



Educational and Technological Resources in Higher Education at Uleam Extensions and Campuses



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Article history:

Submitted: 27 April
2026 Revised: 18 May 2026
Accepted: 09 June 2026

Keywords:

education;
research;
resources;
teaching and learning;

Abstract

The use of educational and technological resources by faculty has become a fundamental element in strengthening teaching and learning processes, enabling the diversification of teaching strategies, improving content comprehension, and promoting student participation. The objective of this research was to analyze how faculty members use the didactic and technological resources at the extensions and campuses of the Eloy Alfaro Lay University of Manabí during the 2025 academic year. The research was conducted using a quantitative approach, drawing on both inductive and deductive methods. The results show that faculty members frequently incorporate technological and didactic resources into their classes, recognizing their importance in energizing the educational process. However, the reality is that the quality of higher education depends not only on the availability of technological resources but also on the faculty's ability to use them in a planned, coherent manner, oriented toward future meaningful institutional learning.

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1 Introduction

In contemporary higher education, the use of educational and technological resources has become essential for strengthening teaching and learning processes, as well as for responding to the demands of an increasingly digital society. In this context, the role of the teacher takes on central importance, as they are the primary mediator between knowledge, technology, and the student.

In modern higher education, teaching and technological resources have become strategic elements for improving teaching and learning processes. Digital transformation, accelerated by the social, economic, and cultural changes of the 21st century, has redefined the role of universities. They must now not only impart knowledge but also foster digital skills, critical thinking, and self-directed learning among students. The pedagogical integration of technological resources is no longer a viable option but a structural necessity for the higher education system. (UNESCO, 2021).

New technologies such as virtual learning platforms, interactive digital environments, simulators, multimedia resources, and artificial intelligence tools are enhancing teachers' methodological possibilities and fostering more dynamic, collaborative, and student-centered learning practices. Some studies indicate that the appropriate use of these resources significantly contributes to the development of higher-order cognitive skills, improves academic motivation, and strengthens the meaningful construction of knowledge (Salinas & Martinez, 2008; Morales et al., 2025). The positive impact of these technologies depends largely on the pedagogical intent with which they are used and on teachers' training in digital competencies.

International organizations such as the Organisation for Economic Co-operation and Development (OECD) argue that the integration of educational technologies in higher education must be accompanied by clear institutional policies, adequate infrastructure, and innovative pedagogical models that promote inclusion and educational equity (OECD, 2020). Conversely, the instrumental use of technology can exacerbate existing inequalities and limit its transformative potential. In this context, technology should not be understood as an end in itself, but rather as a means to enhance quality educational processes, aligned with the Sustainable Development Goals and the demands of the global labor market.

From a pedagogical perspective, the integration of didactic and technological resources implies a reconfiguration of the university professor's role, shifting from a transmitter of information to a facilitator of learning. This change demands new professional methods related to instructional design, formative assessment, and the critical use of digital technologies (Moreira & Zapata, 2021). Consequently, higher education faces the challenge of articulating technological innovation, teacher training, and curricular relevance to effectively respond to the challenges of the knowledge society.

Analyzing teaching and technological resources in higher education is essential to understanding their contribution to improving educational quality and fostering the holistic development of students. Approaching this topic from a critical and well-founded perspective allows us to identify opportunities, limitations, and best practices that contribute to a more inclusive, flexible, and lifelong learning-oriented university education (Alecivar et al., 2021).

In this context, the Eloy Alfaro Lay University of Manabí (ULEAM), through its extensions and campuses, has incorporated various didactic and technological resources intending to improve the quality of higher education, but it is necessary to analyze how these resources are used by teachers and how they influence the quality of the educational process.

2 Materials and Methods

The research was developed under a quantitative approach, aimed at objectively analyzing the use of didactic and technological resources by teachers of the extensions and campuses of the Eloy Alfaro Lay University of Manabí (ULEAM) during the 2025 academic year.

The inductive and deductive methods were used as the foundation of the research process. The inductive method allowed for the analysis of observed teaching practices and perceptions gathered through research instruments, to establish general conclusions about the use of didactic and technological resources in higher education; the deductive method facilitated the interpretation of the results based on theoretical principles related to educational quality, pedagogical mediation, and technological integration in the university classroom.

