




Attitude towards the use of Information and Communication Technologies for teaching university professors in the context of COVID-19

Actitud hacia el uso de las Tecnologías de la Información y la Comunicación para la enseñanza en docentes universitarios en el contexto de la COVID-19

Atitude em relação ao uso das Tecnologias da Informação e da Comunicação para o ensino de professores universitários no âmbito do COVID-19

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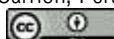
ORIGINAL ARTICLE

KEYWORDS

TICE, teaching,
university, COVID-19

ABSTRACT. The objective of the research was to determine the attitude towards the use of Information and Communication Technologies for the teaching (ICT) in teachers of the José Faustino Sánchez Carrión National University of Huacho in times of COVID-19. The research design was non-experimental, descriptive, cross-sectional, and quantitative. The sample was compound for 65 teachers of both genders from the Faculty of Business Sciences between designated and hired, and it was non-probabilistic. The instrument used for data collection was a questionnaire of the liker scale type centered on 3 sections. As a result, it was found that most teachers have

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favorable attitudes towards the use of ICT and statically significant differences were found between attitude towards ICT and the age group of teachers.

PALABRAS CLAVE

TICE, enseñanza, universidad, COVID-19

RESUMEN. El objetivo de la investigación fue determinar la actitud hacia el uso de las Tecnologías de la Información y la Comunicación para la enseñanza (TICE) en docentes de la Universidad Nacional José Faustino Sánchez Carrión de Huacho en tiempos de COVID-19. El diseño de la investigación fue no experimental, de tipo descriptivo transversal y enfoque cuantitativo. La muestra fue no probabilística y estuvo conformada por 65 docentes de ambos sexos de la Facultad de Ciencias Empresariales, entre nombrados y contratados. El instrumento utilizado para la recolección de los datos fue un cuestionario de tipo de escala de Likert centrado en 3 apartados. Como resultado se obtuvo que la mayoría de los docentes presentan actitudes favorables hacia el uso de las TICE y se hallaron diferencias estadísticamente significativas entre actitud hacia las TICE y el grupo de edad de los docentes.

PALAVRAS-CHAVE

TICE, ensino, universidade, COVID-19

RESUMO. O objetivo da pesquisa foi determinar a atitude em relação ao uso das Tecnologias de Informação e Comunicação para o ensino (TIC) em professores da Universidade Nacional José Faustino Sánchez Carrión de Huacho na época do COVID-19. O desenho da pesquisa foi não experimental, do tipo transversal descritivo e com abordagem quantitativa. A amostra foi não probabilística e composta por 65 professores de ambos os sexos da Faculdade de Ciências Empresariais, entre nomeados e contratados. O instrumento utilizado para a coleta de dados foi um questionário do tipo escala Likert centrado em 3 seções. Como resultado, obteve-se que a maioria dos professores possui atitudes favoráveis ao uso das TIC e foram encontradas diferenças estatisticamente significativas entre a atitude em relação às TIC e a faixa etária dos professores.

1. INTRODUCTION

Globally, we face a series of challenges due to COVID-19, which since March 11, 2020 was declared a pandemic (PAHO, 2021). In this context, the way in which education is delivered changed, beginning with the closure of educational institutions (Mejía, et al., 2020) in the region (Manrique, et al., 2020) and the world (Rodríguez, et al., 2020), in order to avoid contagion in this sector of the population. In Peru, the Ministry of Education [MINEDU], (2020) through Vice Ministerial Resolution No. 081-2020-MINEDU resolves to approve the Technical Standard called "Provisions for the prevention, care and monitoring of coronavirus (COVID-19) in universities nationwide" and at the same time provide, exceptionally, the postponement and / or suspension of the start of classes and activities lectures in public and private universities.

