



Surfing or drowning? Student nurses' Internet skills

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Summary The ability to use the Internet is an essential skill for nursing students, both to support their studies, especially as nursing students spend a lot of their time in placements away from the university campus, and to support their development of skills in using what is becoming an increasingly essential tool for professionals. A study at Bournemouth University, England, found that new student nurses had poor Internet skills and were not frequent users prior to starting the course.

No link was found between the students' ages and their Internet use or skills. A clear link was however found between ability and frequency of use, except in relationship to the students' ability to conduct an effective search. Almost half of the respondents said that they find far too much irrelevant information when searching for information on the Internet.

Given the importance of Information and Technology skills to nurses, both as lifelong learners and as competent practitioners and to nursing students throughout their pre-registration education, the inclusion of a programme to ensure that they develop these skills during their pre-registration education is essential.

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Introduction

The ability to use Information and Technology effectively is an increasingly important skill for nursing students. It is essential to support their student experience and also to give them the basics of the Informatics skills that they will need in practice once they are qualified nurses.

This study explores the skills and knowledge that qualified nurses need as well as discussing those needed by nursing students. It reviews students use of the Internet in the three months prior to starting a pre-registration nursing course and investigates

the students' perception of their skill levels in using Internet based services.

Educational context

There is an active debate around what is being aimed for when teaching nursing students IT skills. It is variously described as Computer literacy (Saranto and Leino-Kilpi, 1997; Patrikas, 1999); Information literacy (Shorten et al., 2001); Electronic literacy (Topping and McKenna, 1999) and even Technical literacy (Charp, 1999). All of these terms are however used as different descriptions for a very similar concept, that of having the skills to use information and technology to support professional practice. This is brought together by Johnson and Eisenberg (1996) who

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discuss the need to combine concepts of computer literacy and information literacy and identify that teaching and learning programmes designed to develop both should focus on computer skills for information problem solving. I have no desire to become mired in discussing the terminology and will use the simple term Information and Technology (I & T) skills to encompass this broad concept.

That these skills are needed is becoming a universal truth for nurses working in many countries. Drucker (1994) is of the opinion that in the future anyone who wishes to be considered educated will be someone who has embraced the notion of lifelong learning. Nurses in the UK have a requirement to undertake educational activities to support their practice as part of the registration system. The ability to use a computer and effectively find and use the wealth of information that it enables access to, is a very useful tool in maintaining this lifelong commitment to education.

Libraries are using electronic journals, which have the advantage over hard copy in that most allow more than one student to use a journal at the same time and, as with all online information, they can generally (server failures and maintenance excepted) be accessed 24/7 from a location that suits the student. Even if the student does not have Internet access from home, libraries are increasingly offering free access and many workplaces also provide access.

Computer conferencing is becoming a popular way to augment the learning experience and thus seek to improve learning outcomes, with the flexibility offered by the asynchronous nature of the system allowing the student choices over when and how to participate rather than needing to be online at the same time as colleagues (Barnes, 2000).

With student nurses spending 50% of their time in practice and these placements sometimes being quite remote from the university, it would seem that Internet based communications have the potential for making life easier for students, or at least reducing the amount of travelling that they have to do. The use of computer conferencing however has not always been found to be a positive experience. Hammond (2000) found that the style of interaction did not always reflect the students' preferred learning style.

Email has been found to be a successful tool by Shaw and Polovina (1999) with students liking the convenience of mailing lists, especially as for the students in the study email was a frequently used tool, requiring no additional software, or programmes for students to have to use over and above their normal computer behaviour. Tansley and

Bryson (2000) however found that when they studied a virtual seminar system set up via email staff made use of the system to discuss work in progress, however it was almost unused by students, as was a more informal cyber café styled area.

Health care context

The UK National Health Service (NHS) has identified that the ability to work effectively with information is a high priority for all staff, including clinicians, having published its information strategy, Information for Health, in 1998 (NHS Executive, 1998). In 2001 the Department of Health published further advice on the implementation of the strategy to compliment their other plans for developing the NHS, in Building the Information Core (DoH, 2001).

The NHS is aiming to promote working with information technologies to improve care for patients in several ways, including:

- Ensuring that professional staff have access to up to date information on which to base their practice.
- Speeding up, and easing, access to services for patients.
- Improving communication flows of essential patient information.
- Ensuring that patients and careers are informed about the NHS and best practice in relation to their condition.

Nurses need to be able to understand the role of information within the organisations they work in, as well as its role in supporting their professional practice. Additionally, with more care taking place at locations other than hospitals, nurses need to be able to communicate electronically within their own organisation and across professional and organisational boundaries (NHS Executive, 1998). The Nursing and Midwifery Council (NMC), which registers all practicing nurses in the UK, requires all nurses entering the register to demonstrate the skills needed to record, store, retrieve and organise data essential for care delivery.

