Higher education staff experiences of using web-based learning technologies

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Abstract

Given the drive in higher education institutions to employ web-based learning (WBL) technologies in their curricula, this article sets out to address the question of how staff experience the incorporation of such technologies into their educational practice. The study focuses on an initiative involving four institutions in South and West England that aimed to encourage the strategic development of WBL resources in health and welfare professional education programmes.

Thirty-three higher educational staff from a range of organisational locations took part in a qualitative process study. The findings suggest that while staff were enthusiastic about their engagement with WBL they experienced problems embedding their project work within their organisations, managing their time and obtaining institutional recognition for their work. Such findings represent a challenge to commentaries that emphasise "technological illiteracy" or "technophobia" amongst staff as barriers to WBL implementation. The study favours an analysis that emphasises how WBL initiatives are incorporated into existing higher education managerial, decision-making and reward structures.

Keywords

Higher education, Staff, Web-based learning, Organisational research

Introduction

Over the past decade higher education institutions (HEIs) have increasingly become involved in the use of web-based learning (WBL) (DiPiro, 1999; Joyes, 2000; McNaught & Kennedy, 2000; Spratt et al, 2000). Whilst this engagement has been uneven across the UK higher education sector, most universities have begun to explore the role of WBL in redefining boundaries between conventional and distance-based programmes and the prospects for entering into WBL-based consortia with other HEIs and educational organisations. With reference to the use of new technologies in distance learning in higher education, Tearle et al state "it is no longer possible to opt out" (1999:14). As WBL becomes a mainstream issue for HEIs, this paper sets out to address the question of how staff experience the incorporation of such technologies into their educational practice. The experiences of staff working in health and welfare professional education form the basis of our study.

In the UK, the need for academics and other staff to engage with new learning technologies in higher education was most visibly propounded in the Dearing Report (Dearing, 1997). According to the report, the combination of continued HE expansion with ongoing financial constraint requires a major re-think of how education is delivered. New learning technologies offer a solution to this problem and have, in addition, been claimed to transform and enhance the student learning experience (Department of Health, 1999; Edwards & Clear, 2001; Peach, 1999; Richardson et al, 1999; Smith & Hardaker, 2000; Tearle et al, 1999; Thomas et al, 1998).

The adoption of new learning technologies implies significant changes in the working environment of lecturers, managers and other HE staff. The Dearing Report stated that "many academics have had no training and little experience in the use of communications and information technology as an educational tool" (1997: 36). A number of commentators have identified such 'technological illiteracy' as the big barrier to the take up of WBL in HE settings (Joyes, 2000; Rossiter & Bagdon, 1999). And, in pursuit of this theme, others have focused on a deep seated 'technophobia' amongst academics who are apprehensive of radical, unproven innovations and resistant to changes that might undermine their professional status (Johnston, 1997; Spratt et al, 2000; Thomas et al, 1998)**.** However, as Vermeer's review points out, such commentary suffers from anecdotal claims and "the

enthusiasm of the recently converted" (Vermeer, 2000:329): consequently some writers have had a tendency to over-focus on the knowledge and attitude deficits of staff.

Other literature points to a more complex picture: staff experiences of WBL may have had more to do with the wider organisational context than the characteristics of the technologies themselves. Ward and Newlands's study found that for many lecturers "the problem with technology driven innovations is that they can consume prodigious amounts of time and money to little educational effect" (Ward & Newlands, 1998:171). McNaught and Kennedy's study (2000) of the development of WBL course materials found the process time consuming and demanding of high levels of technical support. Cravener's review (1999) also identified several reports of increased staff workload under such conditions.

There is little direct literature on how staff receive recognition for these kinds of activities in HE, however studies of distance learning have drawn attention to weak institutional commitment within mainstream HEIs. Wolcott found that the HE reward systems were not accommodating to staff undertaking innovative educational projects: "institutional rewards are not in sync with alternative forms of delivery" (1997: 17). For participants, such projects actually involved a high degree of 'career risk' because they were drawn away from more conventionally recognised academic pursuits. In a context of collegiate academic practice, Tearle et al (1999) and Browning and Williams (1997) similarly identified an absence of career development benefits for staff who developed information technology (IT)-based learning resources.