Consequently, the National Superintendency of Higher University Education (SUNEDU) with Resolution of the Board of Directors No. 039-2020-SUNEDU-CD approves the "Criteria for the supervision of the adaptation of non-face-to-face education, with exceptional character, of the subjects by universities and graduate schools as a result of measures to prevent and control COVID-19", where it established that universities can implement and apply digital tools for teaching - learning, to replace face-to-face classes in order to develop the contents of the subjects of the different academic schools.

This new alternative solution for the implantation of the distance modality, implying the adaptation of approaches oriented to the use of New Information Communication Technologies (NICT), raising questions from the teacher's perspective about the preparation and prior knowledge in the use of digital tools and the ways in which teaching-learning activities will be developed under the virtual modality (Picón, et al., 2020).



Consequently, one of the great challenges for university teachers is to use Information and Communication Technologies for Teaching (ICT), that is, to move from the traditional classroom to the management of synchronous and asynchronous sessions.

Thus, the authorities of the José Faustino Sánchez Carrión National University began a training program on the use of the virtual platform and ICT management for teachers to face this challenge in an appropriate way. The 2020-I academic cycle begins on August 3, 2020. This transfer from the traditional classroom to the virtual one is produced by a preventive measure against the transmission of COVID-19, emphasizing a new teaching-learning measure; where the university student becomes an indisputable protagonist in virtual education (Rosario, 2006).

In the same way, virtual education proposals also seek to revolutionize education in order to contribute favorably to the teaching-learning process in all its dimensions (Pando, 2018).

Under this assumption, there is a predisposition that points to more people in flexible environments, in this regard, virtual education is a tool that is increasingly efficient, to satisfy that predisposition and solve the problems of access and quality in education (Campillo, et al., 2013). For this reason, virtual education is a modality that comes from distance education, in which learning is intervened by technology, through digital tools, virtual spaces and platforms, thus adding to higher education the benefits of the use of the ICT (Cruz and Rama, 2016).

This challenge for educational institutions and especially higher education to leave the classroom and go to teaching remotely is a challenge for teachers, since a change in teaching-learning methodologies is necessary, that is, it becomes urgent to a change in pedagogical innovation, as this requires time to adapt to new methodologies to migrate to the virtual environment.

The pandemic has caused anxiety that can be positive for education because they must lead teachers to reflection, to the need for training in pedagogical skills and in the domain of pedagogical and technological knowledge of the content (Concepción & Kurth, 2020).

Thus, nowadays, ICTs have an enormous role both in the areas of human activity and in particular in education, this development of technology has notably influenced the growth and elevation of distance education, giving rise to the virtual or online education (Estrada, et al., 2015). In addition, the authors state that online education not only consists solely of uploading and downloading files from a virtual platform, it lies in the search for didactic strategies, which must be easy to understand so that students can consolidate the contents. Cáceres (2020), the use of programs or applications for videoconferencing such as Zoom, Geoogle meet, Google Classroom, Skype, WhatsApp, Facebook among others, are digital tools that allow students to share ideas, experiences, suggestions, doubts and knowledge and thus achieve your academic goals.

In this sense, the use of ICT is based on the use of interactive materials with the aim of generating knowledge, skills, attitudes based on the needs of the student (Estrada, et al., 2015).

On the other hand, from the behavioral approach of the use of tools, Bolivar (1995) defines attitudes as an organized set of convictions and beliefs (cognitive component). It represents what a person usually considers as true / false, good / bad, desirable / undesirable, it is also a predisposition or tendency to respond (behavioral



component) in a certain way and a favorable or unfavorable predisposition. In addition, they have affective-emotional components (positive or negative feelings, like or dislike, etc.), so that the attitude is always accompanied by an affective charge, associated with certain feelings.

Ovejero (2007) defines attitude as “a learned predisposition to respond in a consistently favorable or unfavorable way to a given object (physical object, people, groups, etc.)” (p. 193). Likewise, this affirms that attitude is defined in three components; a perceptual or cognitive component, which consists of an individual's beliefs about a certain object, in this case ICT. On the other hand, it states that the affective or sentimental component refers to emotions, feelings linked to ICT, and is what gives attitudes their motivational character; for example, feelings of rejection or interest and finally the behavioral or reactive that includes any inclination to act in a certain way before the object of said attitude; for example, how and when would ICT be used. Attitude is not manifested in the same way in all teachers, this depends on many factors, including cultural diversity (Campos, 1999). Some of these determining factors are the different dynamics and lifestyles, age, gender, economic level, sex, etc.

