











Use of ICT tools and academic performance of students in the Professional Schools of Mechanical and Electrical Engineering at the Technological National University of Lima Sur, 2023

[Uso de herramientas TIC y rendimiento académico de los estudiantes en las Escuelas Profesionales de Ingeniería Mecánica y Eléctrica de la Universidad Nacional Tecnológica de Lima Sur, 2023]

Ronald Juven Reyes Narváez^{a,*} , Luis Adolfo Apolín Montes^b , Isaura Ruth Liri3n Rodriguez^b , Mar3a del Carmen S3nchez P3rez^c , Antonio Salom3n Valderrama Romero^d , Mario Humberto Taibe Cancho^d , Manuel Vega Ronquillo^e , Ra3l Jes3s Vergara Moncada^f , Juan Roosevelt Gonz3lez Lucero^g , Joscsmell Romualdo Huanri Pastrana^g .

^aUniversidad Nacional Tecnol3gica de Lima Sur, Per3

^bUniversidad Privada Cesar Vallejo, Per3

^cUniversidad Nacional de Barranca, Per3

^dUniversidad Nacional de Cañete, Per3

^eUniversidad Nacional Hermilio Valdizan Huanuco, Per3

^fUniversidad Nacional Mayor de San Marcos, Per3

^gUniversidad Nacional Santiago Ant3nez de Mayolo, Per3

* reyesn@uni.edu.pe

Received: 01 May 2023; Accepted: 15 May 2023; Published: 10 June 2023

Resumen

El estudio tuvo como objetivo determinar si existe correlaci3n significativa entre Uso de herramientas TIC y rendimiento acad3mico. Por este motivo, se realiz3 la investigaci3n sobre Uso de herramientas TIC para mejorar el rendimiento acad3mico en la educaci3n superior. El tipo de investigaci3n es aplicada, siendo el nivel de investigaci3n descriptiva y correlacional. La investigaci3n fue transversal; puesto que se realiz3 una sola vez la encuesta mediante la t3cnica del cuestionario y notas. La muestra es aleatoria simple, 57 estudiantes matriculados en el semestre 2023, que constituyen el estudio. Se demuestra que del total de los encuestados predomina el nivel el medio, es decir, representada por el 34,0% (59,65) percibe que uso de las herramientas TIC ocupa, el 22,81% (13) en el nivel alto. El promedio de los encuestados hacia la aplicaci3n uso de herramientas TIC es favorable. Siendo el valor que m3s se repite 3 (favorable). M3s del 50% de los encuestados est3n por encima de 2,9474, es decir, tienen una actitud favorable. En promedio los sujetos se ubican en 3,0000 (favorable). Asimismo, se desv3an con respecto al promedio 1,27365 unidades de la escala. Se observ3 un puntaje m3nimo alcanzado de 1 y el m3ximo de 5. Por 3ltimo, se concluye que s3 existe una adecuada relaci3n significativa entre el uso de TIC y el rendimiento acad3mico de los universitarios, debido a una correlaci3n moderada de 0,785.

Palabras clave: Uso de herramientas TIC, rendimiento académico, programa informativo, comunicación virtual y redes sociales.

Abstract

The objective of the study was to determine if there is a significant correlation between the use of ICT tools and academic performance. For this reason, research on the use of ICT tools to improve academic performance in higher education was carried out. The type of research is applied, being the level of descriptive and correlational research. The research was cross-sectional; since the survey was carried out only once using the technique of the questionnaire and notes. The sample is simple random 57 students enrolled in the 2023 semester, which constitute the study. It is shown that of the total number of respondents, the medium level predominates, that is, represented by 34.0% (59.65) perceives that the use of ICT tools occupies, 22.81% (13) at the high level. The average of those surveyed towards the application of the use of ICT tools is favorable. Being the most repeated value 3 (favorable). More than 50% of those surveyed are above 2.9474, that is, they have a favorable attitude. On average the subjects are located at 3.0000 (favorable). Likewise, 1.27365 scale units deviate from the average. A minimum score of 1 and a maximum of 5 was observed. Finally, it is concluded that there is an adequate significant relationship between the use of ICT and the academic performance of university students, due to a moderate correlation of 0.785.

