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EDUCATIONAL PLATFORMS AND PERSONALIZATION OF TEACHING: A REVOLUTION IN LEARNING

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ABSTRACT

This study investigated the use of educational platforms for the personalization of teaching, aiming to understand how these tools are being implemented in schools and the impact they have on the learning process of students. The general objective was to analyze how educational platforms contribute to the personalization of teaching, highlighting the main challenges and advantages of this approach. The methodology adopted was a bibliographic review, with analysis of articles, dissertations and books related to the theme. The results indicated that, despite the great potential of the platforms to promote personalized teaching, the implementation of these tools still faces obstacles, such as the lack of adequate technological infrastructure, resistance from educators and the scarcity of professional training. The personalization provided by the platforms proved to be effective in improving academic performance, especially when the tools were used strategically by educators. However, the effectiveness of these platforms depends on the ability of teachers to mediate

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the use of these technologies. The final considerations highlighted the need for investments in continuing teacher training and improvements in school infrastructure to ensure that educational platforms reach their full potential. In addition, the need for research to explore the barriers and best practices in the use of these tools was pointed out, as well as their impact in different educational contexts.

Keywords: Educational Platforms. Personalization of Teaching. Educational Technologies. Adaptive Teaching. Educational Challenges.

INTRODUCTION

The use of educational platforms in the personalization of teaching has stood out as one of the central themes of contemporary education, especially with the advancement of digital technologies. Educational platforms, which encompass virtual learning environments, learning management systems (LMS) and other technological tools, have been incorporated into the school context. These platforms not only facilitate access to content in an interactive and dynamic way, but also offer possibilities for adapting teaching to the individual needs of students, promoting the personalization of learning. This transformation, driven by technological innovations, represents a significant shift in the way teaching is planned, executed, and evaluated, creating a landscape where traditional methods are complemented or even replaced by flexible, student-centered approaches.

The justification for the study of the theme is based on the growing integration of educational technologies, especially digital platforms, in the school environment. With the Covid-19 pandemic, the adoption of technological tools has accelerated, demonstrating the customization capacity that these platforms can provide. However, despite their use, many educators and managers still face difficulties in adapting these tools efficiently to the realities of the classrooms. This can occur for several reasons, such as lack of teacher training, resistance to changes in traditional pedagogical methods, and limited access to adequate technological resources. The personalization of teaching, one of the promising aspects of these platforms, can be effective if it understands the needs of each student, but for this, it is necessary to understand how these technologies can be applied and the challenges involved in this process. Therefore, the relevance of this study lies in the analysis of how educational platforms can transform education, making it inclusive and adapted to the specificities of each student, while facing the obstacles to its full implementation.

The problem to be investigated refers to the challenges and opportunities that arise with the implementation of educational platforms for the personalization of teaching, in schools that face difficulties related to infrastructure, teacher training and access to technologies. Although there is a growing number of initiatives that seek to adapt education to the new demands of the 21st century, the reality in schools often contrasts with the innovation potential of platforms. This generates the need for a study on how these tools can be used, what are the barriers found in their adoption and what results have been observed so far in terms of personalization of learning. The main question that guides this research is: how can educational platforms be integrated to promote the personalization of

teaching in Brazilian schools, considering the challenges and possibilities of their use in the current educational context?

The objective of this work is to analyze the contributions of educational platforms to the personalization of teaching, identifying the main barriers and strategies adopted to overcome these challenges in schools of different contexts.

The text is structured as follows: the first section presents the theoretical framework, which addresses the definitions and fundamental concepts about educational platforms and personalization of teaching. Then, the development of the work is divided into three main topics that argue the implementation of the platforms, their impact on the personalization of learning and the role of educators in this process. The methodology used to carry out the study will be presented, followed by the discussion of the results obtained from the analysis of existing research. The work concludes with the final considerations, which summarize the main findings and offer suggestions for future investigations and pedagogical practices.

