Educational Innovation: ICT as a fundamental tool in the academic environment

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Abstract: *The main purpose of this research is to assess the impact and effectiveness of Information and Communication Technologies (ICT) in the learning process of students enrolled in the Bachelor of Administration program in a face-to-face educational setting. The research adopted a descriptive quantitative approach, and for establishing the sample, the systematic sampling technique was employed, resulting in a sample of 50 students. The analysis of the data reveals interesting patterns and trends in the responses of the respondents in various areas related to the use of technology and informatics in their academic activities. The results point to a significant reliance on technology in the academic activities of this group of respondents, especially concerning the use of computers and Internet services. This means that the majority of students are familiar with these technologies and use them in their academic activities. Thus, students report having derived significant benefits from ICT in the development of tasks and other academic activities. This suggests that ICT is playing a positive role in the teaching and learning process in the Bachelor of Administration program.*

Keywords: *Learning, teaching, technological skills, educational innovation, technologies.*

Introduction

Academic activity demonstrates that the learning process must be linked and associated with technology, as this leads to significant changes in education, especially in the teaching and learning of students who are beginning their professional training. In other words, technology provides an opportunity to discover new skills in each individual, to the extent that they become self-directed in their daily educational activities. Additionally, Information and Communication Technologies (ICT) serve as support tools for both teachers and students in tasks, research, information management, and various other activities. It is worth mentioning that the integration of technology has become essential in education and triggers significant changes in how teaching and learning occur. This suggests that technology is not only a support tool but also promotes the development of capabilities and skills that can be beneficial in daily life and education. Ultimately, technology is not only useful for teachers but also empowers students, fostering their capacity for self-directed learning.

Literature Review

ICT in higher education creates new learning contexts, and due to its influence on education, promotes the acquisition of essential skills for learning and useful skills in everyday life. However, it is crucial to consider the challenges that must be overcome to ensure affordable access to technological advancements in higher education (García et al., 2017).

From the above, ICT is transforming the way learning and teaching occur at this educational level, generating essential skills for learning and life in general. However, it also highlights a critical challenge: ensuring that everyone has affordable access to these technologies. This suggests that, although ICT offers significant advantages, it is important to address economic barriers so that all students have equal opportunities in higher education in the digital age.

In recent decades, substantial changes have been observed in society, and education has undergone a transformation in its system. The use of these technologies has proven to be an effective strategy for addressing certain difficulties related to social inclusion and equity in access to educational opportunities (Cuello and Solano, 2021). Additionally, the increasing presence of ICT in all aspects of life requires the adoption of new educational approaches in classrooms. The traditional teaching model, centered on the teacher, is evolving toward a learner-centered approach, where each student takes responsibility for their cognitive process. In this context, teachers must seek and apply appropriate methodologies and resources to support this individual learning process (Cruz et al., 2019).

It is worth mentioning that the traditional teaching approach, where the teacher is at the center, is evolving into a learner-centered approach, where each student takes an active role in their own learning process. In this new approach, teachers must adapt their teaching methods and use resources that support students' independence in acquiring knowledge and skills. In summary, the importance of adapting education to harness ICT and promote more autonomous and personalized learning is emphasized.

Main Objective

The main purpose of this research is to evaluate the impact and effectiveness of Information and Communication Technologies (ICT) on the learning process of students participating in the Bachelor of Administration program within a face-to-face educational environment.

Research Question

To what extent have ICT influenced the quality of teaching and the learning process in the Bachelor of Administration program?

Materials and Methods

The research adopted a quantitative descriptive approach, which is used to provide a comprehensive description of a reality in all its main components. This approach is characterized by the collection of objective data primarily focused on numerical values. The results obtained through this approach are analyzed using statistical and numerical methods (Alban et al., 2020). To establish the sample, the systematic sampling technique was employed, which involves selecting samples by taking every k-th unit from the population once they have been numbered or arranged in some way. The letter "k" represents the sampling ratio, i.e., the proportion of the population size to the corresponding sample size (Porras, 2017), resulting in a sample of 50 students.

