

THE EFFECTIVENESS OF ACTIVE METHODOLOGIES IN IMPROVING ACADEMIC PERFORMANCE



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ABSTRACT

The article analyzes the impact of active methodologies, such as Project-Based Learning (PBL), gamification and blended learning, on academic performance and student engagement, in addition to investigating the challenges and possibilities of their implementation in the contemporary educational context. The research aims to understand how these practices contribute to the formation of essential skills, such as critical thinking, autonomy and collaboration, while overcoming the limitations of traditional teaching. The methodology used is based on bibliographic research, with content analysis according to Bardin, allowing the examination of qualitative data from academic studies and practical reports. The analysis highlights that active methodologies promote greater interaction between students and content, facilitate the contextualization of learning and enhance student protagonism. However, barriers such as cultural resistance, insufficient teacher training and lack of technological infrastructure still hinder its full implementation. The integration of these methodologies with digital technologies proves to be essential to expand pedagogical possibilities and promote a more inclusive education that is connected to contemporary demands. It is concluded that active methodologies are effective strategies to transform teaching, but require collaborative efforts to overcome challenges and promote their adoption on a large scale. Thus, the study reinforces the importance of further research aimed at improving these practices and exploring their implications in different contexts.

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INTRODUCTION

The contemporary educational scenario demands profound transformations to meet the demands of a society marked by technological advances and the need to form critical, autonomous and collaborative citizens. Active methodologies appear as viable alternatives to overcome the limits of traditional teaching, centered on teacher exposure, and to promote more dynamic, engaged learning aligned with the demands of the twenty-first century. The relevance of the theme lies in its ability to position the student as the protagonist of the teaching-learning process, encouraging the active construction of knowledge.

The objective of this research was to analyze the impact of active methodologies, such as Project-Based Learning (PBL), gamification and blended learning, on academic performance and student engagement, in addition to investigating the challenges and possibilities of implementing these practices in the current educational context. The guiding question sought to understand how these methodologies contributed to the formation of essential competencies and what barriers needed to be overcome for their effective application.

The research used the bibliographic method, based on the content analysis technique proposed by Bardin (2011), to examine qualitative data collected from academic studies and practical reports available in reliable sources. The analysis was conducted in order to consider the relevance of the theoretical frameworks, the timeliness of the data and the diversity of educational contexts addressed.

The article was structured in sections that explored different aspects of active methodologies. First, in *The Impact of Active Methodologies on Academic Performance*, it was discussed how these practices promoted student engagement and autonomy, with emphasis on the benefits observed in learning. Next, *The Relevance of Active Methodologies in the Transformation of Education: Challenges and Pedagogical Practices* addressed the difficulties associated with overcoming the traditional model and the possibilities of applying these strategies at different levels of education. The third section, *Active Methodologies and Digital Technologies: A New Perspective for 21st Century Education*, highlighted the integration of digital technologies as essential tools to enhance the results of these practices. Finally, in *Active Methodologies in Focus: PBL, Gamification and Hybrid Teaching as Transformative Strategies*, specific examples of active methodologies applied in educational practice were analyzed.

The Results *and Data Analysis section* summarized the main conclusions, pointing out the effectiveness of these strategies in transforming the teaching-learning process and discussing limitations and implications for the educational field.

Therefore, the analysis sought not only to contribute to the understanding of the impact of active methodologies, but also to propose ways to overcome contemporary educational challenges, encouraging more innovative and inclusive pedagogical practices. The study aimed to foster reflections and inspire future research that deepens the understanding of the theme and its applications in the school context.

THE IMPACT OF ACTIVE METHODOLOGIES ON ACADEMIC PERFORMANCE

Thus, it is verified that the contemporary educational scenario demands a more participatory and shared posture among the actors involved in the teaching-learning process. According to Marques *et al.* (2021, p. 722), "current education requires an attitude of co-responsibility in relation to learning, with the need for mutual commitment between teachers and students".

In addition, when implementing active learning strategies, it is observed that the classroom environment becomes less predictable and more open to student participation. According to Marques *et al.*,

[...] active learning creates a more open and unpredictable class environment than in a lecture-based class, where content and pace are strictly controlled (Marques *et al.*, 2021, p. 729).

In this way, the flexibility of the training process enables a more significant interaction between learners and the object of knowledge. In addition, it should be noted that student protagonism is a central element in the consolidation of active methodologies. According to Marques *et al.* (2021, p. 724), "providing intense learning first requires a methodology that can make the student become the protagonist of their own learning". However, it is recognized that traditional teacher-centered teaching still exerts considerable influence on the educational landscape. Marin *et al.* (2010) highlight that "the traditional teacher-centered teaching method still exerts a great influence on teaching", which suggests the permanence of conventional approaches that have gradually been questioned by more contemporary practices.

