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WHAT DO NURSING STUDENTS EXPECT FROM ICT IN THEIR LEARNING AND PRACTICE?

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Abstract

The development of science due to the progressive technological discoveries led to significant changes in the people health care, requiring a more complex and demanding nursing care. Nowadays, in the upbringing of nurses, they may use several types of equipment and educational technologies that benefit from information and communication technologies (ICT), whose goal is to facilitate the learning process. Most of the emerging tools provide high-quality learning experiences effectively and economically. The use of ICT supplements traditional instructional methods. The role of nursing education is to prepare the future nurses to work in several environments. So, nursing schools need to train nurses to work with different technologies and applications (apps), in a digital world.

In this paper, we aim to understand the importance attributed to ICT in the learning process among nursing students. According to the methodology adopted we performed individual interviews with nursing students. Data were treated through content analysis, after being transcribed and analyzed, using a typical statistical software. Findings revealed that students emphasize the importance of ICT in the academical process and the advantages it brings to them as future health professionals. Nursing students most usually use the computer and cell phone with the goal of doing research, gather information and interact with peers, allowing communication and for autonomous study. ICT is understood as a means for a quick and easy access to information, facilitating the learning process and contributing to take decisions in the nursing care based upon scientific evidence. It is also central in the communication between nurse and patient, and between health professionals, promoting the continuity of care and support patients with chronic diseases. In sum, nursing students consider ICT essential as a facilitator in the research and communication, not only in an academic context (in theoretical and practical classes) but also in health units' context.

Keywords: Nursing, students, learning, education, information and communication technologies (ICT)

1 INTRODUCTION

Health and Information and Communication Technologies (ICT) are subjects that are present in our daily life in different domains of knowledge. The comprehension of the interaction of these areas implies recognizing health as a theme of vital importance for the human nature (physical, phycological, social and spiritual) and the society made up by it and for it. That way, the use of ICT's in education has grown rapidly in the last decades, mainly regarding the college level [1], who not only changed the way we live and work but also created the need to transform the way we learn [2].

Conventional teaching in a classroom stopped being the only space for research and knowledge access to develop learning skills. The Internet allows communication and sharing information, giving access to information that can be transformed into knowledge. New technologies even allow the existence of long distant teaching through e-learning mode and that way, the student carries a bigger responsibility in their study and the professor, as a tutor, leads and supports the

student to build their knowledge [3]. The digital tools available in teaching institutions such as platforms to share document help the e-learning teaching mechanism by allowing the student-teacher distant communication, complementing the traditional face-to-face teaching method [4].

Nursing schools prepare the future nurses to practice their profession in health care contexts. Thus, it is expected that not only the nursing educators but also the nursing students incorporate digital technologies to ease the learning-teaching process [5].

The use of the ICT's in nursing care allows access to knowledge that helps ground decision making, organize the health services when it comes to records, evaluation and management of provided cares. On the other side, it allows the rationing of the human and technological resources, making the health system more efficient. The use of computer programs for health care records that use uniformed language allowed making health indicators that reflect the quality of the nursing care provided [6].

The ease with which are acquired mobile electronic devices, such as portable computers, tablets and cell phones, as well as, the easy and quick access to the internet, made possible to access, in any time or place, social media and free online access information. This reality changed the way students learn and communicate, namely nursing students [7].

The ICT's are also increasingly used in health care as a way of helping the patients with a chronic disease to manage his/her condition. There are multiple studies that prove the efficiency of the web intervention as a way to provide educational programs and the monitorization of chronic diseases (e.g., diabetes and DPOC). These programs help the promotion of self-care and self-efficiency in patients, giving them a bigger role in the management of their disease [8].

Nursing students not only contact with the ICT's in the teaching institutions but also in internships that take place in hospitals and other health establishments contexts. In that way, the ICT's are an important teaching and working tool for future nurses.

The main objective of this study was to understand what nursing students expect from ICT in their learning and practice.

2 METHODOLOGY

Given the problem, we opted for an exploratory qualitative study, using a qualitative methodology, based on interviews.

