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An exploration of on-line access by non-traditional students in higher education: A case study

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Summary   The nature of Higher Education (HE) has seen many changes throughout the last decade. The agenda for widening participation in HE has led to an increase in the number of students with a broader range of educational backgrounds. At the same time there has been a surge in the development of digitalisation and the convergence of computing and telecommunications technologies available for use in education.

This paper discusses the outcomes of a case study, conducted in a School of Health Studies within a northern English University, which identified the extent to which 'non-traditional' students access on-line learning facilities, such as virtual learning environments and library networks, and what factors enhanced or formed barriers to access. 'Non-traditional' students, for the purpose of this study, were defined as mature students who were returning to higher education after a considerable break.

The outcomes indicated that skill deficit is a major obstacle for many 'non-traditional' students. The paper explores this issue in depth and suggests potential ways forward for the delivery of technology supported learning for 'non-traditional' students in Higher Education.

Introduction

The nature of higher education has seen many changes throughout the last decade. The agenda for widening participation has led to an increase in the number of students, and a broader range of educational backgrounds. At the same time there has been a surge in the development of

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digitalisation and the convergence of computing and telecommunications technologies. Such media technologies, long the domain of distance educators, are now influencing the delivery of all tertiary education.

There is, to some extent, a convergence of modes of delivery, for example courses that are now offered by 'blended learning' (Rogers, 2001). This is characterised by 1 or 2 days' attendance (face to face contact time with tutor and peers) plus independent study supported by media technologies such as virtual learning environments. Media technologies can either be used to supplement existing educational approaches or provide new and innovative, stand alone methods of learning and teaching. There is evidence to suggest numerous advantages to using media technologies (Howard and McGrath, 1995; McAlister and Curtis, 2001), not least the development of constructivist-oriented practices that are so appropriate for health care practitioners. To these ends, resource expenditure, both in terms of equipment and staff time and skill development is high. Many Universities have now introduced the use of virtual learning environments such as Blackboard© and StudyNet.

Background

The Blackboard© Virtual Leaning Environment was introduced to the University in 2001−2003 with the School of Health Studies (SoHS) taking an active role in the pilot phase (Higgison, 2004). Blackboard© is just one on-line provision, others include access to library resources and the World Wide Web.

Blackboard© enables learning to be more accessible and interactive. It facilitates a variety of course management provisions and allows, in addition to the provision of learning materials in the form of documents, two-way communication through virtual group discussions. The Division, in which the case study was sited, has a long tradition of offering continuing professional development (CPD) for health care professionals generally, via on-site taught courses, and for nurses and Health Service Managers specifically, through open/distance learning using paper based learning materials. Therefore, in all cases the introduction of Blackboard© was supplementary to existing provision. Involvement in the Blackboard© pilot phase, and its introduction to a range of programmes within the Division, created a demand for staff to develop media communications skills and, for some, to re-think their approach to education delivery.

The need for this development, coupled with a strong commitment to providing students with a valuable learning experience, raised questions in relation to student media communications skills, resource availability and commitment to development. In short, to what extent were students actually accessing the support materials and facilities that we were preparing and what value was this adding to the learning experience? Further, there is considerable evidence to assert that student support is a key element within any distance learning provision (Gibson and Gibson, 1997; Peters, 1998; Dearnley, 2002). As taught provisions become increasingly 'blended,' to incorporate an increase in self-directed study underpinned by media technologies, (thus resembling a distance learning mode) the nature of student support not only changes, but becomes a key factor. The extent to which these particular student needs were being met, within the Division, was unclear.

Unlike their younger counterparts, or 'traditional students', 'non-traditional students' may not have experienced IT in their earlier educational experiences. The Department for Education and Skills (2002) identified that most 16-year olds use the internet regularly and 67% of them have authored web pages often as part of a school project. Therefore, 'traditional' students expect technology to be a part of their learning whilst non-traditional students may be confounded and even, to some extent, disadvantaged by its inclusion. In addition, many of the students in the School of Health Studies are women and there is evidence to suggest that women are more reluctant to use technology than men (Scott et al., 1999; Dearnley, 2002).

Research question and aims

This study was guided by the following research question: to what extent do 'non-traditional' students' access and use on-line learning facilities, such as virtual learning environments and library networks, and what factors enhance or form barriers to their use?

It aimed to:

1. Identify knowledge, skills and experience of students in relation to the use of on-line resources.
2. Explore factors that enhance or form barriers to using on-line services.
3. Highlight additional support that could be provided to enhance the use of on-line services.

