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Staff perceptions of e-learning for teaching delivery in healthcare

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Abstract

Background: Web-based e-learning methods are increasingly used in higher education to support learning in pre and post-registration healthcare subjects. Although new technologies are central to teaching and learning strategies, e-learning is not currently accepted universally by academic staff.

Aim: The aim of the study was to determine the attitudes towards and use of e-learning amongst academic staff in nursing and midwifery.

Methods: A questionnaire survey was completed by 102 teaching staff to determine their opinions towards and use of e-learning in teaching.

Results: Staff opinions were divergent with most acknowledging the benefits of e-learning but many also expressing concerns over barriers such as lack of time, resources or technical support. Staff did not fully utilise the range of technologies available.

Conclusion: Most staff exhibited positive attitudes towards the pedagogical value of technology in teaching and learning, though some remained hesitant or lacking in confidence to embark on e-learning teaching developments or delivery. Barriers exist that may be partially addressed through better understanding of e-learning tools and their potential application, and additional support and resources. E-learning strategies need to focus on improving staff awareness of e-learning methods to supplement rather than replace traditional teaching methods, whilst providing ongoing support and mentoring for development and delivery, technological training and incentives for staff involvement.

Background

Rapid advances in technology have not only changed modern lifestyles but have impacted heavily on the way in which we teach and learn. In healthcare, there is an increased focus on innovative educational delivery methods used to encourage continued education, particularly for those accessing courses from the practice setting. There is an ongoing need for healthcare professionals to continually update their knowledge and skills to enhance clinical practice, and evidence is emerging which evaluates learning needs and the acceptability of e-learning resources for improving the knowledge base specifically in nursing and midwifery (Gresty et al, 2007). Also, as technology is increasingly used to deliver health services (e.g. telehealth), and as patients present information accessed from the Internet to their healthcare providers, our healthcare students and teaching staff therefore require affinity with such technologies in order to use these skills and respond to these rapid changes in their practice.

For these reasons, and in order that higher education institutions maintain competitive advantage, web-based instruction is becoming more commonplace in education. Electronic learning (e-learning) can be described as 'integrating information technology into the learning/teaching process, using materials delivered by the Internet' (Glen, 2005). This ranges from a collection of online resources which supplement traditional classroom based learning (e.g. text, picture, video and audio materials), to a fully web-based interactive course with online teaching materials, assessment and student support. E-learning can improve access to education and training, offering a flexible, asynchronous mode of teaching delivery, allowing students to work at their chosen time, location and pace, which is

advantageous for healthcare students who often study around 12- hour shifts, shift rotations, mandatory overtime and family life.

The UK National Health Service (NHS) is currently in the middle of what has been described as 'an Information and Communications (ICT) revolution' (Crompton, 2007) with the initiation and implementation of the NHS National Programme for IT (NPfIT), with technology increasingly used in practice for health communications, healthcare delivery and patient monitoring. Further, e-learning is becoming ever more important in higher education and authors have argued for the centrality of e-learning to educational diversity and the shift from 'teaching' to 'learning' (Forman et al, 2002). Local university e-learning strategies reflect this paradigm shift, and although little is known about perceptions of our staff towards the pedagogical value of e-learning as a mode of teaching delivery. Research is limited in this area, although staff attitudes towards the use of technology in teaching have been assessed in a large-scale survey (n=982) in Scotland (Haywood et al, 2000) where common themes identified were a lack of development and delivery time, perceptions of the low status (and rewards) of teaching compared with research, lack f reliable support for delivery and a lack
of basic computer and information technology (C&IT) skills. In a review of studies on staff attitudes, Newton (2003) confirmed these findings and clarified that staff perceptions of a lack of support commonly related to both training in technological developments and pedagogical support in how to apply to technology effectively.

