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ICT as a teaching strategy by nursing teachers POLISAL-UNAN Managua

MSc. Merilin Jamiz López Gaitán
Master's Degree in Nursing with a mention in Teaching
Bachelor of Science in Nursing with Maternal and Child Guidance
Universidad Nacional Autónoma de Nicaragua, Managua
POLISAL, UNAN-Managua
https://orcid.org/0000-0003-3057-5748
lopez_merilin@yahoo.com

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ABSTRACT

The research integrates objectives focused on the search for the ICTs that teachers generally use, and which are used as a teaching strategy, as well as knowing what the students' perception is regarding the effectiveness of ICTs as teaching strategies, and what difficulties teachers present for the use of these. According to these objectives, the research has a mixed type of study with a greater predominance of the qualitative approach, within the mixed research designs this study is concurrent. Both approaches were analyzed simultaneously and separately. According to research results, it was found that in IV and V years of the nursing career the ICTs have low effectiveness, and in I and II years they are highly effective. Inside and outside the classroom, teachers have applied ICTs as a teaching strategy. Thus, at home through the Internet, sending homework by mail, or uploading it to the virtual platform, teachers commonly guide students who perform tasks through computers and they develop traditional strategies such as synoptic charts, mind maps, summaries, presentations

for exhibitions, etc. It is also used by teachers as active communication with students through groups on WhatsApp.

INTRODUCTION

Social and technological advances are fostering the development of increasingly innovative and efficient learning environments that help current students and future professionals adjust to the requirements of the world of work. The digital era in which we live is accelerating, which allows the use of virtual spaces for teaching-learning, even though most of them are not formal. Within the curricular system of UNAN Managua, there is the use of ICT as a teaching strategy. The research is centered on teachers from the Nursing Department, specifically 29 part-time and full-time teachers, to respond to an interview about the use of ICT as a teaching strategy. To enrich the objectivity of the research, a questionnaire was applied to 192 students of the career according to the four profiles offered by the university (obstetrics and perinatology, maternal and infant care, critical care, public health).

The American Institute of Higher Education conducted a study on the use of ICT as a methodological strategy in the teaching-learning process. The result of the information analysis concludes that the use of ICT in the teaching-learning process helps in the improvement of teaching and student skills; however, the results reflect that technological resources are not exploited to their fullest capacity, being limited to traditional techniques both in the classroom and outside it (Mendoza, 2014). In a congress in Buenos Aires, Argentina in 2014, Karime Balderas Gutiérrez presented the results of her doctoral study regarding the use of ICTs in master's degree students who were already working in the nursing profession in a hospital in the city of Puebla, Mexico. These nurses studied at the beginning of the 21st century, a time that marks the rise of ICTs, and are entering master's degree studies in nursing sciences, This is relevant since the study group has an age that goes from 52 to 54 years old, which refers to a generation that begins and finishes its studies in the seventies, facing the handling of the ICT would imply a confrontation with a developed world that penetrated a profession like the Nursing with an eminently human formative tradition. (Gutiérrez, 2014).

According to Ramon Barrera, in 2016, the education of the 21st century is the same as that of the last century, and this is because in the classrooms the teachers implement a traditional didactic model, although it is true that technology has advanced but not the teaching method, and within the curricular transformations in the UNAN-Managua until the last year 2016, the process of training on information and communication technologies (ICT) as a teaching strategy was initiated. Within the research guidelines of the UNAN-Managua, the effective use of ICTs in the teaching-learning process has been sought, and currently, there is no information on the use of ICTs in the teaching process by teachers at the POLISAL. The present study will be of

social benefit because it will help the adequate use of ICT in the teaching process and will help to train future health professionals with quality knowledge, besides, it will benefit the institution in terms of training teachers in the adequate use of ICT in the educational and scientific tasks.

