



Impact of Information and Communication Technologies in the Teaching-learning Process in Rural Area Educational Institutions



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Abstract

New technologies have become a necessary element in the teaching-learning process, being a highly supportive tool for teachers in being able to transmit knowledge to students. Currently, there is a lack of implementation of new technologies to achieve motivation objectives in students. The objective is to identify the barriers that exist between teachers and the implementation of ICT in education, seeking to promote and explore the participation of students in the educational process. The methodology used was descriptive to know the elements involved in this process, in addition to observation and bibliographic review. The result was that teachers need training on new technologies, and the economic difficulties that students and teachers present in the teaching-learning process were identified.

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1 Introduction

The pandemic revolutionized the teaching methods that have been evolving in the educational field. New technologies or their tools have facilitated communication and the exchange of information between the student and the teacher (Lopez et al., 2020), these authors use it to update the information and take the student to a process of teaching-learning of great help in the activities that arise in modern life (Tapia Tapia, 2022). In the educational field, the transformation must be constant, computing and telecommunications technologies (ICT) have established themselves and expanded to support different educational tasks (Lopez et al., 2020).

Currently, education is facing a digital era with technological advances that influence different social areas. The relevance of improvements in the educational field must go hand in hand with the various existing technological tools that benefit the teaching-learning process, making it more attractive, accessible, and enjoyable for students and teachers.

The relevance of education based on the use of technological resources today is not an option but rather a common duty that each educational institution must implement in different contexts (Dominguez Fernandez et al., 2011). The teacher's commitment is to update and innovate, this makes them be at the forefront, all of this is necessary because they are in charge of educating future generations, making use of existing modern tools.

Student motivation is an influential factor that affects students' learning. In past years, education was traditional with monotonous classes and little teacher-student interaction. This has changed. Currently, we talk about contemporary education in line with current challenges and that seeks to generate greater motivation in students using different materials or resources that influence their education using the technologies of this new era. (Altarejos & Durán, 2011).

This study analyzes the benefits generated by the use of technological tools in terms of student motivation, which is why it must be started from a problem analyzed and found in the educational institutions subsequently mentioned as the main object (Parra et al., 2023). In the era of communication and information, learning is the basis for the development, growth and progress of society. The educational system must promote the continuous and permanent training of teachers at each of the training levels, in order to respond to the needs, interests and challenges of the world population (Ricardo Barreto & Iriarte Díazgranados, 2017). In this way, it can be interpreted that teachers must add to their teaching methodologies, and dedication to the interpretation of technological tools, which help to engage students in different contents and subjects.

Over time, communication systems have changed and video conferences and video calls that favor meetings with a virtual presence are becoming more frequent every day. Email is widely used by both students and teachers; WhatsApp and other social networks have been implemented in education. Institutional management has been transformed not only from within the administration but from a functional, management and control point of view (Ramírez Martinell & Casillas Alvarado, 2016). Teachers have new communication tools due to technological development in the educational field. With all these tools, educators have the objective of monitoring the progress of their students in the interpretation and development of content and in many cases, they use equipment that allows them to learners obtain their knowledge more efficiently, quickly, and easily.

2 Materials and Methods

In the study, a survey was carried out to analyze the incidence of ICT in the classroom as methodological tools that promote the learning process, a combination of several methods was used, where the descriptive method was selected (Rus Arias, 2021), this It emphasizes defining, classifying, dividing into measures of position or dispersion, allowing the analysis of all the elements that compose them; In addition, the historical-logical method was applied to analyze in depth the problems found in the impact of new technologies in the educational process.

The barriers that the impact of ICT has on the participation of teachers and students in the educational process were investigated through a bibliographic review. This methodology is used to obtain reliable information contained in documents such as magazines, books, and websites (Ocampos Salas, 2008), in this process was investigated with the purpose of obtaining systematized knowledge; Another method used was quantitative and qualitative, to analyze the results obtained in the surveys applied to the school's teachers.

3 Results and Discussions

In the educational process in rural areas, there are barriers in promoting and exploring the participation of students in the educational process, for this research was developed in an Educational Institution of that territory, where teachers were consulted on issues related to the implementation of new technologies in the teaching process. To carry out the research, a survey was applied considering the different factors that intervene efficiently in the application of technologies that directly affect the preparation of teachers and their impact on the preparation of students (Martín-Blas & Serrano-Fernández, 2009; Tugrul, 2012; Wang, 2020; Sar & Misra, 2020). The data obtained were subjected to statistical analysis that helped interpret the results in a timely manner, noting some difficulties of teachers in implementing the use of ICT in the teaching-learning process. It was analyzed how institutions guide teachers of educational units to use new technologies in education. Figure 1 shows the results obtained in how teachers implement these technologies.