Keywords: Use of ICT tools, academic performance, informative program, virtual communication and social networks.

I. Introduction

The present study was carried out considering the importance of responding to the possible deficiencies that students may present in the Professional Schools of Mechanical and Electrical Engineering at the Technological National University of Lima Sur, in terms of the use of ICT tools and academic performance. , since it has been observed that a high percentage of students fail to achieve the expected skills and abilities, obtaining unsatisfactory results, presenting difficulties in the search for information, processing and interpretation, which has had an impact on academic performance. At present, the need to continue researching in this field, due to the great relevance that ICTs have in the lives of all citizens and as resources in the teaching-learning processes. Likewise, the high level of coincidence of results, in this case on the importance and mastery of the ICT competence, shows how there is a great consensus among university professors from different countries, marking a global trend, although there are some differences (Ríos et al., 2018, p.10). It should be noted that the use of email by teachers and students has become a necessity. In addition, face-to-face teaching continues to be used more and provides better results. On the other hand, the video projector is essential within the didactic and training activity (Huaman, 2019, p.7).

Probably the generalized training in teacher education has prevented the existence of relevant differences (in domain) between novice teachers and more experienced ones. However, and this is relevant, training in education has not prevented the pedagogical dimension from being the weakest aspect of the domain of ICT competence. Therefore, it would be necessary to review the training in education that teachers receive and promote, in it, the didactic aspects of ICT (Ríos et al., 2018, p.10). According to Aparicio et al. (2021), the evaluation in the cooperative activity is fundamental, since it should enable the participants to examine and verbalize the behaviors that occurred after each session started. During the process, the teacher must seek solutions to advance, fostering and adopting team attitudes. Cooperation behavior should help to overcome

conflict situations and ensure the development of one's own action through more prosocial skills (p.9).

Based on the results of this work, it is suggested to also identify the different devices that university students use and to what extent they do so in formal contexts to promote their learning. Greater efforts are required to validate the instrument designed and apply it in other public and private university contexts, since, as UNESCO (2014) indicated, it is necessary to improve public policies and the quality of teaching-learning, so that practices are based on evidence (Lara and Hernández, 2019, p.15). On the other hand, research on academic performance through the specific analysis of the social ability and self-control variables, with which it opens a space for reflection on evaluation and curricular design for educational institutions, as well as an opportunity to carry out studies in the area of construction of technique and instruments for its prediction. And integrated understanding in an inductive and deductive way through a holistic perspective (Navarro, 2003, p.14).

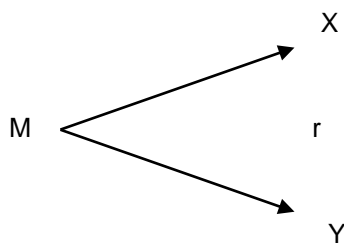
For this reason, research on the use of ICT tools to improve academic performance in higher education was carried out. The objective was to determine if there is a correlation between the use of ICT tools and academic performance. It is also necessary to mention the purpose of this research is to promote the use of ICT tools in classes to improve the academic performance of university students.

II. Materials and Methods

Type of research

The type of research is applied (since existing theoretical approaches have been applied), and the level of research is descriptive and correlational (since the behavior of the variables analyzed has been described in order to later correlate them). The research was cross-sectional; since it was carried out only once and applied the mixed method for interpretation and analysis.

It responds to the following scheme:



Where:

M: sample

X: Use of ICT tools

Y: Academic performance

r: Correlation

Population

According to Hernández (2014) they indicated about this section "that it refers to the group of concordant cases with a row of precisions, and that are accommodated in relation to their contents, place, characteristics and time" (p.174). It consists of 500 students enrolled in the 2023 semester, which constitute the population under study of the students of the I and II cycles in the Professional Schools of Mechanical and Electrical Engineering at the Technological National University of Lima Sur.