Published studies evaluating the perceptions of staff towards e-learning specifically in healthcare are limited. The majority of studies are international yet although there

may be differences in technological developments between countries it is likely that there will be similarities between identified staff issues and barriers to e-learning in the UK. Gupta et al (2004) interviewed four staff regarding a web-based supplement to the dental undergraduate curriculum. Despite mostly positive feedback from the students, staff recognized the benefits

but their perceptions were primarily negative and they reported concerns over plagiarism, the effects of supplementary e-learning materials on lecture attendance and the lack of feedback from students on existing Computer-Aided Learning (CAL) material. However, practical solutions for some of these issues have been addressed by Moore and Hart (2004) in a discussion of strategies for implementing online courses in nursing.

Aim:

The aim of the study was to determine the attitudes towards and use of e-learning amongst academic staff in nursing and midwifery.

Methods

Ethical approval for the study was granted for this cross-sectional questionnaire study by the local Medical School Ethics Committee in March 2008. Approval for accessing staff was granted by the School Business Executive Committee. Following a brief pilot survey resulting in some minor amendments, an invitation to access a link to a web-based online structured questionnaire survey was sent by e-mail to all teaching staff in a School of Nursing (n=228) and Academic Division of Midwifery (n=30), together with an explanation of the purpose and

voluntary nature of the survey. Completion of the survey was anonymous with no identifying demographic data requested. For this reason, due to the small numbers of academic staff in the Division of Midwifery compared with Nursing responses were not identified by department, and distinguishing between staff in this way would not be meaningful since academic staff in both departments are from diverse professional backgrounds. However, respondents were asked to identify the site at which they were based for comparison between geographic locations to assist future targeting of support. An identical paper version of the

questionnaire was distributed to all staff by internal mail. An email reminder was sent to all staff after four weeks. All staff were invited to take part since every staff member is a potential user of e-learning technologies due to our local e-learning strategy, and extensive e-learning resources and media development support are available within the School. It is important to note that this setting is a large School, with a large number of students, diverse in age range and learning needs, spread out over multiple geographical locations.

The survey was conducted to ascertain the current attitudes towards and use of e-learning within nursing and midwifery, following the introduction of e-learning strategy within the School and financial investment in e-learning support for staff from a dedicated media development team. The questionnaire consisted of 21 questions relating to centre base, computer use (home/work), perceived level of computer expertise and frequency of use of e-learning in 17 different modalities within the teaching role. The survey also included questions relating to where staff though e-learning development and implementation should be prioritized (seven items; rated 'never', 'occasionally', frequently', 'always'), and a request

for staff to rate the importance of where e-learning development and implementation should be prioritized to address wider educational issues (seven items rated 'not at all important', 'quite important', 'very important'). A section was included on barriers which prevent staff using e-learning more (13 items, rated 'never', 'sometimes' or 'all the time'). Staff were asked about their familiarity with the School Educational Technologies Group (two items), and due to significant financial investment within the School in the development of a repository of Reusable Learning Objects (RLOs), staff were also asked about their familiarity with, definition of and use of reusable learning objects (nine items).

Staff were also asked to estimate how often they used e-learning in their teaching (likert-type scale ranging from 'never' to 'daily'). Question items were based on a previous survey conducted within the School several years prior, and were developed in collaboration with e-learning experts within CETL-RLO (Centre for Excellence in Teaching and Learning in Reusable Learning Objects) and so the questionnaire demonstrated content validity. Items were mostly closed questions ('tick-box') with opportunity for free text responses expanding on answers provided. Data from both the electronic and paper versions of the questionnaire
were analysed using SPSS Version 15.0.

Results

There were a total of 102 responses of which 60 were completed online and 42 were completed using the paper version of the questionnaire. This gave a response rate of 40%. Of respondents, 53% were based at the Nottingham centre, with the remainder from Derby, Lincoln, Boston, Grantham or Mansfield. There were 41% who reported

using a computer at work on a daily basis, with 59% reporting using a computer weekly. The majority of staff (97%) used a computer on occasion at home. Almost two-thirds of staff felt that they were

computer 'novices' (64%), with a 31.4% describing themselves as 'competent' and four per cent as 'advanced' computer users.

