Theorising Implementation: Variation And Commonality In European Approaches To E-Learning

Glynis Cousin[1], Frances Deepwell[2], Ray Land[2] and Marisa Ponti[3]
Warwick University[1], Coventry University[2], and Goteborg University[3]
g.cousin@warwick.ac.uk, f.deepwell@coventry.ac.uk,
ray.land@coventry.ac.uk, Marisa.Ponti@ituniv.se

ABSTRACT
From our analysis of narratives gathered from a range of actors, this paper argues that pedagogical, technological, cultural, and organisational dimensions are closely interrelated in the university system, so that the deployment of technology creates changes – or, at least, the need for them – in the other dimensions. In order appropriately to capture and help clarify the complexity of implementation, this paper explores ideas around an analytic framework with sufficient explanatory power to:

i) identify the variation and commonality arising from the narrative data which our research has gathered

ii) address the distinctive issues that occur at differing levels of implementation, from individual agency through to teams, faculties, institutions and the wider policy environment

iii) provide some indication of why implementation proves more troublesome in some contexts than in others

This paper offers an analysis of the data and presents emerging findings from the thematic analysis of our narrative data. From this, we will identify a set of generative questions to inform e-learning implementation.

Keywords
Implementation, management of change, participation

INTRODUCTION
Over the past decade, e-learning has been implemented widely in higher education institutions across Europe. The nature of these initiatives and the characteristics of their implementation however have been varied and whilst there have been some recent relevant studies of innovation and change (Collis and Moonen 2001, Bates 2000, Dempster & Deepwell 2003, Charlier et al 2004) we are some way from fully understanding the complexity of the implementation process in higher education. A special interest group of the EQUEL project, supported by the EU Commission e-learning initiative, has brought together a group of European universities to consider implementation from an institutional perspective. The universities involved in this group are based in Belgium, UK, Sweden, Switzerland and France. Together, we have generated narrative accounts of e-learning implementation from a spectrum of informants at our respective institutions, including students, teachers, managers, learning technologists, technicians and educational developers. These narrative accounts have provided rich descriptions of the complexity of the environments in which the implementations have occurred. They have also suggested that pedagogical, technological, cultural, and organisational dimensions are closely interrelated in the university system, so that the deployment of technology creates changes – or, at least, the need for them – in the other dimensions. However, these changes are difficult to predict and this has caused us to wonder whether there might not be a theoretical foundation for e-learning implementation that can provide a useful insight into the processes at play.

In a recent international report from the "Observatory on borderless higher education", Roberts et al declare that "It is widely agreed that the [ICT] strategy should permeate all institutional activities to some degree and that senior leaders and managers should be seen to be committed, but perhaps less acknowledged that successful implementation requires a significant shift in institutional culture(s). This cultural shift is the key to closing the gap between rhetoric and reality" (Roberts et al. 2002: 7). This notion of an "implementation gap" is explored

elsewhere (for example Trowler, Saunders & Elton, 2003) and is reflected repeatedly in the narratives that we have gathered.

EXPLORING THE NARRATIVE ACCOUNTS

The narratives we have gathered in our research come from a range of informants in higher education and from the data have emerged a number of themes that span the institutional hierarchies and cross national boundaries. These themes will be discussed in the following sections, namely:

- The dynamic between pedagogy and technology – where we consider whether the availability of technology is a sufficient condition to encourage adoption
- Collaborative participation in implementation at whatever level is comfortable – including a discussion of ownership and influence
- Cultural traffic and troublesome implementation – where we raise questions of the convergence and merging of agendas and perceived forces of resistance

The stories were mostly generated for the purposes of our research project and have been anonymised in order to enable us to discuss more general theories from the data. There is variation in institution type, status of informers and length of story, but each account gives an insight into a perspective within the evolving e-learning culture of higher education practice in Europe.

CONSIDERATIONS OF THE DYNAMIC BETWEEN PEDAGOGY AND TECHNOLOGY

As Salomon (2000) has discussed, technology offers new possibilities that need new conceptions, new rationales, and new ways of working with it, and this happens to the extent that is made possible by the institution in which technology is being implemented. The close interplay between what is possible within the organization, what is desirable for the learning process as well as what is enabled by the technology is a distinguishing feature in a number of our stories. For example:

> "[this e-learning] project came in at a point when it was ready to go. Because so many other things had happened [in the institutional set-up], it worked really well. So if we hadn't had WebCT, you know, what [solution] would I have offered her? I don't know."

