

ACTIVE METHODOLOGIES AND ICTS IN DISTANCE LEARNING: AN EXPERIENCE REPORT ON ENGAGEMENT AND LEARNING IN VIRTUAL ENVIRONMENTS

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Abstract. Distance Education (DE) faces challenges such as student dropout and low participation, requiring innovative approaches. This report presents the application of active methodologies mediated by Information and Communication Technologies (ICTs) to promote engagement in virtual environments. The results indicate a 97% approval rate and 97% student satisfaction with the teaching performance. Additionally, an increase in the teachers' pedagogical repertoire and the strengthening of teacher-student interaction were observed. These findings suggest that the adoption of active methodologies with ICTs can be replicated across different disciplines and institutions, contributing to reducing dropout rates and increasing engagement in DE.

Keywords: CIAED distance education; information and communication technology; teaching and learning; active methodologies; virtual environments.

1 Introduction

Technological advancements have significantly transformed society, influencing social relationships, the dynamics of work, and the evolution of production methods and commerce. In this new context, automation, artificial intelligence, the Internet of Things, and big data are some examples of these advancements. This new form of social interaction, mediated through technological resources, has reached educational spaces, in accordance with the economic conditions of educational institutions and students.

With the emergence of Information and Communication Technologies (ICTs), it became possible to expand didactic work methods to address various topics outlined in school curricula, especially in the context of Distance Education (DE). However, the use of these new resources in DE requires educational institutions and teachers to possess specific knowledge and skills in designing lessons that incorporate ICTs. Thus, limitations and a lack of understanding regarding the use of these tools may lead to inappropriate application and, in extreme cases, neglect, which can significantly impact student learning.

Camargo and Daros (2018) warn that the mere insertion of technological tools for content delivery does not guarantee enhanced learning. Therefore, the continuous professional development of teachers is essential to improve their teaching process in the face of the technological challenges in education. The authors also highlight the challenge teachers face in making the digital classroom a visible learning space, showcasing student progress and making their learning journey more meaningful.

Moreover, student motivation and engagement in virtual learning environments present a challenge for educators, as Distance Education (DE) requires autonomy in study planning. However, teacher-centered learning still remains part of the students' reality, as it demands the teacher's presence in the educational process (BACICH; MORAN, 2018) and guidance for completing activities. The combination of active methodologies and technological resources, driven by a pedagogical purpose, can contribute to the integration and collaborative learning between educators and

students, strengthening relationships in the dynamics of fully asynchronous environments, which promote student protagonism in virtual settings.

This context leads us to reflect on the role of schools in the face of these technological transformations and the challenge of student engagement in Distance Education (DE), raising the following relevant questions: What is the importance of using ICTs in teaching and learning processes? In what ways can technology contribute to the teaching and learning process in DE? What is the role of active methodologies in the teaching and learning process of DE?

To address these questions, the article discusses the importance of educational technologies as didactic resources in Distance Education (DE), engaging with authors who approach the topic from different perspectives. Two pedagogical proposals are presented based on active methodologies, with ICTs as a pedagogical resource, aimed at bringing the student closer to the virtual learning environment, making them the protagonist of their learning process.

The general objective of this study is to present the use of active methodologies through ICTs as a resource for interaction in forums and through a gamified quiz, complementing the content being studied, both situated in the virtual learning environment. The methodology employed was an experience report from teachers involved in technical DE courses in asynchronous classes, who use active methodologies as a strategy to engage students in interaction within the virtual learning environment (VLE). Telles et al. (2020) explain that the experience report in DE describes the experiences lived by teachers, allowing the dissemination and reflection of these practices. Furthermore, Tardif (2014) clarifies that the teacher's professional practice becomes an original and autonomous space for learning and development, serving as a space for the production of knowledge.

Regarding the use of active methodologies in DE, the authors Bacich and Moran (2017) emphasize the need for greater mastery of different technologies, considering the necessity of fostering greater interaction between teacher – student – content in virtual learning environments. The proximity between teachers and students, mediated by technological resources, contributes to student support. This contact is essential to reduce dropout rates, especially considering that many students belong to socially vulnerable groups, balancing work and study, and view DE as an opportunity for continued education.

