

Attitudes towards teaching and learning information and communications technologies in the UK

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Paper type: Research article

Journal ISSN: 2692-2800

Abstract

Intensive government funded drives to achieve digital or e-literacy on our college campuses are still regarded with some skepticism among both students and staff.

We are here reporting on a survey of 1400 students at one of the larger UK universities, the University of Westminster in London. We outline student responses to questions about their own learning and their assessment of the value of ICT in helping them to manage their studies. Our results are not surprising, but lead to further insights about how we college teachers can link our efforts to student perceptions of the many initiatives we undertake, especially in using ICT for teaching and learning.

Introduction

Almost all universities in the UK are trying to develop the use of information and communication technology (ICT see UCISA 2003), and especially virtual learning environments (VLEs) to underpin teaching and learning (Saunders 2002, Jenkins et al., 2003,). Much of the activity is aimed towards support for students who are still required to attend face-to-face classes on a regular basis.

There are many drivers and justifications for this activity, some of which relate to the experiences and lifestyles of university students. For example young school leavers are now coming to university having frequently taken part in classes at school that make extensive use of technology (Pittard et al., 2003). Mature students, who are or may have been in employment, are quite likely to understand the significance of technology for their future career and will increasingly expect to experience its use across all subjects in higher education. In addition it is often predicted that students will require more flexible patterns of attendance as they try to balance their education against family priorities and commitments and/or earn the money that they need to pay for their education (Butzin 2000, Reiser 2001, Hoffman 2002).

There are 2 major aspects to the developments in the use of ICT at universities in the UK. One is concerned with the enhancement of ways in which ‘teaching associated’ activities (e.g. basic communication and the provision of information to students, the processing of assessed work, conduct of short answer tests) are conducted (Zakrzewski and Bull 1998, Pitcher et al., 2002, Thomas and Paine 2003). Very few staff or students at a campus based university will have much argument over the desirability for more efficient academic administrative functions. The other aspect, the case for using ICT to deliver or part deliver the academic components of a course is harder to argue. Despite the exhortations of government about the importance of e-learning to everyone or the much promoted need

to respond to the changing circumstances of students by providing increasingly flexible courses, the questions of exactly why and how one should integrate ICT onto an existing face-to-face course are sometimes hard to answer (Saunders 2002, Darking 2002, Butler and Sellbom 2002).

Over the past few years there have been many reports published of individual subject specific case studies indicating that the integration of ICT into a face-to-face courses can have positive effects on learning outcomes (see for examples, Housego and Freeman 2000, Phillips 2000, Heines 2000, Abersson et al., 2000, Diochon and Cameron 2001, Saunders and Klemmif 2003). Many such studies have however focused primarily on outcomes on overall student performance. In contrast there have been few investigations that have set out to find out from students how they feel ICT should be used to support their learning on a face-to-face course. Indeed, the major preoccupation has been with staff-engagement activities (Collis & Moonen 2001). While student perceptions are not based on informed understanding of their own learning processes, and still less of principles of teaching, they are nevertheless a crucial, personal response to our efforts that we ignore at our peril.

This paper reports students' views on how technology is or should be integrated with face-to-face teaching. It also elicited views on aspects of existing face-to-face teaching practice. The population covered by the survey included undergraduate, postgraduate, full-time and part-time students from a wide range of subject areas.

Context and Research approach taken

The University of Westminster is based in the centre of London and over 50% of its students study part-time. The great majority of courses offered are classroom based (Westminster has only a few hundred students taking distance courses). The University started to use a VLE in a strategic manner to support its courses approximately eighteen months ago.

The survey was based on a detailed web based questionnaire which was completed by 967 students during a 4 week period in November/December 2003. The 34 questions were broken down broadly into 4 sections designed to elicit information and views on:

- Student ownership and use of personal computers
- Student use of email and the Internet generally
- Attitudes towards face-to-face teaching
- Attitudes towards the use of online materials and approaches

In addition, information about a student's course, mode of study (full-time, part-time, postgraduate/undergraduate), their personal circumstances (for example did they live at home, how many hours a week did they spend in paid employment and studying) was also collected.