E-Learning Methods

Reported use of electronic teaching methods are presented in Table 1. The most commonly reported 'frequently' or 'always' used methods were the use of Powerpoint for lectures or tutorials (93.2%), communicating with students via email (94.1%) and suggesting websites as extra resources (85.3%). The most commonly reported 'occasional' methods were the use of online simulation exercises e.g. Penfield (25.5%), posting lecture notes on course websites

(31.4%), using film clips or sound clips in the classroom (51%) and using reusable learning objects (53.9%). Use of online student records and assessment, videoconferencing, social networking sites and other methods were reported by fewer staff and these were more likely to be utilised by the respondents who described themselves as 'advanced' computer users.

[insert Table 1 here]

E-learning Priorities

Staff were asked where they thought that e-learning development and implementation should be prioritised. Responses are presented in Table 2 and these suggested that using e-learning to enhance classroom teaching and only a small proportion of

teacher-student/student-student communication were viewed as more important (92.1%, 82.4%, 83.4% reporting 'quite' or 'very' important respectively) than for student assessment and online courses (74.5%, 60.8% reporting 'quite' or 'very' important respectively). Staff were then asked to report where they thought e-learning development and implementation should be prioritized to address wider educational issues. Opinions were diverse on this item. Responses are presented in Table 3.

[insert Tables 2 and 3 here].

Barriers to e-learning

Although attitudes towards e-learning were positive for a large proportion of staff, a range of barriers to using e-learning were identified. These are varied and presented in Table 4. The factors most commonly identified as persistent barriers ('all the time') were a lack of confidence with e-learning (32.4%), a lack of time to prepare the materials (32.4%), and a lack of support and guidance for development and use of these methods (26.5%). Staff also reported that 'sometimes' or 'always' there were problems with the network (65.7%), or
facilities in the rooms (69.6%), and also identified issues with limited student IT skills (73.5%). However, only a small proportion of staff (4%) identified barriers relating to persistent ('all the time') negative attitudes towards e-learning (e.g. not wanting to change, no enthusiasm for it, do not think it enhances learning). However, a third of respondents reported that they 'sometimes' felt this way demonstrating that not all recognise the value of new technologies in teaching delivery, although this may be a result of lack of awareness or experience of these methods.

Use of Reusable Learning Objects

These are defined by the School as "an interactive WWW-based resource based on a single learning objective which can be used in multiple contexts". The majority of the sample (96%) had heard of reusable learning objects (RLOs), with 71% using them on either an 'occasional' or 'regular' basis. Of those who had been involved with RLOs, almost a quarter had authored their own (23.5%), more than half had used them with pre-registration students (52%), a third had used them with post-registration students (32.4%), 10% with post-graduate students, and six per cent with students outside of their School. Over a fifth had peer-reviewed RLOs for other people (22.5%), with a proportion recommending them to other lecturers within the School (39.2%) or from other departments or institutions (24.5%). Those who had heard about them predominantly heard via word of mouth or School email/poster. Of those that had used RLOs in their teaching, 62% had done so within the last six months with the largest proportion of staff reporting accessing these through the School of Nursing Educational Technologies (SONET) website (62.4%), and only a small proportion using RLOs from other internal or external sources. Staff who used RLOs did so to recommend supplementary learning (60%) or for revision purposes (35%), to demonstrate something in a lecture (41.4%) or tutorial (22%), or to demonstrate a practical skill (16%). When asked how likely they were to use RLOs in the future, 67.7% of respondents said they were either quite likely or very likely to use them, and 18% were unsure. Reasons given for being unlikely to use them were related to changes in job roles (e.g. retirement, new staff with unclear role) or to do with the fact that no RLOs were currently available for their particular teaching topic. More than three quarters of respondents (77.5%) felt that RLOs were of value to

student learning, with 15.7% feeling unsure. The minority of individuals who felt they were of little value gave reasons suggesting that RLOs are more valuable for some topics than others, and also that some RLOs were of more value/better quality than others.

