

Information Technology - Communication in Teaching Attitude and University Students

Lucio Arnulfo Ferrer Peñaranda¹, Mercedes Lulilea Ferrer Mejía², Hernan Oscar Cortez Gutiérrez³, Milton Milciades Cortez Gutiérrez⁴, Mery Juana Abastos Abarca⁵, César Miguel Guevara Llacza⁶, Liv Jois Cortez Fuentes Rivera⁷, Cesar Angel Durand Gonzales⁸, Girady Iara Cortez Fuentes Rivera⁹, Braulio Pedro Espinoza Flores¹⁰, Miguel Angel Gil Flores¹¹ and Javier Jesús Cardenas Tenorio¹²

Abstract

The objective of this research is to characterize the attitude of teachers and university students according to communication and information technology. We evaluate 34 teachers and 142 students and selected by stratified probabilistic sampling, to whom an evaluative test of attitudes towards the use of information and communication technology (ICT) was applied, carrying out a bivariate analysis with the Z test of proportions. A favorable attitude (technophilia) was found in 97% of teachers compared to 90% of students. For this case we have a difference of 7%, confidence interval of -5% to 13%, chi-square of 1.7 with p value p=0.19.

Keywords: Attitudes, Information and Communication Technology, Confidence Interval, Chi-Square, Ordinal Regression, Hosmer-Lemeshow.

INTRODUCTION

In the present 21st century, “societies have been facing a new scenario known as the Information and Knowledge Society, which is the result of the integration of three elements present in information and communication technologies: computing, communications and multimedia content, these elements constitute crucial assets for production, competitiveness, growth and economic, health and educational development, among others” (Information Society, 2004). In this sense, Bonina and Frick (2007) indicate that the use of information technology and its devices such as computers, the Internet, among others, have become indispensable tools for many, where education has an important role to play: promoting development of human capital for better use of information and the acquisition of knowledge. The field of higher education does not escape this reality, incorporating ICT as an imminent and highly influential phenomenon in the educational context, in response to the need to promote innovation and creativity as a competition mechanism (Sanz and Crissien, 2012).

As stated by the United Nations Educational, Scientific and Cultural Organization (UNESCO), the usefulness of ICT in higher education facilitates the development of teaching material, makes it possible to share content,

¹ Facultad de Ciencias de la Salud, Universidad Nacional del Callao. E-mail: laferrerp@unac.edu.pe

² Facultad de Ciencias de la Salud, Universidad Nacional del Callao. E-mail: mlferrenm@unac.edu.pe

³ Facultad de Ciencias de la Salud, Universidad Nacional del Callao. E-mail: hocortezg@unacvirtual.edu.pe

⁴ Universidad Nacional de Trujillo. E-mail: mcortezgutierrez@yahoo.es

⁵ Facultad de Ciencias de la Salud, Universidad Nacional del Callao. E-mail: mjabastosa@unac.edu.pe

⁶ Facultad de Ciencias de la Salud, Universidad Nacional del Callao. E-mail: cmguevaral@unac.edu.pe

⁷ Universidad Nacional Mayor de San Marcos. E-mail: livjoisc@gmail.com

⁸ Facultad de Ciencias de la Salud, Universidad Nacional del Callao E-mail: cadurandg@unac.edu.pe

⁹ Facultad de Ciencias de la Salud, Universidad Nacional del Callao. E-mail: gicortezf@unac.edu.pe

¹⁰ Facultad de Ciencias de la Salud, Universidad Nacional del Callao. E-mail: bpespinozaf@unac.edu.pe

¹¹ Facultad de Ciencias de la Salud, Universidad Nacional del Callao. E-mail: magilf@unac.edu.pe

¹² Facultad de Ciencias de la Salud, Universidad Nacional del Callao. E-mail: jjcardenast@unac.edu.pe

improve communication between actors of the educational process, promote and develop research and facilitate institutional administrative processes, among others (UNESCO, 2013).

It is to be expected then that, faced with the necessary and indispensable use of ICT today, it is relevant to consider digital natives (Prensky, 2001), who maintains that their thought structure is significantly different from that of those who They didn't grow up in today's digital environment. Therefore, this generation of digital natives probably thinks differently from the rest of the previous generations. In this sense, for digital natives, experience in the use of ICT creates new demands in the learning processes, which the educational system strives to meet. The contemporary student uses technology as a basic tool in the personal context and hopes that it will also be the same in the educational context (Bello, 2018).

