion and complexity and ICT is seen as offering unprecedented opportunities in terms of access, cost and quality of education. The overarching aim is massification of education, which is seen as the key catalyst for change.

### **E-learning drivers and their impact**

The chapter concludes by considering the key drivers involved and their impact on practice. The review of e-learning initiatives in different countries highlighted ten impact factors associated with e-learning:

1. *Local culture versus global hegemony:* Global internet access offers great potential in terms of enabling multiple forms of communication and promotion of local cultures and individual differences. However equally this globalisation is resulting in hegemony with English as the de facto standard.
2. *Urban versus rural developments:* The differences in the uptake of technology in rural and urban settings is leading to a widening of the digital divide – although the number of people online and digitally literate is increasing, the small percentage of those who are left behind are ever further removed from technological advances.
3. *Commercial imperatives versus Government directives:* There is a tension between e-learning developments which are driven by commercial imperatives and those which emerge from Government directives or more socially orientated drivers.
4. *Funding models:* The scale of funding and the model of funding adopted have a direct impact on the nature of developments undertaken, and on their long-term sustainability. Too often e-learning initiatives are small-scale, over short time frames.
5. *Complexity and change management:* An inherent characteristic of ICT is the exponential pace of change and its consequential impact on education, the economy and society more broadly. E-learning is complex and multifaceted; e-learning developments – whether small- or large-scale - have a raft of implicit and explicit consequences across an institution.
6. *Changing roles and organisational structures:* One of the most evident indicators of the impact of technology is the way in which professional roles are changing. This includes the emergence of new roles as a consequence of the development and implementation of learning technologies, as well as changes in existing roles.
7. *Conflicting demands - research versus teaching:* Successful implementation of e-learning requires time and investment. Who should undertake this work and for what reward? In many cases to date e-learning developments are undertaken by academics (or at least by mixed-teams which include academics). This clearly creates a tension; academics are expected to undertake both teaching and research, however in many institutions research output is significantly prized over teaching and learning.



8. *Risk and unintended consequences*: Given the pace of change of technologies there are inevitably numerous risks and unintended consequences associated with e-learning developments.
9. *Dissemination and impact*: How successful an e-learning initiative is, or is perceived to be, is the degree to which it is visible and accessible to relevant stakeholders. Funding bodies are becoming increasingly aware of this and are adopting a range of strategies to ensure maximum impact – such as repurposing research findings into accessible briefing papers and harnessing the power of existing social networks and communities.
10. *Evaluation and reflection*: One of the key lessons which can be drawn from reviewing the relationship between policy, funding and practice is the importance of setting in place formative evaluation mechanisms alongside initiatives so that individuals and the sector as a whole can critically reflect on the initiatives' impact and distil out recommendations for future directions.

Figure 1 provides a summary of the review, listing the drivers for change as well as the resultant impact.

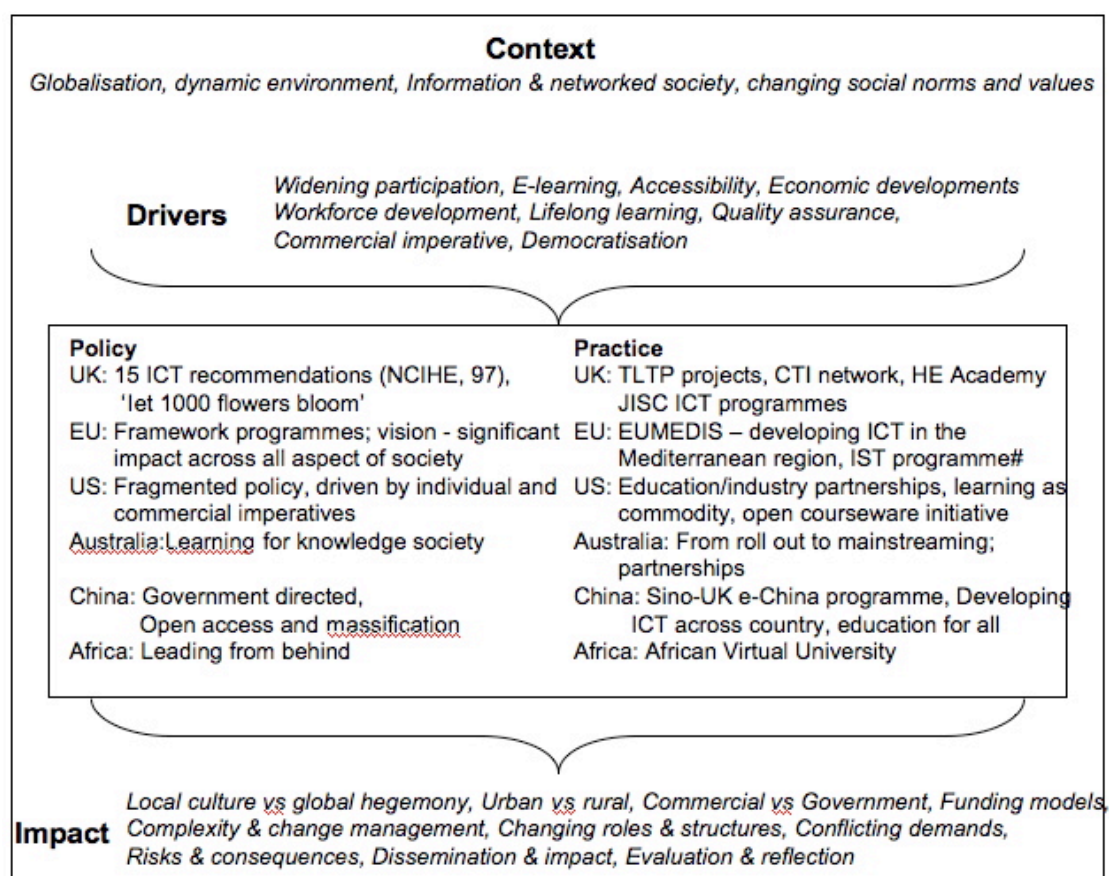


Figure 1: Mapping of national policy initiatives and their impact on practice

## Conclusion

This paper has provided an overview of the key facets of e-learning research, along with current prevalent areas of research activity. It has demonstrated this by summarising the e-learning initiatives in a range of different countries, considering the impact of national level policy on practice. What is evident is that Higher

Education Institutions operate in a complex environment, influenced by a range of often-conflicting policy directives and external drivers. The situation is further complicated in that the pace of change of technology and its potential impact is phenomenal. E-learning offers the potential to create new and innovative educational provision and improve the student learning experience. However *how* this can be achieved is not straightforward or obvious. Given this more research is needed to both understand the context of modern education and analysis of associated policy, as well as research into understanding the ways in which technologies can be used to support education. The findings can then be used to both inform and shape future policy in this area and help improve practice.

Research in this area covers a broad spectrum of issues; organisational, pedagogical and technical. The challenge in terms of policy is how to distil out the findings emerging from this research so that it can impact on policy. However a lot of research in this area is primarily anecdotal and case based, such that the findings are not scalable or transferable. There is a need for more meta-synthesis of findings, to draw out key themes and translate these into practical guidelines to inform practice.

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