Project description

The Interactive Teaching and Learning (INTaL) initiative was funded by the National Health Service Executive (South and West). It aimed to encourage the strategic development, implementation and evaluation of interactive teaching and learning material for use in educational programmes for professional practitioners in the health and welfare professions. Collaboration in the project spanned four HEIs across the South and West of England.

The initiative had several objectives including: staff development sessions on the creation and use of interactive teaching and learning material; the creation of an WBL interest group; and the development of CD-ROM based learning materials. The final objective was to encourage increased use of interactive teaching and learning within at least one educational programme in each institution. This last objective led to the development of a set of projects on the following issues: partnership working for public health, hospital discharge planning, teenage pregnancy, mental health, diabetes in older people, visual impairment and organisation resource management. This article reports on the evaluation of staff involvement in these projects.

Research Aims and Methods

In contrast to other studies that have focused on evaluating the impact and outcomes of WBL initiatives in HE settings (e.g. Cartwright 2000, Kozlowski 2002), we took the focus of our study to be the experiential accounts of project participants. The research aimed to examine different project staff experiences according to their location within the participating HE organisations. Following existing literature, there was speculation that the use of WBL may pose challenges for lecturers accustomed to working in conventional HE settings. Staff at all levels of the project development were requested to participate in the study. Anonymity was assured for all those taking part and agreement was given by all those contacted. A purposive sample of key players were identified and included INTaL steering group members; project leaders; project members; line managers of project leaders and members and the INTaL manager and officer (see Table 1). Substitute participants were sought in cases where participants in the evaluation exited the project teams.

Drawing upon methodologies in qualitative process evaluation (Maxwell, 1996), the fieldwork took place in two stages: at the beginning and at the end of the project. The main method of data collection was recorded face-to-face interview. Where there were difficulties accessing respondents, telephone interviews and semi-structured questionnaires were used. Subjects covered in the initial interview included: motivation for engagement together with the perceived benefits of web-based projects, experiences of involvement, support mechanisms, and the perceived relationship between the project and broad organisational objectives.

In the second stage of data collection participants were asked to reflect upon the degree to which their expectations had been consistent with the overall project aims. As with the initial interviews, staff were asked to comment on factors helping or hindering their involvement; levels and types of support received; and the ways in

which the project would be used within their organisations. Interviews with managers took a different format: they were asked to comment on staff support, resource allocation, the benefits for staff involvement and the possibilities for future development.

Table 1: Role and Institution of Respondents

Role in the case study	Numbers of participants interviewed	Institution
Steering group member	9	Institutions A, B, C, D
Project leader	8	Institutions A, B, C
Project member	10	Institutions A, B
Line manager of project leaders and members	4	Institutions A, B, C
INTaL manager and officer	2	Institution A
	Total 33	

Qualitative data from both the interviews and questionnaires were categorised and analysed for emergent themes using the thematic approach set out by Strauss and Corbin (1998). The organisation of the qualitative data was supported through the use of the data analysis package, NUD*IST version 4.

Findings

Experiences and initial outlook

All staff involved in this project had at least five years experience of working in higher education. All the project leaders and members described themselves as at least 'fairly experienced' in IT. The level of enthusiasm articulated about the possibilities of developing new approaches to learning was noteworthy. Common themes for becoming involved in the project were categorised as: the desire to extend a role in IT; personal and professional interests in new IT; and the opportunity to extend existing or create new educational resources.