Frequency of e-learning in teaching

Staff were asked to estimate how often they currently used e-learning (of any sort) in their teaching. Of those who reported using e-learning methods at all, 41% used them 2-3 times per year, 28% on a monthly basis, 23% on a weekly basis, and 7% on a daily basis. For anonymity reasons, staff were not asked to report their job role and teaching load was not determined, therefore responses to the 'frequency of e-learning item' may have been influenced by the regularity of teaching delivery.

Attitudes, Benefits and Caveats

Many respondents shared their thoughts on the use of e-learning methods and were predominantly very positive. Responses included, 'An element of e-learning is necessary to prepare students for work in practice..'; 'e-learning is essential for today's education and society' and provides 'transferable skills for use in practice'. Others reported that, 'by using a variety of methods and means it is possible to retain student interest and provide a different format for learning' and that it, '…gives the students greater flexibility in their learning' and helps them to 'consolidate information' outside of the classroom as well as being 'convenient'. It was recognised that methods used would depend on both staff and student
needs, and that there may be particular benefits for certain student groups, particularly those student cohorts based across a wide geographical spread, or for communication

across branches and centres, giving more opportunity for learning outside the classroom. For example, one respondent said that, 'distance and time are an issue for post-graduate students and so having more resources on line would benefit them'. It was identified that e-learning could increase potential for peer support, especially whilst students are out on placements. However, there were doubts expressed as to the benefits of online discussion forums compared with face-to-face discussion.

It was also suggested that there may be particular benefits for certain teaching topics, for example in the biological sciences, where, 'e-learning enables dynamic 3D processes to be demonstrated' or in practice-based subjects, where, 'the more literature and discussion based activities that can be done online, the more time it leaves for clinical and skills-based exercises in the classroom'. However, opinions towards the use of e-learning in practice based topic areas were diverse. Some felt that e-learning methods could help to relieve the pressure on skills labs to accommodate students and spread resources, to 'encourage repetition of learning in and from practice', to enable 'scenario-based work', and be used for decision making and to 'gain confidence in a safe area environment before practising in healthcare settings'. It was suggested that these methods may be beneficial not only for nursing practical procedures but also for communication skills and simulated ward management. Others felt strongly that practice-based learning should only engage students with the actual skill, in 'real-life' situations and one even stated that 'computers do not foster a caring competence' and that nursing is a 'social activity' which would benefit from development of simulation using people rather than virtual methods.

Attitudes towards the use of online assessments were also diverse, with some feeling that this would assist with accessibility, instant examination of results, saving resources, detecting plagiarism and ease of marking, and others concerned about confidentiality, cheating, IT access problems and lack of student IT skills. Many were not in favour of fully online courses, and although the benefits to recruitment/retention were recognized, it was felt that blended approaches were more appropriate.

Some felt strongly that the important issue was the pedagogy that the materials were based on, 'it is the pedagogical design that is key, rather than the mode of delivery'. This was again raised by individuals expressing concern that e-learning was being pursued to keep teaching costs down. Whilst the majority of respondents expressed positive views towards e-learning, it was acknowledged by many that this should be 'an enhancement…not a replacement' and that 'whilst (module evaluation) feedback has highlighted that students enjoy online or e-learning content, they also highly value lecture input', thus blended approaches can help to meet the needs of those with different learning styles. One individual felt strongly that, 'the whole point of a classroom is to have personal contact with the teacher', and face-to-face contact was viewed as something that could not be substituted.

It was also suggested that whilst there is good e-learning material already in existence, it is not always well-utilised, yet can be unsuitable for stand-alone delivery. There were some concerns that students may not actually access e-learning materials and that tutors may need to check access, thus potentially increasing workload. Staff identified that students would also need the skills to use e-learning, and that it may be

'more acceptable to young students who enjoy the experience'. It was suggested that, 'student IT skills are not always up to scratch…'.

There were some expressions of low confidence with e-learning methods, including, 'I don't feel confident with this yet, but I would like to try'; 'it is important to get a balance between those who prefer the medium and those who are afraid' and 'whilst I feel confident in using word processing and Powerpoint packages, I do not feel skilled enough to go beyond that. There is a lot of staff development required', '…not all staff are computer literate'. One individual even suggested 'team teaching' by those who are familiar with the e-learning methods, whilst just one seemed unwilling to change and suggested everything was 'ok as

it is'.

