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Incorporation of educational technology for effectiveness in teaching student teachers

Incorporación de la tecnología educativa para la eficacia en la enseñanza de los estudiantes de Pedagogía

Incorporação da tecnologia educativa para a eficácia pedagógica dos estudantes de ensino

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Abstract

The main objective of this scientific study is to provide a comprehensive overview of the integration of educational technology in the Faculty of Pedagogy and its implications for the improvement of teaching and learning. Educational technology encompasses a variety of digital tools and online resources that can significantly enhance teaching and learning. The research was conducted using an approach that combined descriptive, qualitative and quantitative methods. The group under study included all students enrolled in the Faculty of Pedagogy at the Technical University "Luis Vargas Torres" of Esmeraldas during the second academic semester of 2022. In addition, a specific follow-up and analysis was carried out with the participation of 20 teachers and 180 students. A structured survey was used as a method to obtain information related to the elements that contribute to the effectiveness of technological incorporation. The results of the research show that both students and teachers have a positive perception of educational technology. Most students use it regularly and consider that classes that incorporate it are more interactive and accessible. However, they face technical challenges, highlighting the need for a solid technological infrastructure and additional training for teachers.

Key words: educational technology, effectiveness, teaching, digital tools, learning.

Resumen
Este estudio científico tiene como objetivo principal proporcionar una visión completa de la integración de la tecnología educativa en la Facultad de Pedagogía y sus consecuencias en la mejora de la enseñanza y el aprendizaje. La tecnología educativa abarca una variedad de herramientas digitales y recursos en línea que pueden mejorar significativamente la enseñanza y el aprendizaje. La investigación se llevó a cabo utilizando un enfoque que combinó métodos descriptivos, cualitativos y cuantitativos. El grupo de personas bajo estudio incluyó a todos los estudiantes inscritos en la Facultad de la Pedagogía de la Universidad Técnica "Luis Vargas Torres" de Esmeraldas durante el segundo semestre académico de 2022. Además, se llevó a cabo un seguimiento y análisis específico con la participación de 20 docentes y 180 estudiantes. Se utilizó una encuesta estructurada como método para obtener información relacionada con los elementos que contribuyen a la eficacia de la incorporación tecnológica. Los resultados de la investigación muestran que tanto estudiantes como docentes tienen una percepción positiva de la tecnología educativa. La mayoría de los estudiantes la utiliza regularmente y considera que las clases que la incorporan son más interactivas y accesibles. Sin embargo, enfrentan desafíos técnicos, lo que destaca la necesidad de una infraestructura tecnológica sólida y formación adicional para docentes.
Palabras clave: tecnología educativa, eficacia, enseñanza, herramientas digitales, aprendizaje.

Resumo
O principal objetivo deste estudo científico é fornecer uma visão abrangente da integração da tecnologia educativa na Faculdade de Educação e das suas consequências para a melhoria do ensino e da aprendizagem. A tecnologia educativa engloba uma variedade de ferramentas digitais e recursos em linha que podem melhorar significativamente o ensino e a aprendizagem. A investigação foi efectuada através de uma abordagem que combinou métodos descritivos, qualitativos e quantitativos. O grupo de pessoas em estudo incluiu todos os estudantes inscritos na Faculdade de Pedagogia da Universidade Técnica "Luis Vargas Torres" de Esmeraldas durante o segundo semestre académico de 2022. Além disso, foi efectuado um acompanhamento e uma análise específicos com a participação de 20 professores e 180 alunos. Foi utilizado um inquérito estruturado como método para obter informações relacionadas com os elementos que contribuem para a eficácia da

incorporação tecnológica. Os resultados da investigação mostram que tanto os alunos como os professores têm uma perceção positiva da tecnologia educativa. A maioria dos estudantes utiliza-a regularmente e considera que as aulas com tecnologia são mais interactivas e acessíveis. No entanto, enfrentam desafios técnicos, o que realça a necessidade de uma infraestrutura tecnológica sólida e de formação adicional para os professores.
Palavras-chave: tecnologia educativa, eficácia, ensino, ferramentas digitais, aprendizagem**.**