Attitude in the educational environment is defined as the sum of feelings and emotions that are experienced for the first time during the learning period of a discipline and that are relatively stable, although they can change over time through learning programs (Gal, Ginsburg, and Schau, 1997).

Consequently, the teacher's attitude towards the use of ICT for teaching can be understood as a learned capacity, more or less permanent, which is expressed in terms of teachers' beliefs, feelings and tendency to act. towards ICT in a favorable, neutral or unfavorable sense (Bolívar, 2012).

The attitudes of teachers towards an effective methodology towards the use of technologies, become an essential factor for the inclusion of ICT in educational contexts, since from a positive conception of active methods and the advantages of the use of versatile tools with pedagogical benefits, teachers will carry out training, dedication of time and design of activities oriented in this sense (Sáez, 2010).

From this perspective, as a background we have Padilla and Ayala (2019), who investigated the attitude of university teachers from a public university in the state of Jalisco - Mexico, regarding the use of digital technologies and in particular in the educational context, concluding that there is no significant difference between attitudes towards ICT and the gender of teachers.

Similarly, Rivera and Romero (2018) investigated the relationship between the use and mastery of information and communication technologies with the attitude of secondary school teachers of II.EE. of public management of UGEL Arequipa Norte, concluding that the attitudes of teachers are favorable towards the use of ICT in the teaching-learning process.

Likewise, Flores (2020) investigated the teaching attitude and use of information and communication technologies in teachers of the José María Arguedas Educational Institution, concluding that there is a statistically significant correlation between the teaching attitude and the use of ICT.

We also have Macalupú (2021), who investigated the attitude, use and mastery of information and communication technologies in teachers from two educational institutions, concluding that teachers have a favorable attitude towards ICT, as well as a frequent use and high dominance. Other results show that there is



no relationship between the sex variable and the attitude towards ICT, at the same time it was also found that there is no relationship between the professional level and the attitude; however, a significant relationship was found between age and attitude towards ICT of teachers.

Similarly, Naranjo et al. (2021) who investigated the attitude of teachers to the use of ICT in the Faculty of Medical Sciences of Matanzas, concluding that teachers have an excellent attitude to the use of information and communication technologies in undergraduate teaching.

Finally, we have Mejia et al. (2018), who investigated the factors of resistance to change and attitude towards the educational use of ICT by teaching staff, concluding that the highest proportion of teachers have unfavorable attitudes towards the use of ICT.

Faced with this situation, the following question was raised: What is the attitude towards the use of information and communication technology for teaching (TICE) in university teachers of the Faculty of Business Sciences of the José Faustino Sánchez National University Carrión in times of the COVID-19 pandemic?

This work is justified since when knowing the attitudes of the teachers of the Faculty of Business Sciences of the National University José Faustino Sánchez Carrión de Huacho in front of ICT tools, which are mostly new for the people who teach, we will know their attitudes towards them, as well as their comfort level in the face of this change in the midst of the pandemic.

Therefore, the objective of this research work is to determine the attitude towards the use of Information and Communication Technologies for teaching (ICT) in University teachers of the Faculty of Business Sciences of the National University José Faustino Sánchez Carrión - Huacho.

2. METHOD

The present investigation was non-experimental and of a descriptive cross-sectional type because the properties and characteristics of the variable attitude towards ICTs were analyzed; the data were collected in a certain unique moment (Hernández, Fernández & Baptista, 2010).

Likewise, its approach is quantitative since the data was collected from a survey to collect information through the questionnaire on attitude towards the use of ICT by university teachers, and thus obtain systematized information and later statistical studies were carried out of the information collected.

