# Academic Staff Attitudes Towards the Use and Production of Networked Learning Resources

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## ABSTRACT

This paper describes part of a project to explore the use and production of learning resources. The project uses data from a series of in-depth interviews with staff at a large, multi-faculty research-oriented institution. Here we discuss briefly general findings from the interviews, but focus specifically on case studies of two academics, their use of and attitudes towards networked learning resources. Both have experience with a variety of types of learning resources, but have contrasting attitudes towards networked learning resources. Academic 1 (A1) is generally positive and Academic 2 (A2) has mixed views. We analyse the reasons for these complex attitudes and conclude that the local context of experience, plus other social and cultural factors are as important an influence as general factors such as staff training and technology.

### Keywords

Academic Staff, Attitudes, Networked Learning Resources.

## INTRODUCTION

Within the context of rapid technological advancement, increasing numbers and diversity of students and a decline in the unit of resource, networked learning resources are increasingly presented as a cost-efficient means of maintaining or improving teaching quality and effectiveness (NCIHE, 1997). However this relationship between cost-effectiveness and quality is contested. The largest cost element in the production of networked learning resources is academic staff time (Chiddick et al. 1997). Additionally, there are worries about academic staff status in the face of the commodification and automation of teaching (Noble, 1998).

Over the past decade there have been a variety of studies of the 'barriers and motivations' towards use of technology (Hammond et al. 1992; Foster et al. 1999). Such studies mainly focus on staff IT skills and training (e.g. Eley and Eley, 1995) to enable them to develop technology-based learning resources. Other studies have focused on the need to effect cultural change (e.g. NCIHE, 1997; Deepwell and Syson, 1999). Recently, Bennett (2001) has attempted to statistically analyse the relative importance of and interactions between various factors promoting or constraining the use of technology.

There have also been a number of general, large scale questionnaire and interview-based surveys of academic staff views on networked learning (e.g. Haywood et al. 2000; Jones et al. 2000; Bennett, 2001), and also on the production and uptake of C&IT-based learning resources (HEFCE, 1999). However, Haywood et al. (2000) suggest it is important to move beyond this focus on macro-scale or general factors to explore in-depth the subject and institution specific context of academic staff use of and attitudes towards networked learning resources (e.g. Smith and Oliver, In Press; Steel and Hudson, 2001).

This paper takes a grounded approach to exploring the attitudes of academic staff towards the use and production of networked learning resources, using data from a series of in-depth interviews.

We explore the context for these complex attitudes and conclude that the local, social and cultural factors relating to staff and student experience and the nature of the subject discipline are perhaps as important as the broader technological, pedagogical and institutional factors in determining staff attitudes towards networked learning resources.

This research will develop a better understanding of staff use and attitudes towards networked learning resources which may be used to inform staff IT training and reward structures (e.g. Burbridge, 2001), and will be of use to both a local and national audience.

The structure of this paper is as follows. Firstly we introduce the research project background which forms the wider context of this paper. We then present the methodology for collection and analysis of the interview data. This is followed by a brief overview of the findings from the full set of interviews. We concentrate on in-depth case studies of two academics, followed by conclusions.

**Research Project Background**

The findings presented here are part of a research project at a large, multi-faculty research-oriented institution funded by the Higher Education Funding Council for England (HEFCE)'s Teaching Quality Enhancement Fund (TQEF). The project aims to support the implementation of the institution's Learning and Teaching Strategy which aims to promote effective student learning. For a national overview see Gibbs et al. (2000).

The research project will develop understanding of the needs of academic staff for support in the production of a wide range of teaching and learning resources, including networked learning resources, for use in undergraduate teaching across all subject disciplines. The project will make recommendations about possible future structures for learning resources production at the institution, including relevant support and training infrastructure.

In the next section we summarise the project methodology.

# METHODOLOGY

We conducted a series of interviews with seven full-time academic staff at the institution, plus four administrators and three technicians. Interviewees were selected from one department in each faculty, to represent the views of a broad range of subject disciplines. However, interviewees were mainly enthusiastic individuals who had been involved in innovative teaching projects and were aware of the work of our department. Interviews were conducted face-to-face, tape-recorded and lasted approximately one hour. A full verbatim transcript was produced from the tapes. We used semi-structured interview schedules, to allow some flexibility, although in practice there was a common core of questions. Interviewees were asked about the types of learning resources used in their subject area, how such resources were produced and staff needs for future support and training in the production of learning resources, particularly networked learning resources.