INTRODUCTION

Throughout the ages, education has maintained its fundamental role in the progress of humanity, and its relevance has grown continuously throughout history. In the current era, the availability of information and globalization have brought about significant changes in how we conceive and carry out teaching and learning. In this scenario, educational technology has acquired a crucial role in improving the quality and effectiveness of education (Ríos, 2018). This scientific study focuses on investigating the implementation of educational technology as a fundamental resource to optimize teaching aimed at students belonging to the Faculty of Pedagogy of the Technical University "Luis Vargas Torres" of Esmeraldas.

Higher education plays a critical role in the preparation of future professionals and leaders. In this sense, the Faculty of Pedagogy of the Technical University "Luis Vargas Torres" has the responsibility to train future educators capable of facing the challenges and requirements of a society in constant transformation. To achieve this purpose, it is essential that instruction be effective and appropriate to the situation, and it is at this point where educational technology emerges as a resource that can strengthen these objectives.

Educational technology comprises the use of technological tools and digital resources in order to simplify the teaching and learning process. This includes a diversity of devices, applications, online platforms and multimedia materials that can be effectively used in both traditional and virtual educational environments. The increasing availability of mobile devices, Internet access, and the proliferation of online educational platforms have greatly expanded the possibilities for improving education (Gómez, 2018).

In the field of pedagogy faculty, the incorporation of educational technology can have a significant effect on the way lessons are taught and received. Students who are in the process of training as future educators can benefit greatly from exposure to innovative

technologies and modern pedagogical methods. In addition, technology can help teachers adjust instruction to meet the specific needs of individual students, thus promoting a more dynamic and participatory learning process.

Educational technology goes beyond the simple introduction of electronic devices in the classroom; it implies taking effective advantage of their capabilities to improve the teaching-learning process. This includes the appropriate selection of tools and resources, the training of teachers and students in their use, and the constant evaluation of their impact on the achievement of educational objectives. The adoption of educational technology should be a planned and strategic process, taking into account the specific needs of the School of Education and its students.

One of the most outstanding aspects of educational technology is its ability to bring greater accessibility and flexibility to the learning process. Students can access online resources anytime, anywhere, allowing them to customize their studies according to their schedules and personal preferences. In addition, technology offers opportunities for online collaboration, which can enrich the educational experience by allowing students to interact with their peers and teachers virtually.

In the context of the School of Education, educational technology can also play a crucial role in making teachers more effective. Future pedagogues can learn to use digital tools and innovative pedagogical methods that they can then apply in their own classrooms. This contributes to the formation of education professionals who are more up-to-date and prepared to face the challenges of teaching in the 21st century.

To obtain a complete understanding of the scope and effects of the incorporation of educational technology, it is essential to examine both national and international experiences. In Ecuador, various educational institutions have embraced this technological transition, recognizing its capacity to improve the quality of education. According to data provided by the Secretariat of Higher Education, Science, Technology and Innovation (SENESCYT) in 2020, more than 90% of higher education institutions in the country had implemented some form of virtual platform or learning management system to support online teaching and academic administration (SENESCYT, 2021).

The Technical University "Luis Vargas Torres" of Esmeraldas is in an ideal position to take advantage of the benefits of educational technology. As an institution of higher education committed to

academic excellence, it has the responsibility to lead the way in the implementation of innovative pedagogical approaches. In particular, the School of Education can play a key role as a venue for testing the integration of educational technology and evaluating how it influences the quality of teaching.

The main objective of this article is to provide a comprehensive overview of the integration of educational technology in the School of Education and its implications for the improvement of teaching and learning. Through a comprehensive analysis of the existing literature and the evaluation of relevant cases, we aim to shed light on how educational technology can exert a crucial role in the training of highly skilled pedagogues and in the promotion of quality education in contemporary society.