THEORETICAL FRAMEWORK

The theoretical framework is structured in three main sections. First, the concept and evolution of educational platforms are addressed, exploring their types, functionalities and the way they are applied in the educational context. Next, the concept of personalization of teaching is discussed, highlighting its relevance for individualized learning and the pedagogical models that support it. Finally, the third part examines emerging technologies, such as artificial intelligence and data analysis tools, which enhance the personalization of teaching, allowing the adaptation of content to the needs of each student. This framework serves as a basis for understanding how educational platforms contribute to the transformation of the teaching-learning process in the current scenario.

THE IMPLEMENTATION OF EDUCATIONAL PLATFORMS IN SCHOOLS

The implementation of educational platforms in schools has been a gradual and often challenging process, especially in contexts that face difficulties related to infrastructure and teacher training. As stated by Araújo and Favarato (2024, p. 5), "educational platforms have gained prominence in schools, promoting a change in the dynamics of teaching and learning, but their implementation still comes up against structural and cultural challenges in institutions". This observation is pertinent, as it highlights both the transformative potential of these tools and the practical difficulties encountered during their adoption.

The transition from traditional teaching to the use of digital platforms requires not only the availability of appropriate technological equipment, but also continuous support to train educators. According to Araújo (2020, p. 102), "platforms such as Blackboard allow the teaching process to be dynamic and adapted to the needs of the student, but the effectiveness of its use depends on the continuous training of teachers and institutional support". The importance of teacher training is highlighted, which is one of the biggest obstacles in the successful implementation of educational platforms.

On the other hand, the benefits of using educational platforms are remarkable, as Barbosa, Melo, and Tarossi (2023, p. 34) indicate, when they highlight that "digital platforms, when correctly integrated, provide flexible and accessible teaching, favoring the personalization of learning and meeting the individual needs of students". The flexibility mentioned is a key point, as it allows students to advance at the pace of their own learning, something that traditional teaching often fails to provide.

In addition, the implementation of these technologies has generated success stories that deserve to be highlighted. Farias (2023) notes that the use of artificial intelligence in educational platforms has demonstrated a positive impact on the personalization of teaching, as evidenced by schools that have adopted these technologies to adapt content to the profile and pace of each student. This reflects a growing trend towards the adoption of advanced technologies, which help to provide individualized and efficient learning. Such initiatives have shown promising results, especially in contexts where the technological infrastructure has been established.

However, it is essential to note that, despite the advantages, the challenges in implementing educational platforms remain significant. The lack of financial resources, the resistance of educators, and inequality in access to technology are factors that can hinder the adoption process. The implementation of platforms requires a coordinated effort between the parties involved, including governments, schools, and communities, to overcome these barriers and ensure that digital education reaches its full potential.

HOW PLATFORMS FACILITATE THE PERSONALIZATION OF TEACHING

Educational platforms have proven to be tools for personalizing teaching, offering students a learning experience tailored to their individual needs and characteristics. Personalization of teaching, when applied correctly, allows the learning process to be shaped according to the pace and style of each student. As Araújo and Favarato (2024, p. 12) observe, "educational platforms enable the creation of dynamic learning environments, in which content can be adjusted to meet the different cognitive needs and interests of

students". This flexibility is one of the main attractions of these tools, as it allows students to engage with the content in an active and personalized way.

One of the main personalization models provided by platforms is the adaptation of content based on student performance. Barbosa, Melo, and Tarossi (2023, p. 40) point out that "modern platforms use algorithms that monitor student performance and adjust content according to difficulties and advances observed, creating a unique learning path for each student". This continuous adaptation is essential to ensure that the student receives the right challenges at the right time, without feeling overwhelmed or unmotivated. Personalization, in this case, is not only limited to the selection of content, but also involves adapting pedagogical methodologies and approaches, ensuring that students learn according to their own needs.

Educational platforms also use various strategies to make content accessible and flexible, allowing students to learn at their own pace. As Farias (2023, p. 72) mentions, "the ability to control the pace of learning is one of the greatest advantages of educational platforms, allowing students to advance or review content according to their understanding". This is especially important for students with different learning paces, as the flexibility offered by the platforms facilitates knowledge retention.