We had an intentional sample made up of twenty-seven (27) nursing students of the bachelor's degree course at a Portuguese Nursing School, in Lisbon. These are mainly composed of students of the female gender (N=20), with ages between eighteen (18) and twenty-three (23) (average: 19.3). Of these, 78% were students of the second year and 22% of the third year. It was backchecked that all students (100%) had cell phones and computers with internet access.

The data collection was based on interviews, it is considered one of the most adequate technique for this type of study, in order to obtain honest, anonymous and spontaneous information from the participants [9]. It was used a semi-structured interview made up of previously elaborated questions, in a protocol, giving the participants the freedom to answer spontaneously, complementing them and enriching them. The interview's script is composed of five questions:

- What type of ICT's do you mainly use in an academical level?
- What does the ICT represent to you?
- How do you consider that the ICT's will help you prepare to become a nurse?
- In a near future, what would you like to have access to when it comes to technology?
- How can the ICT's help take care of a patient with chronic disease?

For the data treatment, it was performed a content analysis. The interviews were transcript to the program MAXQDA 10 optimizing the texts and erasing repetitions, which made the collected data more comprehensible. After it's transcription it was necessary to work the information, organizing it and highlighting the essential.

The questions asked constituted the following categories and for each of those categories, it was identified the following units of context/concepts, where the different units of records emerged.

Tables that summarize the already processed results were elaborated – in categories, corresponding units, and the respective record units – and, from these, we interpreted the results.

To answer the questions, it was asked permission in advance to the ethical committee of the institution to which the students belong and it was also asked permission to the participants, guarantying the confidentiality of all their information's and the anonymity.

3 RESULTS/ DISCUSSION

When we asked students about the “*most used ICT's in the academical level*”, most of them said the ones they use the most, both in their daily life and in their studies, is the computer, cell phone and tablet with access to the internet. Nevertheless, some students still refer to other technological resources such as social media, database and e-learning platforms. These results are also confirmed by other authors, such as Nguyen et al. (2011), Deltsidou et al. (2010), Honey, (2018), that refer in their studies the use of these ICT's by students in an academical and personal level [10-12].

In the question “*What do the ICT's represent for you?*”, it was considered four context units: academical knowledge; general knowledge and of the world; to fulfil academical assignments and leisure (cf. Table 1). Globally, students consider that ICT allows them to widen their academical knowledge and in other domains. They emphasize that it allows them quick, easy and updated access to information, and in that way, they can fulfil assignments requested by their professors. They also refer that it provides them leisure moments and allows them to communicate with others.

The results of this investigation gave out important information about which ICT's are used and to what end. Knowing these aspects can have an impact in future decisions where the technology is used in teaching and learning, giving out important information to contribute in the practice of teaching in nursing schools [12]. The results also lead to the strong use of online resources by students to access information about necessary contents and specific information, that is developed in theoretical and practical level during the course, as well as in doing individual and group assignments.

Table 1. Distribution of the context's units, of record and numbering relatively to the category “*What do ICT's represent to you*”.

Units of Context	Record Unit	Numbered Unit
Context of Academical Knowledge	Collecting information	12
	Research method	9
	Accessibility/Quick access to information	6
	Eases learning	5
	Widens knowledge	1
	Information analyses	1
General Knowledge and of the World	Communication between the people and the world	13
	Spread information	4
	Development and personal formation	2
	Access to worldwide news	2
Fulfilment of Academical/Group Assignments	Eases the fulfilment of academical assignments	5
	Share information	2
Leisure	Used for social media	4
	Games and music	3

When we asked students about “*How the ICT's can help them in their profession?*”, three units of context assumed relevance: technical, scientific and theoretical knowledge and the development of their competences. When it comes to the concept of knowledge, students show that the ICT's allows them to research and share information, this being an autonomous study that eases

learning, taking note of the documentation to give out more efficient care. When it comes to the development of skills, the students refer to the update and acquisition of knowledge as well as having access to scientific evidence. Most students agree that these technologies increase their nursing knowledge, the study of trust and clinical ability and help clinical decision making [13].