It is essential to emphasize that the adoption of educational technology is not a uniform process, but involves specific challenges at each educational level. The School of Education faces particular obstacles in its quest to improve the effectiveness of teaching through technology. These challenges range from the adaptation of teachers to new tools and methodologies, to ensuring the accessibility of technological resources for all students, the appropriate selection of platforms and digital resources, and the constant evaluation of the impact of technology on the learning process.

For Zúñiga (2020), educational technology has undergone extensive and fascinating progress over the decades, generating a transformation in the way students access knowledge and educators facilitate the learning process. By exploring its development, we can appreciate how this discipline has impacted education and responded to the changing needs of society and pedagogy.

The foundations of educational technology date back to the 19th century, when the invention of the printing press and the production of standardized textbooks marked a significant milestone in the dissemination of knowledge. However, it was in the 1920s when the first teaching devices, such as slide projectors and educational films, were introduced, allowing educators to visualize abstract concepts and make teaching more accessible (Lopez, 2021).

In the 1960s, the advent of computers marked a major breakthrough in educational technology. Computers became interactive tools for learning, making it possible for students to perform programming exercises and access simulations. However, these technologies were expensive and not widely available in educational institutions (López, 2021).

The emergence of the World Wide Web (www) in the 1990s dramatically revolutionized the landscape of educational technology. The web facilitated the creation of digital resources, online communication, and access to a wide variety of educational content. Online classrooms and learning management systems (LMSs) were established as the norm, facilitating the distribution of educational resources and online collaboration (Martinez, 2018).

The expansion of mobile devices in the last decade has taken educational technology to a new level. Now, students have the ability to access educational content anytime, anywhere, providing flexibility and adaptability to their learning process. Mobile applications offer opportunities for gamification of learning, progress tracking, and instant feedback (Diaz, 2019).

Artificial intelligence (AI) has also made its mark on educational technology. Educational chatbots can provide real-time answers to student questions, recommender systems can adjust content based on individual needs, and data analytics can help educators make informed decisions about their students' performance (Soto, 2019).

The future of educational technology looks even more exciting. Virtual reality and augmented reality are gaining prominence in education, offering immersive learning experiences and the ability to visualize abstract concepts. In addition, the continued adaptation of educational technology to the demands of society and the economy, such as online learning and digital skills development, remains a priority (Vargas, 2018).

1.1.Educational Technology Today.

At present, educational technology plays an essential role in reshaping education and the learning process globally. As society becomes increasingly digital and connected, classrooms and educational methods have also evolved to take advantage of the benefits that technology can offer (Torres, 2020).

The Technological Revolution in Education

For Alvarez (2019) educational technology has experienced a significant boom in recent decades, marked by advances in hardware, software and connectivity. One of the most notable changes has been the extensive integration of mobile devices, such as tablets and smartphones, into educational environments. These devices provide instant access to a variety of information and educational resources, enabling students to learn anywhere, anytime.

Virtual classrooms and online learning platforms have also gained popularity. Learning management systems (LMSs) allow educators to create and manage online courses, giving students the flexibility to engage in distance learning. This has become even more relevant in the context of the COVID-19 pandemic, which accelerated the adoption of online education worldwide (Zuniga, 2021).

Technological Tools and Resources

Fernandez (2020) asserts that educational technology has become an inexhaustible source of tools and resources that enrich the learning experience. Here are some key areas where technology is having a significant impact:

- **Interactive Multimedia Content:** Traditional textbooks are being replaced by interactive multimedia content. Students can access videos, simulations, educational games, and other resources that make learning more engaging and effective (Rodriguez, 2018).
- **Artificial Intelligence (AI):** AI is used to personalize learning. AI systems can analyze learners' progress and tailor content and activities to meet their individual needs (Rodriguez, 2018).
- **Virtual and Augmented Reality (VR/AR):** These technologies enable immersive learning experiences. Students can explore virtual worlds or see additional information superimposed on the real world, which facilitates the understanding of complex concepts (Rodriguez, 2018).
- **Online Collaboration Tools:** Platforms such as Google Workspace and Microsoft Teams allow online collaboration in real time, which facilitates teamwork and communication between students and teachers (Jiménez, 2020).
- **Automated Assessment and Feedback:** Online assessment tools and automated feedback systems streamline the assessment process, providing immediate feedback to students (Jimenez, 2020).