Information collection techniques were applied through structured surveys directed to teachers from the extensions and campuses of ULEAM, to know their perception about the use, mastery and application of didactic and technological resources in the teaching-learning process, they were also applied to the students, in addition to an observation sheet to know the performance of the teacher in the classroom, which allowed to contrast the information obtained and strengthen the validity of the results.

The observation sheet was used to evaluate aspects related to class planning, the use of technological resources, the methodological strategies employed, and the pedagogical interaction between teachers and students, allowing for a comprehensive view of teacher performance and the impact of didactic and technological resources on the quality of the educational process.

3 Results and Discussions

The use of educational and technological resources in higher education has become a fundamental pillar for strengthening educational quality, especially in a context marked by digital transformation and the new demands of the academic and professional environment. In this scenario, university professors play a strategic role as pedagogical mediators, responsible for coherently integrating available resources with educational objectives and students' needs.

Teaching resources are essential elements in the teaching-learning process, as they facilitate the understanding of content, promote the organization of knowledge, and foster interaction between teachers and students (Muñoz et al., 2025). Previously, resources were limited to basic printed and audiovisual materials; however, technological advancements have significantly expanded their scope, incorporating virtual platforms, interactive digital resources, multimedia presentations, simulators, and online collaborative tools.

In this sense, technological resources should not be conceived merely as complementary tools, but as pedagogical means that, when used correctly, contribute to the development of meaningful learning. Their effectiveness depends, to a large extent, on the teacher's lesson planning and their ability to select resources that align with the learning objectives, the subject matter, and the institutional context (Joshi et al., 2025).

The quality of higher education is closely linked to the ability of teachers to innovate in their pedagogical practices and adapt to technological changes. The integration of didactic and technological resources allows for the diversification of teaching strategies, fosters active student participation, and strengthens skills such as critical thinking, autonomy, and problem-solving (Msambwa et al., 2024).

University professors must assume an active role in designing learning experiences that integrate theory and practice, using technology as a means to enhance the educational process (Revelo et al., 2025). This implies not only mastery of the discipline being taught, but also the development of pedagogical and technological skills that allow for the appropriate and reflective use of available resources.

At the extension campuses and branches of the Eloy Alfaro Lay University of Manabí (ULEAM), the use of educational and technological resources is of particular importance due to the diversity of educational contexts and the specific needs of the student population. In these spaces, technology represents an opportunity to improve access to knowledge, reduce educational gaps, and strengthen equity in higher education.

However, the mere availability of technological resources does not guarantee an improvement in educational quality. Teachers must have access to ongoing training processes that strengthen their skills in the pedagogical use of technology, avoiding improvised or merely instrumental practices that limit their impact on learning.

The integration of educational and technological resources facilitates the implementation of active methodologies, such as problem-based learning, collaborative learning, and the use of virtual learning environments. These methodologies promote a more participatory role for students and strengthen pedagogical interaction in the university classroom.

From an institutional perspective, it is essential to promote a culture of educational innovation that supports the strategic use of technology and recognizes teachers' efforts in the continuous improvement of their teaching practices. The integration of technological infrastructure, teacher training, and academic planning is a key factor in raising the quality of higher education.

Educational quality does not depend solely on the quantity of available technological resources, but rather on how these are integrated into the teaching and learning process (Haleem et al., 2022). The teacher, as a central actor in the educational system, is responsible for transforming didactic and technological resources into true facilitators of

meaningful learning (González & López, 2023), thus contributing to strengthening the quality of higher education at ULEAM's extensions and campuses

Contemporary education

Contemporary higher education requires the use of didactic and technological resources to strengthen student learning programs. This has an impact on scientific research within higher education processes, highlighting its influence on pedagogical innovation, teacher training, and the integration of emerging technologies (Condeso et al., 2025). Figure 1 illustrates some of the advantages of didactic and technological resources.

The introduction of these technologies offers several advantages that can be leveraged by both teachers and students. In this context, teachers must prepare to change their teaching styles, and students must use these technologies to improve their learning processes (Telefonica, 2023). The use of these digital technologies provides a functional tool that can be decisive in the academic performance of students.