Or in another case:

> "[I] found discussion mind-blowing and students' unsolicited electronic praise of the online environment to support their studies exciting. [I] felt that WebCT supported modules could truly empower some students who could also design their homepages in the target language they were studying"

Sometimes, however, the interplay is not so harmonious and the students may feel that they are having old pedagogy delivered through yet another new technology. As one respondent observed 'the story about new technology is back again: the teacher assimilates new tools and old ways of doing (mainly lecturing through Internet)'. Another notices that 'The metaphor used to describe the structure is "rooms", used by lecturers as well as students.' This alerts us to a tendency in the implementation of innovation which is that 'the declining use of any media which have played a part in our identity formation is understandably experienced as loss. For some this loss prompts a Luddite yearning for the apparent safety of the past.' (Cousin, 2004 in press). In the dynamic between pedagogy and technology the invoking of an earlier pedagogic regime within the new environment is an attempt to give academics reassurances of stability and continuity. As Cousin argues, however, this is a false promise which 'creates an unexamined friction between past and future and, in consequence, inhibits a debate about the losses and the hopes held out by learning technology.' The seeming continuity of the earlier pedagogical system, of course, also promises to retain the original power relations contained within it. As one of our informants discovered when working in a VLE for the first time, 'The students can work with e.g. the file systems, but cannot themselves build structures suitable for their own e-learning purposes. The tuition is individually structured by each responsible course administrator, which leaves the student with few possibilities of on-going evaluation to improve conditions for e-learning.'

This view implies a holistic perspective on the organization that escapes from technocentric enthusiasms which overlook crucial social, pedagogical and human factors. The deployment of technology – such as virtual learning environments, for example - is a significant change that requires a major, concerted organizational and management effort on the part of universities. Implementing an e-learning environment is "a social, iterative,

trial-and-error, heuristic-based process. It is also a team process" (Brown, 1999). This brings us onto our second theme, namely collaborative participation.

COLLABORATIVE PARTICIPATION IN IMPLEMENTATION

There are many external pressures to move towards e-learning in higher education, including peer pressure from other cognate institutions, national policy initiatives and funding incentives. Our narratives reflect the diversity of approaches to managing implementation in response to these pressures and show, to some degree, the variation in outcomes of these approaches. The context of the organizations and the affordances offered within them, affect the pattern of the implementation. The project plan requires the collaboration of many players and forces beyond its own direct control. In one account, for example, the top-level commitment to implementation was very strong and so a sufficiently resourced, full-scale roll-out was effected promptly and according to a detailed and logical plan. In this instance, however, there is evidence that the cultural dimension was not sufficiently taken into account and collaborative participation was not assured. This has had longer-term repercussions, whereby the great emphasis that management had placed on the virtual campus has lead to "a kind of "techno-allergy" amongst teaching colleagues. In another instance, the implementation was also led from the top and controlled to such an extent by management and administration that it "leaves instructors and students no or very little room in which to maneuver the VLE in a way that fits their learning needs".

Participation as a conversation

Another account comes from a different site where there appears to have been considerably more emphasis given to the importance of dialogue and participation in the early stages of implementing the e-learning facility, precisely to assist in the development of an acceptance culture: "The strategy has been based on the conversation between innovation and policy." The importance of conversation and "listening to each other about some of the issues" is highlighted, however achieving this intra-University conversation on e-learning was not straightforward and required careful negotiation and evidence that words led to action; for there was a firm belief, even amongst innovators who wanted to improve their teaching practice through e-learning, that nothing would change regardless of what is said:

> "people in the [group] were sitting at the beginning … with their arms folding looking at each other – asking why am I sitting here etc.? These were the positive people! I said … you tell us what the problems are and we will try and sort it. They would say … no one listens to me etc. Powerless. I kept encouraging them and people started to learn that they could do things and [our vice-principal] would actually do something, in conversations or on paper, and people learnt that the conversation was actually quite powerful"

The conversations amongst the group of innovators in the institution developed into a community of practice where participation was as much an indicator of success as reification in the form of published outputs. An important factor here also seems to be that individuals or groups can find their own measure of participation and therefore remain within a personal comfort zone. Our data suggests that participation needs to be encouraged on whatever terms actors feel comfortable. As Wenger argues, participation is a condition of learning and the institution must acknowledge that this learning and creativity cannot be imposed.