A further 395 students who had not completed the online questionnaire were interviewed face-to-face to ensure there was no bias in favour of students more pre-disposed to the use of technology. Their responses supported the results of the online survey that are detailed below.

The online questionnaire required a mix of yes/no, tick box and free text answers. In the analysis presented below, where data is derived from yes/no or tick box, percentage figures are presented. Answers to open ended questions were analysed through content analysis into major themes. In these cases more qualitative conclusions are drawn and percentage figure are not presented.

About the student population surveyed

Of the respondents to the survey 34.8% were postgraduates and 65.2% were undergraduates. The majority of undergraduates surveyed were studying full-time

(80.3%) whilst postgraduate respondents were fairly evenly split between the 2 modes of study (40.5% full-time, 59.5% part-time). The distribution of respondents across major subject areas within the University is shown in table 1.

Table 1

Distribution of respondents across major subject areas

Subject Area	Percentage of respondents
Business & Management	20.0

Media, Art & Design	12.6
Biosciences/Health Sciences	9.0
Built Environment	12.1
Languages	16.0
Social Sciences	12.9
Computer Science	17.5
Law	7.8

Thirty per cent of the students surveyed stated that they lived at their parents' home during term time, with the bulk of these (86%) being undergraduate students. Full-time students indicated that they undertook paid employment in addition to attending university for between 5 - 40 hours per week, with the average being 15 hours of paid employment per week. Respondents also estimated how much time on average they spent on their studies outside of class each week (see table 2).

Table 2

Average hours per week studying outside of the classroom
(FT Full-time mode, PT Part-time mode)

Student type	Average hours (FT)	Average hours (PT)
Postgraduate	21	10
Undergraduate	14.5	11.5

Students' ownership and use of personal computers

Eighty-one per cent of students had access to a personal computer (PC) off campus at their term-time address[1]. Of the 19% without a PC 33% were postgraduates and 30% were part-time students. Ninety-seven per cent described themselves as regular email users. Nearly 50% of respondents stated that their main use of email was to maintain contact with tutors or for some other purpose related to their studies (e.g. exchanges of ideas and information with fellow students). Around two-thirds of respondents (59% of all postgraduates and 72% of all undergraduates) had used the Internet previously to support their studies whilst at school. Eighty per cent stated that they searched the Internet for information related to their studies at university on a regular basis, citing assignments/coursework as the major 'trigger' for Internet searches. There was some variation in the extent to which students used the Internet across subject areas with students from languages and health sciences for some reason less likely to turn to the Internet regularly than students from the business or law schools. Approximately half of the respondents had not experienced the use of the institutional virtual learning environment so far in their studies at university.

The respondents most positive about searching for information on the Internet to help them with assignments cited several advantages of the Internet over books including the accessibility of the information and the fact that the information could be more up-to-date than that found in printed works. Students also clearly valued the speed with which factual questions could be answered and a number also explained how valuable the Internet was in circumstances where one was starting from 'scratch' on a subject.

However, many respondents made reference to the use of books and overall there was the impression that a majority saw use of the Internet as a 'supplement' to the use of books. There was a roughly even split between those who used the Internet first and then went to books and those who saw the Internet as a resource to be used after they had done some preliminary research through books or journal articles. Attitudes towards flexibility and lectures

When asked if they would rather attend classes every other week as opposed to every week, 82% of the respondents said no. Many felt that this would lead to a loss of study routine and continuity and that they would accordingly do less work in the intervening weeks. More significantly the importance of

personal contact to the education process, including interaction with fellow students was strongly highlighted. The classroom was seen as the place to ask questions of the tutor and to seek clarification. The 18% who answered that they would prefer classes every other week, mainly cited pressures of combining home/work with study i.e. family demands (young children). There was no significant 'study mode' bias amongst the 18% (34.5% were part-time students compared to 33.5% across the total number of respondents). However, part-time students were more inclined to refer to study at home and some could see the occasional classroom session serving as a 'check' for independent work. Full-time students indicating a preference for fewer classes more commonly felt that having more time to research for coursework/projects and to reflect would be of value to them.