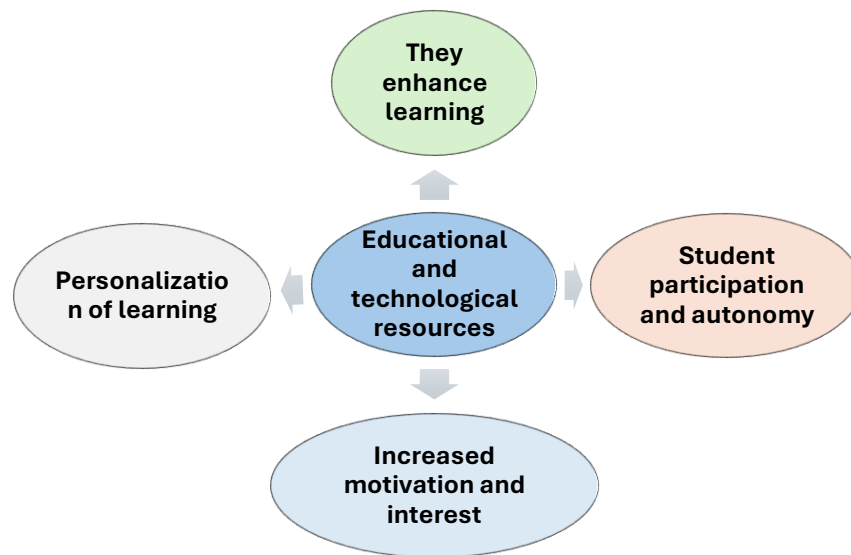


Figure 1. Some advantages of educational and technological resources

As can be seen, each of them plays a role in the learning process by increasing student participation and responsibility through interactive and adaptive tools, facilitating understanding of complex content, and accommodating diverse learning styles. Furthermore, this is linked to better academic performance and more personalized and motivating learning experiences. When these are pedagogically integrated, they strengthen the quality of the educational process (Edulan, 2025).

To assess the widespread adoption of technology integration within university teaching practices, a survey was administered to faculty members at the extension campuses and branches of the Eloy Alfaro Lay University of Manabí (ULEAM). The survey asked faculty members what strategies they used in their classes. Figure 2 shows the survey results on the success of technology integration.

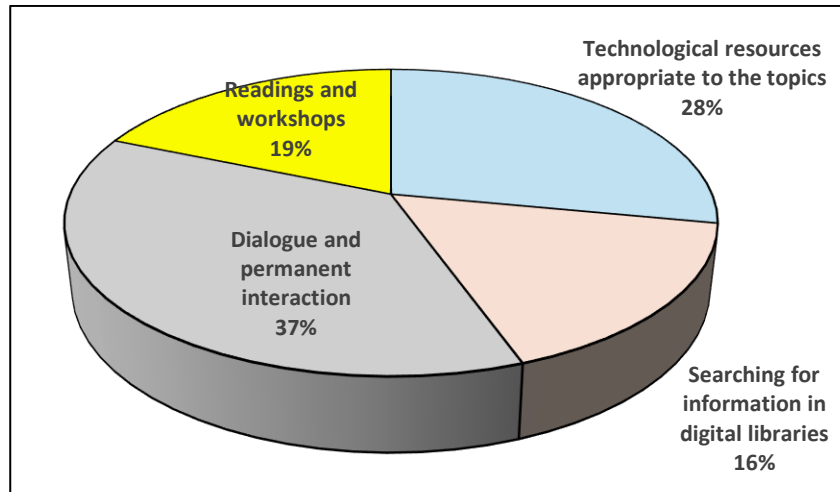


Figure 2. Strategies used by teachers in the development of their classes

As can be seen, dialogue and permanent interaction had the greatest impact with 37%, and the second most significant were technological resources according to the topics; the least impactful was the search for information in digital libraries.

There is evidence of a positive perception and high appreciation of the use of didactic and technological resources as fundamental elements to strengthen the teaching-learning process and improve the quality of higher education.

Teachers demonstrate a strong professional conviction regarding the contribution of technology to generating meaningful learning, which is reflected in the frequency of technological tool use in the classroom. This consistent integration indicates that technology is not perceived as an occasional resource, but rather as a regular component of pedagogical practice, especially through the use of projectors, computers, and digital resources to support the explanation of content.