Sample

To determine the sample that reflects a high degree of reliability and a low percentage of error, the following statistical formula was used:

$$n = \frac{\left[\frac{z - \alpha/2}{d} \right]^2 \cdot p (1 - p)}{1 + 1/N \cdot \left[\frac{z - \alpha/2}{d} \right]^2 \cdot p (1 - p) - 1/N}$$

Where:

n = sample size

N = population size, total number of students = 500 (enrolled, 2023-1)

z = value corresponding to the Gaussian distribution = 1.96 for $\alpha = 0.05$

p = expected prevalence of the parameter to be evaluated. As in this case it is unknown, applying the most unfavorable option ($p = 0.5$), which makes the sample size larger.

q = 1-p ($p = 50\%$, $q = 50\%$)

d = precision error (in this case we want 14.5%)

α = significance level of 0.05

$$n = \frac{\left[\frac{1.96 - 0.05/2}{0.145} \right]^2 \cdot 0.5 (1 - 0.5)}{1 + 1/500 \cdot \left[\frac{1.96 - 0.05/2}{0.145} \right]^2 \cdot 0.5 (1 - 0.5) - 1/500}$$

The number of students is:

$$n = 63.9339014 / 1.1258678 = 56.7863307; \quad n = 57$$

Data Collection Techniques

For data collection, survey techniques were applied, a questionnaire by Garcilazo, H. (2020) and student notes for the use of ICT tools to improve the academic performance of students in higher education, 2023.

Statistical analysis

For data analysis, descriptive and inferential statistics were used for the hypothesis test: Pearson's Correlation; then they were processed; Subsequently, the frequencies and percentages were tabulated and found and presented in the corresponding tables and graphs. Statistical analyzes were performed with the SPSS (Statistical Package for Social Sciences) computer program in version 22 in Spanish; which is an instrument developed by the University of Chicago, which is the most widespread and used among researchers in Latin America. For this, the Excel program was used, which allowed the results to be presented in a clear and objective manner.

Procedures

The evaluations were carried out as follows:

- 57 students were taken as a representative sample of the students of the I and II cycles in the Professional Schools of Mechanical and Electrical Engineering at the Technological National University of Lima Sur.
- A 20-question survey with five distractors was prepared (see annex 1).
- The investigation was carried out from 01 to 03-28-2023, where the survey was applied and the notes of the course taught were considered to contrast.
- 38 women and 19 men with an average age of 18 to 23 years corresponding to the first cycles participated.
- Obtained the data through the survey and notes, they were processed through basic and inferential statistics and tables were prepared for their interpretation and analysis.

- Finally, the Pearson Correlation hypothesis test was carried out to measure the relationship of both study variables.

III. Results

The frequency analysis of the scores achieved after applying the instruments in students was tabulated and then a scale was obtained to be able to interpret the charts and graphs as shown in Table 1.

Table 1. Levels of use of ICT tools

		Frequency	Percentage	Valid percentage	Accumulate percentage
Validos	Low	<= 16	10	17,54	17,54
	Medium	17 -34	34	59,65	77,19
	High	35 - 50	13	22,81	100
	Total		57	100,0	100,0

Interpretation

Table 1 shows that of the total number of respondents (57 students) the medium level predominates, that is, represented by 34.0% (59.65) perceives that the use of ICT tools occupies, 22, 81% (13) at the high level. Corroborating with university students, the competence Use of ICT tools to the person in all its dimensions, such as computer programs, virtual communication, social networks and the Internet and places students in a truly enriching training process. The use of ICT Tools in academic development is preponderant in students, since once the statistical processing has been carried out, a level of excellent can be perceived in Table 1 with 56.7% reflecting a strong incidence; This is subject to the criteria of the teacher, since he must consider the theme to be developed and use the resource or tool more effectively for the benefit of the students, since he can find different fields with detailed information or tools to use when carrying out the analysis of a certain theme. (Castillo and Zavaleta, 2022, p.13).

