ABSTRACT

Aim: This paper presents research on nursing and healthcare students’ experiences and use of e-learning.

Background: The inception of e-learning in higher education is supported by a policy background and technological developments, yet little is known of student experience and use in the UK.

Methods: Conducted in 2007 and 2008, this study employed a mixed methods approach. An initial quantitative questionnaire was completed by 25 Higher Education Institutions (HEIs) and nine case study sites were visited. Within the sites 41 students took part in focus groups and 35 staff were interviewed.

Findings: Twenty-four HEIs used a virtual learning environment (VLE) and all respondents used e-learning to enable access to course materials and web-based learning resources. Three main themes were identified from student interviews, ‘Pedagogic use’; ‘Factors inhibiting use’ and ‘Facilitating factors to engagement’. Student’s main engagement with e-learning was at an instructivist level and as a support to existing face-to-face modes of delivery. Student use of Web 2.0 was limited, although a number were using social software at home. Limited computer access, computing skills, technical issues and poor peer commitment affected use. Motivation and relevance to the course and practice, in addition to an appreciation of the potential for student-centered and flexible learning, facilitated use.

Conclusion: There is scope to broaden the use of e-learning that would engage students in the social construction of knowledge. Additionally, experiences of e-learning use could be improved if factors adversely affecting engagement were addressed.

SUMMARY STATEMENT

What is already known about this topic

- A range of technologies can be employed to support nursing and healthcare education
- E-learning opportunities span instructivist through to constructivist learning approaches
- There is limited appreciation of student experience and use of e-learning

What this paper adds

- Student engagement with e-learning is mainly at an information retrieval and instructivist level
Many students engage in social networking and want this preserved for personal use.

A number of inhibiting factors continue to affect the student experience and use.

Implications for practice and/or policy

- The expansion of e-learning to support constructivist approaches to learning is recommended, along with more interactive uses.
- Factors that continue to adversely affect experiences of e-learning use need addressing.
- Further research is recommended that surveys future changes in student experiences and use of e-learning.

KEY WORDS

Student experiences, student engagement, higher education, nursing, health care, technology-enhanced learning

INTRODUCTION

Government policies expounding the benefits of e-learning use internationally (Dearing 1997, Department for Education and Employment (DfEE) 1998, Pittinsky 2002, DfEE 2003) have influenced educational developments in Higher Education Institutions (HEIs). Notably in the United Kingdom (UK), the Higher Education Funding Council for England (Hefce) has produced a revised approach to its original strategy for e-learning that focuses on enhancing teaching, learning and assessment through the use of technology (Hefce 2009). E-learning, defined here as 'any learning that uses information and communication technologies' (Hefce 2005, p5), is viewed as one way to support the development of healthcare professionals (Department for Education and Skills (DfES) 2003). The flexibility and accessibility of such modes of delivery are seen internationally as offering opportunities to meet key education agendas including lifelong learning and widening participation (Department of Health (DH)1998 2000 2001, DfEE 2003, Bates 2001). Given this policy background it is unsurprising that claims are made relating to the increasing use of technology to support pedagogy (Adams 2004). However, whilst e-learning may be shaping the landscape of nursing and healthcare education (Glen and Cox 2006) there is limited appreciation of the real impact of key government policies and we do not fully understand the student experience and use of e-learning (Moule 2007).

This paper presents aspects of research commissioned by the Higher Education Academy, Health Sciences and Practice Subject Centre (HEA HS&P), conducted between January 2007 and December 2008. The research explored student experiences and use of learning opportunities mediated through technology within HEIs in the UK. The study included an initial survey phase, followed by
case studies that included staff and student interviews. Data relating to student use and experiences of e-learning is presented here.

BACKGROUND

Technology-enhanced learning in nursing and health care education spans instructivist to constructivist approaches, as set out in the E-learning ladder (see figure 1) (Moule 2007). Instructivist learning theory, is a teacher–centered model of learning that suggests knowledge exists independently of the learner, and is transferred by the teacher, to the student, who is viewed as a passive recipient. Constructivist theory is student, rather than teacher focused. The student constructs new knowledge through analysis of information and reference to experience and understanding. The ladder base identifies e-learning applications that provide access to instructional material through to supporting constructivist approaches to learning. Opportunities for social learning and the construction of knowledge, where learners are active in creating their own knowledge and understanding, can be offered through Web 2.0 technologies, discussion boards and other social networking sites. The ladder also identifies the key supports needed for engagement in e-learning.

