

Exploring Social Networks to Understand the Diffusion of Networked Learning in a Campus-Based University

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ABSTRACT

This paper seeks to explain the nature of the diffusion of networked learning within a campus-based university. It explores the concerns held by university lecturers about greater use of networked learning and identifies the key individuals who influence their attitudes. These are mainly close colleagues within their academic department. It then proposes directions for further investigation into strategies that might encourage and sustain further innovation within the university. The research is being undertaken within an action inquiry approach where an important consideration for the insider researcher is the influence of her position on the research process.

Keywords

Networked learning, E-learning, social networks, diffusion, insider research.

INTRODUCTION

The factors influencing lecturers' adoption of networked learning are complex. They include practical factors such as the need for easy to use technology and supportive professional development but it has also been recognised that lecturers' conceptions of teaching and learning have an important influence (Collis et al., 2000; Somekh, 1998; Thompson and Holt, 1996). The research reported in this paper seeks to extend understanding of these influences in the context of a campus-based, vocationally oriented university, in order to enable the researcher, who is responsible for the educational development service, to promote the development and implementation of appropriate strategies to promote increased use of networked learning.

In common with many other higher education providers, Bournemouth University is engaging with the challenges offered by networked learning to enhance the flexibility of its provision and to enter new markets with distance learning programmes. The University is committed to offering vocational and professional higher education programmes applied to discrete areas of social or economic activity, predominantly through a campus based experience. In describing itself as vocational, it aspires to provide well-integrated multidisciplinary programmes that equip students with the competences necessary to function effectively in relevant employment sectors. The University also has the vision of becoming a "hub of a learning network in the South-West of England with strong links to national and international partners" (Bournemouth University, 2002) and although the University is not research intensive, it firmly believes that research is a vital underpinning of its curriculum and also for generating a knowledge base for its knowledge transfer activity.

With an emphasis on flexible learning in its Policy for Learning and Teaching (Bournemouth University, 2002), funding has been made available by the University to support networked learning for several years. The impact of this however, has varied across its seven academic Schools. The University is a highly devolved organisation, and for this reason, the approach of the central educational development service to facilitating the expansion of networked learning was to present the various elements, for example, document uploading, conferencing or computer based assessment, as a set of building blocks from which lecturers could select elements to use, depending on their pedagogical need, rather than imposing one single, centralised solution. Each of the seven Schools has made its own decision about which systems to use, some are using an in-house development and two are using a commercial virtual learning environment (VLE), different in each case. Although the number of lecturers using networked learning is growing through this strategy, and some significant achievements have been noted, there is still some way to go before all programmes and their units are presented through an integrated and coherent learning environment which is used by the majority of staff.

Earlier research at Bournemouth investigating the possible effect of disciplinary differences on adoption, found less difference between disciplines than reported elsewhere (for example, Holt and Thompson, 1998). The

predominant concern of lecturers across a range of disciplines appeared to be the perception that networked learning would not fit with preferred conceptions of teaching and learning for vocational education, and would result in less face to face contact between lecturer and student (Hanson, 2003).

Rogers' five attributes of an innovation provide a useful framework for analysing factors associated with its diffusion (Rogers, 1995). However, given the devolved nature of universities as organisations (Kezar, 2001), it is important to consider what other aspects of diffusion theory might explain the pattern of adoption of networked learning within them. One aspect under consideration is the nature of the social networks influencing adoption and the location of key influencing individuals (Abramson and Rosenkopf, 1997).

As the intention was to use the findings to inform the development of university strategies and policies for implementing networked learning, the overall approach was based within an action research framework and used semi-structured interviews with lecturers. However, the fact that the researcher is based within the organisation in which the research is being carried out, and also occupies a senior position in a central support service, has led to the consideration of a range of further aspects of this research approach.

LECTURERS' CONCERNS ABOUT MOVING TO NETWORKED LEARNING

Lecturers' views relating to the introduction of networked learning may be summarised with reference to the five key attributes of an innovation that affect its diffusion: relative advantage, compatibility, complexity, trialability and observability (Rogers 1995).

The factor of relative advantage assesses the extent to which the adoption of the networked learning by lecturers provides advantages that their current teaching methods do not have. So, lecturers may ask whether networked learning results in an improvement in the quality of learning for students or if it is superior to other teaching methods. Is there evidence that students on networked learning courses achieve similar or better learning outcomes as the students on the same course delivered by conventional methods? How can this be measured? On these issues, the findings from research into networked learning are many, varied and often conflicting.