This paper is organized into five sections. The introduction begins the study. Following that, the theoretical foundation discusses the literature that supports this research. Next, the methodology is presented, along with the section describing the experience report. The study concludes with the findings and the presentation of references.

2 Theoretical Framework

2.1 ICTs and Their Contribution to Distance Education (DE)

Studies in the field of Information Technologies indicate that the intensive use of technological resources has caused noticeable changes in the daily behavior of the population (UNESCO, 2017). In the educational context, these technological resources are also emerging topics.

The use of information technology in the educational process, however, has played a significant role in teaching and learning, challenging school management to invest in new technologies and faculty to rethink their pedagogical methodologies. These changes foster projects and research that connect knowledge to students' reality, enabling navigation through various Virtual Learning Environments (VLEs), overcoming traditional methods and thereby promoting digital inclusion for students (MORAN, 2018).

However, the use of information technology in education still somewhat unsettles educators, as they lack adequate preparation for the integration of ICTs into pedagogical practices (UNESCO, 2017). This situation, present in the school environment, needs to be reviewed and overcome by education professionals, considering that making teachers proficient in the use of digital technologies integrated into the curriculum is important for achieving better learning outcomes for students (BACICH; MORAN, 2018), especially with the advent of lessons in virtual learning environments.

Stahl (2008) emphasizes that teachers seek to break the limits of traditional teaching in favor of activities that encourage students to explore and construct their own knowledge, but this requires the development of innovative materials, appropriate knowledge, and course plans adapted to local students.

For this reason, the use of technological resources is becoming increasingly important across different modalities and levels of education, as their use fosters curiosity, discovery, research, and creativity. In light of this interactive dynamic with the virtual environment, both students and teachers have their participation expanded to the concept of digital citizenship (UNESCO, 2017), which is essential in the current context.

Regarding technological advancements and their use in educational environments, Nogueira (2020) states that the internet and new technologies are presenting new pedagogical challenges for schools and universities. Virtual learning environments will increasingly serve as both the starting point and the endpoint, becoming an important space that, when combined with other spaces, will expand the possibilities for activities directed at learning. Teachers need to learn how to manage these spaces and integrate them in an open, balanced, and innovative way (MORAN, 2004).

The pedagogical proposal in distance education plays a fundamental role in motivating students to engage with the virtual learning environment. In this regard, in the DE modality, certain key elements in the teaching and learning process must be considered, such as the didactic plan, the organization of virtual spaces, the use of appropriate didactic resources for the subject matter, time management, interaction, and cooperation (PEREIRA et al., 2017).

New technologies have created new spaces of knowledge, meaning that people study in different locations and access the cyberspace of distance education in search of information available on the World Wide Web. Considering continuous professional development, there is a need for greater integration between virtual spaces in order to prepare students to better engage with the knowledge society, with autonomy and sensitivity to information, aiming at the articulation of knowledge with practices from their daily lives (CORTELLA, 2015).

In this interactivity, the teacher has at their disposal a myriad of resources that allow for the promotion of meaningful teaching, where the student feels included in their educational process, boosting their self-esteem. Freire (2009, p. 52) encourages reflection on the role of the teacher by stating that:

It is important to insist: this knowledge required by the teacher, who teaches not only by transferring knowledge, must be understood both by the teacher and the students in its ontological, political, ethical, epistemological, and pedagogical reasons, but it also needs to be constantly witnessed and lived.

Putting into practice the topics discussed in class and stimulating critical reflective consciousness will allow the student to take on autonomy in the process of knowledge construction (LACERDA; SANTOS, 2018) and, in this way, contribute to society through the exercise of their citizenship by becoming aware of their role as a transformative social agent. Andrade (2003) emphasizes that the

ideal education for the person in the knowledge society becomes the education of lifelong learning, the formation of individuals to adapt to rapid and accelerated changes, and the development of pedagogy based on reflective practice.