The use and appropriation of ICT by higher education teachers has been the subject of numerous investigations over recent years; However, in this research only some studies were taken into account, with the incursion of ICT in higher education as the main criterion.

Cabero (2003) presents the 10 critical aspects to facilitate the penetration of ICT in the university: 1. physical presence of the technology; 2. existence of dynamic centers; (Sanz and Crissien, 2012) production of quality learning objects; 4. change in the conception of university education and modification of the conception of the curriculum; 5. overcoming the uncertainties that all change causes and leadership; 6. functional diversity; 7. Digital literacy; 8. teacher training; 9. pedagogical research and; finally, 10. transformation of evaluation models. These aspects, despite being considered since 2003, today more than ten years later are still valid and must be taken into account when implementing ICT in higher education institutions.

In this context, the teacher is not the only actor who must adapt to this paradigm shift, the higher education institution is also part of this commitment, creating the necessary conditions for the implementation of ICT in training processes, through review and adjustment of curricula so that they incorporate ICT in their development. Giving it particular characteristics, which have the purpose of committing resources to the expansion and improvement of technological assets, stimulating the use of virtual platforms and facilitating interaction between teachers and students, with a view to generating more efficient environments for learning (Avello and Duarte, 2016).

This Investigation Is Justified For the Following Reasons

At a theoretical level, because with the identification of the types of attitudes towards information and communication technologies (ICT) of teachers and students, as well as the way of conceiving both its use and the difficulties they encounter in applying it in the teaching process -learning, thus building a space of existing knowledge in our environment on this topic.

At a practical level, the information to be offered allows university authorities a reference for the implementation of more specific training programs on the use of information and communication technologies (ICT) in order to develop an updating program more permeable to the concepts modern and also motivate teachers and students to develop much more modern and effective teaching resources.

At a social level, because it is about knowing in a factual way the level of attitudes towards information and communication technologies (ICT) in teachers and students, results that surely allow us to generalize their implications in the national university community and thus, develop better programs. of education and training on teaching.

The general objective of the research is to determine the attitudes towards information and communication technologies as a means in the teaching-learning process of teachers and students of the Professional School of Nursing of the Faculty of Health Sciences at the National University of Callao.

The hypothesis has been demonstrated that teachers, compared to students with respect to the use of information and communication technology as a means of teaching-learning, have favorable attitudes in the Professional School of Nursing of the Faculty of Health Sciences of the National University of Callao.

Given the importance of the use of information and communication technology as support in the teaching-learning process in the university environment, this research describes and compares the attitudes of teachers and students in the use of new information technologies. and Communication in the Professional School of Nursing of the Faculty of Health Sciences of the National University of Callao, since the attitudes that permeate the entire educational process and guide the perceptual and cognitive processes that lead learning are important, both students and teachers in the area of nursing.

The present research corresponds to a cross-sectional descriptive design, therefore, it lacks a general hypothesis; but it can generate specific or descriptive hypotheses that lead to studies of another level.

During the research process, the survey and the Likert-type attitude test were used as data collection techniques.

The survey was carried out with a questionnaire, which was applied to both teachers and students of the Professional School of Nursing of the Faculty of Health Sciences, with the objective of knowing its general characteristics and the basic aspects of the use of the information and communication technology. The instrument was made up of 11 questions, of which 09 were closed and 02 open.

For this study, the Inductive – Deductive method was used, which established the conclusions and generalized the results of the research.

OBJECTIVES

Determine the attitudes towards Information and Communication Technologies (ICTs) of Nursing teachers and students at the National University of Callao.

LITERARY REVIEW

Impact of ICT on Teacher Attitude

University teachers have experienced significant changes in their teaching methods due to the integration of ICT. According to O'Donnell and Sharp (2012), the adoption of educational technologies can improve the efficiency and effectiveness of teaching, providing teachers with new tools for planning and delivering educational content. Furthermore, continuous training in ICT is essential so that teachers feel competent and confident in the use of these technologies (Liu et al., 2019).