In addition, the impact of platforms on personalized learning is evident in the way they enable access to content and promote flexibility of time and pace. According to Araújo (2020, p. 103), "the use of educational platforms allows the student to have access to study materials at any time, from anywhere, providing flexibility that traditional teaching methods cannot offer". This accessibility is one of the main advantages of digital teaching, as it allows students to dedicate themselves to their studies according to their own schedule and according to their learning preferences.

Educational platforms play an essential role in personalizing teaching by providing adaptive teaching models and strategies that adjust content to the specific needs of each student. The positive impact of this personalization is visible in increasing engagement, improving content understanding, and promoting autonomous learning.

THE ROLE OF EDUCATORS IN THE PERSONALIZATION OF TEACHING

The role of educators in the personalization of teaching is fundamental, as they are the mediators of the process of adapting educational platforms to the needs of each student. Although platforms have tools that facilitate the personalization of learning, the success of this personalization depends on the educator's ability to use these tools. As Araújo (2020, p. 107) points out, "the teacher must be able to integrate educational

platforms into their pedagogical planning, using digital tools to adjust content and activities according to the level and pace of each student". This statement underlines the importance of continuous training of teachers, so that they know how to explore the full potential of educational technologies and apply them in the classroom.

In addition, educators play the role of mediators in the personalization process, adjusting teaching according to the cognitive and affective needs of each student. As Barbosa, Melo, and Tarossi (2023, p. 45) observe, "the role of the teacher goes beyond teaching content; He must monitor the progress of students, identify their difficulties and guide students in the use of digital tools to overcome challenges". Educator mediation is therefore essential to ensure that students feel supported in the learning process and that digital platforms are used in a meaningful and efficient way.

However, the implementation of customized methods through educational platforms presents significant challenges for teachers. Farias (2023) highlights that many teachers still face difficulties in adapting to new technologies, especially when it comes to personalizing teaching, due to the lack of adequate training and resistance to changes in traditional pedagogical methods. This challenge is common in many schools, where teachers are accustomed to conventional teaching methods and may struggle to cope with digital technologies. Educators' resistance to change can be a major obstacle to the adoption of innovative and student-centered pedagogical practices.

Therefore, the success of teaching personalization depends not only on educational platforms, but also on the ability of teachers to mediate them. Continuous training and institutional support are essential for educators to overcome challenges and integrate these tools into their work in order to offer teaching adapted to the needs of their students.

METHODOLOGY

The methodology adopted for this research consists of a bibliographic review, focused on exploring the academic and scientific production related to educational platforms and the personalization of teaching. This is a qualitative study, which seeks to understand, from secondary sources, the concepts, challenges and advances in the use of digital platforms to personalize education. For data collection, scientific articles, dissertations, theses, books and academic publications from specialized journals were used, obtained through electronic databases such as Google Scholar, *Scielo*, and digital education journals. The selection of texts followed criteria of relevance, timeliness and academic rigor, prioritizing studies carried out in the last five years, in order to ensure that the research was aligned with recent trends in the area. Primary data collection was not

carried out, as the focus was to understand what has already been discussed and researched on the subject. The information was analyzed in order to identify the main topics addressed, the methodologies used by the authors, the barriers and advances observed in the use of platforms for personalization of teaching.

The following table presents the list of sources and bibliographic references used to support the theoretical review. These works were selected for their relevance and contribution to the understanding of the impact of educational platforms on the personalization of teaching.