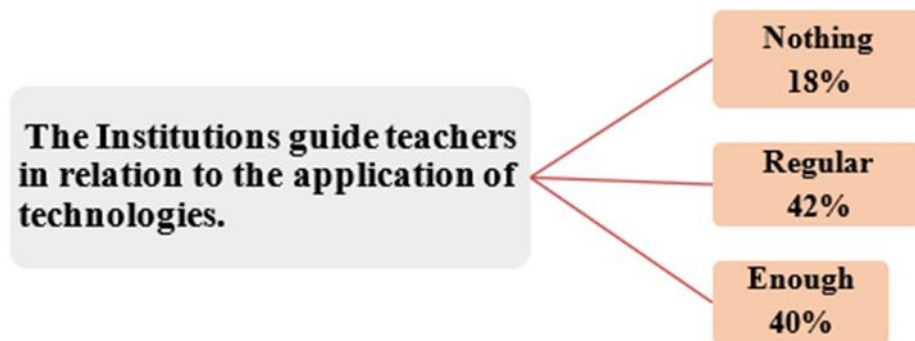


Figure 1. Orientation of Institutions to teachers in relation to the application of technologies.

As can be seen, there are still difficulties in implementing the guidelines given by the institutions related to the methodologies, 18% of teachers do not know use technology in education and 42% apply it regularly, making compliance with this provision very efficient. Some authors propose that today's school demands a professional profile where the teacher must know and know how to acquire knowledge and then know how to do and know how to be. If these two parameters are achieved, the teacher will be qualified to educate in the current school, where he or she is already endowed with cognitive, social and procedural skills and/or abilities that will allow the student to precisely acquire the knowledge that it imparts (Bailey et al., 2021). The possibility of implementing these technological tools by teachers was studied; for this purpose, they were asked if they have technology in their homes. Figure 2 shows the availability of technological tools that teachers have in their homes.

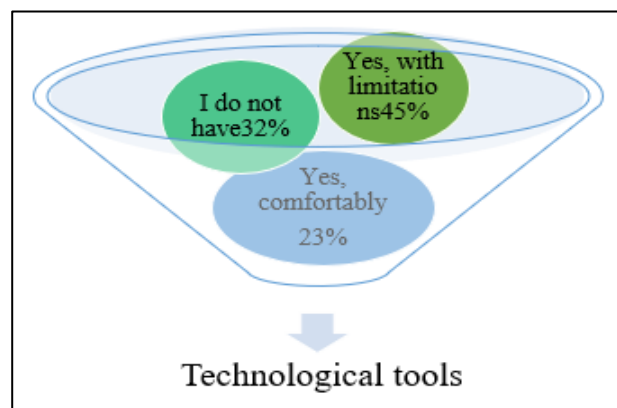


Figure 2. Availability of technological tools that teachers have

It is verified that many teachers have problems accessing technological tools for reasons (economic, social, and technological), they are deprived of using new technologies in teaching processes. Consequently, by lacking adequate technologies, teachers lose the possibility of bringing current knowledge and applying significant methodologies that help improve the teaching-learning process in educational institutions.

The inclusion of technological tools in the educational system has been taking leaps and bounds; it is suggested that educators implement social networks that are within their reach. The new educational practices seen by the community of teachers raise the need to adapt to new technological tools in the educational system (Goldin et al., 2013), this would help change traditional teaching-learning methodologies to new pedagogical resources. The knowledge that teachers have about ICT was investigated; The results obtained can be seen in Figure 3.

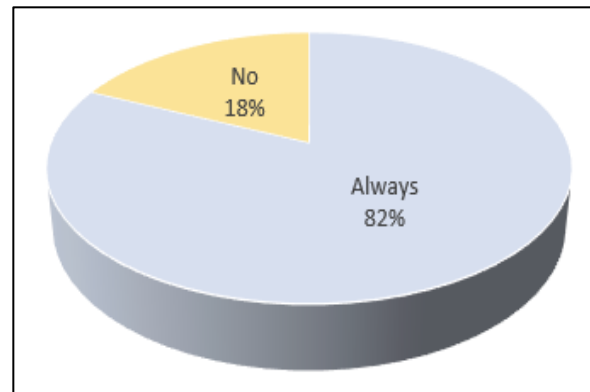


Figure 3. Knowledge of applying Information and Communication Technologies (ICT)

As can be seen, 18% of teachers consider that they do not know about the application of these technological tools in education. In other research carried out, teachers do not share the use of new technologies (Lorente et al., 2016). The use of ICT tools in the classroom is essential because the teacher can motivate students and their colleagues to change lectures for more dynamic classes, turning the student into the protagonist of their own knowledge and thus, to be able to design and implement training programs in new teaching methods to improve the quality of education at the departmental level. It was considered to carry out a survey on the need for the use of technological resources as didactic support in the teaching-learning processes, these can be seen in Figure 4.