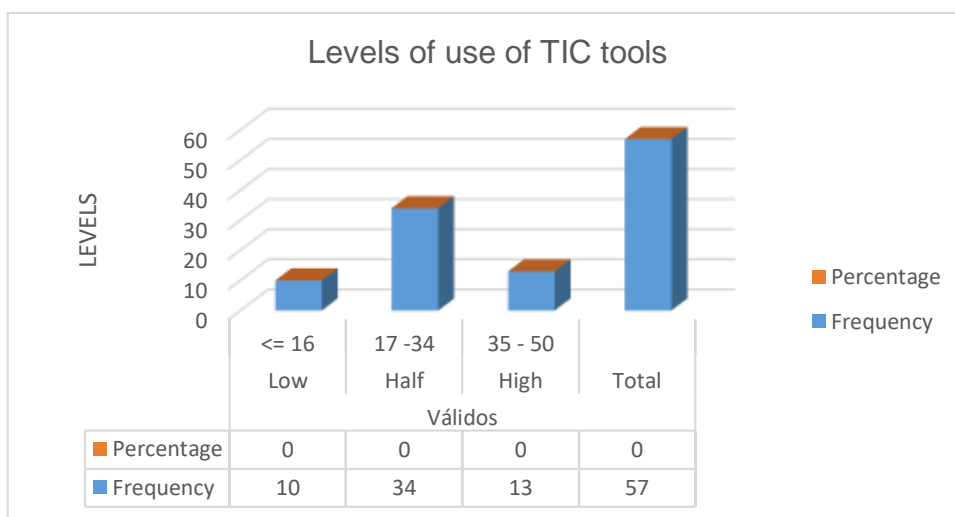


Figure 1. Level of use of TIC tools

Measures of central tendency of the use of ICT tools and academic performance according to the students.

Table 2. Levels of use of ICT tools

N°	Valids	57
Mean		2,9474
Median		3,0000
Mode		3
Std deviation		1,27365
Minimum		1
Maximum		5

Interpretation

The attitude of those surveyed towards the application of the use of ICT tools is favorable. Being the most repeated value 3 (favorable). More than 50% of those surveyed are above 2.9474, that is, they have a favorable attitude. On average the subjects are located at 3.0000 (favorable). Likewise, 1.27365 scale units deviate from the average. A minimum score of 1 and a maximum of 5 was observed. According to the data obtained in the measures of central tendency, there is a favorable attitude regarding the application and use of ICT tools according to the students surveyed. The present study shows that university students in terms of the competence in the use of ICT tools stand out in involvement with the objectives, tasks and achievements of the team. The management of all these cybernetic resources applied to teaching at all levels generate a positive increase both in the teacher, but with greater relevance in the assimilation of contents by the students since with respect to the Learning variable, Table 4 shows can perceive a value of 76.3%, this added to the feedback in the homes by the parents, it can be affirmed that the entire student context will increase their assimilation of content more effectively. (Castillo and Zavaleta, 2022, p.13). In addition, they feel integrated, relevant and accepted by the rest of the team. Most of the students fulfill their obligations within the team and this is how they are perceived by their peers. And when faced with a problem, university students are capable of detecting it, anticipating it and finding a consensus solution. (Paris et al., 2016, p.10).

Analysis of the independent and dependent variables

Table 3. Level of use of ICT tools and academic performance

	Interval	Use of ICT		Academic performance	
		fi	fi%	fi	fi%
Deficient	00 - 05	6	10,5	1	1,8
Regular	06 - 10	21	36,8	8	14,0
Good	11 - 12	22	38,6	22	38,6
Very good	13 - 16	7	12,3	26	45,6
Outstanding	17 - 20	1	1,8	0	0
Total		57	100	57	100