Insert figure 1 here

The ladder presents a range of technologies that exist with the potential to enhance learning and teaching, and a number of factors that impact on their adoption and use. The effective use of e-learning depends on levels of computer literacy. This has been identified as an international issue adversely affecting both the development and use of e-learning in nursing (Gillis et al. 2000, Boyle & Wambach, 2001, Wharrad et al. 2005). Nursing and healthcare students also cite access difficulties (Gilchrist & Ward 2006) that are compounded as the technology increases in sophistication (McVeigh 2008). Despite these difficulties e-learning is reported to offer the advantages of studying at a self-directed pace, affording greater flexibility and convenience of use across the international health care workforce (Lewis et al. 2001, Atack 2003, Sit et al. 2005).

Technologies that span different levels of the ladder include the Virtual Learning Environment (VLE). Widely used in some subjects such as nursing and social sciences (Green et al. 2006, Jonas 2010, Marsh et al. 2008), VLEs provide a repository function and allow space for online interactions between students and staff. Evaluations in healthcare have suggested, however, that VLE use is limited to content creation and material delivery (Britain & Liber 2004). This position exists as the development of the VLE has been technologically, rather than pedagogically driven. This criticism is leveled at the adoption of many new technologies in nursing and other fields, where features can be incorporated into educational delivery without consideration for the potential benefit to learning (Adams 2004, Hefce 2005, Gulati 2006).
Web 2.0 technologies provide new opportunities for learning (Kamel Boulos et al. 2006), yet a recent report suggests their use in higher education is patchy (Melville Report 2009). These technologies include social networking sites, wikis, podcasts and weblogs (blogs). Web 2.0 applications allow users to not only retrieve information but to use the network as a platform to create and own the data (O’Reilly 2005). Many students interact and communicate through social networking sites, such as Facebook and My Space. Wikis are based on the idea that multiple users can add to and edit the content of a web-based information resource. Wikipedia (undated) is perhaps the best known, though wikis can be used in local settings with authorised access to particular learning communities. Podcasts are digital audio files downloaded to MP3 players for example. They are often used to broadcast sections of lectures and Weblogs or blogs are an online diary or events record, being employed as part of structured learning (Williams & Jacobs 2004) and assessment.

Further technologies available to HEIs include virtual worlds. The most popular platform is Second Life (undated), a 3-D virtual world created by the residents that allows advanced social networking (Kamel Boulos et al. 2007).

It is clear that a range of technologies exist that can be employed in nursing and healthcare education and whilst there are some examples of implementation, little is known about the national picture of student experience of use.

THE STUDY

Aims

This study aimed to capture student experiences and use of e-learning. This was mainly through focus group interviews with students, but also drew on illustrative data from a HEI survey and interviews with staff.

Design

This two year study conducted in 2007 and 2008 employed a mixed methods approach, primarily qualitative in nature with a quantitative component. It included two phases (see figure 2) with an initial scoping of HEIs using a quantitative questionnaire that elicited information employed in the selection of case study sites for Phase 2.

A case study design was adopted in Phase 2; an approach that allows researchers scope to investigate single or multiple sites in their real life context (Moule & Goodman 2009). A case can be determined as an individual, an event or an institution, and is constructed from naturally occurring situations (Hammersley & Gomm 2000). There are two reasons why multiple case studies might be employed; to allow comparison studies and to facilitate the collection of evidence from a number of sites that can be more compelling (Yin 1994).
Institutions selected through the Phase 1 survey provided e-learning education to nursing and healthcare students. The cases had specific boundaries related to different levels of engagement in e-learning and provided a purposive national sample of educational providers.

Participants

A total of 93 HEIs were identified through the HEA HS&P Subject Centre as delivering a range of nursing and healthcare programmes and were sent a postal and online version of the survey.

Nine case study sites were accessed. All had indicated a willingness to take part in a second phase and were selected to meet criteria related to the proportion of e-learning engagement and development. Forty-one students were involved in focus groups and illustrative data was extracted from some of the 35 staff interviews completed. The staff interviewed included managers, lecturers and learning technologists, selected by the sites.

Data collection

Prior to commencing the study a literature review was undertaken to identify existing potential data collection tools. A questionnaire developed by the Joint Information Systems Committee (JISC) funded Managed Learning Environment Study (undated) was adapted for use. The final questionnaire focussed on addressing the development and implementation of e-learning within HEIs.