The general objective of the study is to evaluate the use of information and communication technologies as a teaching strategy by teachers of the nursing career of the POLISAL UNAN-Managua followed by the specific objectives: to specify the information and communication technologies used by teachers, to describe how teachers use ICTs as teaching strategies, to determine students' perception of the effectiveness of the teaching strategies employed by teachers when they use ICTs, to identify difficulties presented by POLISAL's Nursing teachers for the use of information and communication technology (ICT) in teaching strategies.

MATERIAL AND METHOD

The study has a mixed approach, within the mixed research designs, this study is concurrent in which both methods are applied simultaneously both quantitative and qualitative data (Hernández, Fernández, & Baptista, 2014, p. 547), from the quantitative approach, according to the analysis and scope of the results the research work is correlational, according to the time is cross-sectional.

The research was carried out at the Instituto Politécnico de la Salud "Luis Felipe Moncada" POLISAL, a center attached to the Universidad Nacional Autónoma de Nicaragua, Managua, following the Law of Autonomy of Higher Education Institutions and Decree 103 of April 20, 1990. Founded in 1979, to train human resources in health at the basic, higher technical, and post-basic levels. The universe is constituted by 685 subjects of study divided into 656 students from the first to the fifth year of Nursing and 29 teachers of Nursing among part-time and full-time. From the quantitative approach, the results of a sample were extrapolated to the study population with a confidence level of 90% and 192 students were taken. To determine the sample, the "Sample Size" module for survey studies of the EpiInfo software of the Center for Disease Control and Prevention (DCP) was used. For quantitative sampling, students were selected and stratified probability sampling or stratum sampling with proportional affixation was applied. For the qualitative sample, nine teachers who teach in the Nursing Department's careers were selected, using criteria-based sampling, which, according to Pineda & Alvarado, (2008, p. 121) in this type of sampling, first some criteria that cases must meet must be developed, then they were chosen by applying those criteria, this applied to teachers who work at the UNAN, of the POLISAL.

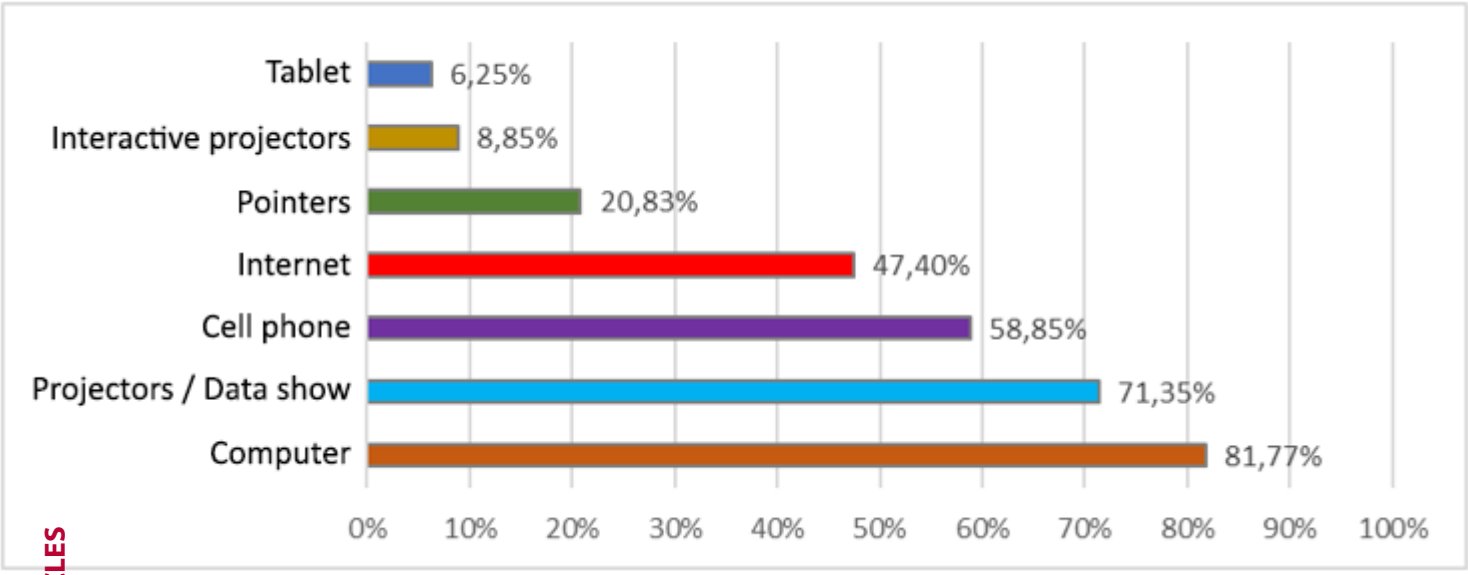
For the qualitative research, the technique of interviewing teachers was used. Teachers were asked for their consent and open-ended questions were asked about their use of information