In this way, it will be possible to use teaching methodologies, systematized with technological resources that align with the reality of the school community, and thus avoid the digital exclusion of students and the neglect of tools due to the lack of an educational purpose from the teaching staff, caused by ignorance regarding the use of technological instruments intended for teaching (SILVA et al., 2016).

2.2 Active Methodologies and Their Use in Distance Education (DE)

Bacich and Moran (2018) define active methodologies as teaching strategies that place students at the center of the learning process, promoting their active participation. From this perspective, technology is integrated as an essential pedagogical resource, enhancing the construction of knowledge. Camargo and Daros (2018) complement this view by highlighting that active methodologies position the student as the protagonist, fostering interaction with peers and collaborative development.

In this regard, Battes (2017) emphasizes the importance of selecting digital learning objects that are suitable for the students' reality when designing pedagogical proposals. It is the teacher's responsibility to develop didactic strategies on virtual platforms that welcome students, respecting their different learning paces and stages of knowledge abstraction. This process, supported by the adopted methodology and the technological resources used, broadens and enriches the students' analytical capacity regarding the object of study in virtual learning environments.

Reflecting on active methodologies allows for the creation of spaces within the didactic proposal to include new topics and dynamics that encourage students to express their ideas, promoting problematizations aligned with contemporary demands. According to Camargo and Daros (2018), this approach directs students toward the development of a critical, democratic, and participatory consciousness, grounded in solid learning, capable of preparing them for the challenges and demands of the labor market, as well as paving the way for adaptation to changes and innovations.

The integration of virtual resources into pedagogical practices enables the creation of new educational scenarios, in which different elements from curriculum subjects and transversal themes can be explored, thus providing conditions for the construction of knowledge (FREIRE, 2009). It is the educators' responsibility to guide students in the appropriate use of these tools, which provide access to information, transforming them into learning instruments that contribute to the appropriation of knowledge, inclusion, and socialization in the digital world.

Thus, educational institutions, in light of the possibility of using ICTs in educational environments, based on knowledge and their educational experiences, combined with active methodologies, allow the entry of educators and students into the virtual DE universe. In these environments, teachers have greater freedom to plan lessons with dynamic resources, breaking barriers in traditional teaching (MORAN, 2004), and the opportunity to design meaningful lessons, in which teaching will not be restricted solely to the virtual environment.

As for the students, they can organize their routines, dedicating the appropriate time to their studies, as well as exploring other digital platforms that can be used in different contexts, reaching new areas of their daily social relationships, thanks to the possibility of connectivity and communication (CASTELLS, 2004), making sense of topics that were once abstract, both in personal and professional settings.

As an active methodology, the focus of this study is the forum and the gamified quiz, supported by ICTs as pedagogical resources for student engagement and motivation. Nogueira (2020) clarifies

that forums aim to bring people together to discuss a specific topic. Furthermore, the author explains that the key point of the forum is communication and the creation of knowledge.

The forum is a well-known and common resource in learning environments; however, it is the type of approach offered by the teacher to the students that will make its use interesting to the student's learning process, positioning them as the protagonist. Moreover, the teacher's interaction in this environment helps prevent the student from developing a sense of isolation in their learning process (Nogueira, 2020).

Moreover, forums encourage students to reflect, discuss, and propose solutions to situations or topics presented, which is typical of Problem-Based Learning (PBL), especially if the topics are contextualized and open to multiple interpretations, as seen in the 'collective construction' proposal presented in the experience report. The exchange between students in the forums, with meaningful interactions and the collective construction of arguments, aligns with collaborative learning.

The second proposal, using interactive quizzes, includes elements of challenge, scoring, and immediate feedback, and is framed as gamification. Elements such as goals and instant feedback were part of the proposal. Nogueira (2020) elucidates the use of gamification in the educational context to motivate and engage students in the educational process, aiming to enhance learning. Furthermore, the quiz, when used as a means of providing immediate feedback to the student regarding their understanding, can also be classified as a formative assessment strategy with pedagogical purposes.