Forty-five per cent of respondents indicated that they would prefer to have more face-to-face lectures at university. A number of explanations were given for this but the most common theme among both undergraduates and postgraduates (FT and PT) was once again a strongly felt requirement for personal contact with tutors/lecturers and/or fellow students and the learning benefits derived from that contact. A second often cited theme was simply that respondents felt that lectures were better than alternatives (e.g. e-learning approaches, tutorials, seminars were specifically mentioned). Only one group of students, first year undergraduates, suggested in free text comments that they learned better from lectures than from other forms of teaching.

The most common explanation amongst the fifty-five per cent of respondents who stated that they did not want more lectures was that they needed more time for independent forms of study through the research and reading required to complete coursework. Almost as many said in some way that they preferred more interactive sessions (e.g. seminars/tutorials) or that lectures were boring. Similar numbers cited problems with attending university (travel time/costs, need to work) as a reason for not wanting more lectures. Problems of attendance were not confined to part-time students. Full-time undergraduates just as frequently mentioned difficulties in attending university on a regular basis.

Attitudes towards the use of online materials and approaches

The questionnaire included 3 specific questions around the issue of the use of online learning approaches to support and/or replace face-to-face activity. The three questions and the percentage responding yes or no to each are shown in table 3. For all 3 questions shown in table 3 there was no detectable bias towards undergraduate versus postgraduate or full-time versus part-time. Similarly there was no significant subject related bias with the possible exception of the Social Sciences where students appeared to be more positive towards the use of ICT whereas students taking a language were inclined to be more negative.

Table 3

Percentage yes or no responses to 3 questions about online learning

Question posed	Yes	No
1. Do you think that certain online activities (like discussion boards, online conferences short answer tests) can sometimes be an alternative to face-to-face classes?	46.5%	53.5%
2. Do you think that there are certain things that you currently do in face-to-face classes that might be better done online?	36%	64%
3. Do you think that combining face-to-face classes with online activities (e.g. discussion boards, short answer tests) is potentially useful?	82%	18%

Respondents were asked to explain their reason(s) for answering Yes or No to the questions in the table above. Most expressed the view that the use of online methods should/must be seen as complementary to face-to-face classes and activities. Frequently, respondents specifically stated that they either strongly supported the retention of current levels of face-to-face or opposed the introduction of online methods at the expense of face-to-face.

Common themes for the positive value of online approaches (primarily to support face-to-face rather than replace any of it) in order of frequency with which they were cited were:

1. Online approaches led to changes in learning providing:
 - a. Greater stimulation
 - b. More opportunities to understand
2. More opportunity to think and reflect possibly before contributing (some 14% of the comments (total number 580) analysed referred to the advantage of online activities to the 'shy' student, not keen to ask questions in class)
3. Online approaches helped to reinforce what was taught/learned in the classroom
4. Online approaches provided scope for class members to share knowledge more efficiently and effectively

Such comments are in line with similar reactions that have been consistently reported in the literature since online teaching began (early examples can be found in Hiltz & Turoff 1978; Pincas, A. 1994, 1997)

Almost half of the respondents who referred to changes in the way that learning could occur as a consequence of the use of online tools specifically mentioned the positive effect of the use of short answer tests as a supplement to classes. Comments about short answer tests ranged from self-assessment and monitoring of progress through to reinforcement and diagnosis of weaknesses.

Discussion and Conclusions

Students' current use of email and the Internet to support their studies is clearly high. It can be seen from the data obtained that a high proportion of the students surveyed are using email as a basic form of networked learning. Their use of the Internet to underpin the assignment process is significant as is the fact that many still see the significance of 'books' to the research process. Previous published work has also shown how students use the Internet in conjunction with books (Ray and Day 1998) which argues against the concerns of Lindsay and McLaren (2000) that students may become too reliant on the Internet as a single source of information. What is also clear from the data obtained is that students are very clear about the advantages of using the Internet.