and communication technology. For the quantitative research, a questionnaire was applied to the students, this instrument consists of a series of closed questions with their answer options, and both instruments were validated by two research and administration specialists in virtual environments.

The processing of the quantitative information was done through the program **SPSS V.25** through graphics and the qualitative analysis of the interviews was transcribed in Word, using the software **Atlas. Ti V.8** in which descriptive, analytical and then category codes were elaborated (Gibbs, 2012, pp.66-74) to then perform a semantic network to reflect the different categories and conclude with reports. Also, a methodological triangulation was carried out since different methods were used to study the same problem in this case: survey, interview to add rigor, breadth, and depth to any investigation (Alvarez-Gayou, 2003).

RESULTS

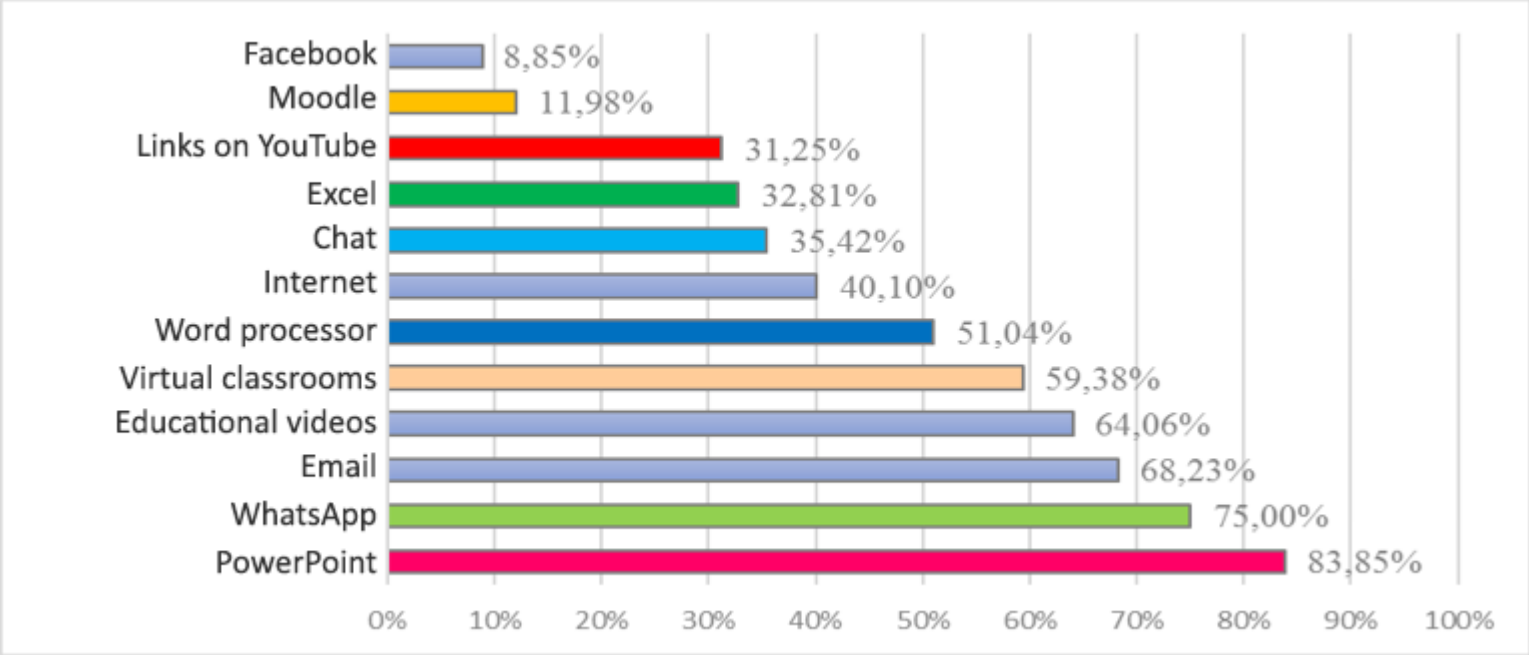
In the interviews, teachers reported that for the preparation and development of the classes they use: computers, cell phones, projectors, interactive projectors, pointers, USB, and Internet connection. This is corroborated in the survey of students, who report that in the first place the most used by teachers in 81.77% are computers, secondly, 71.35% use projectors and thirdly 58.85% use cell phones to achieve good communication and ensure a good teaching process (Graph 1).