Participation as personal investment

As well as the external and institutional strategic drivers for change, there are also pressures from the "bottom", i.e. from students and tutors within institutions. Our stories revealed the high level of personal investment many actors have made to ensure that their e-learning innovations are realised, as one lecturer in Chemistry says:

"But this takes a lot of time; it is fortunate that I enjoy it, because I have spent holidays, weekends and entire evenings working at this."

The rewards for their personal efforts come directly from their students' engagement with the elearning activities and are motivational for further individual investment and dissemination to colleagues, for example a librarian teaching information skills to around 700 students:

"the real excitement began when I used the tracking facilities in WebCT and realised how heavily the students were using the resource. The survey results too, were astonishing, with nearly half of the students responding. And those responses were very positive. It was then that I felt that I was doing something worthwhile and had produced something that could be expanded."

However, the excitement can be tinged with concerns for fairness and preserving the teaching quality in a course where the structure has not altered, only the delivery means, as in the story by a lecturer in Politics:

"I have sought to try and engage students in the use of online learning by linking discussion forum work to assessment strategies. This initially was a wonderful experience and I looked forward to reading student postings on the discussion forum. However, a negative side continues to be that the use of WebCT as a forum for placing lecture information is often at odds with the teaching aims."

Student perspectives also reveal the investment that is required and beneficial to implementation. One student story shows an awareness of themselves as a change agent when they uncover a useful e-learning tool and succeed in convincing the authorities to buy into it: "I tipped the IT University of the software, and for once they listened to me and had it installed in no time! From then on my learning situation changed completely." However, he soon had to navigate a cultural obstacle: "The big challenge was to get the teachers to use the software, and to get used to communicating in two or more physical spaces at the same time."

Top-down and bottom-up drivers also require a middle linkage, or someone operating "middle-out" (Trowler, Saunders & Elton, 2003). In our narratives, this was evident in a number of contexts. For example, the conversation in one institution was initiated and sustained by educational developers, who had vested interests in making the implementation a success. The development role was formalised through the establishment of a structure of senior staff – the teaching fellows – working in each of the faculties of the University to translate the dreams of change into everyday reality. The dialogue between the centre and the local departments has maintained the focus firmly on the learning and teaching enhancements through the use of the online learning environment. This has encouraged the engagement of teaching staff because it addresses their personal and professional interests, too.

Participation as engagement

Some of our stories reveal the transient nature of the institutional direction and its susceptibility to other forces from outside (national policy and economic decisions) and from within (local policies and procedures, personalities and morale). There is recognition for a holistic approach to the implementation developed in an earlier EU funded project on institutional factors, namely a "co-ordinated investment in all the elements… infrastructure, training and development, and the organizational culture" (IVETTE, 2000). Consequently, the extent to which universities can be "losing the e-learning plot" might be measured by the continued lack of co-ordinated development in one or other of these major areas. In one of our stories, for example, there is a stated and as yet un-met need for infrastructural changes within the central administrative functions of academic registry and finance to allow for more flexibility in student enrolments and thereby further develop the potential of e-learning. However, where the e-learning implementation is in line with student learning needs, there is real engagement in the process and it creates a powerful case for advancing the change: "With this new technology I can do some really good multi processing, having a dialogue with my fellow students via chat while the lecturer is rumbling along, listening to some of his or her points, constantly trying to validate the arguments being made with more data from the web, finding alternative views, more interesting research and so on. And the best thing: Nobody can see what you are doing – so nobody is getting offended by my rather naughty learning style."