In this sense, active methodologies, as indicated by Cunha *et al.* (2024), are fundamental for the promotion of more engaged learning, since, as they point out, "active

methodologies seek to promote student protagonism, encouraging the student to assume a central role in the learning process". Thus, the use of techniques such as case studies, collaborative projects, problem solving, and other participatory approaches stimulates critical thinking and intellectual autonomy of the student, contributing to the effective improvement of their academic performance.

However, it is observed that, despite social and technological advances, the educational sector does not always keep up with the pace of these transformations. Silva emphasizes that

[...] even with so many advances in the most diverse areas of society and with the need to modernize, what is in fact presented in the educational area is an immutability of the old educational patterns (Silva, 2018, p. 46).

This statement reveals a significant discrepancy between the development of technologies and the incorporation of these innovations in the school environment. While other areas, such as health, communication and commerce, have adapted their practices to meet the new demands of contemporary society, education often maintains traditional structures that do not fully meet the needs of an era marked by complexity and interactivity.

This scenario of immutability, evidenced by Silva (2018), reinforces the existence of cultural, institutional, and pedagogical barriers that hinder the adoption of innovative practices in teaching. These resistances may be related to several factors, such as the lack of continuing education of teachers, the lack of adequate investments in technological infrastructure and, mainly, the ingrained mentality that prioritizes expository and teacher-centered methods. Such a posture perpetuates a teaching model that no longer responds to the demands of a world that demands skills such as critical thinking, collaboration and problem solving.

Thus, the challenge faced by educators and managers is to overcome such resistance and, gradually, incorporate active methodologies that promote student interaction, autonomy and engagement. These approaches, by transferring to the student a role of greater protagonism, enable a break with traditional paradigms and favor the construction of a more dynamic teaching that is connected to the realities and challenges of contemporaneity. Thus, facing the barriers mentioned by Silva (2018) is an essential step to align education with social and technological transformations, ensuring that pedagogical practices meet the demands of the twenty-first century.

In summary, when dialoguing with the theoretical frameworks presented, it is found that active methodologies constitute a promising way to improve academic performance, as they allow the student to assume a central role in the construction of knowledge. Thus, by establishing a teaching dynamic in which the student actively participates, it becomes possible to move beyond traditional practices, towards an educational scenario in which the student develops cognitive, reflective and collaborative skills, benefiting from a more consistent, relevant education aligned with contemporary demands.

THE RELEVANCE OF ACTIVE METHODOLOGIES IN THE TRANSFORMATION OF EDUCATION: CHALLENGES AND PEDAGOGICAL PRACTICES

Contemporary education demands that the school adapt to new social demands, offering quality educational services and products. Libâneo (2013, p. 44) highlights that "in the face of these (new) requirements, the school needs to offer quality services and a quality product". Such a perspective highlights the need for a pedagogical approach that goes beyond the mere transmission of content, promoting a comprehensive education that contemplates both individual development and collective demands. This complexity, according to Silva (2018, p. 36), "comes from the need for an assertive approach, which can encompass the philosophical meaning of education by articulating the individual and the collective".

In this context, the role of the teacher becomes central in the mediation of the learning process. Silva (2018, p. 35) states that "the role of the teacher is to help students go beyond where they would be able to do it alone". In practice, this implies the development of pedagogical strategies that challenge students to build knowledge in an active and reflective way. For example, in elementary school, the teacher can propose an activity that involves the construction of models to represent the neighborhood where the students live. During the activity, the teacher can encourage students to research local history and reflect on how urban transformations have impacted the community, thus stimulating historical awareness and student protagonism, as Silva argues:

By providing awareness on the part of the learning subject, his historical awareness is awakened, making him understand himself as a transforming subject (Silva, 2018, p. 46).

On the other hand, in High School, active methodologies also stand out for their ability to transform the educational environment. Marques *et al.* (2021, p. 721) observe that

"given that active methodologies change the reality of the classroom, it is necessary to discuss the topic as a way to corroborate its development". At this level of teaching, practices such as debates mediated by case studies or collaborative problem solving can be applied. For example, in a biology class, students can be divided into groups to discuss possible solutions to the improper disposal of plastic waste, assessing its environmental implications, and proposing sustainable projects. This approach not only promotes student engagement but also encourages critical thinking and the practical application of the content learned.