Ethical Challenges and Considerations

Despite promising advances, educational technology also faces challenges and ethical considerations (Perez, 2019). Some of the most relevant challenges include:

- Digital Divide: Not all students enjoy equitable access to devices and reliable connectivity. The digital divide can increase educational inequality (Núñez, 2020).
- Privacy and Security: Data collection in the educational environment raises concerns about student privacy. It is critical to protect personal information and ensure online security (Núñez, 2020).
- Content Quality: Not all online content is of high quality or reliable. Teachers must make a careful choice of digital materials and assist students in acquiring critical skills to evaluate online content (Nunez, 2020).
- Technology overload: Excessive use of technology can lead to information saturation and distractions. It is crucial to maintain a balance between the use of technology and traditional pedagogical methods (Núñez, 2020).
- Teacher Training: Educators must receive adequate training in the effective use of educational technology. Lack of preparation can limit their ability to take full advantage of the tools available (Núñez, 2020).

The Future of Educational Technology

The future of educational technology is exciting and full of promise. It is anticipated that advances such as the integration of augmented and virtual reality, machine learning, and data analytics will continue to transform the way teaching and learning occurs. In addition, the COVID-19 pandemic has accelerated the adoption of online education and has generated a re-evaluation of traditional educational models (Perez, 2021).

1.2.Education Objectives.

Education represents an essential pillar in the process of construction and development of a society. In Ecuador, as in many nations, education is based on a series of principles and objectives that guide the formation of future generations. These educational purposes are crucial for the advancement and prosperity of the nation, and in this article, we will explore in depth the essential foundations of education (Soto, 2019).

One of the fundamental objectives of education lies in the complete development of the individual. This encompasses not only the acquisition of academic knowledge, but also the fostering of social, emotional and ethical skills. Education aims to promote the formation of citizens who embrace democratic values, practice

tolerance, respect human rights and assume civic responsibilities (Herrera, 2019).

The educational system in Ecuador strives to forge citizens who are aware of their environment, capable of making informed and ethical decisions, and who contribute constructively to society (Soto, 2019).

Promotion of Cultural Identity

In Ecuador, where diverse cultures and ethnicities are celebrated, education assumes the responsibility of stimulating and preserving this cultural richness, as well as promoting respect and appreciation for different traditions (Cáceres, 2018).

Educational purposes in Ecuador encompass the promotion of understanding and appreciation of indigenous, Afro-Ecuadorian and mestizo cultural heritages, along with the protection of cultural and linguistic rights of ancestral communities. This commitment is evidenced in the implementation of intercultural bilingual education initiatives and in the recognition of plurinationality as established in the 2008 Constitution (Soto, 2019).

Preparing Productive and Competent Citizens

Education in Ecuador seeks to prepare students to become competent and productive citizens in a globalized world. This implies that they must acquire knowledge and skills that enable them to contribute to the country's economic growth and compete effectively in the labor market, both nationally and internationally (Soto, 2019).

The Ecuadorian education system is dedicated to offering technical and vocational training programs that train students in a variety of fields, from technology to agriculture. In addition, higher education and research are encouraged as a means to drive innovation and economic growth (Soto, 2019).

Access to Education and Equity

One of the main objectives of education in Ecuador is to guarantee equitable access to education for all citizens, regardless of their socioeconomic origin, geographic location or disability. This objective is aligned with the principle of equal opportunities and social justice (Méndez, 2019).

To achieve this goal, policies aimed at eliminating barriers that may hinder access to education have been implemented, such as free education in public institutions and the expansion of scholarship and financial aid programs aimed at students in vulnerable situations. In addition, inclusive education programs aimed at students with disabilities have been established (Herrera, 2019).