Cultural traffic and troublesome implementation

What emerges from these European narratives is the often troublesome nature of innovation and its implementation. The various interventions undertaken in our institutions tended to have unpredictable outcomes, and different cultural effects in different places. This would appear to be much in keeping with Fullan's notion of non-linear change, what he terms the 'Eight Basic Lessons of the New Paradigm of Change':

1. You Can't Mandate What Matters (The more complex the change the less you can force it)
2. Change is a Journey not a Blueprint. (Change is non-linear, loaded with uncertainty and excitement and sometimes perverse).
3. Problems are our friends.
4. Vision and Strategic Planning Come Later.
5. Individualism and Collectivism Must Have Equal Power.
6. Neither Centralisation Nor Decentralisation Works (Both top-down and bottom-up strategies are necessary)

7. Connection with the Wider Environment is Critical for Success (The best organisations learn externally as well as internally).
8. Every Person is a Change Agent. (Change is too important to leave to the experts, personal mind set and mastery is the ultimate protection.)

(Fullan, 1993:21-22)

This contingency stance on change seems to be borne out, for example, in some of the stories in our project, where change seems loosely mandated from the top. In the stories from Sweden, however, what people did was not imposed from the top of an institution, but seemed rather to be framed by the individual within a clear structure that fits the national agenda. What seemed more evident in Sweden was that people struggled more to assume the role of change agents, as Fullan suggests – though perhaps with the proviso that in Sweden you are a change agent, only if your change agentry fits the change agentry in the Government agenda! Another observable cultural effect was that across many of the narratives of implementation there seemed to be a greater preponderance of small-scale, incremental (and seemingly messy) *bricolage* changes than there were wholesale phase changes on a large structural scale (van Geert, 1994).

Technology and Affordance

Implementation of technological innovation seems in many of these stories to offer 'affordances' (Gibson, 1977) that might augment the practice of those who adopt the innovation. Affordances can be seen as properties of the environment (rules, values, procedures, infrastructure, etc) that can support the process of implementation. At the same time, these properties "afford", only if they are perceived as affordances by actors. So, it is not enough that they simply exist in order to support the implementation of elearning. They must be recognised as such by the different actors. We see an assemblage of affordances which might take the form of management invitation, support from education developers, openings for changing pedagogy, opportunities for collaboration, or access to elearning tools:

> "I was enthused. The education development unit provided not only the know-how, but also the encouragement. With developing technology one could provide pictures. I bought some relatively cheap software from Serif to use at home and discovered how easy, though time-consuming, it was to produce animations. I was enthused again. Animations are particularly helpful in building up the steps to solving a maths problem. The then new website for the Maths Support Centre gave others and myself the vehicle for using these ideas. More enthusiasm. Flash animations with voice overs (for dyslexic students) on solving algebraic problems seemed another tremendous and cheering advance. Exciting."

Here we see the elearning tools and the development support operating as a 'participation ramp' (Perkins & Wilson, 2002). The cultural effects operating in this instance, however, are complex, as this respondent's engagement is also affected by concern for students with disability, and the anti-discrimination legislation covering this area, which serves both as an affordance and simultaneously as an inhibitor, leading to what we might call 'constrained creativity'.

> "Accessibility has been a word repeated several times above, but then in 2002 accessibility had a new meaning in the light of SENDA6. Whilst I can enthuse about the new challenges this brings I have to admit that it has also been a huge dampener on the provision of animations etc. But there is hope and optimism. The use of PowerPoint with voice-over is now a possibility, and with the arrival of Impatica this can be compressed to reasonable download times."

Multiple Cultural Configurations

We see an example here of what Alvesson (2002) has termed 'cultural traffic', a concept which draws attention to the ways in which 'values, ideas, meanings and understandings are affected by the societal level and have different kinds of origins and are clustered around different social categories depending on the issue concerned' (Alvesson, 2002: 192). In this instance cultural traffic from wider societal concerns (issues of disability and political action taken to minimise effects of discrimination) merges with the technical possibilities of new software tools (another form of cultural traffic) and then both of these cultural effects are layered over the disciplinary setting of Mathematics. What we end up with are 'multiple cultural configurations' within the organisation. Such configurations are rich and complex but of course only add to the troublesomeness and unpredictability of implementation, reinforcing Fullan's view that change is probably better *navigated* than

[6] Special Educational Needs Discrimination Act

managed. This also problematises any generalising talk of institutional 'culture' as a totality. Instead we have shifting and dynamic 'configurations'.

> "Related to these multiple 'cultural movements' where ideas and meanings originate in institutions and communities and then put imprints in a particular organisation, but of great significance in itself, are the groupings and regroupings around various issues that trigger different social constellations and cultural orientations. We can thus talk about dynamic cultural repositionings, fuelled by the multitude and dynamics of social and ideational sources of meanings, ideas and identifications. Here we have a cultural traffic between the multitude of meanings and values made possible between the ideologies and discourses that are or can be made present in an organisation." (Alvesson, 2002:192).