Graph 1. Hardware used during class by Nursing teachers

In the interviews, teachers reported that the applications they use as teaching strategies are: WhatsApp, educational videos, PowerPoint, word processor, Google Classroom, Moodle, among others. According to the students, the most used application by teachers as a teaching

strategy is PowerPoint with 83.58%, followed by WhatsApp with 75%. In third place, we have an **email** with 68.23%. The last three places are occupied by **YouTube** links with 31.25%, **Moodle** with 11.98%, and **Facebook** with only 8.85%.



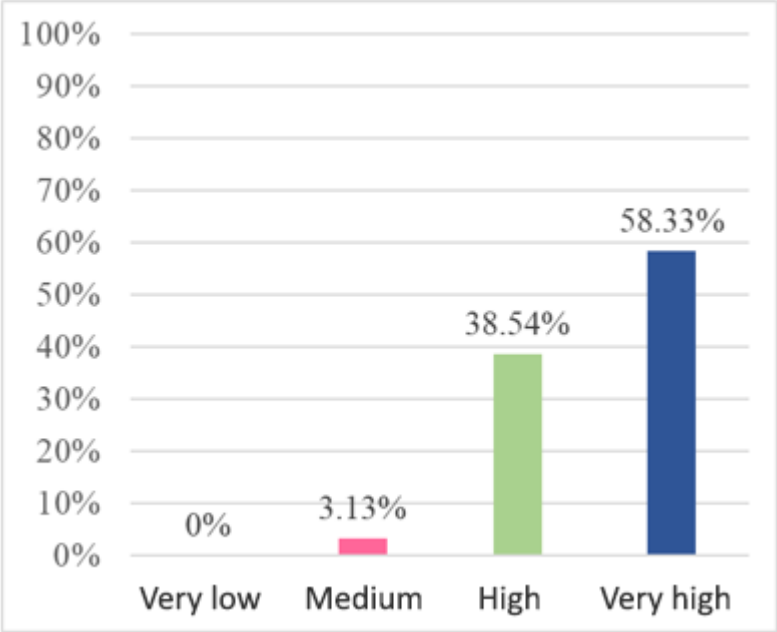
Graph 2. Software used in the teaching process by Nursing teachers

Ways in which teachers use ICTs as teaching strategies

According to the interviews expressed by the teachers about the way they use ICT in the teaching process, they use ICT to support their academic work and that of the students, so educational platforms such as Moodle and Google Classroom are used to manage content and the students' learning processes. They use instant messaging (WhatsApp) to mediatize interaction with other individuals or groups to maintain fluid communication with all students. Besides, they are using digital repositories to increase the knowledge of students, in which they share links of educational videos (sometimes on educational platforms and other times on WhatsApp groups) to reinforce the content of classes and other times are accompanied by a learning guide promoting autonomous learning. Finally, ICTs are used to increase individual productivity such as the PowerPoint expression editor and a text editor such as MS Word. Regarding the use of text processing, some teachers refer to guide the use of some traditional strategies such as synoptic tables, concept maps, summaries, computer graphics, and the realization of Nursing Care Plans.