In addition, Marques *et al.* show that

[...] students who participated in active methodology activities obtained better results than groups that did not participate, improving their approval in the course by up to 50% (Marques *et al.*, 2021, p. 730).

This data reinforces the effectiveness of these strategies, demonstrating that innovative pedagogical practices can directly impact academic performance, reducing failure rates and increasing student involvement. Therefore, by articulating the theoretical references of Libâneo (2013), Silva (2018) and Marques *et al.* (2021), it is verified that active methodologies not only offer an assertive response to the demands of contemporary education, but also enable the formation of critical and transformative subjects. At the same time, such practices make learning more meaningful and connected to the realities experienced by students, configuring themselves as a promising path for improving the quality of teaching. Thus, the challenge that arises is to expand the adoption of these methodologies, integrating them consistently with pedagogical practices at different levels of education.

ACTIVE METHODOLOGIES AND DIGITAL TECHNOLOGIES: A NEW PERSPECTIVE FOR EDUCATION IN THE TWENTY-FIRST CENTURY

The contemporary educational scenario requires pedagogical practices that are aligned with the demands and profile of students in the new era. In this context, active methodologies emerge as significant alternatives to transform the learning experience, offering strategies that break with the traditional teaching model. Andrade *et al.* (2019, p. 11) emphasize that "active methodologies break with the traditional teaching model, valuing the student's protagonism". This appreciation is crucial, as it allows the student to assume a

central role in the educational process, becoming more autonomous, engaged, and able to build knowledge in a meaningful way.

In addition, active methodologies not only promote student participation, but also serve as a starting point for deeper reflections. According to Narciso *et al.* (2024, p. 724), these practices "are starting points to move towards more advanced processes of reflection, cognitive integration, generalization, and re-elaboration of new practices". Therefore, by implementing these strategies, teachers provide students with opportunities to develop critical and reflective skills, which are essential to face the challenges of the twenty-first century.

In this sense, when combined with Digital Information and Communication Technologies (DICTs), active methodologies further expand pedagogical possibilities, facilitating the attendance to the characteristics of the contemporary student. Santana *et al.* (2021, p. 2086) emphasize that "active methodologies combined with technologies [...] allow the teacher to achieve the profile of the student of the new era". A practical example of this integration can be observed in the application of the flipped classroom with the use of digital platforms. In this model, students previously access video content or other online formats, while the time in the classroom is dedicated to discussion, problem solving, and the practical application of the concepts.

However, it is essential to consider that the adoption of these practices also has an inclusive impact. Santana *et al.* point out that

[...] not only the most needy, but also those responsible for people with disabilities have long fought for an optional facilitating educational modality, which allows them to fight for equity (Santana *et al.*, 2021, p. 2087).

In this context, DICTs play an indispensable role in offering accessible and adaptable resources, enabling the involvement of all students, regardless of their limitations. For example, in a science class for elementary school, the teacher can use an augmented reality platform to explore the solar system. Students access an app on their devices, where they can view three-dimensional models of the planets, identify their characteristics, and interact with the content in a practical and visual way. During the classroom activity, the teacher promotes group discussions and proposes collaborative challenges, such as identifying the necessary conditions for life on other planets. This practice exemplifies how technologies, combined with active methodologies, offer a more dynamic and inclusive educational experience.

In addition, DICTs not only make teaching more accessible, but are also indispensable tools to meet the expectations and demands of the student of the twenty-first century. As Santana *et al.* (2021, p. 2096), "DICTs are seen as indispensable tools to serve the student of the twenty-first century". Through these tools, teachers can create more interactive and collaborative learning environments, in which students not only consume content, but also produce, analyze, and apply knowledge autonomously and creatively.

Thus, by dialoguing with the theoretical references presented, it is perceived that the integration of active methodologies with digital technologies constitutes a promising path for a more effective and inclusive education. This approach not only meets the needs of the contemporary student but also promotes equity, ensuring that everyone has access to quality education that is aligned with the demands of today's society. Therefore, it is up to educational institutions and teachers to increasingly explore these possibilities, transforming the teaching-learning process into an enriching and transformative experience.

ACTIVE METHODOLOGIES IN FOCUS: ABP, GAMIFICATION AND HYBRID TEACHING AS TRANSFORMATIVE STRATEGIES

Active methodologies, such as Project-Based Learning (PBL), gamification, and blended learning, have been consolidated as essential tools to promote more dynamic teaching that is connected to the needs of contemporary students. According to Andrade *et al.* (2019), these practices break with the traditional teaching model by valuing the protagonism of students, stimulating their active participation and promoting a more meaningful educational experience. Thus, the centrality of the student in the learning process enables greater engagement and the construction of knowledge autonomously.