Data analysis followed a grounded theory approach (Glaser and Strauss, 1967). This involved following a structured four-stage procedure. Firstly, highlighting key passages in the transcripts, and developing categories. After this was completed for the first transcript, this process was repeated by an independent person, to ensure consistency of approach. Then, secondly, working through the full set of transcripts, both to identify new categories and to 'saturate' existing categories with illustrative quotes. The resulting list of categories was then edited, with some categories being refined or amalgamated to produce the final version. Finally, the categories were arranged into a hierarchy of major and minor categories and related to each other to form an explanation of the data.

We have also used 'member checking' i.e. showing interviewees our analysis of their comments, to receive their feedback on the interpretations developed in this paper (Richardson, 1996).

# GENERAL OVERVIEW OF FINDINGS

The following section gives a brief summary of findings from all seven interviews with academic staff.

Within the sample of staff interviewed there is currently little use of networked learning resources, such as the web and virtual or managed learning environments (VLEs and MLEs), although there were some hybrid situations where paper based and electronic systems co-existed. In general, interviewees were keen to make increasing use of networked learning resources in the future, but claimed they did not currently do so for three main reasons. These were: i) lack of funding, ii) lack of technical knowledge or expertise, and iii) the time taken to develop this type of expertise and how this would reduce time available for other core activities such as research and administration. These constraining factors are similar to those described elsewhere (e.g. Hammond et al 1992; HEFCE, 1999; Foster et al. 1999; Haywood et al. 2000; Bennett, 2001).

In the next section we describe two case studies chosen from the sample. These two academics were chosen because their interviews had a strong focus on networked learning resources.

## CASE STUDY ACADEMICS

Here we present detailed qualitative information on the attitudes and day-to-day experiences of two academics with networked learning resources. In contrast to most other interviewees, these two academics have experience with a wide range of networked, electronic and traditional learning resources. However, they have contrasting attitudes towards networked learning resources. A1 is working in a small department with a humanities element within the Maths and Physical Sciences Faculty, and is generally positive, while A2 in Medical Sciences has mixed views.

In the sections below dealing with A1 and A2 we reproduce key quotes from the interviews which we feel best illustrate the attitudes of the two individuals. Note that the quotes are *not* presented in the order in which they appear in the transcript, but are grouped together by theme. Thus they may appear out of context.

We have explored attitudes at a number of levels from general macro level issues such as concepts of networked learning and pedagogy, and the institutional culture, to more specific micro-level issues such as subject discipline, personal experience and the student experience. The relative importance of these macro and micro-level attitudes forms the focus of our investigation.

### Academic 1 (A1)

In terms of his practical day-to-day experience of the use of networked learning resources, A1 was unusual within the sample due to his level of enthusiasm for and use of a variety of networked learning materials.

> *"It can be a fantastic tool to get certainly a lot of basic pastoral information, basic academic information, sorted out."*

A1 was the only interviewee who made extensive use of the internet for teaching materials. He built up an archive of teaching materials, including audio and video resources.

> *"We also find the web useful as a technology for basic archiving of information, everything from syllabi, to what are the procedures for x, y and z."*

While this is very positive, there were problems with students' usage of the materials, partly due to their popularity but also due to the students' lack of knowledge of appropriate ways of interacting with the materials. For instance, students do not have well developed skills for reading large amounts of text online from the screen. This behaviour led to increased costs to the institution for two reasons. Firstly, students printed out an increasing volume of online materials which they then treated as traditional paper-based learning materials and secondly increasing amounts of academic staff was time spent dealing with large volumes of email correspondence from students.

> *"...what I am finding now is of course with the new technologies I spend a lot of time communicating with students via email and that's I'd say easily, if you count the weekend work, weekends and nights, it's definitely 4, 5, maybe 6 hours [per week]."*

'Lack of time' is often cited as a constraining reason why academics do not make greater use of networked learning resources, or develop materials themselves (e.g. Haywood et al. 2000). There is also the issue of balancing effort put into teaching versus other activities which may be better rewarded (e.g. research publications, Foster et al. 1999).

> *"The amount of time it takes to learn it and actually deploy the technology to create web materials. It seems like if you are going to commit to that you are going to have to withdraw from something else. So if you put more time into teaching you have to take it away from something else."*

However, for some routine aspects of contact between academics and students, the use of networked communication tools such as email can result in significant time saving. However this is only true up to a certain point, where the ease of 24-7 access becomes a 'victim of its own success' and academics receive an increasing volume of electronic communications from students. This may lead to over-dependence of students upon academics where students expect email queries to be answered immediately. This illustrates nicely how the use of networked learning resources may have complex, unintended consequences. For example, while some time may be saved, it may also open up previously unimagined time-consuming activities making efficiency gains in the short term unlikely (Haywood et al. 2000; Steel and Hudson, 2001).