Interpretation

Based on Table 3, on the level of the variables use of ICT tools and academic performance, the following data is available: 38.6% (22) use of ICT tools; 45.6% (26) for academic performance, students have obtained grades between 13 and 16 points (both), this indicates that they are within the Very Good rating; 36.8% (21) for the use of ICT tools; 38.6%(22) for academic performance, the students have obtained grades between 11 and 12 points (both), this indicates that they are within the Good assessment; 1.8% (1) for the use of ICT tools; 1.8%(1) for academic performance,

students have obtained grades between 00 and 05 points (both), this indicates that they are within the deficient assessment; because the students are somehow informed about the issues related to the "use of ICT tools" before starting the treatment. On the other hand, it is highlighted that satisfaction with the use of digital tools will also be related to the level of complexity of the component; as well as the contribution that the tool makes in the development of the activity. The use of technological tools in higher education has been studied and new study perspectives are opened, which lead to expanding the population and the inclusion of new variables. (Pardo et al., 2020, p.10). Likewise, despite the complexity perceived by university students in the teamwork carried out during the "good practice", the satisfaction and recognition of learning, coexistence and cooperation in processes as important as organization, making agreements, resolving conflicts, responsibility, assuming consequences and personal maturation were, without a doubt, highly formative issues for students, and indeed, essential in their training. of a good professional during the university period (Dieste, 2019, p.14).

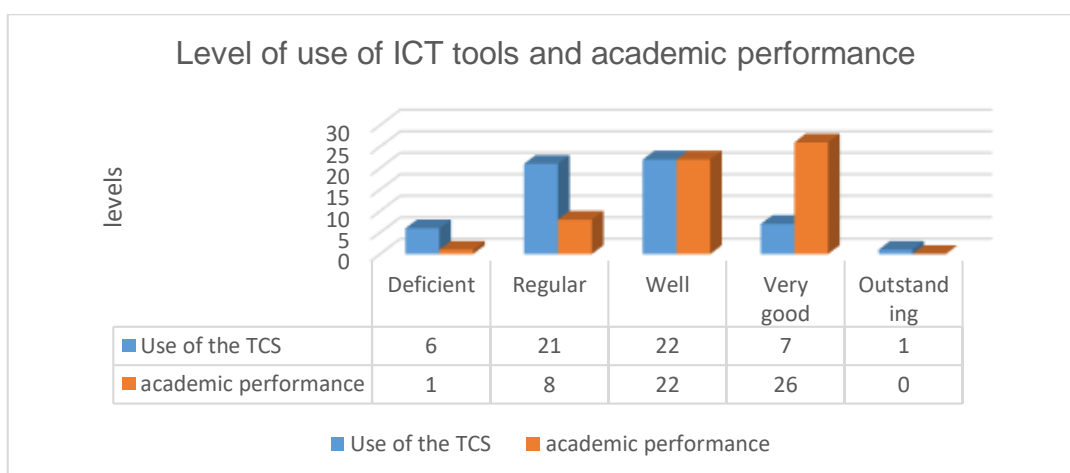


Figure.2. Level of use of ICT tools and academic performance

Table 4. Dimensions of ICT use

Dimensions	Arithmetic average
Software	3,0351
Virtual communication	3,0702
Internet	3,3333
Social networks	2,9123
General average of the variable	3,087725

Interpretation

The results obtained from the average values of the use of ICT in students according to the applied instrument are shown in Table 4, where it can be seen that the three analyzed dimensions are above the general average, which indicates that the students have more developed in computer programs, virtual communication and internet. Of the three most developed dimensions of ICT use, one is highly developed, the Internet, according to the established scale; In this sense, the remaining dimension is in the medium range accompanied by others that reached averages

above 3. Social networks are present at a low level of 2.9123. It is therefore concluded that the use of virtual environments (equipment, communication and applications) is positively and significantly related to attitudes towards ICT in times of the COVID-19 pandemic among teachers at the University of Huánuco (Peru). Therefore, it is inferred that the greater the positive attitude towards ICTs, the greater the use of virtual environments (Ruiz, et al., 2022).