Population and Sample

The population was made up of teachers from the Faculty of Business Sciences of the National University José Faustino Sánchez Carrión - Huacho. To carry out this research, we had to search for emails from the hired and appointed university professors, managing to obtain 65. The instrument was sent to this mailing list requesting their participation, so the sample was not probabilistic.

Techniques and Instruments

In this investigation, the technique that was applied for data collection was the survey and the instrument was a questionnaire developed in Google Forms, to measure the attitude of teachers towards the use of ICT for teaching (ICT). The questionnaire on attitude towards the use of ICT was developed and validated by Romero et al. (2019),



which is made up of 9 Likert-type items (Strongly disagree, Disagree, neither agree nor disagree, Agree, strongly agree) which evaluate 3 dimensions: Cognitive component (items 1, 4, 6 and 7), affective component (items 5 and 9), behavioral component (items 2 and 3). The validity was confirmed through the technique of expert judgments, for which 4 specialists were summoned, who evaluated the clarity of the questions, the relevance, and the coherence. Aiken's V coefficient was 0.889, which indicates that the scale has good validity. Regarding reliability, it was determined by a pilot test, obtaining a Cronbach's alpha coefficient of 0.892. The analysis of the data obtained from each component and the variable Attitude towards ICTs was carried out by establishing three categories called Unfavorable attitude, Neutral attitude, and Favorable attitude with their respective intervals, which were obtained by identifying the maximum and minimum values as indicated in the Table 1.

Table 1
Distribution of scores for attitude towards ICT for teaching

Attitude level	Component cognitive	Component affective	Component Behavioral	Attitude towards ICT for teaching
Unfavorable	4 – 9	2 - 4	3 – 7	9 -21
Neutral	10 – 15	5 – 7	8 – 12	22 -34
Favorable	16 – 20	8 - 10	13 – 15	35 – 45

Source: self-made.

Procedures

For data collection, teachers were contacted by email explaining the purpose of the research, each teacher received the link to develop the questionnaire created in Google Forms. This process was carried out in October 2020. Finally, after obtaining the information, it was consolidated into a database and then proceeded to execute the procedures to clarify the relationships between variables and identify trends and make predictions through a descriptive and inferential analysis using the SPSS V.25 software as a proof.

3. RESULTS

The results are shown on the attitude towards the use of Information and Communication Technologies for teaching (ICT).

Table 2
Descriptive results of the variable and its dimensions.

Variables and dimensions	n	Media	DE	IC 95%		Category
				Inferior	Superior	
Cognitive	65	16,46	2,78	15,77	17,15	Favorable
Affective	65	8,22	1,39	7,87	8,56	Favorable
Behavioral	65	12,51	2,12	11,98	13,03	Neutral
Attitude towards ICT	65	37,18	5,857	35,73	38,64	Favorable

Note: Database



From Table 2, it is possible to observe the descriptive results of the variable attitude towards ICTs and their respective dimensions. Regarding its dimensions, it can be observed that its means of the cognitive and affective component were 16.46 and 8.22 respectively, these results are categorized at the level of favorable, while the behavioral dimension has an average of 12.51 being categorized as the level of our own and in general about attitude towards ICTs presents a favorable categorization. This means that teachers have a predisposition towards ICT that could be an alternative to improve the teaching-learning process.

Table 3
Attitude levels towards the use of ICT and its dimensions

Level	Cognitive	Affective	Behavioral	Attitude towards ICT
Unfavorable	3(4,6%)	1(1,5%)	2(3,1%)	1(1,5%)
Neutral	7(10,8%)	8(12,3%)	27(41,5%)	9(13,8%)
Favorable	55(84,6%)	56(86,2%)	36(55,4%)	55(84,6%)

Note: Database and n = 65

Table 3 shows that the highest proportion of teachers, 84.6%, show favorable attitudes regarding the cognitive component towards the use of ICT, while a minority 4.6% show unfavorable attitudes. Regarding the affective component towards the use of ICT, it is observed that 86.2% of all teachers show favorable attitudes, while 12.3% show neutral attitudes and 1.5% show unfavorable attitudes. On the other hand, the behavioral component towards the use of ICTs is observed in the table that 55.4% show favorable attitudes, while 41.5% show neutral attitudes and with a minority 3.1% show unfavorable attitudes.