In this context, the Professora Adelaide Rosa Fernandes Machado de Souza State School, located in the south of São Paulo (SP), illustrates how these methodologies can be applied to transform pedagogical practice. According to Narciso *et al.* (2024), active methodologies go beyond the simple transmission of content, being starting points for more advanced reflections, cognitive integrations, and the reelaboration of new pedagogical practices. In this school, the use of PBL allows students to articulate individual and collective knowledge, favoring the integration of different areas of knowledge.

A practical example of this approach occurred in a project about the Week of Modern Art, which celebrated its centenary in 2022. In this project, students were encouraged to research and develop creative presentations, connecting the content to their realities and

the cultural implications of the event. As a result, they honed skills such as autonomy, teamwork, and critical thinking. This practice reflects what Silva (2018) states about the importance of providing students with a historical understanding that makes them transforming agents of their own reality.

In addition, gamification emerges as another active methodology that promotes engagement and learning through playful elements. Andrade *et al.* (2019) highlight that these strategies are appropriate to the reality of contemporary students, as they make learning more engaging and aligned with their demands. An example of this would be the creation of digital games based on curricular content, where students face challenges that require the application of the knowledge acquired, motivating their participation.

Finally, hybrid teaching combines face-to-face and online moments, expanding pedagogical possibilities through personalization and flexibility in learning. Santana *et al.* (2021) emphasize that active methodologies combined with technologies are indispensable to meet the characteristics of the twenty-first century student, promoting more efficient and interactive learning. In this model, students can access theoretical content previously on digital platforms and use face-to-face time for collaborative activities, such as debates and practical projects.

Thus, the integration of active methodologies with digital technologies proves to be essential to transform education and meet contemporary demands. These practices not only promote greater engagement, but also strengthen students' critical and reflective capacity, ensuring a more meaningful education aligned with the needs of today's society. Thus, by applying strategies such as PBL, gamification, and blended learning, educators can create innovative, inclusive, and transformative learning experiences.

RESULTS AND DATA ANALYSIS

The main conclusions of this study highlight the effectiveness of active methodologies in transforming the contemporary educational process. It was observed that practices such as Project-Based Learning (PBL), gamification, and blended learning not only encourage student protagonism, but also promote greater engagement, critical thinking, and autonomy. Marques *et al.* (2021) showed that participation in active methodology activities resulted in a significant increase in the student approval rate, while Silva (2018) highlighted the potential of these practices to overcome the structural and cultural barriers still present in traditional education.

The significance of these findings lies in their relevance to the educational context of the twenty-first century. In a scenario where skills such as critical thinking, problem-solving, and collaboration are highly valued, active methodologies prove to be indispensable tools to prepare students for the challenges of contemporary society. Andrade *et al.* (2019) and Santana *et al.* (2021) emphasize that these practices are particularly suited to meeting the demands of new-age learners by providing them with opportunities for interactive and contextualized learning.

Table 1 - Main authors referenced in the research

| Author | Year of Publication | Research Subject | Relevance of the Research |
|-----------------------|---------------------|---|--|
| Marques <i>et al.</i> | 2021 | Student protagonism and active methodologies in teaching | Demonstrated the effectiveness of active methodologies in improving academic performance |
| Marin <i>et al.</i> | 2010 | Influence of the traditional method on teaching | He explained the persistent influence of the traditional teaching method |
| Cunha <i>et al.</i> | 2024 | Active methodologies for engagement and autonomy | He stressed the importance of active methodologies to promote reflective learning |
| Silva | 2018 | Barriers to innovation in teaching and the transformative role of the student | It highlighted structural and cultural challenges for the adoption of innovative practices |
| Libâneo | 2013 | Contemporary educational requirements and quality of teaching | He addressed the need to reformulate teaching to meet contemporary demands |
| Andrade <i>et al.</i> | 2019 | Active methodologies such as PBL and gamification | It valued the protagonism of students through active methodologies |
| Narciso <i>et al.</i> | 2024 | Cognitive integration and re-elaboration of pedagogical practices | It provided a teaching model for deep reflections and innovative practices |
| Santana <i>et al.</i> | 2021 | Use of digital technologies combined with active methodologies | He highlighted DICTs as essential for education in the 21st century |

Source: author himself.