Methods

Design

A mixed method approach was used to address the research question. A postal survey of students and their use of on-line resources at the University provided a broad picture of this group of students. Semi-structured telephone interviews, with eight students, allowed a more detailed and nuanced perspective on the issues relating to the use of on-line resources by non-traditional students.

Quantitative surveys are based on the assumption that knowledge about characteristics of the single participant can be added together with data from other participants to provide information about a group (Blaxter et al., 1996), that is, it provides a breadth of view (Denscombe, 2003). A postal self-completed survey, as Denscombe (2003) notes, is received 'cold' by the participant, i.e. with no prior notification. Postal surveys are known to result in low response rates (Polit et al., 2001), therefore a follow-up request was sent after 3 weeks in order to maximise returns. The interviews were conducted after the survey data had been analysed to ascertain the meaning of key issues that had arisen and the way students understood their experiences (Denscombe, 2003). Mixing methods in this way has the potential to provide a richer and more insightful picture of complex phenomenon (Burns and Grove, 1993).

Sample

Participants were recruited from a range of undergraduate and post graduate programmes, all of which recruited from a multi-professional pool and were delivered via open, distant or taught learning. Systematic sampling as described by Denscombe (2003) was conducted and a third of the participants from each selected programme were sent the survey. The participants were all part time students and practicing health and social care professionals.

Characteristics of the sample

There were 124 participants included in the study. Thirty-five responded to the questionnaire when initially sent and a further 31 responded to the reminder, resulting in 66 returned questionnaires giving a response rate of 53.2%. One questionnaire was returned with no data provided. This resulted in 65 questionnaires for evaluation.

The participants were predominantly women (90.6%) and almost three quarters (72%) of them were over the age of 40. Half of the sample (50%) were nurses, which fits the expected profile of part-time CPD students within a health and social care setting. A third (37%) were at the start of their academic studies, that is, they had completed 2 or fewer modules.

Data

The survey obtained data on the following variables:

Place and frequency of computer access.
On-line services used.
Confidence in use of on-line services.
Satisfaction with use on-line services.
Sources of support.
Exposure (i.e., number of modules taken).
Demographic information including gender, age and professional qualification.

A questionnaire was developed consisting of multiple response, closed questions. Space was made available for comments on some questions. Finally, an open-ended qualitative question asked for any additional information the students wished to share about the use of on-line services. A pilot was conducted to test the feasibility of the questionnaire and no changes were required to it.

Qualitative data collection followed analysis of the questionnaire data, in order to obtain depth to the key issues arising from that analysis. Semi-structured interviews allow all participants to be asked the same questions within a flexible framework (Kvale, 1996). In the current study, questions were framed in a manner that encouraged participants to share their experiences of accessing on-line services and how this experience affected their studying, and what barriers or enhancements to access they had experienced. Interviews were tape-recorded and transcribed verbatim.

Ethical considerations

Approval to conduct this study was obtained through the School of Health Ethics Panel. A coding system was developed so that the questionnaire, once returned, would have no identifying data. A coding key linking the name and code was maintained until one reminder was sent, and then it was destroyed. The code allowed the researchers to maintain confidentiality and anonymity.

Self-determination rests on the participant's knowledge about what is being requested and choosing freely to participate. An explanatory letter accompanied the questionnaire, providing information about the nature of the study, the freedom to participate and reassurances about anonymity and confidentiality. Potential participants were reassured that their standing in the university would not be affected by their participation or non-participation. Although potential participants received a questionnaire with the letter, they had a choice to respond and return it, or to ignore it. An unreturned questionnaire was interpreted as constituting a refusal to participate and the identifying code was destroyed after the follow-up questionnaire and no further contact about the study was made. Students were requested to return a proforma in a separate envelop if they agreed to be contacted to take part in the interview stage of data collection.

Analysis

The quantitative data were coded and entered into a statistical software package (SPSS). Descriptive statistics were calculated. Qualitative data were transcribed verbatim and entered into QSR N6 software for thematic analysis.

Findings

Access

Survey participants were asked where they used the computer to access the materials related to their course. All but two stated they had access to a computer.

Site of on-line access

Almost 88% of the sample had a home computer, while 51% had access to a computer at work. A quarter of the sample identified the university as a site of access and reported that they attended the university for this purpose at least weekly or almost weekly (three times a month). Three of the participants said outright that they did not use a computer at all. Site of access to a computer is summarised in Table 1. While most had access at multiple sites, 40% had access at only one site.