The students surveyed firmly believe themselves that ICT has a significant role to play in supporting and enhancing their university learning experience. Their comments also suggest that they see the use of ICT as potentially going well beyond the use of the Internet to search for resources and the use of email to stay in touch with tutors and fellow students. This is evidenced by the overwhelming majority responding yes to the question 'Do you think that combining face-to-face classes with online activities (discussion boards, short answer tests) is potentially useful'? In addition to this a significant number clearly felt that ICT could sometimes be used as an alternative to face-to-face activities. The very small subject specific or study mode bias observed in the answers given is in contrast to other work that has shown a more significant interest towards the use of ICT from students of some subject areas (Hong et al., 2003).

Students who were or already had experienced the use of a VLE on their course, were no more or less inclined to respond yes to the question above or to hold the view that some face-to-face could be replaced with online alternatives. In the main, students gave higher level reasons for their support of ICT. This is in contrast to a much smaller scale study of a subject specific group which indicated that students saw web based resources as something to be used solely to support revision prior to end of course examination (Saunders & Klemmif 2003).

A significant proportion of full-time students undertake an average of 14 hours per week paid employment. The same students estimate that they spend an average 14.5 hours on study outside of the classroom and, typically, would be expected to spend a further 12 hours in class per week. Part-time students are normally in full-time paid employment and attend university on a day release basis. It would appear therefore from the data on full-time students and the circumstances of part-time students, that both groups might have good reason to prefer more flexible modes of attendance and course delivery. Indeed, it was clear from a noticeable number of comments about lectures that a major reason for not wanting more lectures was associated with attendance difficulties.

Despite these apparent drivers for flexibility, and in contrast to their views on use of ICT, students overwhelmingly came out against the notion of holding face-to-face classes less regularly. The main reason for this was a clearly held view that face-to-face communication and events, with both academic staff and fellow students, was critical to their overall learning. The fact that they also felt that irregular classes would lead to loss of routine, continuity and motivation served to highlight the present perceived importance of face-to-face classes to campus based students.

Many courses rely heavily on the lecture as a means of presenting the information or existing knowledge that forms the basis for the overall delivery of the course. Previous substantial studies have shown why it is that students appreciate lectures (e.g. Brown and Daines 1981). Whilst the majority of students clearly did not want to see face-to-face contact reduced, a significant proportion also did not wish to see any further increase in the number of lectures they received. Although a number of respondents did indicate in some way that they preferred more interactive forms of classroom based teaching, the need to have more time for independent study was also commonly raised. This may be linked to the major reasons that students gave for feeling that online activities should be combined with face-to-face classes, most of which related in some way to having greater opportunity to think about and reflect on what had taken place in class.

In conclusion, significant numbers of students are keen to see ICT exploited in the teaching and learning process. Indeed, the degree to which email, for example, is being used to maintain contact with tutors, alongside the use of mobile phones (especially sms/texting) between students, suggests that a form of ICT based networked learning is already significant. However, the same students are very reluctant to see face-to-face contact replaced with online alternatives. This is not too dissimilar to the situation with the majority of academic staff (Butler and Sellbom 2002, Saunders, Unpublished observations), many of whom believe that face-to-face interaction cannot be replaced effectively online.

We suggest that learners and teachers need to be persuaded that economic realities mean they cannot have both. If our higher education is to be effective, we have no alternatives but to harness the best of our ICT options. Further, we would argue that much of the hesitancy about digital learning methods is due to experience of less than ideal uses of these. If all that students and staff have experienced are online PowerPoint slides, or lists of urls, or text-lectures, or badly structured online discussion forums where interactions are sparse and ineffectual, then it is not surprising that they do not yet recognise the value of online methods.

Ardent supporters of the use of ICT have to meet the challenge of not only refuting this view, but also of demonstrating more acceptable, useful and affordable ways of integrating ICT into face-to-face courses. In a smaller scale survey, Williams (2002), like many others previously, shows how the use of web based materials by students is positively linked to performance and achievement. However that paper also states that students felt that the use of web based materials represented an abrogation of lecturers' teaching duties and led to more work for the student. The way forward is surely to present materials in more stimulating ways and focus on delivering the knowledge sharing and reflection opportunities that students are saying they value.

Endnote

[1] Note this would include students in the University Halls of Residence but all PCs in hall are student owned and not provided by the University.

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