Students' perceptions of the effectiveness of teaching strategies employed by teachers when using ICT

Regarding the students' perception of the effectiveness of the teaching strategies used by the teachers during the development of the subjects, in (Graph 3), it can be seen that none of the students have any negative opinion (very low) about the effectiveness of ICT 97% of the students consider that the effectiveness is between high and very high, which means that for them the use of ICT is contributing to the development of their learning and academic performance.

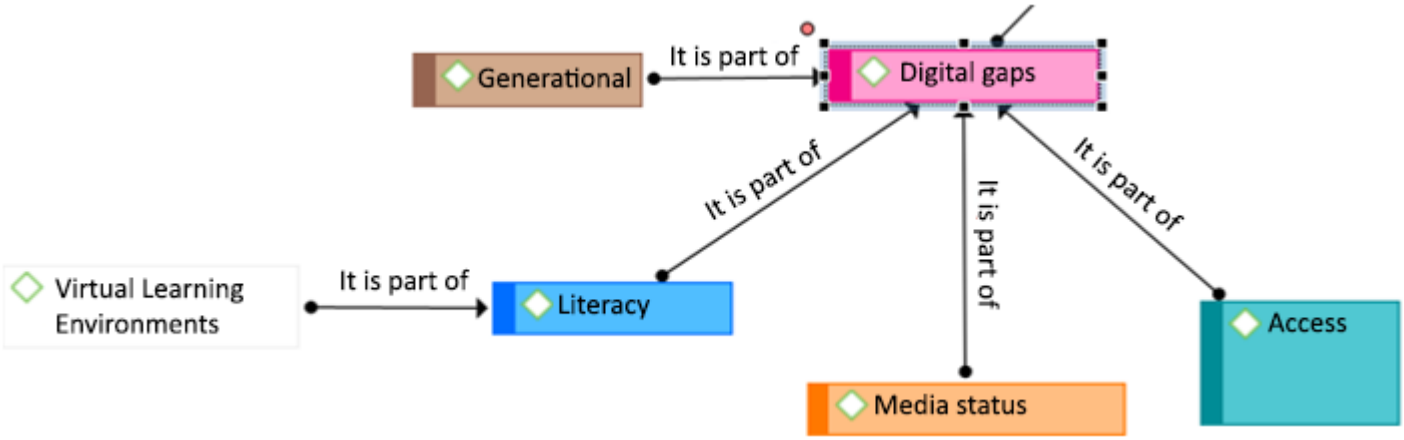


Graph 3. Students' perceptions of the effectiveness of teaching strategies using ICT

Difficulties presented by POLISAL Nursing teachers for the use of information and communication technology (ICT)

In the interviews, the teachers mentioned problems regarding the management and access to virtual environments or virtual platforms such as Google Classroom, evidencing the digital gap from the point of view of literacy in virtual environments. Likewise, the digital gap is observed from the generational point of view between the teacher and the student, the student handles more technology than the teacher.

Another difficulty reflected in the interviews is the state of the technological means, where teachers have had difficulty when they have some failure or problem or they do not have updated PDF or PowerPoint programs, in other occasions when the cables do not connect with other devices such as audios or projectors, and finally, there is the fact that not all students have access to the Internet or some technological device to which they can connect and elaborate the tasks that were raised by the teachers and that these have a summative evaluation.