Ownership of change by those involved in implementing it appeared important. This fits with Hersey and Blanchard's (1988) findings that self-identified change is a key component of successful implementation whereas change that is perceived as imposed is not. Teachers in our study seemed to become engaged when the introduction of technology was deemed to fit within their teaching experiences and beliefs. In the words of one respondent,

> "One day [X] invited me to apply for a secondment to the Task Force, to design online materials for academic writing – perhaps to take a line into unchartered territory. After some deliberation, in which I enthusiastically sought to link the invitation to my own interest, I agreed. Soon data collection became a significant area to establish a research interest. Using the web to present, teach, learn raises certain issues. What do we assume students or others know? The design is itself ideological, as a *choice*. I have encountered prescriptivism and countered it with wider issues of communication. Argument – I have had to encourage myself to believe in what I do, and now I can go forward, I think, into something so far mostly unknown."

This is even more important if we consider that much of the motivation for more flexible learning comes from pressures on the institutions to respond to new conditions in the market, and not from the personal motivation of teachers. This point is related to the importance of creating a social infrastructure (Bielaczyc, 2001) around the implementation of technology. Another way of building teachers' engagement is by creating the conditions for them to start with a successful experience. In the quote above we can see another example of what Perkins and Wilson (2002) characterize as a 'participation ramp' – some means of energizing and engaging actors, e.g. 'Soon data collection became a significant area to establish a research interest.' This often involves the actors in establishing their own discourse as a condition of engagement, what these authors term 'action poetry' ('I have encountered prescriptivism and countered it with wider issues of communication.')

AN EXPLANATORY FRAMEWORK: AN ECOLOGY OF IMPLEMENTATION

Taken together these key themes create a set of forces, or rather an ecology of implementation that has emerged as prominent from the cross-institutional analysis. The metaphor of an ecology, which sits well with Alvesson's notion of multiple dynamic configurations mentioned above, is appealing because it suggests that implementation is more than a series of steps or stages, but rather a state, however provisional, where we need to interrogate the interrelationships as well as the activities. A manager of educational development reflects on her experience with many learning development projects within the institution and identifies the multiplicity of interconnections as a key success factor:

> "If we did a sociogram of what happens, and which projects work and which don't, the ones that have very little effect is when we do a one-off, when those people in the room have got no other connection to us, and were we have a big effect is where somebody in that room has more than connection to us."

If we are arguing that an implementation is not linear, then it is consequently more complex to handle and this has a range of implications for different stakeholders. One of the implications is the need for there to be "meaning-makers" or mediators between the different elements of the ecology who are able to interpret what is happening and consider creating linkages between them when they are not emerging organically. We could argue therefore the crucial role of educational developers and learning technologists in the process because of their cross-institutional operability. We are finding, moreover, that what may be interpreted as unforeseen consequences and unexpected outcomes of implementations at the institutional level, may be explained through the ecology of implementation. Any attempt at representation of the environment of implementation as an ecology would be fraught with difficulty. However, the authors of this paper have tentatively identified components that would constitute such an ecology. With reference to the dimensions we discussed earlier, these might include:

Pedagogical: disciplinary cultures, teaching, learning and assessment regimes, educational development, profile of students

Technological: IT support and access, virtual learning environments, software and licensing conditions

Cultural: language, visions, resistances, personalities, communities of practice, change agency

Organisational: rules, procedures, policies, strategies, reward structures, resources, agendas for quality assurance and enhancement

CONCLUDING REMARKS AND QUESTIONS

What has particularly emerged from our evidence is that a blueprint approach (schematic stages, lessons, phases) does not fully take account of the forces at play within HE institutional cultures. These forces and outcomes cannot be mandated or necessarily predicted, such as personalities and personal investment, cultural resistances, failures of technology to deliver at deciding moments, new policy directives and legislation in other areas of higher education. We see a number of generative questions arising from such a conclusion, namely:

Because it opens us into another discourse community, should we be working with an ecological metaphor?

If it is deemed appropriate to use an ecological metaphor, what would be its constituents?