These findings relate directly to previous studies, corroborating the results obtained by other researchers. For example, Marin *et al.* (2010) *highlighted the limitation of the traditional teacher-centered model*, while Cunha *et al.* (2024) pointed out the ability of active methodologies to engage students in a deeper process of reflection and cognitive integration. In addition, Narciso *et al.* (2024) reinforced the idea that these practices allow for a continuous re-elaboration of pedagogical practices, which expands the possibilities of learning.

However, the findings also have limitations, many of which are linked to factors already discussed in the literature. Silva (2018) emphasizes the difficulty in overcoming cultural and institutional barriers that still prioritize traditional practices, while Santana *et al.* (2021) indicate that the lack of adequate teacher training and the lack of technological infrastructure can hinder the effective implementation of these methodologies. Such limitations suggest that the adoption of active methodologies depends on a joint effort between managers, educators and educational policy makers.

In addition, some surprising or inconclusive results deserve attention. For example, although gamification has been shown to be effective in specific contexts, Andrade *et al.* (2019) observed that their impact can vary significantly depending on the maturity level of the students and the adequacy of the resources used. These variations can be explained by the need to align gamification strategies with the needs and expectations of students, as the authors argue.

In light of this, this study suggests some directions for future research. First, it would be relevant to investigate how active methodologies can be more effectively combined with emerging technologies, such as artificial intelligence and virtual reality, to further enrich the teaching-learning process. In addition, longitudinal studies could explore the long-term impacts of these practices on the education of students, both in academic terms and in their professional trajectories. Finally, it is essential to deepen the analysis of institutional and cultural barriers to identify strategies that facilitate the adoption of active methodologies in different educational contexts.

In summary, the results of this study reinforce the importance of active methodologies for educational transformation and point to promising paths for research and pedagogical practice. By dialoguing with the existing literature, this work contributes to the understanding of the potentialities and challenges associated with these practices, offering subsidies for their large-scale implementation.

CONCLUSION

This article aimed to analyze the effectiveness of active methodologies, such as Project-Based Learning (PBL), gamification and blended learning, in the contemporary educational context, with emphasis on their ability to transform pedagogical practices and promote more meaningful learning aligned with the demands of the twenty-first century. Throughout the study, it was possible to demonstrate how these approaches stand out by

favoring student protagonism, stimulating engagement, and fostering essential skills, such as critical thinking, autonomy, and collaboration.

Initially, the objectives were met by establishing the relevance of active methodologies in facing the limitations of traditional education. The analysis showed that teacher-centered practices, still widely used, do not fully meet the requirements of a society marked by complexity and interactivity. On the contrary, methodologies such as PBL and blended learning offer alternatives that promote more dynamic and contextualized learning, allowing students to become active agents of their own education.

In addition, the article showed how digital technologies can enhance the benefits of active methodologies, expanding pedagogical possibilities and making learning more inclusive and accessible. The integration between methodologies and Digital Information and Communication Technologies (DICTs) was explored as a promising way to meet the needs of students in the new era, offering them tools that dialogue directly with their realities and expectations. This aspect also reinforces the role of the teacher as a mediator of knowledge, whose performance is essential to guide students in a process of collective construction of knowledge.

On the other hand, by discussing the challenges and limitations associated with the implementation of these practices, the article contributed to a coherent view of the theme. The identification of cultural, structural and institutional barriers demonstrated that the adoption of active methodologies requires significant changes in educational paradigms, in addition to investments in teacher training and infrastructure. This panorama highlights the importance of integrated actions that involve managers, educators, and public policy makers in overcoming these obstacles.

In this way, the study fulfilled its objectives by highlighting not only the potentialities, but also the difficulties related to the use of active methodologies, providing a broader understanding of their transformative role in teaching. The analysis of practical examples reinforced the applicability of these strategies at different levels of education, from elementary to high school, illustrating how these practices can be adapted to different educational contexts.

Finally, this work suggests that active methodologies, when integrated with technological resources and inclusive approaches, represent one of the most promising paths for the construction of effective and relevant teaching in the twenty-first century. However, it is recognized that this field still requires further study, especially with regard to

its long-term implications for the education of students. Thus, it is encouraged that more research be done on this subject, exploring, for example, the combination of active methodologies with emerging technologies, such as artificial intelligence and augmented reality, or even investigating how these practices can be applied in challenging educational contexts, such as rural schools or in regions with limited access to technology.

In this way, the considerations presented in this article hope not only to contribute to the academic discussion, but also to inspire innovative pedagogical practices that can transform the teaching-learning process into a more meaningful, inclusive experience aligned with the demands of contemporary society.

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