Sustainability and Natural Environment Preservation

Education in Ecuador also seeks to promote sustainable development and environmental protection. The country has adopted environmental laws and policies that aim to preserve biodiversity, conserve natural resources, and promote environmental awareness among citizens (Soto, 2019).

Ecuadorian students receive environmental training as an essential part of their education, which raises their awareness of the importance of sustainability and their responsibility towards the natural environment. These initiatives are consistent with the United Nations Sustainable Development Goals and Ecuador's commitment to preserve its valuable biodiversity (Soto, 2019).

Lifelong Learning

The purposes of education in Ecuador are not limited only to the formal educational environment in the classroom. It promotes the notion that learning should be a continuous process throughout life, which means that education does not end upon graduation. Individuals are encouraged to continue acquiring knowledge and skills on an ongoing basis, which contributes to their personal and professional development (Soto, 2019).

This approach is reflected in the availability of continuing education programs, professional training, and online learning opportunities. Education in Ecuador is conceived as an uninterrupted journey that allows citizens to adapt to the changing demands of society and the economy (Soto, 2019).

1.3.Aims of Education and Educational Technology.

For Espinoza (2021), the objectives of education and educational technology are two closely linked elements that have undergone a significant transformation in recent decades. Education pursues a series of essential goals in the formation of individuals and their preparation to face both present and future challenges of society, and in this context, educational technology has emerged as an essential tool to achieve these objectives.

One of the main objectives of education is to achieve the complete development of the person. This involves not only the transmission of academic knowledge, but also the development of socioemotional and ethical skills. Educational technology has expanded opportunities to achieve this goal by providing interactive resources, online learning platforms, and collaborative tools that empower students to acquire knowledge in a more dynamic and participatory way (Ortega, 2018).

Preparing competent and productive citizens is another crucial goal in education. In an increasingly digital and globalized society, educational technology plays an essential role in providing students with digital skills, access to up-to-date information and the ability to adjust to changing work environments. Technological tools, such as simulations, virtual environments and training software, empower students to develop practical skills of high relevance in the labor market (Ortega, 2018).

Access to education and the promotion of equity are fundamental principles in education. Educational technology has contributed significantly to reducing the geographic and economic barriers that in the past limited access to education. Online classes, digital educational resources, and learning platforms have opened the doors of education to people from diverse locations and socioeconomic levels, thus promoting equal opportunities (Velasquez, 2019).

Sustainability and environmental awareness have also become important goals in education. Educational technology can play a crucial role in helping students gain a deeper understanding of environmental challenges and develop innovative solutions to address them. Examples of this include environmentally related simulations, educational applications focused on sustainability, and access to online scientific information that contribute to education in this area (Ramirez, 2020).

Lifelong learning is another fundamental objective in contemporary education. Educational technology offers individuals the flexibility to continue acquiring knowledge and skills throughout their life trajectory. Online courses, continuing education platforms, and learning applications make it possible for individuals to adapt to the changing demands of society and the economy on a continuous basis (Barrios, 2020).

MATERIALS AND METHODS

In conducting this study focused on the integration of educational technology to improve the teaching effectiveness of students belonging to the Faculty of Pedagogy of the Technical University "Luis Vargas Torres" in Esmeraldas, a methodology that addressed the complexity of the subject and sought a comprehensive understanding of the factors that affect the improvement of teaching through educational technology was used.

The methodological approach selected was based on a case study and adopted a mixed research design. This approach was considered appropriate because of the diversity of aspects covered by the topic

in question and the need to obtain a holistic understanding of the situation. The mixed research design, in turn, combines elements of qualitative and quantitative approaches with the purpose of offering a complete and enriching view of the phenomenon under study. A descriptive approach was chosen in the design, which made it possible to analyze and detail the factors that influence the effectiveness of teaching through educational technology. This descriptive approach facilitates the identification of patterns and trends in the data, which contributes to a more solid understanding of the subject under study. In the qualitative dimension of the methodology, scientific observations and document analysis were carried out with the purpose of deepening the understanding of the factors that impact the effectiveness of teaching through educational technology. These qualitative techniques made it possible to explore in detail the perspectives and experiences of students and teachers, as well as to gather relevant contextual information.