Time and resources were key issues and staff identified the '…need for additional resources to help develop teaching approaches and methods'. One individual stated, 'I have ideas but I am hindered in the time and technical advice available to develop them'. Another highlighted the need for top-level support and suggested that, 'It needs a strategic decision from the School to provide resources to develop these…then I would use them'.

Discussion

This study was conducted within a School of Nursing and Division of Midwifery and responses were representative of the proportion of staff in each group, therefore it is likely that the findings reflect the attitudes of this population of staff. However, it is not known whether the non-responders were e-learning users or not and therefore these findings must be interpreted with caution. This survey was specific to staff in

nursing and midwifery and although other healthcare teachers may have similar perceptions and barriers, it is not possible to extrapolate these findings to staff in other disciplines.

Staff and student computer competence

There was evidence of low confidence in the use of e-learning in a proportion of this sample. Lack of confidence in e-learning may make staff assume, perhaps incorrectly, that such methods are difficult to develop or deliver, or even inappropriate for their subject area. Increasing staff and student confidence in e-learning via education, training and staff e-mentoring will be essential for encouraging further use of these methods.

E-learning is important since healthcare professions have increasing requirements to maintain competency in changing healthcare systems, and computer competencies have specifically been identified as necessary for the nursing profession (Jiang et al, 2004) therefore they may not be an accurate representation of other healthcare professions in higher education. Basic computer competence is essential for both delivering and receiving education applying e-learning technologies. Staff in this study had concerns about students' information technology (IT) skills and indeed the research literature suggests that greater computer competence is needed for wen-based learning to be effective for both healthcare professionals and students alike (Creedy et al, 2007; Yu and Yang, 2006; Yang et al, 2004). This suggests that training students in the skills required for engaging with e-learning materials may be as important as training for staff. However, engaging in e-learning can itself serve to increase computer competence and indeed, a Canadian study showed that following a

16-week web-based post-diploma course, Registered Nurses (RNs) reported

significant gains in their learning with e-mail, Internet, Keyboarding and word

processing skills (Atack and Rankin, 2003). Although

acceptability of e-learning has always been influenced by the individual's level of

computer competence, with each generation, skills are rapidly developing and greater

proportions of students are comfortable in the use of technology in learning putting

even greater pressure on our staff to develop an affinity with such technologies to

respond to student learning needs. One study of healthcare students showed that

students were often more comfortable using the Internet than members of staff, and

were more enthusiastic about having course materials

accessible online than were staff (Walmsley et al, 2003) which highlights the

importance of evaluating staff knowledge of, attitudes towards and use of elearning as

they adapt to meet the changing learning needs of their students.

Flexible learning in practice

A large proportion of staff reported that e-learning methods would help with

students who require flexibility for learning. In the National Health Service (NHS),

despite an increasing need for educational opportunities there is often a decreased

ability to release staff for course attendance, thus emphasizing the need for more

flexibility and accessibility in educational provision (Clark and Robinson, 1994).

Research has suggested that online learning may be advantageous for healthcare

students who benefit from flexibility of time and location for knowledge acquisition.

Focus groups in Taiwan indicated that web-based courses may help to reduce barriers

to continuing education for nurses (Chang et al, 2003) and recent work in the UK

proposed that electronic methods of teaching and learning can be favoured by staff as

a method of continuing professional development (CPD) in healthcare (Gill, 2007).

Duffy et al compared the outcome of course delivery for post-registration nurses in (a) the classroom, (b) via the web with face-to-face tutorials and (c) completely online. They found that overall, module results were significantly higher for the students who studied completely online (Duffy et al, 2002). Other studies have also found that web-based learning methods can be an effective mode of delivery in nursing although it is suggested that the learning environment may be significant to outcomes, with 'work users' identifying more barriers such as insufficient time and lack of computer access than 'home users' of web-based materials (Atack and Rankin, 2002). Nevertheless, there is increasing demand for online courses in healthcare and published evaluations show that these can be implemented with success (e.g. Kulier et al, 2008; Moore and Hart, 2004; Halstead and Coudret, 2000).