Challenges and Opportunities for Teachers

Although ICT offers many advantages, it also presents challenges. Some teachers may feel overwhelmed by rapid technological evolution and the constant need to update their skills (Koehler & Mishra, 2009). However, when teachers receive adequate support and the necessary training, they tend to show a more positive attitude towards the integration of ICT into their pedagogical practice (Schmid et al., 2020).

Impact of ICT on Student Attitude

For university students, ICT has opened new avenues of learning. The availability of online educational resources and collaborative tools has changed the way students access and process information (Selwyn, 2012). Studies show that students who regularly use ICT tend to have a more positive attitude towards their learning and feel more motivated (Teo, 2011).

Differences in the Perception of ICT

Attitudes towards ICT can vary significantly depending on factors such as gender, academic discipline and level of technological competence. For example, Hargittai and Hinnant (2008) found that students in technical disciplines tend to have a more positive attitude towards ICT compared to students in non-technical disciplines. Furthermore, gender differences may also play a role, with some research indicating that men may show greater confidence in using ICT compared to women (Ong & Lai, 2006).

METHODOLOGY

The present study is considered a descriptive - correlational, prospective cross-sectional study, which was carried out at the Professional School of Nursing of the National University of Callao. The population was made up of 37 teachers assigned to the Professional School of Nursing, and the sample was made up of 34. The student population was made up of 448 students enrolled in the 2018-A Academic Semester at the Professional School of Nursing, distributed in 10 cycles. academics, the student sample was made up of 142 students (table 1). The selection of the units of analysis was carried out through probabilistic sampling and considering the ethical aspects of autonomy and confidentiality.

Table 1. Population and student sample of students from the Professional School of Nursing of the Faculty of Health Sciences of the National University of Callao

[1] Cycle	[2] Size of the [3] Population [4] (N)	[5] Proportion	[6] Stratified sample size (n)
[7] Yo	[8] 28	[9] 28 * 0.3170 = 8.876	[10] 9
[11] II	[12] twenty	[13] 20 * 0.3170 = 6.340	[14] 6
[15] III	[16] 60	[17] 60 * 0.3170 = 19.020	[18] 19
[19] IV	[20] 32	[21] 32 * 0.3170 = 10.144	[22] 10
[23] V	[24] 59	[25] 59 * 0.3170 = 18.703	[26] 19
[27] SAW	[28] 56	[29] 56 * 0.3170 = 17.752	[30] 18
[31] VII	[32] 62	[33] 62 * 0.3170 = 19.654	[34] twenty
[35] VIII	[36] 47	[37] 47 * 0.3170 = 14.899	[38] fifteen
[39] IX	[40] 54	[41] 54 * 0.3170 = 17.118	[42] 17
[43] x	[44] 30	[45] 30 * 0.3170 = 9.510	[46] 9
[47] Total	[48] 448	[49] 448*0.3170=142.016	[50] 142

The survey was used as a technique and the Attitudes Test towards ICTs was used as an instrument. The questionnaire was applied to both teachers and students of the Professional School of Nursing of the Faculty of Health Sciences of the National University of Callao, with the objective of knowing its general characteristics and the basic aspects of the use of the information and communication technology. The instrument was made up of 16 questions, of which 14 were closed and 2 open. Authorization was requested from the Dean of the Faculty of Health Sciences of the National University of Callao to access the field of study, the consent of teachers and students was requested for the application of data collection instruments that are: questionnaire and attitude test. General aspects about the use of computing were evaluated, as well as the attitudes of students studying at the Faculty of Health Sciences, taking into account all those who enrolled in the 2018-A Academic semester, and considering all academic cycles from cycle I to cycle

For the analysis of input and output data of this research, the following procedure was carried out: The results of the survey that was applied to teachers and students were ordered and tabulated. The frequencies and percentage rates of the results obtained from the survey were calculated, to then graph and interpret the results obtained. For the inferential analysis, the Z statistical test was used for the difference between the proportions of two populations, with the formula: $\hat{P} = (x_1+x_2)/(n_1+n_2)$

$$Z = \frac{p_d - p_e}{\sqrt{\frac{\hat{P} * (1 - \hat{P})}{n_1} + \frac{\hat{P} * (1 - \hat{P})}{n_2}}}$$

Where Z = It is the Z test (Standardization of the normal distribution), \hat{P} = Weighting, X1 = Teacher score, X2 = Student score, n1 = Number of teachers, n2 = Number of students, Pd = Proportion of teachers and Pe = Proportion of students

To group the ordinal variables into unfavorable, moderately favorable and favorable scores, the stanones or stanine technique was used, with the expression: Arithmetic mean \pm 0.75*standard deviation.