Much research that attempts to compare the efficacy of one teaching method with another utilises direct measurement methods in experimental research. However, often no significant difference is reported in these studies because there too many variables and the use of networked learning in higher education is too contextualised to be able to directly compare it with another method using an experimental approach. (Phipps and Merisottis, 1999)

Meta-reviews of research studies looking for evidence of the impact of networked learning on student capabilities and attitudes, (for example, Coomey and Stevenson, 2001) concluded that that students engage in more group working, community building, and participation, and that they developed their IT and information searching skills. However, whether this was of a higher quality or not, was not evident.

Given these uncertainties and ambiguities about the impact of networked learning on student learning it is not surprising that these and other factors contribute to the perception that most of the advantages of using it seem to accrue to the institution rather than to the individual lecturer. Other disadvantages of adopting networked learning relate to the lecturer's role and working conditions, their position in relation to the student, and concerns about a decline in the quality of student learning. Lecturers fear that once their teaching materials are available online, they may lose their intellectual property ownership over them. They may be required to use or adapt materials developed elsewhere, and there is always the fear that their job may be at risk if they appear to be reducing their direct face to face contact with students. The time and effort involved in developing materials for online use may not be recognised by management and processes used to calculate their workload spent teaching and supporting students online may not reflect the reality, as students' expectations of immediate responses to queries increases. Assessment offences by students, including plagiarism and cheating, may increase, but there is also the fear that doing assessment differently online to counter this might disadvantage some students. Overall, there is a perception that networked learning will contribute to lowering the quality of education, although there appears to be greater benefit for the university, including reduction in class contact, improves space utilisation and improved department image (Errington 2001; Weller 2002).

Potential changes to the way teaching is undertaken through networked learning appear to lack compatibility with lecturers' philosophies of teaching and their values about higher education. It may appear to be a passive, one-way, learning experience, inappropriate for learning in some disciplines, especially those where the use of technology has not traditionally been used to further scholarship of discovery, for example in history or law, which require in depth consultation with text based material and discussion (Thompson and Holt, 1996). It may undermine the status and role of the lecturer in their relationships with students. There is a fear of loss of control over students' learning activities and their use of resources. When students are able to search through

the ever increasing electronic library resources and the World Wide Web, it is less easy to retain the 'academic as expert' role. There is potentially greater equity in the power relationship between student and lecturer. Networked learning can give new roles to students through peer assessment, and as moderators for computer mediated communication discussions (Errington, 2001; Steel and Hudson, 2001; Weller, 2002).

Networked learning appears to involve greater complexity, not only in having to use the technology but potentially the need to consider different ways of teaching compared with traditional approaches. The early processes needed to transform teaching materials into networked learning resources appealed to the innovators and early adopters who were prepared to invest much of their own time in learning how to do it, but others had to be prepared to hand over their materials to a media or IT specialist for them to be converted into an networked learning format, with all the implied loss of control over the end product (Weller 2002). As well as having to learn how to use the new technology, networked learning also appeared to require lecturers to re-think their tried and tested approaches to learning and teaching. Although in fact there has been considerable convergence of opinion relating to the pedagogy of networked learning based around the principles of constructivism and situated learning.

The trialability of networked learning, being able to test it out before committing to it, is not easy to achieve. Early forms of computer based learning packages were often inflexible to use and not easily amended or updated, colouring lecturers' perceptions that the more recent forms of networked learning require significant technical support, both for themselves and their students, which constrains their use (Weller, 2002). There was either a lack of resources in some subject areas or some subjects were deemed unsuitable for networked learning (Haywood et al, 2000). Current virtual learning platforms also vary in their ease of use, and the development time needed is often underestimated (Errington, 2001).

Finally, the use of networked learning by others needs to be readily observable by the target audience. These non-users need to be able describe or imagine themselves using it. However, with networked learning, it is often the enthusiasts who are most frequently seen using it, and these are the ones who are also putting a lot of their own time into its development or who are perceived to be rather isolated from the mainstream (Weller, 2002; McNaught et al, 1999). Alternatively, networked learning may be demonstrated by central staff development services who lack discipline-specific examples, which detracts from its relevance to the course teams needing support (Holt and Thompson 1998).