3 Methodology

In order to meet the proposal of this study, an experience report is presented based on the use of active methodologies with the support of ICTs in the teaching and learning process. The research has a qualitative approach, aiming to explore the use of active methodologies with the support of ICTs in the context of Distance Education (EAD), seeking greater student engagement in their learning process through forums and gamified quizzes.

The students targeted by the research are those from the technical courses in the technological axis of Management and Business at Senac EAD, a professional education institution with over seven decades of experience in the national educational market. The mentioned courses are the Technical Course in Quality and the Technical Course in Real Estate Transactions. The development of the pedagogical proposal takes place in the specific subjects of each course presented here. For the purposes of writing this experience report, a sample of two subjects per course was considered, in which the practice was developed. The subjects last approximately 30 to 45 days.

The student profile is characterized by the interest in seeking professional qualification and, consequently, a position in the job market or even enhancing knowledge for professional performance. Many students have other qualifications at the secondary and higher education levels and are already professionally active. Another group is seeking new opportunities. Students from different age groups are observed.

The motivations for using these methodologies lie in the need to integrate and engage students with the Virtual Learning Environment (VLE), particularly regarding participation in the 'forum' feature. Often, this feature is underutilized by students, who do not engage in this space. When a proposal for presentation or questions is made, few students respond. This demonstrates the limited use of this tool, preventing students from exploring the possibilities of collaborative learning

between teachers and classmates available in the VLE. Thus, the proposed methodology aims to increase student participation and engagement with this resource.

As quantitative data for the practices, the student satisfaction index regarding the instructor is presented. The collection of this data is carried out through the institution's own procedure and is developed in the classes focused on this study. The approval rate is considered based on the students present, according to the class register.

4. Experience Report

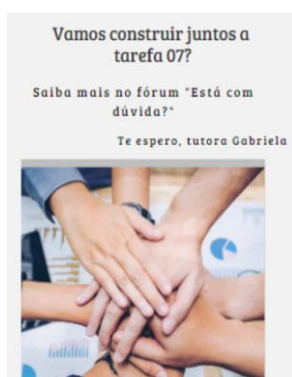
The first practice to be presented is developed in the Technical Course in Quality, named 'Collective Construction,' and its objective is to stimulate student participation in the development of specific concepts in the Quality field and to enhance their interaction with the learning process. The target audience consists of all the students in the subject where the practice is being developed, with an average of 70 students per class. The purpose of the task aligns with Palloff and Pratt (2014), who identify collaborative learning as a way to help students achieve deeper levels of knowledge generation and greater student engagement in the VLE.

The methodological proposal stems from the need to explore and deepen the content to be developed in an evaluative activity of the subject. After students reported difficulties in research and understanding of the concepts related to the task, the instructor proposes a joint study, integrating the students with both internal and external resources to the VLE. The didactic sequence is structured in four stages, as presented below.

Stage 1: Presentation of the proposal to the students. The instructor posts a notice in the VLE inviting students to engage in the collective construction of the content. The invitation directs students to the full explanation of the proposal in the course forum, as illustrated in Figure 1.

Stage 2: Organizing the information in the forum. In this space, students find the instructions for developing the proposal, along with a link directing them to the resource (ICT) used for constructing the concepts. For this proposal, the Padlet resource was used, as it allows for simultaneous viewing of posts within its environment. Resources with such functionalities enable students to post and view opinions and comments from peers in real time. This feature helps strengthen the sense of group cohesion and closeness among students. Figure 2 illustrates the instructions for the students.

Figure 1 – Proposal Invitation



Source: Research data (2025)

Figure 2 – Proposal in the Forum

E, que tal se construirmos juntos esses conceitos? E criarmos um espaço colaborativo para a realização da tarefa?

Me acompanham nessa construção?

Vejam como participar:

Acessar o link: <https://padlet.com/gabrielazortea/6a19c5wsypzyw4vj>

Ao acessar no link vocês encontraram todos os fundamentos da qualidade, a proposta é que vocês escrevam (clcando no sinal de +) o conceito que vocês encontraram sobre um ou mais fundamentos.