How does the metaphor sit with actor: network theories?

Can the theory have legitimacy with project or organizational managers, whose operating contexts are those of strategies, planning, quality control?

How can sufficient participation be nurtured within a context of implementation?

Do we take sufficient cognizance of the inevitable 'loss' of investments that technological change and innovation bring with them?

Above all, however, we recognize that implementation operates in a context of risk and uncertainty (Beaty and Deepwell, 2004 forthcoming) in which the future cannot be colonized by prescriptive models. Our data suggest that we need to be mindful of the different forces that prevail under certain conditions and their capacity to bring institutions on to fruitful outcomes that may not have been anticipated by those leading the implementation.

REFERENCES

Alvesson, M. (2002) Understanding Organisational Culture, London, Sage Publications.

Bielaczyc, K. (2001). Designing social infrastructure: The challenge of building computer-supported learning communities. In P. Dillenbourg, A. Eurelings, & K. Hakkarainen (Eds.), European perspectives on computer-supported collaborative learning. The proceedings of the First European Conference on Computer-Supported Collaborative Learning (pp.106-114). University of Maastricht.

Brown, C. A. (1999). From the what and why to the how of course-support systems. The value of the teachers´perspective. International Journal of Telecommunications in Education 5 (4), 361-386.

Collis, B and Moonen, J (2001) Flexible learning in a digital world: experiences and expectations. London. Kogan Page

Dempster, J & Deepwell, F (2003) Experiences of National Projects in Embedding Learning Technology into Institutional Practices in UK Higher Education. In Seale, J (ed) From Individual Enthusiasm to Institutional Implementation: a review of learning technology in higher education, Swets and Zeitlinger: Lisse, Netherlands

Bates, A.W. (2000) Managing technological change: strategies for college and university leaders. San Francisco. Jossey-Bass

Charlier etc (2004) Stories about Innovative processes in higher education: some success factors, Proceedings of Networked Learning

Cousin, G. (2004) 'Learning from Cyberspace' in Education in Cyberspace, Land, R. and Bayne, S. (eds), London, RoutledgeFalmer.

Trowler, Saunders & Elton, (2003) Change Thinking Change Practices, Learning and Teaching Support Network available in pdf format at

http://www.ltsn.ac.uk/embedded_object.asp?id=18740&prompt=yes&filename=CHA005 . Last accessed 29.01.04

Perkins, D., and Wilson, D. (2002) 'Knowledge into action' Knowledge Directions: The Journal of the Institute of Knowledge Management.

Fullan, M. (1993). Change forces: Probing the depths of educational reform. London: Falmer Press

Gibson, J. J. (1977). The theory of affordances. In R. E. Shaw & J. Bransford (Eds.), Perceiving, Acting, and Knowing. Hillsdale, NJ: Lawrence Erlbaum Associates.

Hersey, P. & Blanchard, K. H. (1988) Management of Organisational Behaviour: Utilising Human Resources, 6th Edn, Prentice-Hall International Editions, London.

Roberts et al. 2002 Faculty and Staff Development in Higher Education: the key to using ICT appropriately? Observatory on borderless education report on period 1999-2002:

Newton, J 2003 Implementing an Institution-wide Learning and Teaching Strategy: lessons in managing change, Studies in Higher Education, 28, No. 4, October 2003, pp.

Knight, P & Trowler, P. (2000) Department-level cultures and the improvement of learning and teaching. Studies in Higher Education, 25, pp.69-83

Salomon, G. (2000). It's not just the tool, but the educational rationale that counts. Invited keynote address at ED-Media 2000 - World Conference on Educational Multimedia, Hypermedia & Telecommunications. June 26-July 1, 2000, Montréal, Canada. AACE.

Senge, P. M. (1990) The Fifth Discipline: The Art and Practice of the Learning Organisation. New York: Doubleday.

Senge, P. M., Cambron McCabe, N. H., Lucas, T., Kleiner, A., Dutton, J., & Smith, B. (Eds.). (2000). Schools That Learn: A Fifth Discipline Fieldbook for Educators, Parents, and Everyone Who Cares about Education: Doubleday.

van Geert, P. (1994) Dynamic Systems of Development: change between complexity and chaos. Hemel Hempstead, Harvester Wheatsheaf.