Pilot study

Pilot work, completed with five HEI staff linked to the HEA HS&P Subject Centre, reviewed a questionnaire developed by JISC and tested other data collection tools used in the case study sites. Changes were made to the survey tool, removing some questions not required related to the specifics of managed learning environments.

Phase 1

The final questionnaire, completed by HEI staff, was composed of 62 questions addressing the implementation of e-learning within HEIs. Questions related to student use of e-learning were included. Questionnaire responses were received from 25 (28%) of the 93 HEIs delivering a range of nursing and healthcare programmes. This followed both electronic and postal mailing to named individuals within the HEIs. The response rate reflects the issues of both online and postal surveys (Parahoo 2006). Whilst questionnaires were used to gain access to key information from a national sample at low cost, many recipients
failed to complete and return them. Questionnaire analysis was used to identify the case study sample for Phase 2.

**Phase 2**

The case study visits were planned to include student focus groups, staff interviews and a review e-learning materials. Despite this, students were unable to attend focus groups on three occasions. A total of 41 students were involved in focus groups across the remaining six sites. These included a range of students as indicated in Table 1. They responded to open questions around the types of e-learning engagement, difficulties and advantages of use.

Insert Table 1

Data were collected from staff at all of the sites through individual interviews. Thirty-five lecturing staff from a range of nursing and healthcare programmes and learning technologies discussed e-learning provision in the curriculum and their perception of student use.

**Ethical considerations**

The university ethics committees gave approval for the study. The proposal addressed issues of confidentiality and anonymity. Implied consent was given through the completion and return of the questionnaires. In the case study sites information sheets were provided and both students and staff completed written consent forms prior to data collection. These emphasised voluntary participation and an ability to withdraw from the study at any time without penalty. To ensure confidentiality a number of steps were taken in data collection, storage and presentation. The questionnaires were given a code that was then used to identify the case study sites. Recorded focus group and staff interviews were anonymised on transcription and data were presented using the site codes.

**Data analysis**

**Phase 1**

The 25 responses completed by staff in the HEIs were coded and the data entered into SPSS (Statistical Package for the Social Sciences) vs.13. All the variables were categorical.

**Phase 2**

Yin (1994) identifies data analysis as one of the least developed and more difficult aspects of case study research and highlights Miles & Huberman (1984) as one of the few texts offering a systematic approach to assist researchers. Therefore, to support a rigorous approach to the qualitative data obtained the
transcriptions of both the focus groups and interviews were analysed, using procedures outlined by Miles & Huberman (1994). Two members of the team scrutinised the data independently before agreeing key themes related to student use and experience of e-learning.

Rigour

The questionnaire had been used previously to collect data from higher HEIs, though was adapted for use in this study and piloted with within the HEA who reviewed the contents for face validity (Moule & Goodman 2009).

Yin (1994) suggests that quality can be maintained in case study research through supporting internal, external and construct validities and reliability, commonly used in establishing the quality of empirical research. As part of this study the collection of data from multiple sources enhanced both construct and internal validity, ensuring data collected through the questionnaires was verified through the case studies where both student and lecturer views were collected.

The generalization of case study research has been the subject of debate for some time. Gomm et al. (2000) suggest strategies to overcome generalisability issues include studying a sample of cases selected to cover the extremes expected across a heterogeneous population and to draw on in initial survey to provide a basis for case selection. Both of these approaches were used within the design, employing the questionnaire to support case study sampling and ensuring the cases selected reflected differing levels of e-learning development and use. Eminent researchers in the field refer to processes of naturalistic (Stake 2000) and intuitive generalization (Lincoln & Guba 2000) as possible ways forward. These arguments recommend the readers of research will consider generalization through recognition and transfer. To support this process the research will need to provide a complete description of cases and their boundaries, seen here through the presentation of cases focused on delivering nursing and healthcare education through e-learning.