> *"There may be an overload point where no-one is willing to go and certainly I know the fear amongst*

*some colleagues is that it creates a cycle of dependence."*

A1 was also one of the few interviewees who mentioned the students' perspective on networked learning resources. Incoming students increasingly have a higher level of IT literacy . Additionally, they may have heightened expectations about the use of technology in higher education teaching, perhaps related to the fee-paying, consumer culture.

> *"Partly I think it is just time. The generation of students that are first years now are sophisticated in a way that 5 years ago the first year students weren't even close to."*

> *"The other kinds of things we are thinking about, what kinds of technologies students like and want to use. Sort of like mobile phones, text messaging, PDA devices, the personal data devices, palmpilots and that sort of thing."*

As we have seen, A1 was generally positive about the use of technology, and has considerable experience. However, he took pains to contrast himself, both with his colleagues within the university, and in the subject discipline in other higher education institutions (HEIs) whom he suggested were less positive about the use of technology. This is a common occurrence also reported by Haywood et al. (2000).

> *"Certainly in the small humanities departments we are low on the totem pole when it comes to technologies in the classroom."*

"*Frankly my colleagues aren't interested in introducing a lot of new technology".*

In terms of general concepts about networked learning, A1 questions the taken-for-granted assumption that 'new is better' and is critical of the evidence basis that adoption of networked learning is beneficial.

> *"I don't think that just adding more technology necessarily is a better idea. To have more gizmos in the classroom can just be more distracting."*

At the level of the institution, A1's practical experience with the production and use of networked learning resources has been hindered by the infrastructure and services provided by the institution leading to negative attitudes.

> *"I certainly have found that it seems like everything that I want to do, the University, the centrally-managed facilities, don't provide it."*

Specific areas of criticism include web training and software, library services, video and audio editing.

Also mentioned is a 'general lack of vision'. This relates to the need for senior management to make an 'imaginative leap' to accommodate the use of technology in teaching as highlighted by NCIHE (1997).

*"The university needs to think a bit more about what are the overall needs."*

> "*I think they try to get by with a relatively small amount of 'thing', and manage that efficiently, and my suspicion is, the way the new technologies are being craved by staff for teaching purposes, they are just not able to cope with that demand."*

Due to the nature of the subject discipline, a small subject with a humanities element within the Maths and Physical Sciences Faculty, and the small student numbers on these courses, A1 encountered additional difficulties in the use of networked learning resources. This is important for two reasons. Firstly, off-the-shelf commercial networked learning resources are unlikely to be available for this subject area. Secondly, although the IT skills of A1 are sufficient to enable him to create his own resources, there is little funding available and a lack of incentive for doing this (e.g. Foster et al. 1999).

## Academic 2 (A2)

In terms of general concepts about networked learning, A2 thought that computer-based learning resources were not pedagogically effective i.e., they were an inefficient way of learning.

> *"I have given up on computers! I mean you know they are absolutely not effective, given the constraints of, students who have got a lot to learn in a short time, and computers are a very slow way of delivering that material. They are a very inefficient way of learning. I mean we have got a lot of research to show that. As a primary source they are absolutely awful."*

On a self-devised scale of the usefulness of learning resources, A2 placed networked learning resources lower than hands-on

practical experience and other types of learning resource. However, this may be due to the nature of the subject taught.

> *"The second resource [after cadavers for dissection] is self-directed learning materials. So they include potted specimens, x-ray displays, posters with clinical topics on, videos, plastic models, and then of course computers. And I put them in that order, because to me that is their order of value. That is the order in which students use them, from our research down there."*

This is not a view based on instinct or prejudice, but on a number of years of experience, specifically associated with a project to introduce multimedia computers into the Medical Sciences dissecting laboratory (Issroff et al. 1997).

A2 also noticed that the students themselves did not seem keen on using the computers and in fact rarely did so. However, there are likely to be other reasons for this. For instance, medical students coming to this institution expect to be taught in a traditional manner and may therefore react negatively to alternative teaching practices. Hence student expectations of networked learning are an important consideration. Morgan et al (2000) suggest that where lecturers are 'computer-phobic' they may unknowingly transmit this attitude to students. A2's lack of conviction of the pedagogical effectiveness of networked learning and the negative reaction of the students towards use of technology in Medical Sciences teaching may be related here.

*"The students don't like computers very much."*

> *"The outcome from the Medical Sciences project with the computers which was about 5 years ago, was that, yeah, you know, they're nice and they're in boxes, and they sit in the dissecting room, but they are rarely switched on by students."*

> *"We just give them a lot of MCQs [Multiple Choice Questions] and they can self-test. That's the thing they use. Everything else [in terms of networked learning resources] they just ignore."*

Networked learning resources were thought by A2 to be visually and aesthetically pleasing, but again, not pedagogically effective. So, despite having designed an award-winning digital Medical Sciences resource, A2 doubted its pedagogical use in the specific sense of enhancing medical students' understanding of anatomy, and improving their ability to digest large amounts of information rapidly. Again this relates partly to the specific constraints of the subject discipline and the types of knowledge and ways of learning it prioritises. In particular, as mentioned in the above quote, students are more strongly motivated to use resources which link directly to assessed work (Issroff et al. 1997).