The reasons described above illustrate how decisions to become involved were not directed by managers. Staff largely experienced the project as a bottom-up initiative in which they could choose to become involved. They also described feeling a strong sense of academic responsibility to the organisation that acted as a significant motivational factor. The desire to extend and develop collaborative working across different professional groups and across organisations was also perceived as an important reason for involvement:

Through working with the other institutions you are going to get different perspectives; different approaches to doing things with the way that material is put together or thinking about assessment. We might try and go along with [my University's] frame in our minds and they might come with a different perspective that might help develop things. [CSL1]

I think potentially [collaboration] is an excellent idea because it seems daft to keep re-inventing the wheel [...]. But in practice every institution has it's own different courses and I'm not sure how well something like this would actually be useable by different institutions. I would very much like to see is more collaboration, but then you have the politics of who owns the course, who pays for it and what happens when people sign up to it. People are in competition - all the different institutions want students and are desperate for that market. [CSL3]

Participants held a set of assumptions about the nature of the WBL that included the view that this type of educational approach was inherently progressive:

It's seductive. So this may well be seen as "Brilliant, this is what we should be doing - Oh yes" ! [CSL6]

The first thing is, it's different. Students have a traditional view of books, libraries, sitting down reading, lectures and listening. All these things are not interactive; they are very much either being fed material or just turning over pages. So it's different. [TS1]

I feel the sooner we get to some sort of technological age the better, I can't be dealing with the "History of Nursing and Florence Nightingale". I really don't give a toss; she was probably a syphilitic ridden old bag. It's just the way forward! [CSL7]

For some participants it was felt that the novelty of a new approach might inspire collaboration between different health and welfare professionals and across organisations. It was also perceived as a route for saving institutional costs in the context of the mass delivery of higher education:

We have reached the situation where we have too many students to be able to [teach] in any other way but as an electronic community. [CSL5]

Where you have got more students in a square area and you can actually do more… the need for classrooms is less, so you save on University overheads. If we could have students sitting in their home, running a learning resource web at a time that suits them, they can tune in to their own biorhythms … and all the benefit will come from [working in] their own time frame. [CSM7]

[An attraction is] the fact that you can appeal to a much larger consumer base than you otherwise could. There is ready access to users and also, because you are appealing to a fairly wide Internet user community, you could bring in quite a lot of feedback which enables you to validate and upgrade the material relatively easily. [CSM2]

Staff were also conscious of the claims and objectives of these sort of initiatives. When asked to anticipate the impact on students of using the newly developed web-based projects participants identified several key issues. These included the immediacy of communication with students, promoting student interaction, increasing access to learning resources, flexibility of access in time and space and the promotion of independent learning.

The process of involvement

Participants were asked about their experiences of working in teams and of collaborative working with colleagues in the development of WBL materials. A dominant theme from the interviews concerned the difficulties getting groups to become established, to convene and to exchange ideas, knowledge and skills. This was in part a consequence of competing priorities and lack of clarity regarding the level and nature of involvement. Consequently project leaders and technical support staff all felt a high level of responsibility to build and motivate teams.

A specific issue participants raised was around project objectives. Tensions emerged between whether the projects were to be judged in terms of process or outcome outputs. Lack of clarity led to feelings of anxiety, frustration, confusion and stress amongst participants:

Initially I thought I understood, then the project evolved from what it was in the beginning. From that point of view I go in and out of understanding what is required of me, and then being totally confused about what is required of me. [CSL1]

One of the problems with me is not knowing where the project is going to be used. That's the real problem for me because I am very pragmatic. I like to know, who I am designing it for, how it is going to be used and without being very clear, I am not entirely certain where I am going with it. [CSL30]

All staff (n=18) directly contributing subject expertise reported difficulties translating teaching materials that evolved from individual scholarly study into collaboratively produced WBL materials. As the last extract illustrates, all staff reported a high degree of autonomy and self-management in their delivery of existing programmes. There were concerns that conversion to WBL delivery implied a move away from a collegiate cottage industry towards a corporate, standardised and centrally managed curriculum. Thus the relationship between their WBL project work and the priorities of the organisation was brought into sharp focus. Six participants stated that it was difficult to see how the products of their work fitted into other curricula activities. The work fell outside the routine priorities of the organisation and as such was not interpreted through recognised workload frameworks*:*

We thought our work would fit in the new curriculum, but having spoken to [a senior manager] it would seem that this idea is not being taken forward. There is no expectation that we will be using web technology for those modules. So now I'm not sure where it is going to fit. [CSL3]

This was an issue raised by staff from all the participating organisations.