Furthermore, the analysis shows that teachers use technologies such as flipped classrooms as a didactic facilitator (Cedeño & Viguera, 2020; Ruoti & Duarte, 2022). Despite the frequent use of technological tools, a clear preference remains for direct pedagogical interaction with students, recognizing that teacher mediation, support, and effective communication continue to be determining factors for achieving educational objectives (Abdigapbarova et al., 2024).

Regarding the tools used, a functional differentiation in their application is observed. Instant messaging applications are widely used for daily academic communication and organization (Sixto et al., 2021), while institutional platforms play a relevant role in the formal management of the educational process, such as planning, academic monitoring, and evaluation. This diversity in the use of tools reflects a progressive adaptation of teachers to the available digital environments. To find out if the students knew how often the teachers used teaching and technological resources in the classroom, a survey was applied to them; the results are shown in Figure 3.

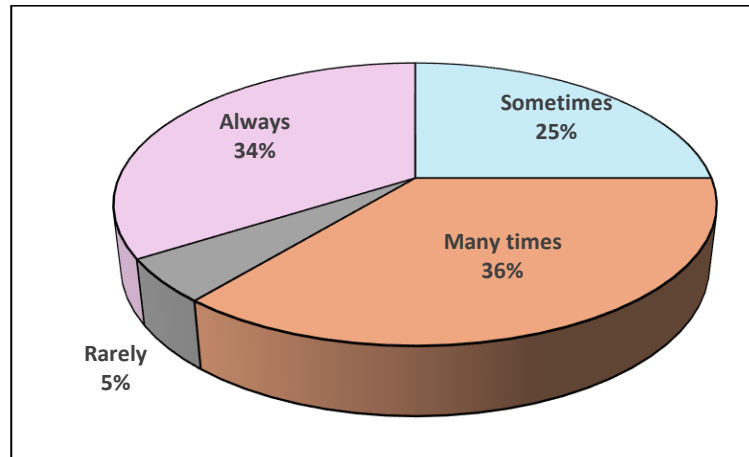


Figure 3. Frequency with which teachers used teaching and technological resources as seen by students

In this regard, it can be observed that, according to students, teachers frequently use new technologies. Figure 4 illustrates the use of these new strategies on the university campus and their results.

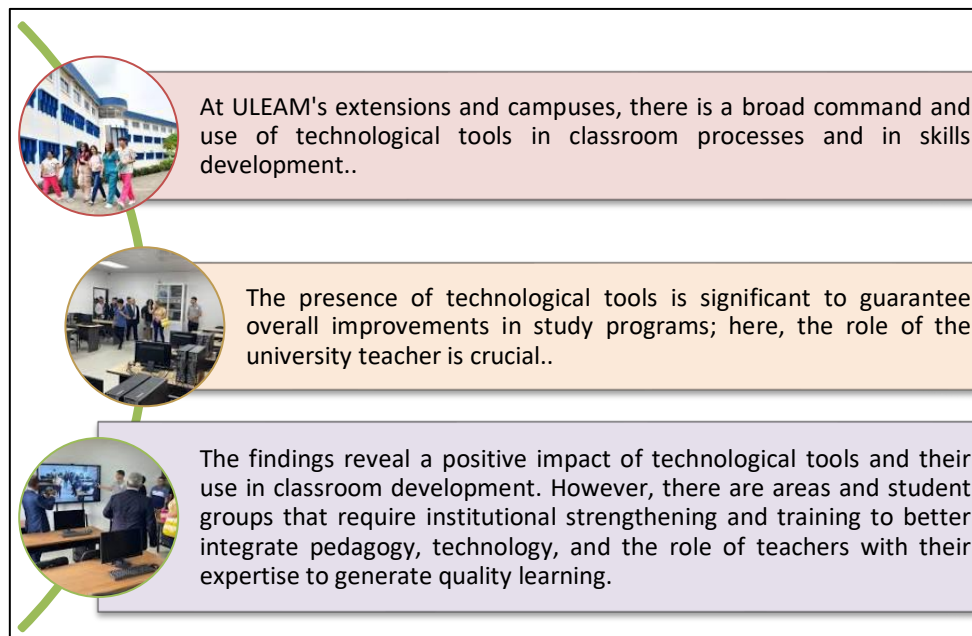


Figure 4. Use of new strategies on the university campus and their results

The analyzed results reveal a strong interest among faculty in ongoing training in the use of Information and Communication Technologies (ICTs). This commitment to professional development is presented as a priority need to strengthen the technological and pedagogical skills of university faculty, ensure the sustainability of technological integration, and consolidate the quality of higher education.