Results

How old are you? 74% of the respondents are aged between 15 and 25 years. This indicates that a vast majority of the people in the group fall into the younger age category, suggesting that the group is primarily composed of young individuals. 14% are aged between 26 and 35 years. This group represents a smaller proportion compared to the first group, suggesting fewer people in the age range of 26 to 35 years in this group. 10% fall in the age range of 36 to 45 years. This percentage indicates an even smaller number of people in the group belonging to this age category, suggesting a relatively low presence of individuals in this category. 2% are aged between 46 and 50 years. This is the least represented age group in the set, suggesting very few people in the group are aged between 46 and 50 years, as shown in figure 1.
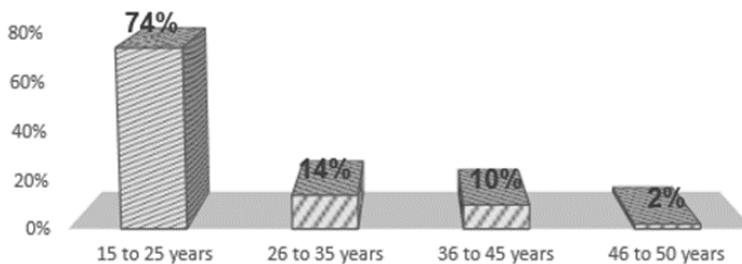

Figure 1. Age of students

How often do you use a computer for your studies? 30% of the surveyed individuals reported using a computer every day. This indicates that approximately one-third of the respondents heavily rely on the computer and use it regularly in their academic activities. 26% mentioned using a computer once a week. This suggests that slightly less than one-third of the people access a computer on a weekly basis for their study-related tasks. 34% responded that they use a computer two to three times a week. This indicates that more than one-third of the individuals use it frequently during the week but not every day. 10% indicated that they rarely use a computer. This means that one-tenth of the people in the sample hardly use it for their studies, suggesting a preference for other methods or resources, as shown in figure 2.
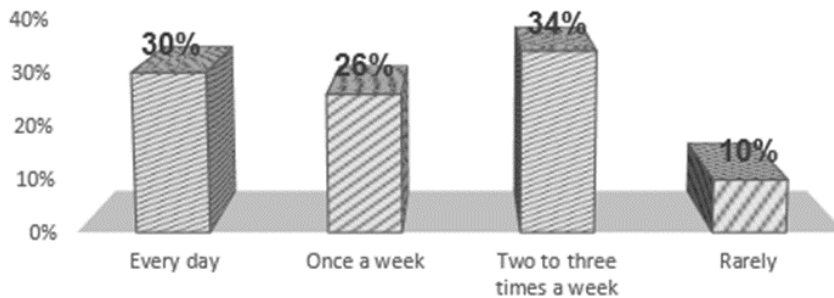

Figure 2. Frequency of using a computer for your studies

Of the internet services offered, which do you frequently use?18% of the surveyed individuals indicated that they frequently use email. This means that a minority uses email regularly as part of their online experience. 46% mentioned that they frequently use online chats. This indicates that almost half of the surveyed people tend to use internet chat services regularly for online communication. 36% responded that they frequently use web pages. This suggests that more than one-third of the individuals in the sample regularly access websites for various online activities (figure 3).
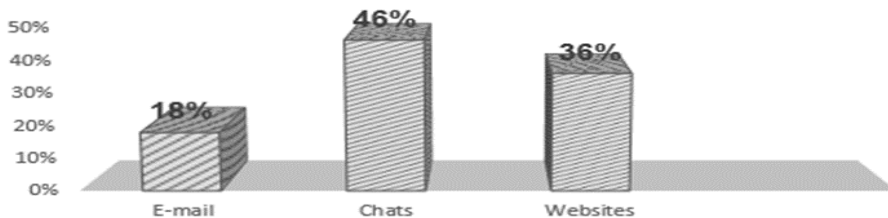

Figure 3. Of the Internet services offered, which do you frequently use?