RESULTS

Descriptive Results

Regarding the age of the teachers of the Professional School of Nursing of the Faculty of Health Sciences of the National University of Callao, an average of 59.97 years was found, with a standard deviation of 10.698 years; and a median of 59.50 years. The minimum age was 34 years and the maximum was 85 years of age. Average age that reflects an adult stage of the teachers under study. No outliers were observed.

Regarding the age of the students of the Professional School of Nursing of the Faculty of Health Sciences of the National University of Callao, an average of 21.64 years was evident, with a standard deviation of 2.425 years; Furthermore, the median was also 22.0 years. The minimum age was 17 years and the maximum was 35 years of age. The average age of students represents a stage of youth within the life cycle. It was observed that one (01) student recorded 35 on survey form number 19, which appeared as an atypical data in the box plot; Also in records 28 and 119 they were both recorded as being 29 years old and finally in record number 108 they were recorded as being 28 years old.

Regarding the academic degree of the teachers in the study, it was found that 2.9% (1 teacher) is a doctor, 2.9% (1 teacher) is a biologist, 2.9% (1 teacher) is a graduate, the 55.9% (19 teachers) have a master's degree and 35.3% (12 teachers) have a doctorate degree.

It is then established that the vast majority of the teachers (31) in the study have obtained a postgraduate academic degree.

According to the years of experience in teaching, it was found that 14.7% (5) of teachers surveyed have an experience of 3 to 11 years, 14.7% (5), from 12 to 19 years, 47.1% (16), from 20 to 28 years old, 11.8% (4), from 29 to 36 years old, 5.9% (2), from 37 to 45 years old and 5.9% (2), have experience in university teaching for more than 46 years.

Therefore, it is evident that the teachers under study have notable experience within the Professional School of Nursing of the Faculty of Health Sciences of the National University of Callao.

Inferential Results

The proportion of students with general attitudes about information and communication technology is lower than the Professors in the Professional School of Nursing of the Faculty of Health Sciences of the National University of Callao.

Regarding the comparison of the general attitude between the teachers and the students in the study, a favorable attitude was seen in 97.1 4% (33) of the teachers, while 90.1% (128) of the students had a favorable attitude. When comparing these proportions, statistically significant differences were found confidence interval= (-0.05, 0.13). That is, there are differences between teachers and students regarding general attitude. It can also be stated that students have a lower favorable attitude in general than teachers.

The table 3 shows the proportion of students with attitudes towards the importance of information and communication technology is lower among the Teachers of the Professional School of Nursing of the Faculty of Health Sciences of the National University of Callao.

Table 2: Comparison of general attitudes among teachers and students of the Professional School of Nursing of the Faculty of Health Sciences of the National University of Callao.

General Attitudes -ICTs	Teachers		Students		Difference Confidence Interval	Chi-square p	z p
	No.	%	No.	%			
Favorable	31	97.1	128	91.2	7.0 %	1.7	1.3
Not favorable	3	2.9	14	9.9	(-5.5%, 13.47%)	p=0.19	0.09
Total	34	100	142	100			

* Comparison of two proportions in independent samples.

Table 3. Valuation attitudes towards the importance of information technology information and communication between teachers and students of the Professional School of Nursing of the Faculty of Sciences of the Health of the National University of Callao

Importance – TIC	Teachers		Students	
	No.	%	No.	%
Favorable	31	91,2	129	90,8
Not favorable	3	8,8	13	9,2
Total	34	100	142	100

* Comparison of two proportions in independent samples.

Another Results

We conjecture that different levels of use or dimensions of the ICT have a significant impact on teaching attitude.