The analysis of the use of teaching and technological resources by faculty at the extension campuses and branches of the Eloy Alfaro Lay University of Manabí (ULEAM) allows for the interpretation of findings from a pedagogical perspective and their contextualization within the framework of higher education quality. The results demonstrate that technological integration is part of routine teaching practice, which aligns with theoretical approaches that recognize technology as an essential component of contemporary university education.

Teachers' conviction regarding technology as a driver for meaningful learning reinforces the idea that educational innovation depends not only on the incorporation of digital tools, but also on the pedagogical intention that guides

their use. In this sense, the results confirm that teachers do not see technology as a substitute for teaching, but as a support resource that complements pedagogical mediation and strengthens interaction with students.

The preference for pedagogical interaction as a determining factor in the educational process aligns with theoretical approaches that emphasize the teacher's role as a facilitator and guide of learning. From this perspective, technology gains value when it is coherently integrated into teaching strategies, allowing for more dynamic classes, diversified methodologies, and responsiveness to different learning styles. The Moodle platform is used as a technological resource to complement university teaching, utilizing the virtual classroom (Rivero et al., 2020). This helps them connect with students and share academic and scientific information.

The differentiated use of technological tools, combining messaging applications for immediate communication with institutional platforms for formal academic management, reflects a progressive adaptation of faculty to digital environments. This finding aligns with studies indicating that technological adoption in higher education is a gradual process, conditioned by teaching experience, the institutional context, and the availability of resources.

The presence of limitations related to technological infrastructure is a relevant aspect in the discussion of the results. These gaps can affect equity in teaching practices and limit the full use of technological resources, especially in university extension programs. From an institutional perspective, this result highlights the need to strengthen investment in infrastructure and ensure adequate conditions for technological integration.

Teachers have expressed interest in ongoing ICT training, which reinforces the importance of continuous professional development as a strategy for improving educational quality. Strengthening teachers' pedagogical and technological skills is a key factor in consolidating a high-quality higher education system, where these resources become true facilitators of meaningful learning.

The analysis also highlights limitations related to technological infrastructure, which affect a segment of the faculty. These difficulties can impact the quality and continuity of technological resource use, leading to inequalities in teaching practices across different campuses and branches.

The research confirms that the teacher's role as a pedagogical mediator remains a central element of the educational process. Despite the advancement and availability of technological tools, pedagogical interaction, academic support, and teacher guidance continue to be crucial for promoting meaningful learning in students. Technology acquires value when used as a means to complement and enrich pedagogical practice, and not as an end in itself.

Strengthening the quality of higher education at Uleam requires a comprehensive institutional strategy that integrates adequate technological infrastructure, ongoing faculty development, and academic planning focused on educational innovation. Continuous training in the pedagogical use of ICTs is a priority for consolidating more effective teaching practices and ensuring that educational and technological resources become true facilitators of meaningful learning.

4 Conclusion

The research shows how teachers use the didactic and technological resources of the extensions and campuses of the Eloy Alfaro Lay University of Manabí during the 2025 academic year, constituting a relevant component within the teaching-learning process and a factor that significantly impacts the quality of higher education by frequently incorporating these resources in teaching practice, which reflects a positive disposition towards pedagogical innovation and adaptation to technology-mediated educational environments.

It was observed that the mere use of technological resources does not, in itself, guarantee a substantial improvement in educational quality. The effectiveness of these resources depends largely on the teacher's pedagogical and technical expertise, as well as their ability to integrate them in a planned, coherent manner, aligned with learning objectives. In this regard, limitations related to the methodological use of technology were identified, highlighting the need to strengthen teachers' didactic and technological skills.

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.

Acknowledgments

We are grateful to two anonymous reviewers for their valuable comments on the earlier version of this paper.

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