Development issues

Staff expressed some concerns about time and resources needed to develop and deliver materials. The development and delivery of technology-based learning is undoubtedly time-intensive although there is little agreement in the literature on whether academic workload is more than traditional forms of teaching (DiBiase, 2000; Visser, 2000; Turgeon et al, 2000). Nevertheless, some issues were raised in this sample about the impact of such methods on workload. A substantial investment of time, money and expertise is necessary for producing good quality electronic resources (Adams, 2004). For example, it has been suggested that between 30 and 200 hours of development time is needed to produce just one hour of online

content (Macleod, 2000). It is therefore important for educators to assess the 'return on investment' of new technologies in terms of the student learning experience before they are readily embraced (Bove, 2001). However, in an evaluation of three multimedia technologies designed to support e-learning for shift-working nurses, Rutowski and Spanjers (2007) concluded that with the right level of IT support, e-learning can be efficient and improve the quality of education in a cost-effective way.

Learning with e-learning

Staff had some concerns about the impact of student e-learning on nursing practice and the appropriateness of e-learning methods for practice learning. However, it is possible that this may relate to their own hesitation in using technology, which is amenable to training and the research evidence does suggest that e-learning can result in improved clinical practice. The healthcare professions are challenged in the development of courses which will reduce class contact time and improve recruitment and retention of students without educing the quality of the programme of study. Further, critics of e-learning have expressed concern that computer technology risks diluting rather than enhancing teaching and learning (Washer, 2001; Cunningham and Plotkin, 2000; Roberts et al, 1998). It has also been argued that computer interactives can be stylistically vibrant and visually stimulating though they also run the risk of being educationally shallow (Glen, 2005). However, learning benefits to healthcare professionals have been clearly demonstrated since research on qualified nurses engaged in post-registration courses has shown improved clinical practice as a result of e-learning (Atack, 2003; Atack and Rankin, 2002) supporting earlier work which noted improved clinical decision-making using online group case-work (Niederhauser et al, 1999).

With the paradigm shift towards e-learning in education, the importance of developing 'learning-centred' courses as opposed to 'content-centred courses' has been acknowledged in the literature (Magnussen, 2008). This has been demonstrated in the application of Fink's theoretical Principles of Significant Learning with a taxonomy of six course components necessary for significant learning including foundational knowledge, application, integration, human dimension, caring and learning how to learn. Magnussen highlighted the relevance of adhering to Fink's principles in the development of web-based course content to ensure that student's are engaged and learning rather than those developing e-learning resources solely focusing on presentation of material. If good pedagogic practice is incorporated into e-learning materials then higher order learning may take place (e.g. Kulier et al, 2008; Kekkonen-Moneta and Moneta, 2002; Herrington and Oliver, 1999) although Gresty et al (2007) note that in the development of materials this is often overlooked.

Whilst it is sometimes speculated that greater use of e-learning may free up some of the educator's time spent in scheduled classroom contact, this time in fact allows educators to focus more on the learning process and individual student needs for guidance and support than may be possible in a large class setting. In reality, student contact time between modalities is similar although utilized in different ways to improve the quality of the learning experience and address diverse student needs.

Blended approaches

Those in favour of e-learning methods preferred the idea of blended approaches

to learning. It has been acknowledged that not all skills can be acquired via e-learning and traditional academic approaches have been combined with e-learning systems in a 'blended' approach to course delivery. An evaluation of a

blended approach to patient safety education in nursing showed mixed findings in that student's attitudes towards the e-learning element varied greatly, and many did not engage with the electronic materials, although students had inconsistent access to computer facilities which may have contributed (Wakefield et al, 2008).