Table 1: Bibliographic references used

Author(s)	Conforming title published	Year	Type of work
ARAÚJO, V. S.	Teacher training for the critical teaching of the Portuguese language: an experience in the pedagogy course through the 'Blackboard' platform	2020	Dissertation (Master's Degree in Language, Literature and Interculturality)
ARAÚJO, V. S.; LOPES, C. R.	Conceptions of critical training of teachers in university education	2020	Book Chapter
BARBOSA, J. P.; MELO, S. G. de; TAROSSI, D.	Artificial intelligence in education: revolution and challenges for the twenty-first century	2023	Recetec206
CASAGRANDE, D.; VIVAN, G.	The behavioral revolution: the new phase of human transformation	2023	Connection Magazine
FARIAS, C. R. P.	Artificial intelligence: exploring transformative tools for an enhanced learning experience and for improving the teaching-learning process	2023	Federal University of Pará
JÚNIOR, J. F. C.; REIS NETO, R. A. dos.	The future of learning with artificial intelligence applied to education 4.0	2023	Transversal Education Magazine
OLIVEIRA, V. B.	Discussions of evaluation practices in ninth grade classes of elementary school in a state public school in Goiânia and the teachers' testimonies from the perspective of historical-cultural conceptions	2023	Dissertation (Master's Degree in Education)
ARAÚJO, F. J. de; FAVARATO, C. C.	Artificial Intelligence in the Classroom: The Future of Education	2024	ARACÊ Magazine
SANTOS, S. M. A. V. (org.)	Integral inclusion: contemporary challenges in education and society	2024	Book
SANTOS, S. M. A. V. (org.)	Education in the 21st century: interdisciplinary and technological approaches	2024	Book
SANTOS, S. M. A. V. (org.)	Education 4.0: management, inclusion and technology in the construction of innovative curricula	2024	Book
PACHECO, R. During	Obstacles of the digital revolution in the educational environment	2024	Focus Magazine
GOMES, J. de Souza *et al*.	Education 4.0: technological innovations and their contributions to the transformation of the teaching-learning process	2024	ARACÊ Magazine
SAINTS, S. M. A. V.; Frank, A. S. (orgs.)	Educational innovation: emerging practices in the twenty-first century	2024	Book
FERREIRA, S. B.; MALTA, D. P. L. N.	From the blackboard to the digital whiteboard: the revolution in the classroom	2024	ARACÊ Magazine
DEMUNER, J. A.; GONDIM, F. J.	Digital culture in education: opportunities and challenges	2024	ARACÊ Magazine
GONZALES, A.; GOMES, A. J. F.	Quiet Revolution: How Artificial Intelligence is Transforming the Future of Higher Education	2024	ARACÊ Magazine
SAINTS, S. M. A. V.; Frank, A. S. (orgs.)	Media and technology in the curriculum: innovative strategies for contemporary teacher education	2024	Book

Source: authorship

After inserting the table, it is possible to observe the diversity of the sources that support the research and their contribution to the understanding of the application of educational platforms in the personalization of teaching. These references provided a basis for the analysis of the different aspects of the theme, from theoretical concepts to practical experiences in the use of technologies in the school environment.

EFFECTIVENESS OF EDUCATIONAL PLATFORMS IN PERSONALIZING TEACHING

The effectiveness of educational platforms in personalizing teaching has been discussed in research that seeks to assess their impact on the learning process of students. According to Gomes *et al*. (2024, p. 15), "educational platforms have shown positive results in adapting content to students' needs, but results may vary depending on implementation, teacher training, and access to technology." This study highlights that, although the personalization offered by platforms has great potential, their effectiveness is related to the way they are implemented in schools and the specific context of each institution, such as technological infrastructure and pedagogical support.

In addition, research indicates that the use of educational platforms can have a positive relationship with students' academic performance. Araújo (2020, p. 112) observes that "when platforms are used, adapting the content according to the student's level of knowledge and learning pace, there is a significant increase in academic performance in subjects that require greater interaction and practice". The ability of platforms to provide immediate *feedback* and to allow learners to progress as they evolve contributes to personalized learning. This is reflected in high academic performance, especially for students who face difficulties in rigid and traditional teaching environments.

Comparative studies also demonstrate the advantages of platforms over traditional teaching methods. Barbosa, Melo, and Tarossi (2023, p. 49) state that "compared to traditional methods, educational platforms offer greater flexibility of time and space, in addition to enabling a personalization of teaching that conventional methods cannot provide". This comparison reveals one of the main advantages of the platforms: the ability to constantly adapt and meet the different needs of students, which is difficult to achieve with traditional teaching approaches. The personalization that platforms allow can be decisive for the success of students who need time or different pedagogical approaches to understand the content.