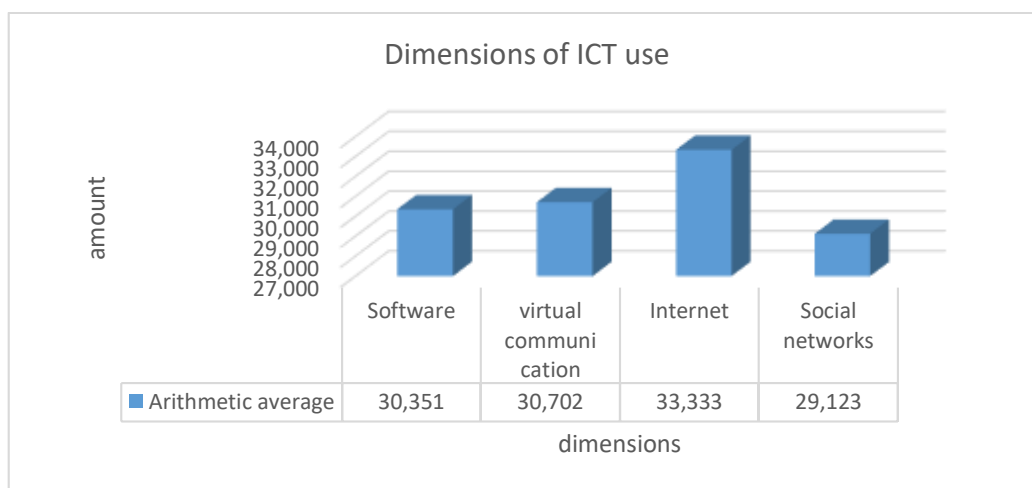


Figure 3. Dimensions of ICT use

Normality Test

Before carrying out the respective hypothesis test, we will first determine if there is a normal distribution of the data (parametric statistics) or not, that is, a free distribution (non-parametric statistics). For this purpose, we will use the Kolmogorov Smirnov normality test (n>50).

Table 4. Normality Test

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistics	df	Sig.	Statistics	df	Sig.
TIC use	,164	57	,001	,910	57	,000
Academic performance	,228	57	,000	,897	57	,000

Interpretation

The normality test shows that both variables are not distributed according to a normal law, since the sig. asymptot of both variables is 0.000, that is, for the use of ICT tools, it is below the predetermined alpha significance level (0.05); therefore, for the academic performance variable it is 0.000, it is below the predetermined alpha level of significance (0.05). Which means that, for the analysis of the relationship between these two variables, non-parametric tests were chosen. Therefore, the data does not come from normal populations, since they present a percentage of less than 5%.

General hypothesis

a) Statement of the hypothesis

There is a significant relationship between the use of ICT tools and academic performance of students in the Professional Schools of Mechanical and Electrical Engineering at the Technological National University of South Lima.

Statistical hypothesis

H1: Yes, there is a significant relationship between the use of ICT tools and the academic performance of students in the Professional Schools of Mechanical and Electrical Engineering at the Technological National University of Lima Sur.

Ho: There is no significant relationship between the use of ICT tools and academic performance of students in the Professional Schools of Mechanical and Electrical Engineering at the Technological National University of Lima Sur.

- b) Establishes the confidence level
95% confidence level
- c) Establishes the level of significance
5% (p-value < 0.05).
- d) Choice of statistic

$$r = \frac{n\sum xy - (\sum x)(\sum y)}{\sqrt{n\sum x^2 - (\sum x)^2} \cdot \sqrt{n\sum y^2 - (\sum y)^2}}$$

Using the SPSS v 22.0 software, the calculation was made, obtaining:
value_ Sig. (2-tailed)

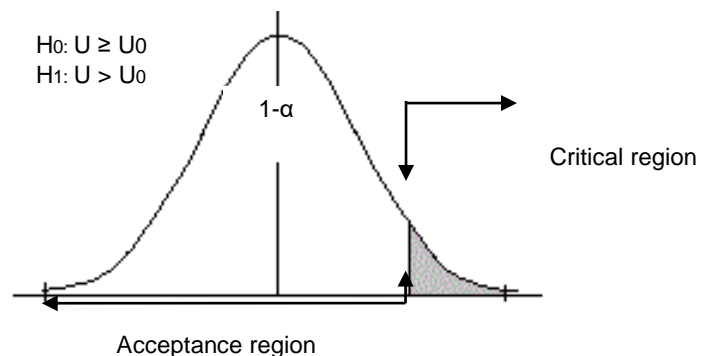
Correlations		ICT Use	Academic performance
ICT Use	Pearson Correlation	1	,785**
	Sig. (2-tailed)		,000
	N	57	57
Academic performance	Pearson Correlation	,785**	1
	Sig. (2-tailed)	,000	
	N	57	57