Table 4
Attitude towards the use of ICT of the cognitive component according to gender

Attitude levels of the cognitive component				
Gender	Unfavorable	Neutral	Favorable	Total
Man	3(6,4%)	6(12,8%)	38(80,9%)	47(100%)
Woman	0(0,0%)	1(5,6%)	17(94,4%)	18(100%)
Total	3(4,6%)	7(10,8%)	55(84,6%)	65(100%)

Note: Database and n = 65

In Table 4, regarding the levels of attitude towards the use of ICTs of the cognitive component according to gender, it is shown that the proportion of female teachers 94.4% and 80.9% of men have favorable attitudes. Likewise, only 6.4% of male teachers show unfavorable attitudes. On the other hand, 12.8% of male teachers and 5.6% of female teachers show a neutral attitude.

Table 5
Attitude towards the use of ICT of the Affective component according to gender

Attitude levels of the Affective component				
Gender	Unfavorable	Neutral	Favorable	Total
Man	1(2,1%)	6(12,8%)	40(85,1%)	47(100%)
Woman	0(0,0%)	2(11,1%)	16(88,9%)	18(100%)
Total	1(1,5%)	8(12,3%)	56(86,2%)	65(100%)



Note: Database and n = 65

Table 5 shows that 16 female teachers (88.9%) and 40 male teachers (85.1%) have favorable attitudes about the levels of attitude towards the use of ICTs of the affective component according to gender. Likewise, 11.1% of female teachers and 12.8% of male teachers show neutral attitudes. On the other hand, only 2.1% of male teachers show an unfavorable attitude.

Table 6

Attitude towards the use of ICT of the Behavioral component according to gender

Gender	Attitude levels of the Behavioral component			Total
	Unfavorable	Neutral	Favorable	
Man	1(2,1%)	24(51,1%)	22(46,8%)	47(100%)
Woman	1(5,6%)	3(16,7%)	14(77,8%)	18(100%)
Total	2(3,1%)	27(41,5%)	36(55,4%)	65(100%)

Note: Database and n = 65

In table 6, with respect to the levels of attitude towards the use of ICTs of the behavioral component, according to gender, it is shown that 14 female teachers (77.8%) and 22 male teachers (46.8%) have favorable attitudes. Likewise, 5.6% of female teachers and 2.1% of male teachers show unfavorable attitudes.

Table 7

Attitude towards the use of ICT for teaching according to gender

Gender	Attitude levels			Total
	Unfavorable	Neutral	Favorable	
Hombres	1(2,1%)	8(17,0%)	38(80,9%)	47(100%)
Mujeres	0(0,0%)	1(5,6%)	17(94,4%)	18(100%)
Total	1(1,5%)	9(13,8%)	55(84,6%)	65(100%)

Note: n = 65 $\chi^2 = 1,903$; $p = 0,386$

Source: Database

The data in table 7 indicate that female teachers have a slightly more favorable attitude towards the use of ICT for teaching 94.4%, compared to male teachers who have a favorable attitude, 80.9%. Likewise, it is observed that there are no statistically significant differences between the attitude towards the use of ICT and the gender of the teachers ($p = 0.386 > 0.05$).