Graph 4. Difficulties presented by teachers in the use of ICT

Source: fragment of Figure 9. Semantic network elaborated from interviews with teachers of the Nursing Department see annexes

DISCUSSION OF RESULTS

Galvis (2008, p.61) states that to understand the "use of ICT in education" the following classification should be considered: (1) ICT for improving individual productivity; (2) ICT for mediating interaction with other individuals or groups; (3) ICT for conjectural exploration of objects of study; (4) ICT for supporting educational work; and (5) ICT for expanding our cultural, scientific, and technological heritage.

The way teachers use ICT in the teaching process; firstly teachers use ICT to support their academic work and that of students, so educational platforms are used and according to students they use Moodle with 11.98% and Google Classroom. In these, teachers provide students with educational learning materials and learning guides on the activities they will evaluate.

Secondly, they use instant messaging (WhatsApp with 75%) to mediate interaction with other individuals or groups, this serves as a bulletin board, share educational material and remind the activities of the week on the subject.

Thirdly, teachers are using digital repositories to increase the knowledge of students, in which they share educational video links with 64.06% (sometimes on educational platforms and other times in WhatsApp groups) through YouTube links with 31.25% to reinforce the content of the classes and other times are accompanied by a learning guide promoting autonomous learning. They guide research in which they have to use search engines to strengthen their knowledge...

Finally, ICTs are used to increase individual productivity such as the PowerPoint expression editor with 83.85% and a text editor such as MS Word. Regarding the use of text

processing, some teachers refer to orienting the use of some traditional strategies such as synoptic tables, concept maps, summaries, infographics, and the realization of Nursing Care Plans. It is important to point out that most of the proposed strategies correspond to traditional activities, only now with ICTs, however, ICTs are not being used to explore conjectural objects of study. Currently, different strategies are using ICTs that can improve the teaching-learning process.

According to the students' perception of the effectiveness of the teaching strategies using ICTs, they considered the effectiveness to be between high and very high; however, the phenomenon was found that the more academic grades students reached, the less effective the use of ICT was. On the other hand, teachers reported some difficulties regarding the use of ICT, and one of them is the digital divide. According to Raquel Ortíz (2016) the digital divide consists of the separation between people (in countries, communities, or states) who use ICT (information and communication technologies), and those who do not have access to them, and secondly to the people who do have access and do not know how to use them, that is, teachers recognize that some students have access to some technological tools and others do not, so if the teacher uses some strategy by using virtual platforms and the student does not have access to it, it would not be helpful in the teaching-learning process.

Another difficulty referred was the fact that there were teachers who found it difficult to access a virtual platform or how to make hardware and software work together, using audio, or connecting the computer to the data show or projecting PowerPoint presentations on it, so teachers to be trained on the use of virtual platforms.

CONCLUSIONS

Based on the analysis of results, the following conclusions are reached.

Teachers are using basic hardware such as computers, internet routers, USB sticks, and projectors during class. Regarding the software used, for now, applications related to traditional strategies with ICT predominate, such as PowerPoint presentations and email, although currently WhatsApp groups have been created to establish communication with students, there are weaknesses in the use of educational platforms, so teachers require constant training.

Teachers have applied ICT as a teaching strategy n the classroom and outside it, somehow they have managed to strengthen knowledge and teaching strategies at home through the Internet by sending homework by mail or uploading it to the virtual platform, teachers commonly guide students who perform tasks through computers and they develop traditional strategies such as synoptic tables, mind maps, summaries, presentations for exhibitions, etc. It is also used by teachers as active communication with students through groups on WhatsApp.

According to the students' perception of the effectiveness of the teaching strategies using ICT implemented by teachers, this was highly effective, but a significant result was found, and that was that the students in higher levels had a lower perception of the effectiveness of strategies using ICT.

The difficulty presented by teachers when using ICT was the management of virtual platforms, on the other hand, students also presented the same difficulty, in addition to the fact that due to lack of Internet access they do not send extra class assignments and it becomes a limitation for both teachers and students, teachers also referred to difficulties in the management of technological media, that is, sometimes it is difficult for them to connect the computer to the projector, or connect the computer to the audio device or projector.

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