In the question “*In technological terms, what would you like to have access in the near future?*”, students refer that the most important is having access to recording and mobile consultation equipment, with access to information from the various health institutions. They also refer that would be important to have available software/programs of uniformed registration in health that promote the continuous care. Nursing language eases the meeting, process and management of an enormous quantity of data and the collaborated information to the progress of clinical practice, research, education and dissemination of nursing knowledge [14]. Some students refer to another type of software that is linked with the management of health-care in the field of the patients’ urgency and safety.

Students consider that these technologies are tools, that they can use to access adequate educational resources during the clinical practice. The speed with which this information can be acquired is also considered beneficial in comparison with more traditional methods. Nevertheless, one student stated the importance of technology through these applications doesn’t replace the practical training simulated in context and others consider that the direct contact with the patient is the best way to learn. Other students gave suggestions on how to improve the pedagogical aspects of these applications, referring that they would like to have more audio-visual information, through diagrams, audio or video clips.

From the question “*How can the ICT’s help you take care of a patient with a chronic disease?*” six concepts came up as context units (cf. Table 2), standing out decision making of care based in evidence, the continuing of care and management of the disease. The implementation of the ICT’s in health units is appointed as a means to reach the healthcare quality, guarantying the patient’s safety, reducing the error and decreasing health cost [15].

Table 2. Distribution of the context, record and numbered units, related to the category “How can the ICT’s help take care of an ill person with chronic disease?”

Unit of Context	Record Unit	Numbered Unit
Decision taking based on scientific evidence	Adapt the person’s care in a justified way	10
	Research of credible information	2
	Care individualization	1
Care Continuity	Access to the patient’s clinical file	9
	Quick record of data	3
	Complete record of the patient’s data	1
Management of the Disease	Keeping up with symptoms and medication	2
	Improve communication between nurse and patient	2
	Symptom supervision	2
	Follow-up in the distance	1
	Record of the patient’s complaints	1
	Information about support groups and help	1
	Management equipment’s of symptoms and quality lifestyle improvement	1
	Promotion of autonomy	1
Promotion of Comfort	Research the most adjusted products to help the patient	1
	Identify measures of comfort and relief	1
Control of Pain	Monitor the patients’ needs	1
Access to Cares	Forward to health units	1
	Contact information of health institutions	1

Students consider that the evidence gives proof for decision taking through the results of research developed in studies conducted by renowned specialists of the area [16], contributing, that way, to the continuous care.

Students value that, the record systems and consultation of clinical processes, being fundamental to know patients and promote the quality of care.

It also stood out the students' opinion that these tools are important for the management of the disease mainly through the applications that allow the communication between nurse-patient, giving the necessary information to the patient and family, increasing the adhesion of behaviors associated to healthy lifestyles, knowledge and information about the control of symptoms and therapeutic regimes that allow a better self-management of their condition, decreasing the visits to the hospital. ICT's have positive effects in the patients with chronic diseases, with very positive effects in the promotion of self-care and in self-management of their health [17].

In this category, it was quoted, with little expression, the control of pain and the promotion of comfort. This is a preoccupation to students as a result of the nurses' intervention with the patients with a chronic disease promoting the well-being.

4 CONCLUSIONS

The rapid advances in ICT's have important implications for nursing students. These implications include (but are not only limited to) the teaching and learning technology, but must also include the technology that nurses will be expected to work with, on a daily basis.

We highlight that the use of the ICT's in nursing teaching influences the learning and teaching process because emerging technologies contribute to new professional formation possibilities [18].

The results of the present study provide useful baseline information about which ICT devices students are using and how they are using them. Knowing this may impact on future decisions of where technology is used in teaching and learning, therefore providing important information about the teaching practice within the school of nursing, which was the context for this study. Furthermore, knowing what technology students currently use and have access to has the potential to lead to inclusive teaching and learning initiatives that may be transformative. However, any educational innovation needs to be accessible to all students and equity of access is paramount. They are also important to the promotion of decisions in nursing care based upon scientific evidence, the continuity of care and consider ICT essential as a facilitator in research and communication, not only in an academic context, but also in health units' context and, in general, in health institutions.

The ICTs provides a useful methodology for the development in educational intervention in nursing and make more effective the teaching and learning process.

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