Scientific observations provided direct insight into the dynamics and interactions within the educational environment, while document analysis helped to contextualize the phenomenon. On the other hand, in the quantitative approach, methods were employed to identify patterns and relationships between variables related to teaching effectiveness through educational technology, including socioeconomic and gender factors. Through quantitative techniques, numerical data were analyzed and statistical methods were applied to assess the magnitude and direction of relationships among these variables. This approach provided a solid basis for understanding the quantifiable aspects that can influence effectiveness. The combination of qualitative and quantitative approaches through the mixed design enriched the research by allowing the capture of both the richness of individual experiences and a broader understanding of trends and patterns that affect the effectiveness of teaching with educational technology. Also, this approach promoted data triangulation, which strengthened the validity and reliability of the results obtained.

In relation to the instruments used for data collection, various techniques were employed. Direct observation of students and teachers provided a detailed understanding of the reasons behind the effectiveness or ineffectiveness of teaching with educational technology, allowing the exploration of emotional, social and academic factors. Institutional data analysis included academic records provided by the university, such as academic performance, progress in courses, and length of faculty tenure, which facilitated

contextualization of the phenomenon. In addition, a thorough review of reliable and relevant academic and scientific literature was conducted with the aim of collecting data and statistics related to the effectiveness of teaching through educational technology in general terms.

The population under study comprised all students enrolled in the Faculty of Pedagogy of the Technical University "Luis Vargas Torres" in Esmeraldas during the second semester of the academic year 2022, which covered the period from February to May 2023. For the selection of the sample, a stratified random sampling process was used, which allowed choosing a representative sample of students belonging to different semesters and study programs. For data collection, a structured questionnaire consisting of closed questions was designed and applied.

RESULTS

In the last decade, there has been a growing interest in the integration of educational technology in the university environment. This approach has also reached the Faculty of Pedagogy of the Technical University "Luis Vargas Torres" in Esmeraldas, which is adapting to new teaching tools. The present study aims to examine the results of a survey of students and teachers of this faculty to evaluate the adoption of educational technology and its influence on the effectiveness of the teaching process. The results indicate a generally positive perception towards educational technology, although they also point out challenges and areas for improvement.

Student use of educational technology

The first set of results focuses on the students' perspective regarding teachers' use of educational technology. The initial question on whether teachers regularly use this technology shows that the majority (81%) do, suggesting a generalized acceptance of these tools by students.

The second question, related to whether classes that make use of educational technology are more interactive, obtains a positive response from 79% of the students. This supports the notion that technology can promote the active involvement of students in the teaching-learning process.

The third question, which investigates whether technology facilitates access to educational resources, received an affirmative response from 91% of the students. This data emphasizes the relevance of technology as a vehicle for increasing the accessibility of learning resources.

However, the fourth result reveals a significant challenge: 54% of students report having faced technical difficulties when using educational technology. This underscores the need for reliable technological infrastructure and effective training to ensure that students can take full advantage of these tools.

The last result in this section refers to whether teachers are sufficiently trained to use educational technology effectively. Here, 61% of the students believe that they are. This suggests that there is room for improvement in training teachers in the effective use of educational technology.

Teachers' perspective on educational technology

The results of the teacher survey provide a complementary view. The first point reveals that the vast majority (85%) of teachers incorporate educational technology in their classes on a regular basis. This indicates a high degree of adoption of these tools by the teaching staff.

The second question, which investigates whether classes with educational technology are more interactive for students, obtains a unanimous response from 100% of the teachers. This underscores the widespread belief among teachers that technology improves classroom interaction.

The third question, related to whether technology facilitates access to educational resources for students, received a positive response from 90% of teachers. This supports the idea that educational technology can improve access to educational materials.

However, the fourth result reflects a challenge similar to that found among students. Fifty-five percent of teachers report experiencing technical difficulties when using educational technology in their classes. This suggests that technological infrastructure and technical support may require improvement to effectively support teaching with technology.