FINDINGS

HEI Questionnaire data

The HEI survey provided some information about the provision of e-learning for nursing and healthcare students and the perceived use by students. In total, 24 of the 25 questionnaire respondents stated that they used a VLE to support teaching and learning, the majority provided through Web CT or Blackboard (87.5%). The VLE was mainly used to supplement learning (77.8%), with six HEIs running fully online courses for up to 15% of their provision. All respondents used e-learning to enable access to course materials and web-based learning resources.
A range of e-learning technologies were used by HEIs, the most popular being e-mail (96%), discussion boards and CD Roms (both at 84%). Web 2.0 technologies such as blogs (44%) and wikis (28%) were being employed by a growing number of institutions. A smaller number of HEIs were using mobile phones (16%) and SMS texting (8%). E-learning was mainly used to support campus based students (84%), though it was also key in aiding the maintenance of distance (72%) and international students (64%).

Data from student focus groups and staff interviews

Three main themes were identified from the analysis of focus group discussions with 41 students including: the ‘Pedagogic use’; ‘Factors inhibiting use’ and ‘Facilitating factors to engagement’. Some of the 35 staff interviewed held perceptions that resonated with the student views and these are presented as supporting illustrative data.

Pedagogic use

Student’s predominantly engaged with e-learning through the institutional VLE, where they accessed course materials and information. A student at site 5 suggested, ‘I think it [VLE] is a very good resource, but my personal feeling is that is under-utilized here max’.

Staff generally supported this view, though some individuals were trying to expand the use of the VLE, ‘I originally used it as much more of a repository …and then I started to use the discussion board much more’ (Site 3). The use of the discussion board was reported by a small number of students and in some cases it replaced face-to-face forums as here:

‘A question and answer session…. it was in inter-professional learning, so people from social work, radiographers, everyone could access it and input a question and two tutors would answer them’.(Site 5)

A number of students discussed their use of interactive classroom voting systems (Sites 3 and 4), podcasting (Site 5) and engagement with supplementary online learning resources such as Reusable Learning Objects (Site 11) and other online learning packages (Site 22). Additionally, E-portfolios were also being used to support practice based learning and assessment (Site 3). The interactive voting system was particularly well received by students, ‘...then it came up with a graph on how many had got the right answers…that was brilliant’. (Site 22)

It was also suggested that certain subject areas seemed to use e-learning more. Bio-sciences were particularly highlighted, where interactive online packages worked well:
'I think biology are really into their computing...I don’t know if you use like sociology and psychology, they’re not quite so much into putting things on the web, but then again I think it’s easy to do for biology because of the type of subject it is'. (Site 11)

Additionally, nursing and occupational health students valued the visual aspects of e-learning as a support to clinical skills development, with one student suggesting, ‘When you look up a particular skill that you may need to do on the ward it shows you pictures and doesn’t just write about it’. (Site 5)

A number of students were using social software outside the university with one student recounting:

‘All I’ve really done is use it to get in touch with others in the group so that if I’ve got a problem I can put it up there and one of the guys will answer it. So I find it a handy tool for use in my nursing.’ (Site 15)

Interestingly, students were reluctant to use such tools in the course of their education a position supported by some of the staff interviewed who were concerned with students use of such sites and would not support their use for educational purposes:

‘I think they’re very, very naïve. A lot of students who come to us are very naïve about their digital identity …’ (Site 11).

All students owned a mobile phone and whilst some were willing to allow the university to send text messages to them, others were reluctant to have their personal technology invaded.

Factors inhibiting use

Limited computer access in clinical and placement settings inhibited use. One student reported, ‘No you won’t get access to the computer, that never happens’ (Site 15), a position acknowledged by staff, ‘I lot of them [students] complain that they don’t have access to computers in practice’ (Site 4). A small number of students reported difficulties accessing the Internet from home and in the university.

Both staff and students reported their computing skills adversely affected engagement. One staff member in Site 23 suggested, ‘There’s just a wide range really, a lot of them are quite mature so I think less of them are technically literate’. Students across the sites also reported poor skills, as recorded here, ‘We needed more skills and more training prior to actually coming on the course’ (Site 22).
Students recalled technical difficulties in the use of some packages and online resources, particularly when attempting access off site. One student in Site 11 suggested, ‘Sometimes it’s [online resources] not accessible cos of technical difficulties’. The staff commented that students sought support with technical issues, ‘the electronic session once a week is really good at helping students with any IT problems’ (Site 19). Students corroborated this view, though often suggested they sought help from each other or family as they provided instant ‘hands-on’ support.

In some cases students were frustrated by the lack of group commitment to collaborative online learning. This led some to believe that the online work was an extra, superfluous and created a negative experience. Students recalled:

‘Yeah, we had one student that would basically wait ‘til everyone else had posted their comments and then would put on the bottom, you know’.