Do you use devices such as projectors, computers, software to carry out activities in the classroom? 16% of the surveyed individuals indicated that they never engage in the activity or use the service in question. This means that a minority, approximately one-

sixth of the people in the sample, never get involved in this activity or service. 42% mentioned that they occasionally engage in the activity or use the service. This indicates that the majority, around half of the surveyed people, do it occasionally but not consistently. 26% responded that they constantly engage in the activity or use the service. This suggests that a little over a quarter of the individuals in the sample are regularly involved in this activity or service. 16% indicated that they do it very consistently. This means that another minority, approximately one-sixth of the people in the sample, participates in this activity or service very frequently (figure 4).
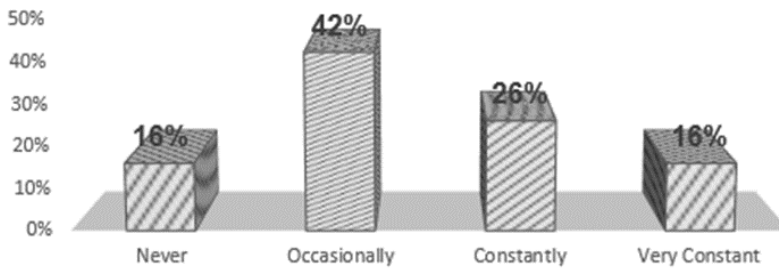

Figure 4. Do you use devices such as projectors, computers, software to carry out activities in the classroom?

Have you downloaded resources from the internet such as programs, texts, videos, sounds, tutorials, etc.? 12% of the surveyed individuals indicated that they never engage in the activity or use the service in question. This means that a minority, approximately one-eighth of the people in the sample, never get involved in this activity or service. 48% mentioned that they occasionally engage in the activity or use the service. This indicates that the majority, almost half of the surveyed people, do it occasionally but not consistently. 20% responded that they constantly engage in the activity or use the service. This suggests that one-fifth of the people in the sample are regularly involved in this activity or service. Another 20% indicated that they do it very consistently. This means that another one-fifth of the people in the sample participate in this activity or service very frequently. In other words, the majority of the surveyed individuals occasionally engage in the activity or use the service, but there is also a significant proportion that does it consistently or very consistently. The distribution of responses shows a variety in the frequency of participation figure 5).
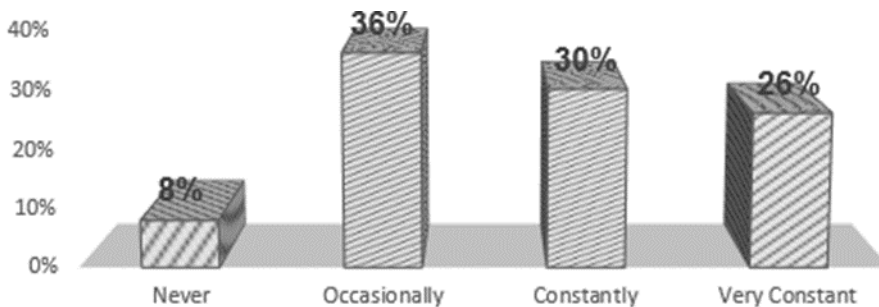
Figure 5. Have you downloaded resources from the Internet such as programs, texts, videos, sounds, tutorials, etc.?

Which of these programs do you use consistently for your academic activities? 40% of the surveyed individuals prefer to use a word processor. This indicates that a significant portion, almost half of the people, tend to use word processing software for tasks such as writing and editing documents. 10% opt to use spreadsheets. This suggests that a smaller proportion of people prefer to use spreadsheet software, which is commonly used for calculations and organizing data in tables. 30% lean towards using presentation software. This indicates that a considerable number of people prefer to use presentation software to create and display visual content in presentations. Only 2% prefer to use databases. This suggests that a very small minority chooses to use database software, which is used for organizing and managing large amounts of data. 18% mentioned that they use "other" software or applications, indicating a variety of office software preferences and possibly the use of specific tools for particular needs. In summary, the data shows a predominant preference for word processors and presentation software, while the use of spreadsheets and databases is less common among the surveyed individuals. The "other" category suggests a diversity of office software options used by some people (figure 6).
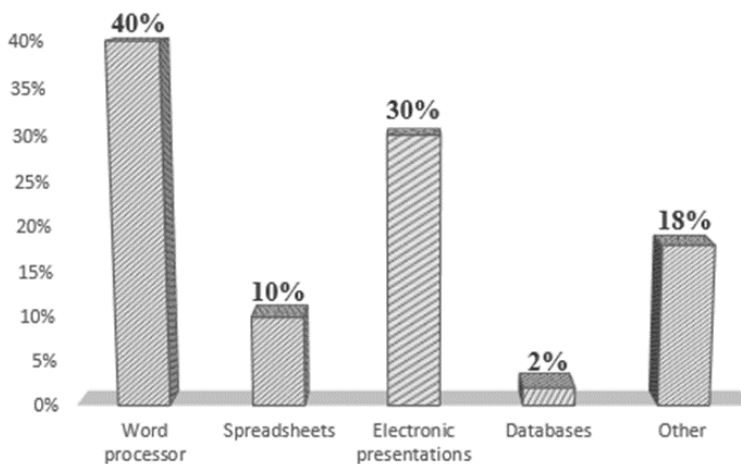
Figure 6. Which of these programs do you use consistently for your academic activities?