Determinants and barriers in e-learning

Participant attitudes towards e-learning are varied. Although many students perceive advantages to e-learning, in reality a number of barriers to the use of

technology in education have been identified in the literature. A study of physicians enrolled on an internet-based evidence-based medicine (EBM) course

showed that program completion was poor, and perceptions of time constraints

were identified by participants. Other important barriers were a lack of personal discipline and unfamiliarity with computers (Gagnon et al, 2007) which are issues raised in the current study. It is likely that similar barriers would be identified across other healthcare professions. However, in contrast, an evaluation of Internet-based radiation protection training for physicians found that the e-learning delivery was well-received with participants who worked in hospital and ward settings finding the method of course delivery to be particularly timesaving.

Some staff in this sample felt a lack of support for e-learning developments and delivery. In a nursing context, it has been identified that a lack of support for electronic modes of learning is a cause for concern (e.g. Atack and Rankin, 2002),

particularly for web-based learners at home or work who are based away from

the traditional support systems within an academic institution (Atack, 2003).

Studies of e-learner requirements in a clinical context have revealed that in order to be

useful in a professional environment, e-learning programmes need to fit in with

individual work and life schedules, they must not demand too large a time

commitment and they must be cheap or free to participants (Dawes and

Handscombe, 2002). The authors proposed that electronic materials must be easily

available over the Internet and provide access to 'bite sized chunks of

information'. They concluded that, providing support was available, e-learning

could provide similar results to traditional learning methods (Dawes and

Handscombe, 2002). Some staff felt there was a lack of incentive and reward for

involvement given the workload involved, for example in the development of

reusable learning objects which require time and resources, and some expressed

concerns over whether the end product would be worth the investment.

Associated with the perception of workload involved, staff expressed concern that

there was a lack of incentive or lack of external reward to get involved with e-

learning. Intrinsic rewards were reported by some staff and these included the

ability to extend their teaching to students off-campus, and the ability to develop

their own personal interest in technology and these have also been reported in

the literature (e.g. Dooley and Murphy, 2000; Wilson, 2001).

Conclusion

It appears that e-learning is generally well-accepted as a mode of educational

delivery by a majority of healthcare academics in nursing and midwifery, and a

large proportion of teaching staff can see the potential advantages of web or

technology-based learning methods to supplement, rather than replace, traditional

teaching methods and respond to diversity in student learning needs.

However, a significant proportion of staff lacked confidence in engaging with

these methods, staff did not fully utilize the range of technologies available, and

not all staff recognized the pedagogical value of e-learning. Staff identified a

number of issues based around time, resources and support for development and

delivery. It is likely that e-learning will become integrated more extensively

within pre and post-registration curriculums in healthcare, but for this to be

successful, there is a need to consider the implications of new technologies on staff

roles, staff development and e-mentoring needs and the reconceptualisation

of the teaching and learning process.

Key Points

1. Advances in technology have seen an increase in e-learning in healthcare

that continues to grow.

2. Web-based teaching is well-accepted by the majority, but not all staff, and

many report concerns over time, resources, support and student learning.

3. Most staff see e-learning as supplementing rather than replacing

traditional methods of learning in nursing and midwifery.

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Table 1   Reported use of electronic teaching methods