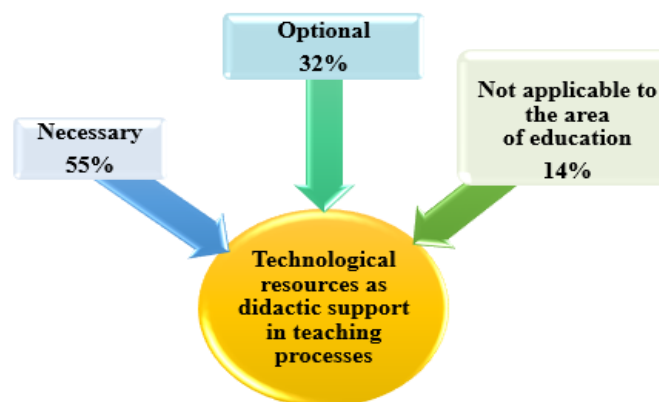


Figure 4. Technological resources as didactic support in teaching processes

As noted, 55% of teachers consider the use of technological resources necessary, although some have reflected that it may be optional and others that it should not be applied in the area of education as didactic support in the teaching process. Technological resources facilitate and enhance educational development. In these last two arguments, teachers must be convinced of the appropriate use of them to enable the exchange between the teacher and the student learning

from the various platforms, providing progress in the development of educational methodologies (Ahmadi et al., 2011; Almerich et al., 2016; Santos et al., 2019; Alcivar et al., 2020).

The interest in having an exact and deep knowledge of the media has been a pedagogical constant since these are tools that must be used to improve the cognitive level as teaching resources that can be attributed to specific functions and applications so that educators can make a selection, depending on the subject and the topic where to apply them. These resources allow the methodologies to be organized in the teaching process, adapting to the context in which the learning situation occurs (Teaching Federation, 2023).

Although there are teachers who lack knowledge in the use of technologies, through training it can be enriched by training them, thereby helping to provide solutions to this problem, a reason that was considered relevant to carry out a respective survey on the frequency with which teachers make use of technological resources to support their teaching work. It can be seen in Figure 5 how frequently teachers use technological resources to support their work (Usun, 2009; Chai et al., 2011; Fernandez et al., 2009; Bravo & Gámez, 2021).

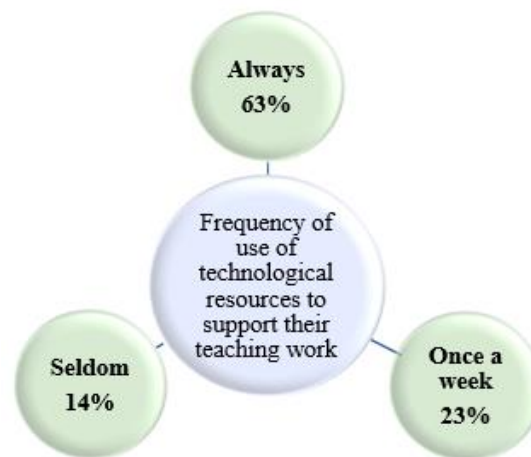


Figure 5. The frequency with which teachers use technological resources to support their teaching work

It is revealed that 63% make use of technological resources to support their teaching work, while the rest of the teachers use these means infrequently. Technology on a global level originally made its way into the educational system as a necessity to prepare for an increasingly digital future and as part of its competition towards different areas of education, technology provides instant access to knowledge, use of technological resources in the classroom gives teachers the opportunity to provide their students with the guidance to find the appropriate sources and teach them how to evaluate the quality of the information they find online, making its use constant and effective (Campozano & Chávez, 2021).

A priority for educators is knowledge about ICT and how to pedagogically use its different computer applications in their daily performance, integrating technology with classroom practice. Consequently, it is necessary for public educational institutions in the sector to know the situation of teachers in terms of the use and management of technological tools, to obtain relevant information for the development of training proposals and pedagogical strategies that allow the improvement of educational quality in institutions (Llorente et al., 2016).

4 Conclusion

There are factors that prevent teachers and students at the educational center from using technological resources in the classroom, the most important that can be highlighted is the inability of teachers and students to access technological tools, whether for economic or educational reasons. The research model developed allowed us to identify that the teachers of the Educational Unit in the rural area need training to be able to deepen their knowledge about ICT and various aspects of personal training that access the management of educational programs, being a great confrontation with new challenges. in the digital age. The implementation of these technological tools must be focused on the teaching-learning needs and allow the elimination of the barriers that exist between the teachers' ability to handle these technological tools and the adaptation to technological development, as the main objective of the educational unit.

Conflict of interest statement

The authors declared that they have no competing interests.

Statement of authorship

The authors have a responsibility for the conception and design of the study. The authors have approved the final article.

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