Para ajudar eu já deixei um conceito para cada fundamento, agora quero ver a sua contribuição, certo?

Além desse espaço, vocês podem utilizar o conteúdo da semana 07, a referência teórica dos artigos disponíveis junto a atividade e pesquisas da internet.

Source: Research data (2025)

Stage 3: Monitoring interactions. It is essential to monitor students' interactions, mediating the posting of content and addressing any possible doubts. Additionally, encouraging participation from the class through messages is important. In this practice, monitoring is done daily in three ways.

The first: checking if there has been any interaction in the forum by the students and providing appropriate feedback. The second: reviewing the submission of the activity corresponding to this interaction, as students often share their reports on how they used the interaction in the construction of the evaluative task. The third: accessing the Padlet to review the students' posts.

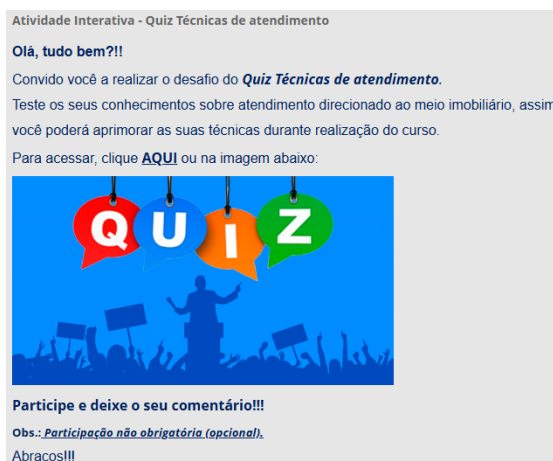
Stage 4: Content consolidation. After the deadline for completing the task, a closing notice is sent to the students with the content that was constructed.

These concepts remain available in the forum for students to consult whenever necessary, helping them to complete the evaluative task of the course or to expand their understanding of the field. Thus, students return to the VLE with this proposal in the form of a developed task (course requirement) or as an interaction in the forum. As feedback from students regarding the practice, the following comments stand out: 'Very cool, tutor, I loved the idea [...]. I'll add some things there too to help' (Student 1). 'Hi, professor! It will surely be very useful' (Student 2). These feedbacks reflect the students' interest and motivation towards the pedagogical proposal.

The second practice focused on this research consists of a question-and-answer game called 'Quiz - Customer Service Techniques,' organized into ten multiple-choice questions, available in the interaction forum of the VLE for the Technical Course in Real Estate Transactions. The resource used in this proposal is part of an educational object platform from the educational institution called Espie. These resources are valuable tools for instructors in their tutoring practice and contribute as strategies to engage students in their participation in the VLE, supporting the teaching and learning process.

Initially, the students receive the communication through the platform's email and the notice board. Both locations contain the instructions for this didactic proposal and the invitation in the form of a challenge to test the knowledge acquired up to that point in the course. The post includes the access link to start the game. Figure 3 illustrates the presentation of the proposal in the forum.

Figure 3 – Quiz Proposal



Source: Research data (2025)

Through the quiz, the objective is for the students to engage in the activity by associating their knowledge with its practical application regarding real estate brokerage. Among the participation reports, the following feedbacks stand out: 'Hello, tutor, how are you? Participating in the QUIZ was an amazing experience. On my first attempt, I got a question wrong, but I realized it was worth it. I'm on the right track and understanding everything I've learned so far. Thank you for this additional learning' (Student 1). In another report, written by another student, the importance of

sharing this type of ICT in the virtual learning environment is evident: 'Very interesting to apply the quiz for reinforcement and work on projecting real-life situations. I have nothing but praise for the entire team. Happy and blessed week! I will have an interview at a real estate agency on my birthday, the 22nd. I believe everything is contributing to applying the knowledge and learning a lot of new skills for professional practice' (Student 2).

In the students' reports, it is possible to observe their experiences in managing the knowledge acquired by relating theory to practice. Therefore, the feedbacks corroborate Nogueira (2020), who mentions, 'the more active the methodologies, the greater the student involvement.' Thus, this connection between knowledge and ICTs, systematized in knowledge, skills, and attitudes developed during training, are fundamental elements for entering the job market in their respective areas of expertise.