Discussion

The analysis of the data reveals interesting patterns and trends in the responses of the survey participants in various areas related to the use of technology and informatics in their academic activities. Here are some of the key observations discussed:

Ages of respondents: The group appears to be primarily composed of young individuals, as 74% of the respondents are aged between 15 and 25 years. This suggests that the group has a significant representation of individuals in the younger age category. Frequency of computer usage: 30% of the respondents use a computer every day, reflecting a significant dependence on technology in their academic activities. Additionally, 34% use it two to three times a week, indicating frequent presence of computers in their student life.

Frequently used internet services: Online chat service is widely used, as 46% of the respondents frequently use it.

This suggests that online communication is an essential part of their online activities. Use of devices in the classroom: More than a quarter of the respondents (26%) constantly use devices and computer programs in the classroom, indicating significant technology adoption in educational settings. Downloading resources from the internet: The majority of respondents (48%) occasionally download resources from the internet, indicating that they leverage the availability of online materials for their academic activities. Computer programs used: Word processors are the most preferred tool (40%), suggesting that document writing and editing are common tasks. Spreadsheets and databases are less frequently used in comparison.

Conclusion

In conclusion, the results point to a significant dependence on technology in the academic activities of this group of respondents, especially concerning the use of computers and internet services. This reflects a trend toward digitization in education and highlights the importance of technology as an integral tool in learning and collaboration in the classroom. Undoubtedly, this signifies that teaching activities are closely linked with present technology, providing opportunities for new strategies and designs in class organization and planning, resulting in a substantial change in teaching and learning for students.

In this way, the research can define the question posed in this investigation: "To what extent have ICTs influenced the quality of teaching and the learning process in the Bachelor's Degree in Administration program?" Within the academic activity, it was possible to determine that the majority of students maintain a close relationship with technologies, and most have derived benefits from these tools in task development and more. Finally, the research reveals that most students have a close and favorable relationship with ICT. This means that the majority of students are familiar with these technologies and use them in their academic activities. Consequently, students report significant benefits from ICT in task development and other academic activities. This suggests that ICTs are playing a positive role in the teaching and learning process in the Bachelor's Degree in Administration program, i.e., the results indicate that most students have a close relationship with ICTs and have experienced benefits from their use in academic activities, suggesting a positive impact of these technologies on the educational process.

References

Alban, G. P., Arguello, A. E. y Molina, N. E. (2020). Metodologías de investigación educativa (descriptivas, experimentales, participativas, y de investigación-acción). Revista Recimundo, 4(3), 163-173. DOI:10.26820/recimundo/4.(3).julio.2020.163-173

Cuello, N. A. & Solano, I. (2021). Uso de las Tic como herramienta de aprendizaje en tiempos de aislamiento social (Tesis Maestría). Universidad de la Costa, Barranquilla.

Cruz, M. A.; Pozo, M. A.; Yupangui, H. R. & Arias, A. D. (2019). Las Tecnologías de la Información y de la Comunicación (TIC) como forma investigativa interdisciplinaria con un enfoque intercultural para el proceso de formación estudiantil. E-Ciencias de la Información, 9(1), 44-59. DOI: https://doi.org/10.15517/eci.v1i1.33052

García, M. R.; Reyes, J. & Godínez, G. (2017). Las TIC en la educación superior, innovaciones y retos. Revista Iberoamericana de las Ciencias Sociales y Humanísticas, 6(12). DOI: 10.23913/ricsh.v6i12.135

Porras, A. (2017). Tipos de muestreo. Repositorio CentroGeo, Centro Público de Investigación   CONACYT. https://centrogeo.repositorioinstitucional.mx/jspui/bitstream/1012/163/1/19Tipos%20 de%20Muestreo%20%20%20Diplomado%20en%20An%C3%A1lisis%20de%20Info rmaci%C3%B3n%20Geoespacial.pdf