The majority of participants stated that questions of time allocation and relief from other work had remained unresolved throughout their involvement with the project. Three respondents stated that outline agreements with managers did not correspond to actual involvement. In addition, while participants did have managerial and technical support, they found that technological problems consumed frustrating amounts of the time and energy:

I think time is incredibly difficult really. My line manager has been brilliant: very good in looking at time schedules. But it is so difficult to predict how much time it is going to take. [CSL4]

In a sense, I manage myself because I am doing research there is no-one who can take over that particular part of my work, any increased time allocation we could devote, this would really be quite notional because there are still other things I have to do. [CSM2]

All the managers interviewed expressed an enthusiasm for staff involvement in developing WBL materials. They saw it as an important and exciting opportunity for staff that was consistent with the long-term strategic vision of their university. However, there were reservations about the lack of guidance about how to recognise WBL development in staff workload arrangements. Questions were raised about how to generate time relief, effectively support staff and disseminate the project findings more widely. In particular, managers were confused about whether or not there were funds to 'buy-out' staff time. One manager said:

What concerns me is that as I had never been asked to allocate time, I now understand I should have been giving them half a day a week, and they never came and asked me. This had repercussions in terms of staff struggling to meet the deadlines set by the initiative. Communication appeared to have broken down between the project and line managers. [MGR1]

Review of the project

The final findings section represents staff experiences as they reviewed the project, in particular the factors that had supported and hindered their involvement. For five of the participants the collaborative elements of the project had failed to materialise. However, some respondents emphasised links that had been forged, in particular, with colleagues in clinical practice. It was also identified that in complex organisations, a lack of collaboration between initiatives themselves can lead to a failure to embed projects in organisational cultures. Managers in the following extracts commented upon this peripheral location:

The problem with what happens here, when you have major projects developing. It is like lifts on the outside of a building with no connection in between. You just get out on separate floors and there is no connecting doors...The added problem was that INTaL didn't have a high enough profile...no it didn't have any profile. [MGR3]

One of the difficulties about the project has been that it exists on the periphery of everyone's vision. It exists on the very outside of everyone's workloads and there never could be, and there never was written into the project, it being integrated into the curricula in any shape or form. [MG2]

Lack of knowledge of IT created a hindrance for a minority (4 out of 18) staff involved in the development in the WBL projects. This was not due to lack of IT advice, with regard to the technical aspects of WBL design and delivery, but rather an opportunity to develop a more thorough grounding in the skills required to develop WBL or the opportunity to make a more specialist contribution as a member of a team.

Participants identified a number of ingredients for success for any subsequent WBL projects. These could be summarised in terms of clear objectives, appropriate time allocation and project deadlines, and clearly defined roles and responsibilities. Whilst specialised career pathways were perceived to be appropriate for driving the WBL agenda at a faculty level, participants also highlighted the need to recognise and reward mainstream staff who develop WBL as one aspect of their work. Regular face to face contact with other team members and technical support was also perceived as helpful as was specialist advice around issues such as web site design

and presentation. Overall participants highlighted the need for a more task orientated and structured process that implied a less *ad hoc* and self-managed approach. This was in contrast to the relatively autonomous working practices to which the participants were accustomed.