UNIVERSITIES AS ORGANISATIONS AND THE IMPACT ON DIFFUSION

The diffusion of an innovation is more complex when it is situated within an organisation where the initial decision about adoption may have been taken by those removed from the individuals who have to use it (Gallivan 2001). Universities as organisations have traditionally been regarded as autonomous, self-regulating, remote from everyday affairs and independent of their environment. They have been characterised by relative lack of co-ordination, absence of regulation, little linkage between the concerns of managers and those involved in key processes of teaching and research, multiple power and authority structures, infrequent inspection, and a unique value system displayed through the concept of 'academic freedom' (Kezar 2001). However, this view is changing as resource constraints and the need for a more co-ordinated approach to activities such as new course development, quality assurance, research and meeting legislative requirements lead to a growth of centralised managerialist tendencies in UK universities (Deem, 2001). These rapid changes are currently resulting in significant job stress and additional demands on academic staff, which produces a less than ideal climate within which to introduce changes to teaching practices. Although, interestingly, teaching and student related activities are not so much a source of stress as other aspects relating to increased workload, role ambiguity, reduced resources and fragmented time on task (Kinman, 2001)

SOCIAL NETWORKS AND DIFFUSION

Within organisations social communication networks become important components of innovation diffusion. Individuals can only consider an innovation if they receive information about it through relevant communication channels. The extent to which their social groups are homophilous, ie: share certain attributes such as beliefs, status and education or are heterophilous, affects how clearly this communication occurs (Rogers, 1995). Communication between individuals in homophilous groups is more likely to be frequent and effective, although a degree of heterophilous contact can either help or hinder diffusion. If the promoter of networked learning has a better technical grasp of its features than other members of the group, and is homophilous in other aspects such as education and status, it is more likely to be adopted than if the promoter is also heterophilous in these other aspects. In this case, the networked learning is less likely to be adopted. It is

also suggested that the position of individuals within the social network has an influence on diffusion, depending on whether they are at the core or on the periphery of the network and on how many linkages adopters have with potential adopters which might create a pressure point at the boundary between two sections of the network (Abrahamson and Rosenkopf, 1997). This is a relevant factor in devolved organisations like universities where a decision may have been made at a corporate level to adopt a VLE, but its use is dependent on the lecturers in academic departments, many of whom reported being isolated and remote from understanding the decision making processes.

ACTION RESEARCH

Action research was adopted as the framework for the research design, since the main purpose of the research was “to understand the perspectives of others as the basis for action” (Stringer 1999, p212). The principal purpose of the research was to extend my understanding of lecturers’ views of networked learning by seeking detailed accounts that revealed their lived experiences and their interpretations of networked learning with reference to their own conceptions of teaching and learning. These perspectives would then be discussed with senior managers to support the formulation or re-formulation of appropriate policies, programmes and services (Stringer, 1999).

There are a variety of approaches encompassed by action research but there is a reasonable degree of agreement on its key characteristics. The focus for the research is the recognition of the need to change or improve a situation, so the research question is grounded in a real-world problem. The process of research involves others and is therefore collaborative. It is also participative in that the researcher herself is directly involved in the inquiry with others rather than being a neutral observer. It recognises that knowledge is socially constructed and is generated with the intention of taking action to improve practice, sometimes with a view to making relationships between people more equitable or emancipating individuals. It takes its strength and value in researching professional practice in order to generate theory from practice. The research process may take place over an extended period of time and is an iterative cycle of planning, action, and reflection followed by further action (Reason and Bradbury, 2001).

Taking on the role of researcher inside one’s own organisation while remaining in one’s substantive role presents significant challenges. The researcher has to be aware of the influence of pre-understanding, role duality and organisational politics at each stage of the research. Pre-understanding of one’s own organisation enables the researcher to obtain richer data because she can draw on her knowledge and experience to probe, but it may also inhibit data collection because, for example, too many assumptions are made and responses not queried (Coghlan, 2001). The insider researcher may find that individuals’ perceptions of her organisational role conflict with her role as researcher, again leading to problems over data collection and analysis. Webb (1996) notes that this is problematic for educational developers, since although members of the institution, they are often outside the academic context. Finally, managing organisational politics is essential if the results of the research are to be used effectively to inform subsequent action. The tensions that can arise in this respect are graphically illustrated by Holian who resigned from her organisation because she found that distinguishing between her research role and her management role presented her with significant ethical dilemmas (Holian, 1999). The insider researcher who is able to “neutralise power differentials in the setting so that the interests of the powerful do not take precedence over those of other participants” (Stringer 1999, p.214) is skilled indeed.