The final question on whether teachers feel sufficiently trained to use educational technology effectively yields a result of 70% of teachers feeling this way. This is a positive sign, but also highlights that 30% of teachers could benefit from further training.

In general, the results of this survey show a positive attitude towards educational technology on the part of both students and teachers at the Faculty of Pedagogy of the Technical University "Luis Vargas Torres" of Esmeraldas. The findings suggest that educational technology is perceived as a tool that improves interactivity in the classroom, facilitates access to educational resources and, in general, is used regularly.

However, the challenges should not be overlooked. Both students and teachers report technical difficulties when using educational technology, which underscores the importance of ensuring a solid technological infrastructure and adequate technical support. Furthermore, although a majority of teachers feel trained to use these tools, there is still a significant percentage that could benefit from further training. It is critical to emphasize that educational technology is not a universal answer to address all barriers in education. While it can improve interaction and access to resources, its effectiveness depends on how it is implemented and integrated into the teaching-learning process. Educators have a crucial role to play in this process, and ongoing training is vital to optimize the potential of educational technology.

CONCLUSIONS

The study conducted at the Faculty of Pedagogy of the Technical University "Luis Vargas Torres" of Esmeraldas offers a valuable perspective on the integration of educational technology in the university context and its impact on the quality of teaching. Through a broad methodology that combines qualitative and quantitative approaches, a complete understanding of the factors that influence the improvement of teaching through educational technology was achieved. The results of this research yield characteristics on both the positive aspects and the challenges faced by the institution in its quest for effective adoption of educational technology.

One of the most notable findings is the generally positive perception of both students and teachers regarding educational technology. Most students use these tools on a regular basis and consider classes that incorporate technology to be more interactive and facilitate access to educational resources. This acceptance and recognition of the potential to enhance the learning experience represents an endorsement of the use of educational technology.

In a similar context, faculty also exhibit a high adoption rate of educational technology in their classes and share the belief that this technology enhances classroom interaction and improves access to educational resources. This underscores the faculty's commitment to integrating technology as an effective pedagogical tool.

However, the obstacles noted in this research cannot be ignored. Both students and teachers reported technical difficulties when using educational technology, ranging from connectivity problems to lack of technical knowledge to take full advantage of the available tools. This aspect highlights the importance of having a solid technological

infrastructure and effective technical support to ensure the smooth operation of educational technology in the educational environment. Also, despite the fact that most educators consider themselves capable in the use of educational technology, there is still a significant percentage that could benefit from additional training. Ongoing training and professional development are essential elements to ensure that teachers are equipped with the skills and knowledge necessary to take full advantage of technological tools in their pedagogical practices. This can also help address technical issues identified by participants.

It is essential to recognize that educational technology is not a universal solution to all educational challenges. While it can improve classroom interaction and access to resources, its effectiveness depends on how it is implemented and integrated into the teaching-learning process. Teachers play a central role in this process, and their continuous training is essential to take full advantage of the potential of educational technology. This implies the need to develop specific training programs that address the individual needs of teachers and provide them with the necessary tools and strategies to use technology effectively.

Ultimately, the incorporation of educational technology in the Faculty of Pedagogy at the Technical University "Luis Vargas Torres" of Esmeraldas represents a positive step towards improving teaching and learning at the university level. The results of this study indicate that educational technology has the potential to enrich the educational experience by fostering interaction, improving access to resources and supporting the teaching-learning process. However, to make the most of this potential, it is essential to address technical issues and ensure continuous and appropriate training for teachers. In an increasingly digitized world, educational technology has become a powerful tool that can help prepare students for the challenges of the 21st century. The Faculty of Pedagogy at the Technical University "Luis Vargas Torres" of Esmeraldas is on the right track by embracing this trend and, with a focus on constant improvement, can move towards more effective teaching and an enriched learning experience for its students. Educational technology has the potential to transform education, and this research provides a solid foundation to guide future efforts in that direction.

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