Discussion

As the use of WBL becomes an issue for mainstream academic and associated staff in HEIs, it is important to understand the barriers and opportunities to development in this field. This study found that participants felt self-motivated and enthusiastic in their engagement with the use of WBL technologies at the outset. This outlook not only inspired them to join the project but also sustained them when problems arose. Participants wanted to both protect academic standards and enhance opportunities for student learning. Generally it was perceived that this could be achieved through working collaboratively, pooling knowledge and skills, spreading good practice, and developing new networks both within their own institutions and with service providers. As the project progressed, participants experienced problems embedding their project work within their organisations, managing their time and obtaining institutional recognition for their work. Previous studies have tended to focus on specific technological characteristics to account for HE staff and organisational experiences (e.g. Joyes, 2000; Spratt et al, 2000). However the view that 'technological illiteracy' and 'technophobia', constitute key barriers (ibid.) to the use of learning technologies in higher education was not supported in this study.

As McNaught and Kennedy's (2000) study found, the web-based programmes under development in this project required greater time and resource commitments in comparison to conventional courses. The initiative also drew a number of HEIs into complex collaborative arrangements. These features presented difficulties in the organisational HE settings represented this study. Furthermore, the development of web-based programmes implied a team project approach with a clear set of project objectives, definite time schedule and directive communication. To some extent, greater attention to planning and project management may have addressed these issues. However the findings draw attention to the interaction between WBL development and specific characteristics higher educational academic decision making structures. Staff experienced difficulties re-orientating their collegiate and relatively self-directed working practices to meet the demands of a WBL initiative. For similar reasons, Cravener's review (2002) indicates that HEIs often struggle to hold together project teams for online course development. One challenge, therefore, for the mainstreaming of WBL lies in how to resolve the tensions between academic self-management and organisational project management in HE.

Given that web-based technologies have been in use for over a decade, it was interesting to find that staff perceived real difficulties translating their existing teaching programmes into web-based delivery. Participants felt uncertain about how well they could justify their use of time in the initiative. As previous studies have demonstrated (e.g. Tearle et al, 1999; Wolcott, 1997), participants in this study were unclear about how their activity was being recognised within existing workload arrangements. This was partly a result of fitting their project work into broader curricula activities. It was significant that staff line-managers also reported difficulties incorporating the projects into organisational practices. In a field imbued with assumptions of the inherent technological progress, IT learning projects have often had unpromising track records. The study supports some recent literature concerned with how organisations embed IT learning initiatives within existing the managerial, decision-making and reward structures of HE (Carswell et al, 2000; Edwards & Clear, 2001; Huff, 2000; Saunders & Weible, 1999; Smith & Hardaker 2000).

Conclusions

At present HEIs are employing a number of strategies for promoting the use of WBL. Much emphasis has been placed upon staff knowledge, skills and attitudes towards the technological aspects of the new media. Working from the experiences of staff, this study indicates that the key issues arising from the mainstream use of WBL relate to academic working practices and organisational management. The specific technical characteristics of the learning technologies were only the backdrop to the social relationship aspects of the project. For HE academic staff there was an issue of how they adapted established modes of academic practice to a more team-based project orientation. Meanwhile HE managers needed to promote relationships between staff with a mix of academic, educational, technical and design expertise. Whilst HEIs are developing career structures for staff pursuing specialised work in WBL developments (Cravener, 2000; Hughes & Daykin, 2002), HE managers also need to develop clear mechanisms for supporting non-specialist staff who are involved in WBL developments as part of their role. Such support is particularly needed in terms of time allocation, role recognition and reward

structures (see also Torrisi & Davis, 2000). Ultimately, the way forward for WBL involves recognising new forms of HE working relationships.

The study setting examined here is limited to the HE health and social care academic environment in one region of the UK. It must be recognised that the findings discussed here may not be generaliseable to other HE contexts. Nevertheless, qualitative studies are important for exploring lived experiences with educational technologies and the incorporation of new technologies into existing organisational practices. There is a need for further research on the perspectives of staff who choose not to adopt WBL in their programmes as well as those who try WBL and subsequently revert to more traditional modes of delivery. There remains scope for organisational analysis of the interaction between 'technological imperatives', HE managerial agendas and academic professional responses in the field of new learning technologies. It is suggested that further empirical study on the impact of new learning technologies upon staff experiences, academic practices and managerial structures in HE would inform critical debate in this field.

Acknowledgements

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