DISCUSSION

The current scenario of permanent change in this century, according to Eduteka, requires teachers and students to undergo a necessary reform in their skills and abilities. Good management of information and communication technology is one of the capabilities that must be developed at this historical moment in which information and its good management represent an enormous competitive advantage. Every day, access to information technology becomes more common, the cost of it decreases at an accelerated pace, the countries' policies are directed towards popularization and democratization, especially the use of computers and the Internet; and access to any type of information is simplified. In that sense, technology and education have become a good interactive duo to search for new paths and solutions in the management of teaching-learning processes. Faced with such a challenge, the study of Attitudes of teachers and students of the Professional School of Nursing of the Faculty of Health Sciences of the National University of Callao towards information and communication technology was born, carried out during the year 2016, which showed statistically significant results through the comparison test of two proportions in Independent samples (Z). Thus showing that teachers and students have favorable attitudes towards the use of information and communication technology in teaching-learning. Which allows us to reject the null hypothesis of equality. In this sense, Euteka indicates that it is necessary that professional training institutions must take ownership of the challenge of adapting and learning through information and communication technology, since it is important that they generate professionals competent in the management and proper use of this new technology. technology, which allows enriching learning environments.

Regarding the comparison of the attitude towards the assessment of information and communication technology in the teachers and students in the study, statistically significant results were observed, obtaining a $P=0.000$, thereby denoting that both teachers and students value the information and communication technology as a tool that provides benefits in teaching-learning. Corroborating the results found, in the Report of

Similarly, Bonina and Frick (2007) point out that currently computing is valued and considered by teachers and mainly by students as an indispensable tool in the educational context because we live in a new era known as the Information Society and the Knowledge, and where education has an important role to play in promoting the development of human capital, achieving better use of information and the acquisition of knowledge, and promoting better educational quality that facilitates the teaching-learning process.

In relation to the comparison of Attitude on satisfaction with computing in teachers and students in the study, statistically significant results were evident, achieving $P=0.010$, thereby revealing that students and teachers are satisfied with the use of computing in the study. teaching-learning process. Compared to the results in the Qualitative Evaluation Report IEPSE Project (Sanz and Crissien, 2012) has shown that through computing students achieve satisfaction; Because it allows cooperative work to be developed within the classrooms, it also promotes an environment of teamwork where camaraderie is stimulated and successes and failures are shared. In many moments, it becomes a center for discussion, analysis and experimentation, where we work as a true

team that allows interaction and healthy competition. Satisfaction is not only for the student but also for the teacher, thus achieving a significant change in their perceptions, attitudes towards technology and abilities to enthusiastically use new technological resources.

Our results are supported by the Report - Qualitative Project Evaluation (IEPSE) (Sanz y Crissien, 2012) which concludes that it has been possible for students to express a positive self-perception in relation to their academic performance because the computer-based learning environment encourages students to search for their own solutions to those they face, acts as an axis that generates multiple and varied challenges that help generate reflection and analysis processes in students, as well as provide opportunities to develop their cognitive processes and problem-solving strategies to build knowledge within their performance as a student.

CONCLUSIONS

Regarding the comparison of the general attitude between the teachers and the students in the study, a favorable attitude was observed in 97.1% (33) of the teachers, while 90.1% (128) of the students had a favorable attitude. When comparing these proportions, statistically significant differences were found with a $p < 0.05$. That is, there are differences between teachers and students regarding general attitude. It can also be stated that students have a lower favorable attitude in general than teachers. Therefore, the results show that the teachers and students evaluated have favorable attitudes regarding the use of ICT in education.

The consistency of the studies that refer to the presence of positive attitudes towards ICT in teachers seems to indicate that the difficulties in the use they present cannot be explained based on their attitudes, which opens the need to explore other factors such as their competencies in use and their pedagogical conceptions.

Although attitudes towards ICT are positive in the factors studied, they are significantly less favorable in the factor that evaluates Ease and availability. The above must be addressed since attitudes ultimately influence teachers' decisions to use or not use ICT in their practices.

In the university education offered by the Professional School of Nursing of the Faculty of Health Sciences of the National University of Callao, it must be incorporated into the knowledge society, approaching the academic and scientific communities, the modern tools of information technology. information and communication such as the computer, the Internet, smart boards, virtual classrooms, multimedia systems through learning environments and the Academic Management System (SGA) of the National University of Callao must be optimized, in terms of the Student Enrollment.

It is very important to achieve a common language that allows teachers to use information and communication technology for their classes, organize them, communicate with other colleagues and, above all, interest students in an activity that they themselves can do. create, which will help them study and can also be very fun.

We conjecture that different levels of use or dimensions of the ICT have a significant impact on teaching attitude by establishing an ordinal regression with its respective risk and adjustment model similar to that proposed by Hosmer-Lemeshow.

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