	Never n(%)	Occasionally n(%)	Frequently n(%)	Always n(%)
Communicate to students via email	0 (0%)	7 (6.9%)	61 (59.8%)	34 (33.3%)
Use powerpoint for lectures/tutorials	2 (2%)	5 (4.9%)	48 (47.1%)	47 (46.1%)
Use film clips or sound clips in classroom	21 (21.6%)	52 (51%)	27 (26.5%)	2 (2%)
Post lecture notes on web pages or WebCT	47 (46.1%)	32 (31.4%)	19 (18.6%)	4 (3.9%)
Suggest websites as extra resources for students	2 (2%)	13 (12.7%)	47 (46.1%)	40 (39.2%)
Use videoconferencing for teaching	79 (77.5%)	17 (16.7%)	5 (4.9%)	1 (1%)
Use reusable learning objects	31 (30.4%)	55 (53.9%)	13 (12.7%)	3 (2.9%)
Provide quizzes and tests online	74 (72.5%)	20 (19.6%)	7 (6.9%)	1 (1%)
Carry out assessments online	77 (75.5)	18 (17.6%)	5 (4.9%)	2 (2%)
Keep student records online	64 (62.7%)	15 (14.7%)	17 (16.7%)	6 (5.9%)
Use online simulations e.g. penfield	69 (67.6%)	26 (25.5%)	7 (6.9%)	0 (0%)
Use mobile phones for communicating with students	51 (50%)	30 (29.4%)	17 (16.7%)	4 (3.9%)
Use social networking sites e.g. Facebook, MySpace	94 (92.2%)	5 (4.9%)	3 (2.9%)	0 (0%)
Use virtual world site such as Second Life	99 (97.1)	3 (2.9%)	0 (0%)	0 (0%)
Use discussion forums for learning activities	58 (56.9%)	35 (34.3%)	6 (5.9%)	3 (2.9%)
Use blogs for learning activities	94 (92.2%)	6 (5.9%)	2 (2%)	0 (0%)
Podcast lectures	94 (92.2%)	6 (5.9%)	2 (2%)	0 (0%)

Table 2   Where should e-learning be prioritised?

	Not at all important n(%)	Quite important n(%)	Very important n(%)
To enhance classroom teaching	8 (7.8%)	55 (53.9%)	39 (38.2%)
To enhance tutor-student communication	18 (17.6%)	56 (54.9%)	28 (27.5%)
To enhance student-student communication	17 (16.7%)	58 (56.9%)	27 (26.5%)
To enhance practice skills / learning	22 (21.6%)	53 (52%)	27 (26.5%)
For online assessments	26 (25.5%)	59 (57.8%)	17 (16.7%)
For simulation exercises	22 (21.6%)	63 (61.8%)	17 (16.7%)
To provide fully online courses	40 (39.2%)	40 (39.2%)	22 (21.6%)

Table 3   Where should e-learning be prioritized to address wider educational

issues?

	Not at all important n(%)	Quite important n(%)	Very important n(%)
To encourage independent learning	2 (2%)	52 (51%)	48 (47.1%)
To wide recruitment (e.g. offer fully online courses)	16 (15.7%)	52 (51%)	34 (33.3%)
To encourage interprofessional learning	11 (10.8%)	61 (59.8%)	30 (29.4%)
To address diversity & accessibility	9 (8.8%)	54 (52.9%)	39 (38.2%)
To improve retention	21 (20.6%)	59 (57.8%)	22 (21.6%)
To provide family-friendly modules	6 (5.9%)	66 (64.7%)	30 (29.4%)
To reduce costs (e.g. travel, by videoconferencing)	14 (13.7%)	48 (47.1%)	40 (39.2%)

Table 4 Barriers to using e-learning in teaching

	Never n(%)	Sometimes n(%)	All the time n(%)
Unreliable network	35 (34.3%)	62 (60.8%)	5 (4.9%)
Unreliable equipment	36 (35.3%)	61 (59.8%)	4 (4.9%)
Ill equipped rooms	31 (30.4%)	61 (59.8%)	10 (9.8%)
Course content not electronic	31 (30.4%)	52 (51%)	19 (18.6%)
Lack of time to prepare materials	14 (13.7%)	55 (53.9%)	33 (32.4%)
Lack of support and guidance	18 (17.6%)	57 (55.9%)	27 (26.5%)
Lack of confidence	24 (23.5%)	45 (44.1%)	33 (32.4%)
No background in computers	58 (56.9%)	33 (32.4%)	11 (10.8%)
Don't want to change	68 (66.7%)	31 (30.4%)	3 (2.9%)
Lack of student IT skills	27 (26.5%)	69 (67.6%)	6 (5.9%)
Health reasons e.g. repetitive strain injury	89 (87.3%)	12 (11.8%)	1 (1%)
No enthusiasm for it	67 (65.7%)	31 (30.4%)	4 (3.9%)
Don't think it enhances learning	63 (61.8%)	36 (35.3%)	4 (3.9%)