Table 8

Attitude towards the use of ICT for teaching according to age

Edad	Niveles de actitud			Total
	Desfavorable	Neutra	Favorable	
20 -30	0(0,0%)	1(14,3%)	6(85,7%)	7(100%)
31 - 40	0(0,0%)	0(0,0%)	17(100%)	17(100%)
41 - 50	0(0,0%)	3(15,8%)	16(84,2%)	19(100%)
51 - 60	0(0,0%)	2(12,5%)	14(87,5%)	16(100%)
61 - 65	0(0,0%)	0(0,0%)	2(100%)	2(100%)



Más de 65	1(25,0%)	3(75,0%)	0(0,0%)	4(100%)
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Nota: n = 65 $Tau C - Kendall = -,193$; $p = 0,029$

Source: Database

From table 8, at a general level, we can see that teachers who range from 20 to 65 years have favorable attitudes (more than 84%) towards the use of ICT, while teachers who fluctuate in age over 65 years They present unfavorable attitudes in 25% and 75% neutral attitudes, showing that the younger the teachers are, the more favorable their attitudes will be. In addition, it is observed that there is an association between the study variables, that is, there are statistically significant differences between the attitude towards ICT and the age of the teachers ($p = 0.029 < 0.05$).

Table 9

Attitude towards the use of ICT for teaching according to academic level

Academic level	Attitude levels			
	Unfavorable	Neutral	Favorable	Total
Graduate	0(0,0%)	1(16,7%)	5(83,3%)	6(100%)
Master's degree	0(0,0%)	5(11,9%)	37(88,1%)	42(100%)
Doctorate	1(5,9%)	3(17,6%)	13(76,5%)	17(100%)
Total	1(1,5%)	9(13,8%)	55(84,6%)	65(100%)

Note: n = 65 $\chi^2 = 3,344$; $p = 0,502$

From Table 9, at a general level, we can see that teachers present favorable attitudes (more than 76%) towards the use of ICT, at all academic levels. On the other hand, of the 17 teachers with a doctorate degree, only 5.9% showed unfavorable attitudes. In addition, more than 11% of teachers have neutral attitudes towards the use of ICT at all academic levels. Also, it is observed that there is no association between the study variables, that is, there are no statistically significant differences between the attitude towards ICT and the academic level of the teachers ($p = 0.502 > 0.05$).

4. DISCUSSION

This research focused on analyzing the attitude towards the use of ICT in university teachers of the Faculty of Business Sciences of the National University José Faustino Sánchez Carrión - Huacho.

These results were given in a non-face-to-face setting, mandatory due to COVID 19. Consequently, the teachers of the Faculty of Business Sciences found it necessary to use digital tools in order to continue with their educational work.

Regarding the attitude towards the use of ICTs, the results obtained in the research indicate that the majority of teachers (86.2%) present favorable affective attitudes, which means that teachers have emotions / feelings, linked to the use of ICT. Likewise, both their thoughts, knowledge, beliefs, ideas and emotions as well as the predisposition to answer about ICT is favorable because the majority of teachers (84.6% and 55.4%) have, respectively, a cognitive and favorable behavior.



These results were ratified when the attitude variable towards the use of ICTs was analyzed, where the highest percentage 97.4% is between a favorable and neutral attitude (Table 3).

Likewise, the results obtained regarding the use of ICTs according to gender, women present favorable attitudes with 94.4% while men present 80.9%, in addition, men present an unfavorable attitude of 2.1% on the other hand, women do not present unfavorable attitudes. In general, more than 80% have favorable attitudes according to gender. Similarly, it was also found that there are no statistically significant differences between these variables (Table 7).

On the other hand, statistically significant differences were found between attitude towards ICTs and the age group of teachers (table 8), that is, teachers who range from 20 to 65 years of age present favorable attitudes, while teachers who fluctuate in the age of more than 65 years present unfavorable attitudes. These results are due to the greater mastery of teachers of virtual learning environments and also use technological tools to prepare their classes compared to teachers over 65, who possibly find it difficult to adapt better to the use of Technological tools. Finally, no statistically significant differences were found between attitude towards ICT and academic level, that is, most of the teachers (76%) present favorable and neutral attitudes against 5.9% of the teachers who expressed unfavorable attitudes. This means that the attitude towards ICT does not depend on the academic level of the teachers.