Facilitating factors

Flexibility in learning and the speed of email and texting communication were valued by many. Students were motivated to engage in e-learning if it was perceived relevant to their learning, course, ‘I couldn’t have completed this course without the Internet,’ (Site 22) and ultimately contributed to assessments. For some engagement was a requirement. One student suggested, ‘If you don’t participate you don’t get a mark that you have attended’ (Site 5). The employment of mandatory measures was seen by some staff as important to achieving student participation, ‘We made it mandatory and nearly everybody participated’ (Site 20).

Many saw e-learning as an essential component of their learning and one student with learning difficulties in Site 5 appreciated having early and continuous access to power point slides and course materials:

‘What ever we haven’t picked up in the lesson, we can go back to it and revise from some of the power points’. (Site 15)

Students could also see the relevance of developing computer skills to support clinical practice, with one students stating:

‘I personally believe in computers. I mean, I did a placement once when I was doing mental health training and they had everything on computer they didn’t use paper…’ (Site 22)

DISCUSSION

The initial HEI questionnaire response rate, 25 from a possible 93, remained low despite a reminder. It reflects the problems of using online and postal
questionnaires and of securing completion of comprehensive surveys. Also, the individuals identified on the initial mailing list may not have been those in the organisation best able to respond. It is also possible that the questionnaire was seen as being too long or complex for completion. Of the nine case study sites identified from the HEI respondents, six reported student data, reflecting difficulties with local student recruitment. The range of sites involved may not therefore be fully representative of the scope of e-learning delivery and development across all HEIs engaged in nursing and healthcare education. Additionally, the focus groups did not involve international or distance students whose learning had been supported through e-learning. These students are reliant on e-delivery to access their learning. Consequently it would have been useful to record their experiences of use, especially as previous research has suggested international studies report a preference for face-to-face delivery (Kamin et al. 2001).

Students experienced a range of e-learning applications, but mainly as a support to existing face-to-face delivery. The pattern of experience and use described adds to the existing evidence that suggests e-learning is used as an adjunct to existing modes of delivery and learning experiences (Reime et al. 2008).

Pedagogically, the student experience of learning with technology tended to be limited to the more instructional levels described in the E-learning ladder. Where more constructivist approaches were used, students found elements of group working problematic. Students described poor motivation and commitment to the group learning experience in the online environment. Whilst achieving equal participation and effort can be challenging within all group work, what ever the setting, the online environment highlights such issues and creates tensions amongst the group that can detract from learning (Moule 2006). Such issues have led to the use of compulsory online attendance, an approach advocated by some e-learning models, such as that of Salmon (2000).

The majority of HEIs surveyed and all of the sites visited, used VLEs as a support to traditional learning opportunities and experiences. The students and staff described limited use of the VLE as a teaching and learning aid, a finding consistent with previous research (Levy 2005, Marsh et al. 2008). The VLE was a document repository for course information and learning materials, such as power points. This limited use of the VLE affected the parameters of student experience and use. Students felt the range of pedagogical options available within the online environment had been generally under exploited. They found the VLE often provided access to key information, but its use to support their learning was under-developed. This implies a general lack of development and progress in levels of engagement and use of VLEs across HEIs, with engagement remaining at the limited levels reported across a range of previous research (Crook & Barrowcliff 2001, Britain & Liber 2004, Levy 2005).
Newer technologies such as podcasts and interactive voting systems were also used peripherally to enhance learning, as found in the social sciences (Marsh et al. 2008). Students did enjoy the use of interactive voting systems when employed. They also valued materials created that maximized the visual and interactive capabilities of e-learning technologies. Examples of this included the use of e-learning in the delivery of bio-sciences (Remie et al. 2008), and online sites used to develop clinical skills. The multi-media scope of technology-enhanced learning on these sites was appreciated by the students who were able to learn through visual display, audio use and interaction. Students with learning difficulties also welcomed having open access to learning materials provided through the VLE and other online databases.