** . La correlación es significativa en el nivel 0,01 (bilateral).

Interpretation:

A moderate correlation of 0.785 is observed.

e) Graphic representation



f) Decision

Since the p-value (sig. =0.000) is less than the significance level (0.05), then we make the decision to reject the null hypothesis and accept the general hypothesis.

g) Conclusions

It is concluded that there is an adequate significant relationship between the use of ICT and academic performance in students, as demonstrated by the results of the contrast of the hypothesis test. Regarding their teamwork skills, the students reported high capacity for team planning (80.9%), communication (68.8%) and low capacity for collaborative problem solving (25.5%). The hypotheses proposed were contrasted with the results obtained in the survey taken of students and teachers of the Faculty of Economic Sciences of the UNMSM, where the consistency statistics (Cronbach's alpha) and Spearman's correlation coefficient for class intervals were used. Likewise, descriptive statistics were used through the mode, median and quartiles (Huaman, 2019, p.7). It is true that it is not just a matter of attitudes, it would be necessary to delve into the characteristics that accompany groups of university students to complete their profile, at the level of strategies they use, learning approaches, self-concept, etc. (Gargallo et al., 2010, p.10).

IV. Conclusions

- It was shown that the use of ICT tools and academic performance in students predominates at the medium level, that is, represented by 34.0% (59.65), at the highest level. Therefore, use of ICT tools and academic performance of students; however, it is necessary for teachers to apply ICT in their classes, since it is demonstrated in the results.
- It was determined that more than 50% of the respondents are above 2.9474, that is, they have a favorable attitude. On average the subjects are located at 3.0000 (favorable). Likewise, 1.27365 scale units deviate from the average. A minimum score of 1 and a maximum of 5 was observed. Therefore, the use of ICT tools benefits the student.
- Finally, it is concluded that there is an adequate significant relationship between the use of ICT and the academic performance of university students, due to a moderate correlation of 0.785.

References

- Aparicio J, Velásquez C. y Fraile A. (2021). El trabajo en equipo en la formación inicial del profesorado. CCD 49, year 17, volume 16, MURCIA 2021, pag. 455 – 464, ISSN: 1696-5043. <http://dx.doi.org/10.12800/ccd.v16i49.1548>
- Castillo y Zavaleta (2022). Herramientas TIC y el aprendizaje en los estudiantes de derecho de una universidad privada de Trujillo 2021. Ciencia Latina Revista Científica Multidisciplinar. <https://www.ciencialatina.org/index.php/cienciala/article/download/1755/2486>
- Dieste S., López, M., & Martín, M. (2019). Percepciones de estudiantes universitarios sobre una evaluación formativa en el trabajo en equipo. Revista Iberoamericana de Evaluación Educativa, 12(1), 175-192. <https://revistas.uam.es/riee/article/view/riee2019.12.1.010/10931>
- Garcilazo H. (2020). Uso de herramientas TIC y desempeño docente en Instituciones Educativas de nivel secundaria de la Región Ancash. <https://apirepositorio.unh.edu.pe/server/api/core/bitstreams/5652b039-abb1-4ba6-855b-b82a05bcc56c/content>