By carrying out the practices described in this report, an increase in student engagement is observed, reflected in the feedback provided voluntarily in the forum. The impact on the quality of task submissions is also noticeable, with a good performance rate of around 97% of students passing. In line with the performance results, students mention in their task submissions the contribution of the materials to their work, demonstrating progress in academic performance.

For institutions that work with customer satisfaction indicators, this can be a quantitative result when addressing specific questions about the methodologies used by the instructor. The student satisfaction evaluation regarding the instructors responsible for the proposals presented in this report yielded a satisfaction rate of around 97%. Thus, it is possible to track the results of such indices in comparison to the proposed activities.

As a qualitative result of the proposal, there is an observed increase in student engagement in their own learning process, effective integration in the VLE, and the strengthening of each student's protagonism and autonomy. Furthermore, the proposals enable an interaction that transcends the simple summation of opinions, expanding knowledge, sharing information, and enriching the experiences of the ongoing course (MASETTO et al., 2015). Finally, the use of active methodologies also contributes significantly to teacher training and development, especially in the use of ICTs applied to asynchronous contexts.

The practices described are meaningful and contribute to the flexible teaching proposed by distance education, with the possibility for students to develop digital skills and study with flexible interaction in their own time, fostering autonomy and protagonism in the construction of knowledge. Furthermore, education mediated by digital technologies can motivate the teaching and learning process of students through challenges and differentiated experiences in their virtual environment.

In terms of contribution to active methodologies in virtual learning environments, both practices presented can be adapted to other contexts. Other classes can benefit from these interactions. Scalability is possible, always taking into account the characteristics and learning needs of the students.

As for the limitations of the study, there is the absence of quantitative data in the analysis of the results. Moreover, the cases cannot be generalized, as they are specific cases; however, scalability for the practice is identified.

5 Conclusion

This article presented two ways of using ICTs as pedagogical proposals to promote integration and collective learning in the VLE forums, aligned with active methodologies. Thus, it contributes to the reflection on the role of the instructor in using ICTs in distance education, as well as to addressing the challenge of engaging students in virtual learning environments, stimulating their protagonism. Furthermore, the importance of ICTs in distance education is emphasized, as they offer resources

that support the teaching-learning process. In this context, it is up to the instructor to choose and mediate the pedagogical proposal that best meets the needs of their students.

The development of ICTs has contributed to the success of distance education, as various tools with different functionalities are developed, as identified in the exploratory research conducted in this study. Therefore, the integration of ICTs into pedagogical practices contributes to the creation of innovative educational environments, where the content outlined in school curricula can be explored with dynamic methodologies integrated with technological advances, supporting the teaching and learning process, providing a new way of teaching and learning, and thus overcoming the paradigms of traditional education.

In this context of pedagogical elements, the role of the educator is redefined in light of the constantly changing behavioral patterns of society and technological advances, considering the need to develop skills that connect the resources available in ICTs with school content.

Finally, the wide range of ICTs available on the global network will only have a significant impact on the school community if educational institutions and their teachers understand the importance of these tools for student learning and know how to adapt them to the educational context, especially in distance education (DE). Considering that students in this modality do not attend physical school environments but only virtual platforms, it becomes essential to seek technological resources that enhance interaction with school content. Furthermore, this dynamic can promote digital inclusion for students with limited access to the virtual world, while also encouraging the training and updating of teachers for the use of tools available in the digital age.

As future perspectives, it is recommended to expand studies that explore new technological tools and active methodologies applied in virtual learning environments, especially in distance education contexts. Moreover, it is essential to promote ongoing training for teachers, so they can master ICTs and use them strategically, aligning their pedagogical practices with students' needs and the demands of the contemporary world. For educators facing challenges related to engagement and digital inclusion, it is advisable to adopt approaches that prioritize interaction, autonomy, and collaborative knowledge construction, encouraging more meaningful learning that is connected to students' realities.

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