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Spanish Nursing Students' Practical Experience of Computer Applications in Nursing

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Introduction

The literature on the use of information technology in health care comprises a number of studies on computer use in nursing administration, practice and education, which have appeared since 1980. In this respect, a large number of recommendations have been published for teaching nursing informatics over the last ten years (Saranto & Leino-Kilpi, 1997). For instance, the National Center for Nursing Research Priority Expert Panel on Nursing Informatics (1993) produced the report "Nursing Informatics: Enhancing Patient Care". This document recommended that students should graduate with a practical experience of information technologies, which could lead to improvements in the patient care process and health care. Despite the international consensus of opinion that computers and IT ought to be integrated fully within the nursing curriculum, it seems that information technology is a much neglected subject in most European countries (Saranto et al, 1997), as we have shown in our case. Both Travis (1998) and Saranto et al (1997) argue that information technologies can help nurses meet the challenges of health care only when they can effectively use these technologies.

Aware of the need to offer training in computer science to nursing students, some Spanish Nursing Schools have introduced information technology (IT) as a course in the nursing curriculum. At the moment, there are 96 Nursing

Schools in Spanish universities but only 21% (n=20) have programmes with a course related to the use of computers in nursing (Vizcaya & Romá, 1999). One can conclude that information technology is a much neglected subject in the Spanish nursing curricula. Therefore, during the last academic year (1998-99), we aimed to determine the beginning level of computer practical experience in a sample of Alicante nursing students before they undertook formal instruction in IT.

Method

Sample

The population of the study consisted of a convenience sample of student nurses in the University of Alicante Nursing School who were registered during the academic year 1998-1999 for the course "Tecnologías de la Información en Ciencias de la Salud" (Information Technologies for Health Sciences). A total of 126 students made up the sample.

Protocol

Each student was given a Spanish language questionnaire, modified from an original used previously with medical students at both the University of North Carolina in the USA and also at the Education Unit of Hospital General Universitario del Mar in Spain (González et al, 1991).

The 10-item self-report questionnaire probed for information about practical experience with computers. The students were asked about: 1) how many times they had used computer games; 2) how many times they had used a word-processing; 3) how many times they had used spreadsheets; 4) how many times they had used databases; 5) how many times they had used statistical packages; 6) how many times they had used e-mail; 7) how many times they had used programming languages; 8) how many times they had used a computer for CD-ROM searches; 9) how many times they had used a computer-assisted learning; 10) how many times they had used a computer in laboratory practices. There were closed questions with three possible answers: Never, Once or Twice, Three Times or more. They were asked about the year of their course, their sex and age.

The Cronbach alpha value of the sum variables constructed was 0.8.

Data Analysis

Descriptive statistics (frequencies and percentages) were used in data analysis. The data were processed using SPSS 8.0.

Results

A total of 101 female and 25 male student nurses took part in the study. The response rate was 100%. The mean age of the students was 20.7 years, ranging between 20 to 42. The results showed that over half (57.1%, n=72) of the students had used a computer game three times or more previously. About one third (32.6%, n=41) of them had used it once or twice and 10.3% (n=13) of them had never used a game program. With regard to the use of a word processing package, only 37.3% (n=47) of the nursing students had used it three times or more, 20.6% (n=26) had used it once or twice, and 42.1% (n=53) of them had never used one. A small number (12.7%, n=16) of the nursing students had carried out CD-ROM searches three times or more, 19% (n=24) of them had done it once or twice, and 68.3% (n=86) had never used a search. Similarly, small numbers had also used e-mail with 8% (n=10) of the students using it three times or more, 10.3% (n=13) using it once or twice, and 81.7% (n=103) having never used it. These findings are worth noting since nursing students need to use word processing, e-mail, and database searching for their coursework. As more and more information is becoming electronically based, these students must become comfortable with the computer skills necessary to implement these technologies in their educational endeavors.

The use of spreadsheets and databases was also low. Spreadsheet use of three times or more was reported by 11.9% (n= 15) of the students, 15.9% (n=20) had used it once or twice, and 72.2% (n=91) had never used one. Similar data were reported for database use: 15.9% (n 20) of the students had used databases three times or more, 16.6% (n=21) had used it once or twice, and 67.5% (n=85) had never used one.

Only one student (0.8%) had used statistical packages three times or more, 5.6% (n=7) had used it once or twice, and 93.6% (n=118) of students had never encountered use of statistical packages. Only 8% (n=10) of the students had used a programming language three times or more, 6.3% (n=8) had used it once or twice, and 85.7% (n=108) had never used it. Use of computer-assisted learning was also low, with 11% (n=14) of the students reporting its use three times or more, 14.2% (n=18) said they had used it once or twice, and 74% (n=94) declared they had never used it. Finally, only two students (1.6%) had used a computer for laboratory work three times or more, 6.3% (n=7) had used it once or twice, and 92.1% (n=117) of them had never used it.

Discussion

The purpose of this report was to determine the level of computer practical experience in a sample of Spanish nursing students. The results indicated that just over half (57.1% n=72) of the students had used a computer game (three times or more), and only a third (37.3% n=47) had experience of using a word processing package. Moreover, other applications and IT-based facilities (e.g. statistical packages, e-mail, databases, CD-ROM searches, programming languages and computer-assisted learning) had never been used by the majority of students.

Our data show that the student nurses' experience was less than that reported for the medical students in previous national and international studies using the same questionnaire. We have not found any comparable study about this subject in nursing IT literacy. Perhaps, it would be useful to conduct similar studies with student nurses in other countries, with the purpose of being able to establish an international comparison for IT literacy. It seems that information technology is a much neglected subject in most European countries (Saranto et al, 1997), as we have shown in our case.

It is believed that information technologies can help nurses meet the challenges of health care only when they can effectively use these technologies. Moreover, the extent to which an understanding of computers, or computer literacy, is a sufficient but not a necessary skill for nursing practice (Travis, 1998) remains debatable even at the beginning of this new century. A panel of experts questioned in the study by Saranto and Leino-Kilpi (1997) recommended what should be taught about information technology in nurse education. They agreed that nurses should know how to use computers for word-processing, accessing and using hospital information systems, and for e-mailing. How adequate and appropriate these skills will be in an era of newly emerging technologies (eg. multimedia, the Internet, and electronic distance learning) remains to be seen.

Our study is a beginning. However, our study was made using a convenience sample of Spanish nursing students, and we are presently reluctant to generalise to the population. Further studies should be done in the global nursing community. These studies should focus on the beginning, intermediate and expert information technology skills needed by various nurses, given their roles and practice settings. It will be very important to determine the skills that nursing students must acquire at the various educational levels of preparation for practice. These future studies should help educators understand the

information technology needs of their students in order to facilitate the evolution of the nursing curriculums.

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