It is suggested that in the future the VLE, that has been reported here as the mainstay of many institutional e-learning strategies, will be replaced by Web 2.0 technologies (Stiles 2007). Web 2.0 technologies allow users to not only retrieve information but to use the network as a platform to create and own the data (O’Reilly 2005). As a relatively new technology, there is much interest across Europe related to existing practice and success factors of Web 2.0 initiatives in the field of learning (Institute for Prospective International Studies 2008). The technology has scope to support constructivist approaches to learning at the upper ends of the E-learning ladder and challenge the existing learning and teaching structures and power relationships in HEIs. For example, discussion boards can offer a forum for developing critical thinking and decision-making skills. Blogs can be used to support students as an interactive educational method to enhance reflective writing (Maag 2005). Educationalists could develop interactive technologies that were favoured by those students using them, such as interactive voting systems and online learning resources used in biological sciences (Cooper et al. 1997, Zumehly & Leadingham 2008). Social software can support online reflection and interpersonal, community based interactions and knowledge sharing (Levy 2005). Instructional techniques that build social networks have been shown to have a significant effect on student outcomes, particularly in courses with large class sizes, by helping them to access social and infrastructural resources (Rizzuto et al. 2009).

The student’s use of Web 2.0 technologies like blogs and wikis was limited within the educational environment. However, a number of students were using social software and social networking sites outside the university, such as My Space and Facebook, reflecting the wider situation in UK universities (Ipsos MORI 2008). Students were clear that they preferred to protect these sites for personal use. This position supported previous reporting (Tysome 2007, Swain 2007) and was maintained by some of the academic staff interviewed who were concerned about student naivety in the use of social networking sites. Concern about the inappropriate use of social networking sites is reflected in guidance from the UK Nursing and Midwifery Council who recommend that nurses and midwives remember that these sites are in the public domain (NMC 2010). There are further concerns that the use of technologies, can have an impact on student’s
use of language with the potential to affect the development of academic style 
(O’Connor Undated).

The students perceived their experience of using e-learning was affected by a 
number of factors. They described having limited computer literacy (Gillis et al. 
confidence and information technology skills identified amongst student nurses 
and nurses a number of years ago (Boyle & Wambach 2001) continue to inhibit 
e-learning use, particularly amongst more mature students. This problem is 
reflected internationally, where nurses have avoided asking for technical help 
with computer use as they feared they did not have the skills to respond to 
technical advice provided (Atack 2003). This position persists despite the 
provision of training in HEIs.

Students involved in this study also experienced technical challenges and access 
issues that can only be compounded as the level of technological sophistication 
increases (McVeigh 2008). The experiences reported here confirm computing 
facilities in the National Health Service (NHS) remain sparse, software capability 
is low and there are issues of restricted access to key networks in practice areas 
to patient information is currently restricted and as the use of electronic patient 
records and documents is set to increase as the National Programme for IT in 
the NHS continues to roll out (NHS 2006). Therefore, students will need to be 
equipped to use electronic patient record systems that are being introduced into 
the NHS (NHS Connecting for Health 2009).

CONCLUSIONS

Whilst we found that nursing and healthcare students are engaging in e-learning 
as part of their HEI experience, the scope of use remains restricted to a mainly 
instructivist level on the E-learning ladder. This lack of development reflects 
continuing issues with access, IT skills and limited exploitation of e-learning for 
constructivist use. Our results also suggest students are engaging more widely 
with social networking sites and are concerned that these personal spaces are 
protected for private use.

These findings have implications for education, practice and research. It is 
suggested that HEIs might exploit further the potential of the VLE and Web 2.0 
technologies, developing use to support constructivist levels of learning. Such 
advances will require greater technological provision and skill. Therefore HEIs 
are urged to work with their NHS partners to consider some of the technological 
issues still arising as part of the student experience of computer use, such as the 
need for student smartcards, usernames and passwords and to review the 
continuing skill and confidence issues described. Provision of training and 
information to support e-learning and computer use should remain on the HEI 
agenda.
Given the rapidly changing technological environment it is recommended that further research is completed in the next few years that surveys the experiences and use of e-learning by nursing and healthcare students in HEIs and clinical work environments. Given the financial investment and policy directions (DH1998 2000 2001, DfEE 2003, DfES 2003, NHS 2006) it is important to evaluate the impact and outcomes of the policies, which appear to have had minimal effect on the student experience and use of e-learning.

REFERENCES


Figure 1 E-learning ladder
Adapted from Moule (2007)

Figure 2 The research design
Table 1 Participants involved in the case study sites

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<td>6 Public Health nursing students</td>
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<td>3 OccupationalTherapy students</td>
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<td>2 Mental Health nursing degree students</td>
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<td>15</td>
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