At the personal level, A2 had past experience of producing networked learning resources in collaboration with outside companies such as the British Broadcasting Corporation (BBC), but felt that suitable incentives to continue this kind of activity were lacking. Specifically, at the institutional level, suitable assistance and software and other technical support were insufficient, hence the need to work with external producers of learning resources.

In the opinion of A2, working with external producers has the advantage of being able to rapidly generate high quality visual material but the great disadvantage that commercial companies have their own agendas in producing such resources and their own (often untested) views on how multimedia is best applied to the development of pedagogical material. This, in the view of A2, a very useful role of multimedia is in providing students with material to self test and to appraise their progress in learning. Another is as a means of imparting more general information amongst students and staff involved in particular courses. Neither of these is commercially appealing, thus there is a need to have available adequate University resources to develop and continuously upgrade such material.

> *"I know exactly what I need to produce, but I need a programmer and an anatomist to work together to do it."*

> *"The other thing I would like to do then is also to have computing support that would allow me to work with the demonstrators and with the computing people to produce learning assessment materials for students."*

> *"So you know that is basically a production facility which includes artists, html programmers, technical writers, and then allows you to have that group of people dedicated, or at least having some folks on the project working alongside the tutors that I could encourage to go and transfer all of the stuff in that way. So that would be the most critical."*

**CONCLUSION**

Overall the project has found that there are diverse practices and wide variation in the mechanisms for support for the production of learning resources. Staff have complex attitudes which are directly influenced by their own experiences, the nature of the discipline, and local support facilities.

The two case study academics presented here are experienced, 'early adopters' of networked learning resources and are generally well informed. In contrast to Bennett (2001), neither mentioned lack of knowledge of what technology is capable of, or what support is available as a major factor in their attitudes towards networked learning. However, they reported isolation and little centralised support, which indicate that 'institutional readiness' is an issue (Foster et al. 1999).

Haywood et al. (2000) suggest a positive relationship between experience of learning technology and attitude towards it. This study has shown that this is not necessarily the case. It has also highlighted the importance of other factors such as the influence of subject discipline on attitudes towards, and use of, networked learning. This may have been overlooked in previous studies. For instance, Haywood et al. (2000) found no difference between broad disciplinary groupings (e.g. hard / soft, pure / applied) in attitudes towards the potential usefulness of learning technology. This aspect deserves greater research attention. For instance, whilst it is well established that there are significant disciplinary differences in research practices (Becher, 1989), there is little research on disciplinary differences in teaching practices, such as attitudes towards various types of learning resources (although see Smeby, 1996; Neumann, 2001).

In summary, A1, although generally positive, experienced significant problems in the production and use of networked learning resources mainly due to constraints imposed by the university services and infrastructure, but also due to the unique nature of the subject content and the small student numbers on his courses.

A2, in contrast, was less critical of local institutional issues, but on a more general level had a mixed attitude towards networked learning resources in terms of their pedagogical effectiveness. The lack of incentives or rewards to become fully involved in the production of networked learning resources is also a key issue. A2 also took a wider outlook in terms of investigating the collaborative production of networked learning resources with other UK HEIs. This is possible because the nature of the subject content for Medical Sciences, the structure of bodies, is widely taught to large numbers of students and is relatively stable and unchanging.

The attitudes of the two case study academics towards networked learning were influenced by a number of factors including:

Concepts of what networked learning is and what networked learning resources can be used for

Experience of the advantages and disadvantages of networked learning

Institutional culture, including support, infrastructure and training, also management vision

Nature of the subject discipline

Practical experience of the academic staff

Student attitudes towards networked learning, including expectations and IT literacy

Academic staff conceptions of teaching and learning

'Institutional readiness' (Foster et al. 1999), plus the mission of the institution and vision of senior management (NCIHE, 1997) are also important influences which shape attitudes. However, the degree of influence of each of the factors listed above obviously varies between individuals.

In conclusion, this research suggests that even where staff are experienced and enthusiastic about networked learning, their attitudes may not be straightforwardly positive. There are complex underlying issues operating at a variety of levels. Therefore, in-depth qualitative investigation is required to develop a full explanation for the attitudes held. For the two case study academics, attitudes towards networked learning may have little to do with general factors such as training and the technology *per se*, and more to do with practical experience, the nature of the subject discipline, institutional culture and other complex social and cultural influences.

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