Information for patients is as important as information management and communications. Historically nurses have had a role as information gatekeepers, with most detailed health information only available in journals and health libraries, limiting access to professionals. With the widening availability of the Internet much more information is now available not only to nurses but also to their patients. Patients can now access this information

without going through a professional gatekeeper; however, the quality of information available through the Internet is very variable (Impicciatore et al., 1997). This has given nurses a new role, that of facilitator, helping patients to evaluate the information they have found.

The Quality Assurance Agency for Higher Education in the UK (QAA) have introduced benchmarks, which '*describe the attributes, skills and capabilities that a graduate with an honours degree in a specific subject might be expected to have*' (QAA, 2003). The benchmarks for nursing identify that not only should nurses be competent in using common software packages including word processing, email, spreadsheets and databases, but that they should be able to access health care research and literature databases; use the Internet as an information source; and use computerised patient information systems. They should also understand the associated issues of data integrity and security and patient confidentiality.

The study

Method

It was decided to carry out this research by undertaking a questionnaire based survey of students at The Institute of Health and Community Studies at Bournemouth University. The students all commenced pre-registration nursing courses in the 2001–2002 academic year. Other research methods were considered, however it was decided that questionnaires would enable information to be gathered from the whole group, whereas other options, such as interviews, would limit the sample size.

The aim of the questionnaire was to investigate the use that students had made of the Internet in the 3 months prior to starting the course, their perceptions of their skill levels and their views on their ability to carry out some basic tasks:

- Enter a web address in a browser.
- Send and receive emails.
- Use a search engine to find information on the World Wide Web (WWW).

Some demographic information was also collected and students were asked about their computer ownership and if they had an Internet connection. They were then asked to rate their skills in using the WWW, with the categories of 'excellent', 'good', 'basic' and 'not used' being

offered. Rather than relying on students' perceptions of what constituted each skill level being consistent across the group and with the teaching teams ideas of skill levels, students were asked to say if they could complete some basic tasks without any problems. Whilst it was accepted in designing this that the definition of what constitutes a problem is subjective, it was left to the students to interpret as they felt appropriate.

The tasks:

- Enter a web address in a browser.
- Use a search engine to find information on the WWW.
- Send and receive emails

were chosen after discussion within the teaching team and with reference to external standards, including the European computer driving licence (ECDL) and RSA computer literacy and information technology (CLAIT) stage 1, both being basic IT qualifications in wide use in the UK.

In the final section of the questionnaire 3 statements were offered and using a Likert type scale students were asked to indicate their agreement, or otherwise with statements including:

- I often use email to communicate with friends.
- I end up with far too much irrelevant information when I try to find things on the Internet.
- I enjoy surfing the WWW.

The questionnaire was distributed to students in their first, introductory, session. It was self-administered and I was available to answer any queries that the students had. This method of distributing and collecting questionnaires has been identified by Oppenheim (1992) as having a high response rate. This was also found to be true for this survey, with all the students invited to complete a questionnaire (317) doing so. The ethics of asking students to complete the questionnaire in this session were considered and when it was distributed it was stressed that the forms were anonymous and that no information was being collected that could identify any individual student. Students were advised that their participation, or otherwise, would not in any way affect their course.

The results were entered into the SPSS software package for analysis. As the data was nominal or ordinal it was analysed using non-parametric methods. Cross-tabulations were used to look for relationships between the variables and Chi-square used to calculate the statistical significance of the results.

Results

Computer ownership amongst the group was quite high, with 83.9% ($n = 266$) having a computer all year round and a further 7.9% ($n = 25$) having a computer at their term time address. Of the students with a computer all year 90% ($n = 235$) also had an Internet connection. Actual use of the WWW in the three months prior to starting the course was much lower than the ability to connect the Internet, with only 45% ($n = 145$) using it at least weekly, 24.2% ($n = 78$) had not used it at all during that period. The amount of email use was very similar, with 49.5% ($n = 149$) using it at least weekly and 25.9% ($n = 78$) not at all. Students were asked about their age and gender, 89.9% of respondents ($n = 283$) were female, ages were grouped, 59.2% ($n = 186$) were aged 18–25, 23.2% ($n = 73$) aged 26–35, and 17.5% ($n = 55$) over 35.

Students did not report a high level of confidence in their WWW skills, over half (56.6% $n = 150$) thought their skills were basic and 14.5% ($n = 46$) said they had never used the WWW. Only 4.9% ($n = 13$) considered themselves to be expert. 70.9% ($n = 222$) agreed with the statement 'I enjoy surfing the www' whilst 13.4% ($n = 42$) said they have never tried to do it. Perceived skill levels did not seem to affect enjoyment with 47.9% ($n = 102$) of those who enjoyed it considering themselves to only have basic skills.