RESEARCH PROCESS

Bearing in mind the issues associated with researching familiar settings, such as over-familiarity leading to taken-for-granted assumptions (Hockey, 1993) or ‘contamination’ of the process through the introduction of emotion (Perriton, 2000), I identified a strategic sample of nine lecturers to invite to take part in semi-structured interviews. They included representatives from each of the seven academic Schools and had been working at the University for varying periods of time. Their two primary characteristics were firstly, the fact that they were not high profile early adopters of networked learning, and secondly, they were not people with whom I was in regular contact. I knew them all, having had some interaction with them through their attendance at new staff inductions in previous years, but I was unaware of the extent to which they used networked learning. Five responded positively to an invitation to participate, three were female and two were male. The period of time they had been involved in lecturing at Bournemouth ranged from 6 years to 36 years. The subjects they taught included accounting, computing, economics, environmental sciences and marketing. Since asking direct questions about their attitude towards using networked learning might result in them giving me what they considered to be socially acceptable responses (Platt, 1981), interview questions were designed to inquire about factors influencing their adoption of teaching and learning methods more broadly before asking about their use

of networked learning and the challenges they perceived within the current context of higher education. Finally ideas were sought on how they might be better supported in introducing innovation into their teaching. Template analysis was used to identify the key common themes arising from the interviews (King, 1998). Metaphor analysis was used to gain a deeper insight into the richness of each individuals' personal situation (Martin et al, 2001). Individuals' names were changed to ensure their anonymity.

LECTURERS' CONCEPTIONS OF NETWORKED LEARNING

The initial analysis indicates that lecturers perceive the losses associated with a move towards more use of networked learning to be greater than the gains, both for themselves and for their students' learning. Networked learning is not yet compatible with the lecturers' perception of their sense of academic identity, in the way in which face to face methods of teaching appear to affirm. The formal lectures create opportunities for a number of teaching approaches; for maintaining distance between lecturer and students, for maintaining control, for relating theory to exciting 'real-world' actualities or for leading students through problem-solving activities.

"I quite like having a big audience of 150 people, 200 people. I guess in some ways it's easier because it's very formal. I mean, I say it's very formal but I think you can still have some sort of rapport and some sort of interaction with the students but I find it sort of easier in terms of the structure and the format than a smaller group and there's less risk that anything will go wrong." Hannah

Seminars and tutorials provide opportunities for lecturers to ensure that students have an opportunity to apply theory to practice and to engage in problem solving. These encounters remain their last hope for retaining any chance of developing meaningful relationships with individual students as their numbers rapidly increase.

"I'm embarrassed when students say hello to me and I don't know their names but it's physically impossible to remember 240 names. Things like that. I think that doing project work is totally different. I do do some project work and that is very satisfying as you get to know the students really well." Duncan

Networked learning is currently used mainly as a means of facilitating student access to subject content outside the classroom, either by making lecturer-created materials such as lecture notes, exercises and model answers accessible through the intranet or by encouraging students to access library databases, e-journals, e-books and web-sites.

"all of my exercises now have got typed answers so the answers go on the intranet. So what happens is if the students don't pick it up in the seminar, they can pick up the answers from the intranet and go through them on their own." Mary

But even when promoting the advantages of networked learning for the student, lecturers are sensitive to student reactions about the reduction of loss of face to face contact.

"I read a comment yesterday on FirstClass and one student was saying he didn't like all the material online and that it's nice to get a handout in your hand in the seminar and I think I agree with that." Duncan

Uploading their own documents onto the learning environment is achieved by lecturers without much difficulty and is a commonplace activity in each School, but using computer conferencing is a more complex matter. It seems to take a lot of time and effort to organise it and needs technical support. They also fear losing control over the students' activity, especially with large groups, where it would be difficult to monitor what was happening.

"if you were having a conference between students and it is an academic conference, you need to keep an eye on what's going on and presumably if the conference starts going off at a tangent or comes up with things that are inaccurate, presumably you then have to go in and correct it, so I think you have to keep a strict eye on it." Mary

It is also perceived to be more difficult to relate your subject to students' interests because it is more difficult to form relationships with them online.

"when you are in a classroom situation you can communicate with your students in your own particular style and make a subject interesting, as I said earlier on, for example, by putting the topics into perspective and looking at it from a multi-disciplinary approach. But it is more difficult to do that online when the person at the other end doesn't actually know you, and you don't form a relationship do you?" Duncan

So electronic communication with students through computer conferencing is limited mainly to mass emails to the whole cohort about administrative matters. Even though there may be advantages to students discussing online, there is still the danger that this may detract from the development of students' verbal communication skills, which are needed for employment.