Interview data suggests that even when students had access to a home computer, there were difficulties. For example, one participant stated that the difficulties she had experienced were

Table 1 Site of on-line access and number of users at that site

Number of users	Site of access[a]		
	Home *n* (%)	Work *n* (%)	University *n* (%)
Sole user	4 (6.2)	4 (6.2)	0
1	16 (24.6)	8 (12.3)	5 (7.7)
2—4	30 (46.2)	19 (29.2)	10 (15.4)
5—9	7 (10.8)	2 (3.1)	1 (1.5)
	57 (87.8%)	33 (50.8%)	16 (24.6%)

[a] Participants identified more than one site of access.

''nothing to do with the course... but be we don't have access to broadband so when I was trying to do library searches it was very slow so what I tended to do was go to the local library and the School of Nursing and University to do my search in there manually''

Another participant described their home computer as a ''glorified typewriter'' and did not have access to the Internet. When asked why she did not use University facilities for getting on-line, she replied that time was the main factor. Although she could get to University for tutorials, she had to leave early to collect children from school.

When asked how many people shared their computer, answers varied from exclusive or almost exclusive use to sharing at home with up to nine other people. Thirty-seven participants (57%) reported exclusive use of the computer or sharing it with one other person. A small number of participants (*n* = 10, 15.4%) shared the computer with five or more people.

When asked to rate their satisfaction with access, 51 of the 62 (82.3%) participants that used the computer were satisfied or very satisfied. However, several survey comments demonstrated the difficulties that some participants encountered.

''My password has been changed 3 times and still I am unable to log on. It won't accept my new password''
'Satisfied, but not skilled and felt I wasted a great deal of time struggling to get resources'

Interview data suggested that difficulties, however, were further reaching. One student discussed having to plan her study time during the day when children were at school and not requiring the home computer for their own studies. She was able to do this because she worked part-time; for full-time working parents, sharing with their high school children might be difficult. Several also referred

to their lack of skill and the time that was required to become skilled. A theme that emerged was the importance of full participation with some of 'technical learning activities' such as discussion groups and the inherent difficulties in this task. Some students clearly did not have the time to develop the skills that were required and therefore did not fully engage in the process. One participant, when asked how the services could be improved, replied:

''that's a tricky one because unless all the students are on-board and willing to participate then I don't think there is anything you can do without the students contribution and if they're not on-board then the whole idea of Blackboard© is pretty useless''

Getting this group of students 'on-board' however, would seem to require them to adequately self-assess their developmental needs related to IT and they found this difficult. One participant, who had not used any of the on-line support materials, when asked how she thought this might have affected her studies, replied:

''I don't really know − I much prefer to use books''.

When asked how she felt about some of the benefits of using Blackboard©, she replied;

''yeah, it might be beneficial but...''

This participant asserted her preference for paper based materials several times during the interview, however, despite these comments she confirmed that she had recently requested computer training at work.

Use of services

The University provided a number of services on-line. The most frequently accessed was the library. Blackboard© was accessed by 67.2% of the sample but only 14.1% used the documents that were available on the site. The services accessed are summarised in Table 2.

Interview data confirmed an apparent link between general computer literacy and library access. Students who did not use the Internet for accessing documents accessible through Blackboard©, did not use the computer for on-line library services either. Instead they expressed a preference for visiting the library and whilst they could generally use the computer catalogue for retrieving books, databases and journal article retrieval was limited.

Confidence performing on-line activities

The survey participants were asked to rate their confidence in performing nine on-line activities. For the purposes of analysis, the ratings of 'Can't do it' and 'Not confident' were recoded to 'Not confident'; 'Confident' and 'Very Confident' were recoded to 'Confident'. Table 3 summarises their confidence in these nine activities.

While many of the participants could confidently do general activities such as logging on to and browsing a website or sending an e-mail with an attachment, some of the specific, academically related activities, such as searching the library catalogue, reserving a book on-line or engaging on-line in course discussion, were confidently undertaken by approximately only half of the students. Two-thirds of students (65.6%) could log on to Blackboard©, but they were not confident to use it to access discussions or course materials. In some modules Blackboard© was being used as a communication tool between students and staff, in which case these participants were clearly being disadvantaged.

Table 2 Services accessed on-line

Services accessed	Student accessing service[a] n (%)
Library	45 (70.3)
E-learning tutor	8 (12.5)
IT services	3 (4.7)
Computer centre	2 (3.1)
Blackboard©	43 (67.2)
Blackboard©Documents	9 (14.1)

[a] Sixty-four participants responded.