Similar results were found by Flores (2012), where the attitudes of teachers towards the use of ICT was evaluated from three components: affective, cognitive and behavioral. The analysis of the three components made it possible to establish that the teachers surveyed have favorable attitudes towards ICT. The research concludes that teachers have favorable attitudes in all three components. In other words, teachers perceive technology as something necessary, effective, pleasant, stimulating, satisfactory, and a predisposition on the part of teachers to use technology. We have that some of our results coincide with Padilla and Ayala (2019), who found in their research that teachers show positive attitudes towards the use of ICT, and also state that there is no significant difference between attitudes towards ICT and gender of the teachers. Our results of a favorable attitude towards ICT are consistent with the research carried out by Rivera and Romero (2018), who affirm that teachers have a favorable attitude about the use of ICT in the updating and innovation processes at school, at the same time , consider that its use facilitates the teaching work and the evaluation of the student, allowing its relevance in the teaching - learning process. Our descriptive results regarding the attitude towards ICT are similar to Flores (2020), who states that the majority of their teachers have an adequate or favorable attitude towards ICT, in the same way we coincide with the three dimensions of attitude towards ICT, cognitively, affectively and behaviorally, showing a favorable attitude in all three dimensions. Our results coincide with Macalupú (2021), where he states that teachers have a favorable attitude towards ICT, and that there is no relationship between the gender variable and the attitude towards ICT, at the same time he also found that there is no relationship between the professional level and attitude; however, a significant relationship was found between age and attitude towards ICT of teachers.

On the other hand, our results are similar to the research carried out by Naranjo et al. (2021), where they conclude that undergraduate teachers have an excellent attitude towards the use of ICT, at the same time they state that new technologies can provide means to improve teaching-learning processes, but their use in favor or On the contrary, it will depend to a large extent on the attitude, of the teachers as the main guides of the process.



Finally, our findings do not fully coincide with the research conducted by Mejia et al. (2018), where they conclude 3.91% of teachers have an unfavorable attitude and that the vast majority present a neutral attitude with 86.59%, followed by a favorable attitude of 8.94%. This may be due to the fact that the teachers of the José Faustino Sánchez Carrión National University had training on the subject, before starting the academic cycle.

5. CONCLUSIONS

The results obtained in the research indicate that the majority of teachers (86.2%) present favorable affective attitudes, which means that teachers have emotions, feelings linked to the use of ICT. Likewise, both their thoughts, knowledge, beliefs, ideas and emotions as well as the predisposition to answer about ICTs is favorable because the majority of teachers (84.6% and 55.4%) have, respectively, a cognitive and favorable behavior. In general, the highest percentage, 98.4%, is between a favorable and neutral attitude towards the use of ICTs. This is because teachers received training on virtual tools before the start of classes.

Likewise, the results obtained regarding the use of ICT according to the gender of the teachers, it was found that women present slightly more favorable attitudes than men, these differences were not statistically significant ($p = 0.386 > 0.05$).

On the other hand, it was found that teachers whose ages range from 20 to 65 years present favorable attitudes, while teachers who fluctuate in the age of more than 65 years present unfavorable attitudes. These differences were statistically significant ($p = 0.029 < 0.05$). These results are due to the greater mastery of virtual learning environments by teachers under 65 years of age; Furthermore, they use technological tools to prepare their classes compared to teachers over 65, who may find it difficult to adapt to the use of technological tools.

Finally, no statistically significant differences were found between the attitude towards ICT and the academic level, that is, most of the teachers (76% and 11%) present favorable and neutral attitudes against 5.9% of the teachers who manifested unfavorable attitudes. This means that the attitude towards ICT does not depend on the academic level of the teachers.

It is necessary to specify that the conclusions presented are limited to the group of university teachers from a faculty who were part of the research, therefore, it is recommended that future research increase the study sample, considering teachers from other academic faculties in order to confirm the results and expand their generalizability.

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Rol de los autores / Authors Roles:

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