“we are trying to encourage students in seminars to talk and discuss amongst themselves and it is a little bit like a report on television last week where children don't talk to each other, they just grunt. And you know it is all very well to sit at home and do it on virtual conferencing, but I think I'd rather they were there because when they get to the big wide world, they have got to speak to somebody, you know, with work situations, they have got to be able to go in there and put their point across and I think you are losing that to some extent.” Mary

DIFFUSION THROUGH SOCIAL NETWORKS

The key people influencing these lecturers' perceptions of networked learning are their close colleagues in their academic Schools. These included those with whom they shared teaching units and offices. Isolation, lack of time and opportunity to discuss approaches to teaching with colleagues were common themes. This is most clearly illustrated by Duncan's experience, for whom any new technology presents a major challenge:

“Some people actually enjoy working with computers but I've always had an aversion to them. It never fails to surprise me when I work on them how easy they are really but I've never been an enthusiast about them”

Duncan

However, when this same lecturer started sharing an office with a colleague who did use networked learning, his views began to change:

“he's very good at putting stuff online for students and using First Class and everything and I think when somebody comes along like him and you share the same room, you begin to see some of the advantages of doing this.” Duncan

METAPHORS FOR LECTURERS' CONCEPTIONS OF TEACHING

In addition to the common themes, each individual had a unique view of their approach to teaching and learning, two contrasting examples of which are given here.

Example 1

John completed his degree as a mature student with the University ten years ago and was then offered a lecturing post. He sees learning as a journey, a collaborative, problem-solving activity involving the lecturer and students setting out together. Where they start and end up does not matter, it is the journey that is important, during which the students are active in building, modelling, and discovering theory.

“There was no planned way of progressing the lecture from beginning to end but it was just as if me and a hundred students had decided that we all wanted to go to London and we just did it, - and at the end of the period, you know, of the lecture, they seemed to have acquired a lot of understanding, I'd thoroughly enjoyed myself and the attendance went up, it was just brilliant.”

He has the confidence to admit his mistakes in front of students, to appear fallible and to pretend that he doesn't know the outcome of an activity, in order to give them the confidence in their own ideas and to encourage them to challenge him.

“if you make a lot of mistakes, as I do, then you have to be on the ball, you know, because when they see you are fallible they are then prepared to question what you are saying, which is brilliant. On the other hand, you have to know your stuff, ha, so it is quite a strain”

He was influenced to adopt this approach mainly through his own experimentation, he took risks and they worked for him. He admits to being “a bit of a loner” and having “got into trouble” with his colleagues for motivating his students to spend longer on his assignments than on those of other lecturers. His use of networked learning is limited to making his lecture notes and other content available on his personal web-site. The colleagues he observes using computer conferencing are those who teach it as a subject within the computing curriculum.

Example 2

Hannah began teaching at the University nine years ago having initially been employed as a market researcher. She views teaching as a recipe. Her main aim is to find the right recipe for gaining and retaining the students' interest and respect. She does this by maintaining control through her preferred teaching environment, which is the mass lecture. She demonstrates her expertise and authority in the subject, marketing, by relating concepts to the most current examples in the industry which are most relevant to a youthful audience and by engaging high powered guest speakers to visit the University who provide briefs for the students and assess student presentations.

"I have guest lecturers in where I've done web links to the web sites. I've deliberately chosen brands like (brand name), a youth-centred brand where actually one of the guys started within the University and 3 years on he's got a business that's turning over I don't know ...5 million or something and they can relate to in terms of the realism of being a student a few years ago. And that's excellent, the students think 'Fantastic, I can really feel quite excited by that!'"

She also makes all of her content available on the School's intranet and her main observations of a colleague using networked learning are also of one who teaches about it as a subject. It suits him because the numbers on his masters programme are far smaller than the numbers on her undergraduate programme.

"he teaches on an interactive unit and interactivity is his specialism, so it kinds of makes sense, it fits very well with the subject matter he's teaching."

CONCLUSIONS

The initial analysis of this research indicates that lecturers in a campus-based university perceive the losses associated with a move towards networked learning to be greater than the gains, both for themselves and for their students' learning. This is not unexpected, given that their observation of those within their social networks who are making headway with networked learning is limited mainly to the early adopters, who either have technical expertise or who have 'more appropriate' subject matter for networked learning. These observations mostly confirmed their negative perceptions of its use. Furthermore, their individual stories demonstrate a plurality of approaches to conceptions of teaching, even within a university which is strongly vocational in its outlook and whose academic structure reflects economic and social activity rather than subject disciplines. Together, these factors raise questions for the University about the most effective ways of developing policies to support the extension of networked learning and in implementing strategies to align lecturers' personal theories about learning and teaching with general theories about the use of networked learning. The key role of informed, homophilous users of networked learning within the Schools should be developed and supported. Their relationship with the more heterophilous central educational development support should be enhanced to facilitate better communication flow between the Schools and this support service.

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