- Gargallo, B., Sánchez, C., Ros, C., Ferreras A. (2010). Estilos docentes de los profesores universitarios. La percepción de los alumnos de los buenos profesores. *Revista Iberoamericana de Educación*, 51(4), <https://doi.org/10.35362/rie5141826>
- Hernández, R. (2014). *Metodología de la investigación*. Santa Fe, México: Interamericana.
- Huamán, J. (2019). Las TIC y su influencia en la calidad del aprendizaje universitario. *Industrial data*, 22(1), 203-209. <https://www.redalyc.org/journal/816/81661270013/81661270013.pdf>
- Lara, P. & Hernández, M. (2019). TIC y contextos educativos: frecuencia de uso y función por universitarios. *EDUTEC. Revista electrónica de tecnología educativa*, (67), 31-47. <https://www.edutec.es/revista/index.php/edutec-e/article/download/1135/661/>
- Navarro, R. (2003). El rendimiento académico: concepto, investigación y desarrollo. *REICE. Revista Iberoamericana sobre Calidad, Eficacia y Cambio en Educación*, 1(2), 0. <https://www.redalyc.org/pdf/551/55110208.pdf>
- Organización de las Naciones Unidas para la Educación, la Ciencia y la Cultura. (2014). *Informe sobre tendencias sociales y educativas en América Latina*. México: Autor.
- Pardo, M., Chamba L. Higuerey A., & Jaramillo, B. (2020). Las TIC y rendimiento académico en la educación superior: Una relación potenciada por el uso del Padlet. *Revista Ibérica de Sistemas e Tecnologías de Informação*, (E28), 934-944.
- París, G., Mas, O., & Torrelles, C (2016). La evaluación de la competencia'trabajo en equipo'de los estudiantes universitarios. *Revista d'Innovació Docent Universitària*, 2016, num. 8, p. 86-97. <https://repositori.udl.cat/bitstream/handle/10459.1/60249/023717.pdf?sequence=1>
- Ríos, J. Gómez, E., & Rojas, M. (2018). Valoración de competencias TIC del profesorado universitario: un caso en Chile. *Pixel-Bit*, 52, 55-65. <https://idus.us.es/bitstream/handle/11441/68936/1/62484-188864-1-SM.pdf?sequence=1>
- Ruiz, M., Borneo, L. Alania, R., García, E. Zevallos, U. (2022). Actitudes hacia las TIC y uso de los entornos virtuales en docentes universitarios en tiempos de pandemia de la COVID-19. *Publications: Facultad de Educación y Humanidades del Campus de Melilla*.

Annex 1. Questionnaire

INSTRUMENT TO MEASURE THE USE OF ICT TOOLS

The instrument has been taken from Hugo Loli Garcilazo Jaimes.

QUESTIONNAIRE ON THE USE OF ICT TOOLS

Purpose: The purpose of this questionnaire is to know the level of use of ICT tools by teaching staff.

Instructions: Dear teacher, below you will be presented with a wheel of items, read each one carefully, and mark with a cross (X) the alternative that you consider the most appropriate.

Keep in mind that your answers are confidential so you are strongly asked to be objective and conscientious when marking.

Scale:

Never	1
Hardly ever	2
Sometimes	3
Almost always	4
Always	5

Nº	Items	Alternatives				
		1	2	3	4	5
Dimension 1: Softwares						
1.	I use a word processor to prepare didactic material in my class.					
2.	I develop work material such as the triptych applying editor of Publisher advertising at its creation.					
3.	I make slide presentations of the topic treated as material didactic in my class.					
4.	I use a spreadsheet to prepare the attendance record and student evaluation.					
5.	I present my annual programming, didactic units and learning sessions using a word processor.					
Dimension 2: Virtual communication						
6.	I participate in academic, educational and cultural events through virtual courses.					
7.	I participate in educational blogs as an element of information and learning.					
8.	I use email as an element of communication and information for my students.					
9.	I use the Wiki as a communication element to enhance the classes with my students.					
10.	I develop classes through videoconferences.					
Dimension 3: Internet						
11.	I obtain information through the Internet for the elaboration of my class.					
12.	I maintain an interactive communication with my colleagues or students.					
13.	I use the Internet as a means to be trained in virtual courses.					
14.	I consider the Internet as a means of globalization of information in my training.					
15.	I generate motivational activities with video through the use of the internet in the development of my class.					

Dimension 4: Social networks					
16.	I use the chat to participate in virtual courses.				
17.	I am informed through the information forum of my colleagues.				
18.	I use Facebook as a means of communication with my students.				
19.	I participate in activities and communication through Twitter.				
20.	I develop investigative activities through WhatsApp.				
Subtotal					
Total					

¡Thank you for your collaboration!