Self reported skill levels did not always correspond to the tasks that students could carry out competently. Whilst overall 62.5% ($n = 198$) said that they could enter a web address into their browser software, a task considered as basic by the ECDL qualification, 14.7% ($n = 15$) of those students who rated their Internet skill levels as excellent or good and 40% ($n = 60$) of those who considered their skills to be basic said that they could not do this without problems ($p < 0.001$).

A similar result was found when students were asked about their ability to use a search engine without problems. The number of expert or good Internet users who could not do this was lower at 5.9% ($n = 6$), however nearly one quarter (23.4%, $n = 59$) who assessed their skills as good or expert agreed with the statement "I end up with far too much irrelevant information when I try to find things on the WWW".

There is a popular belief that older people have poorer computer skills than younger people. This was not found to be the case in this study. No statistically significant difference was found in the ability to carry out tasks, or in responses to the statements offered and the students' age.

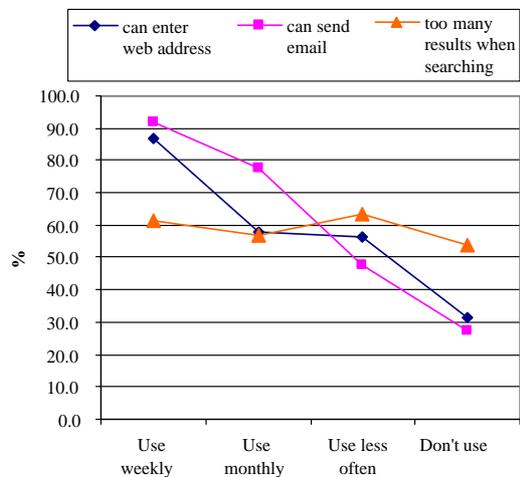


Chart 1 Frequency of computer use and ability to carry out basic tasks.

The students use of the WWW and of email tended to be well matched. 88% of the student who used the WWW at least once a week also used email weekly and 75% of those who did not use it at all did not use email either.

The main determinant of students' skill levels was the amount that they used the WWW and email. Students using the web and email weekly were much more likely ($p < 0.01$) to say that they could enter a web address in their browser and that they could send and receive email without any problems than those students who had used either less than monthly, or not at all in the preceding three months. As Chart 1 shows, 92% of those students who had used email in the past week considered that they could send email without problems, compared to only 27% of students who had not used email at all in the preceding 3 months. The only exception to this relationship was in response to the statement 'I end up with far too much irrelevant information when I try to find things on the Internet' where there was no relationship found between frequency of use and agreement with the statement.

Conclusion

Whilst there is not universal support for increasing use of computer to support education the nursing students experience suggests that using computerised support systems could have benefits, especially while the students are on placement away from the University. Student nurses also need to develop Information and Technology literacy to work in an increasingly computerised health ser-

vice. This research has focused on the students use of the Internet as one of the more important tools they will need to use throughout their student and their professional experience.

The picture gained from the results of this study is that the majority of students are not using the Internet to any great extent prior to starting the course and that their ability to carry out a range of basic tasks is equally low. An interesting finding that was not explored in this research but which merits further investigation is the difference between students' perceptions of their skill levels and the types of tasks included in more formal assessment of skills. All the tasks students were questioned about are skills covered in basic level IT qualifications, such as the ECDL. The results however show that a proportion ($p < 0.001$) of students who thought their Internet skills were good or excellent said that they could not carry out related tasks without problems, raising the question of how they reached their assessment of their skill levels.

The age of the students has not been found to be a determinant of computer use or ability. Perhaps not surprisingly the students who make the most use of the Internet report higher skill levels than those who do not use it as frequently, although irrespective of experience and perception of skills, students have problems with effective searching to find relevant information on the Internet.

As the UK government is seeking to increase the number of students entering nursing changing the recruitment policy to only take students who already have good IT skills is not an option available as might be with some other university courses. The inclusion of a programme that develops students' skills and knowledge in the use of information and technology therefore needs to be an integral part of a pre-registration nursing programme.

The drive for better Information and Technology skills and the results of this research, which is part of an ongoing research programme, has resulted in Bournemouth University developing an Introduction to Health Informatics programme, delivered throughout the pre-registration nursing course. This develops not only the students' computer skills, but also their understanding of the use of computers in both their student and professional

roles. A large part of the programme is focused on developing skills and understanding to effectively and safely, use a variety of Internet services, including email which is used as the main communication channel with the students and the WWW, both for accessing professional information and as a learning and teaching tool.

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