Table 3 Confidence in on-line activities

On-line activity	Students confident with activity[a] n (%)
Log onto the University website	54 (84.4)
Browse the University website	48 (75)
Send an e-mail to the tutor	51 (79.9)
Attach a file to an e-mail	38 (59.4)
Search the library catalogue	34 (53.1)
Reserve a book on-line	30 (46.9)
Log on to Blackboard©	42 (65.6)
Move around the course materials in Blackboard©	35 (54.7)
Contribute to the course Discussion Board	24 (37.5)

[a] Sixty-four participants responded.

Table 4 Sources of support to learn activities related to on-line services

Sources of support	Students who used the support[a,b] n (%)
Formal support	
Tutor	25 (57.0)
Computing services (formal sessions)	15 (23.8)
Computing services (drop-in sessions)	6 (8.0)
Computing services literature	12 (19.0)
Library	7 (11.1)
Informal support	
Self-taught	14 (22.2)
Family members and friends	6 (9.5)
Work colleagues	3 (4.8)
Identified no support	6 (9.5)

[a] Participants identified more than one site of access.
[b] Sixty-three participants responded.

Support to learn activities related to on-line services

Survey participants were asked where they learned the skills to access services. They were given five sources provided within the University and space to identify any informal support they used. Table 4 summarises these sources of support.

Only six (9.5%) identified no support. Most identified more than one source of support. The tutor, the traditional source of support, was most frequently cited (57%). One participant stated that her sons, aged 17 and 15 years old, had taught her to use the computer.

Satisfaction with access

When asked about satisfaction with access to on-line University services, most participants (79%) were satisfied or very satisfied. The importance of access for this group of students was indicated by comments such as 'I am satisfied only because I now have a home computer', spending time away from the home to access technology was generally seen as an inconvenience among this group of students.

Discussion

This case study has highlighted that whilst there is a problem with actual access to both hardware and software, this is not the major problem. Skill deficit and inability for appropriate self-assessment of learning needs, was the primary barrier to mature students access to media technologies for learning. While most students could handle the common tasks of logging on and browsing a website and dealing with email, almost half were not able to take advantage of services that were available on-line, including Blackboard© and library search facilities. They did not use the formal services established for learning about how to use on-line services, such as workshops, with many using a trial and error approach of self-learning. This was a time consuming activity and therefore not a viable option for some students.

Kirkwood (2003), discusses the 'cost—benefit analysis' undertaken by students who allocate the scarce time and attention available to components of the course perceived as 'core' or 'essential'. In the current study it appeared that often the development of IT skills were seen as neither core nor essential and were therefore neglected. This is problematic in terms of student choice and freedom to learn. Kirkwood (2003) argues that learner self-direction and independence is a key characteristic of higher education and therefore students' decisions to engage in processes such as electronic learning forums should be respected. This view is supported by Anderson (2004) who refers to student 'freedom to post and freedom not to read'. However, before students can exercise such self-direction they need to understand the choices that they make. This study has highlighted that skill deficit in non-traditional students is a major barrier to access. If students do not have the skills, they have little freedom of choice in their approaches to study and are therefore disadvantaged.

Within the context of distance learning, where media communications have been used for some time, McAlister and Curtis (2001) suggest the inclusion of multiple communication methods such as threaded on-line discussions, video conferencing and printed materials for optimal learning. This provides for the needs and choices of all students. Cheng and Miles (2003) stress the importance of maximising opportunities for participant interaction so that students engage with the learning process. They suggest including participation in on-line discussion in the summative assessment as one option for educators. However, the extent to which this removes freedom of choice from the learners requires consideration in programme planning.

Cheng and Miles (2003) assert that on-line learning and teaching are the future and stress the importance of changing the mind set of educators, from what was traditionally seen as good practice to what can be done better now, using

new technologies. For those working with non-traditional learners however, the challenge is even greater, for we must also change the mind-set of our students.

Conclusion

This study has indicated that the greatest obstacle to non-traditional students accessing and using University on-line learning resources is skill deficit. Time constraints, which force students to be selective in their learning activities, choosing those that appear to relate directly to 'success' in terms of assessment needs rather than 'success' in terms of personal skill development, are often greater in this group of students and this therefore compounds the problem. There is a similarity between the skill development required of some lecturing staff and 'non-traditional' students and a self-assessment tool might be useful for both purposes.

There are several recommendations for practice based on the outcomes of this study. These include programme communication, which for now must take a variety of forms, including paper-based format. This might include clear, specific and elementary guidelines for accessing web based materials. Activities, which may or may not be part of summative assessment, should be developed to encourage group interaction through communication technologies. Support, in a variety of forms, from staff availability and on-site training to comprehensive paper based guidelines, is a fundamental element to enable students and colleagues to embrace inevitable developments in education delivery.

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