These observations indicate that while educational platforms bring significant advantages in personalizing instruction, the effectiveness of their impact depends on well-planned implementation and ongoing support for educators and learners. Students'

academic performance tends to improve with the proper use of these technologies, compared to traditional methods, which are not always able to adapt to the individual needs of each student.

CHALLENGES AND LIMITATIONS OF PERSONALIZATION ACROSS PLATFORMS

The personalization of teaching through educational platforms, while promoting innovations in the learning process, also faces significant challenges, both from a technological and pedagogical point of view. Araújo and Favarato (2024, p. 18) highlight that "the main challenges for the implementation of educational platforms include educators' resistance to changes in traditional methods, the lack of adequate technological infrastructure in schools, and inequality in access to the internet and digital devices". These obstacles make it difficult to fully integrate the platforms into everyday school life, especially in regions with fewer resources, where the necessary conditions for the successful implementation of these technologies may be scarce.

Technological limitations are also a critical factor that compromises the personalization of teaching. Barbosa, Melo, and Tarossi (2023, p. 56) state that "platforms are often not compatible with the operating systems or devices used by schools, which limits their reach and efficiency in personalizing teaching". This point reveals that, although platforms offer great potential to adapt content to the needs of students, their effectiveness is restricted by the technological infrastructure available in schools. When technology is not adequately compatible, the adaptation required to personalize teaching becomes impossible or ineffective, undermining the potential for individualized learning.

In addition, pedagogical barriers also represent an important challenge. Farias (2023, p. 79) observes that "many educators still do not have the necessary training to use educational platforms, which leads to the underuse of personalization tools and the difficulty in adapting teaching methods to the characteristics of each student". This points to the need for continuous training of teachers, so that they can explore the potential of platforms and apply adaptive methodologies in the teaching process. The lack of training can lead to a superficial use of the platforms, without exploring their functionalities aimed at personalizing teaching.

Therefore, the challenges and limitations of personalization through educational platforms are linked to technological infrastructure and teacher training. Schools face significant difficulties in adopting these technologies due to the lack of resources, the unpreparedness of some educators, and the technological limitations of the platforms, which prevents the effective application of personalization of teaching. Overcoming these

obstacles requires continuous investments in professional training, infrastructure, and adequate support for the implementation of platforms in educational institutions.

THE FUTURE OF EDUCATIONAL PLATFORMS AND THE PERSONALIZATION OF TEACHING

The future of educational platforms is linked to the continuous development of new technologies, which promise to further improve the personalization of teaching. Future trends point to an increasing integration of artificial intelligence (AI) and big data, allowing for precise and dynamic personalization of learning experiences. As stated by Gomes *et al*. (2024, p. 22), "the educational platforms of the future will be based on artificial intelligence, offering adaptive content in real time, based on large volumes of data on student performance and preferences". This evolution will bring a significant advance in the ability of platforms to adjust content according to the needs of each student, promoting a fully personalized learning experience.

Artificial intelligence and *big data* play a key role in the evolution of educational platforms, as they make it possible to analyze large amounts of data in real-time to offer personalized solutions. According to Farias (2023, p. 82), "the use of AI and *big data* in educational platforms will allow personalization, with algorithms that can predict students' difficulties and adjust content in advance, even before the student realizes the need for revision". This means that technology will be able to predict which areas of knowledge need attention, offering adapted content and educational resources even before the student faces a difficulty.

These innovations, however, bring new challenges for both educators and students. As Araújo and Favarato (2024, p. 30) point out, "the advancement of technology requires educators to be prepared to deal with complex tools and to know how to interpret the data generated by the platforms to guide their students". This comment underlines the need for continuous training for teachers, who must be able not only to use new technologies, but also to interpret the data generated by these platforms to offer personalized and efficient guidance to their students.

In addition, the prospects for innovation in educational platforms also involve challenges for students, who will need to develop new digital skills to take full advantage of these technologies. Adapting to the use of advanced AI and *big data* tools will require students to have a greater mastery of technologies, which can be a challenge in educational contexts that still lack adequate infrastructure and digital training. Thus, both

educators and students need to be prepared for technological advancements in order to make the most of the personalization potential of educational platforms.

Therefore, the future of educational platforms points to a growing use of artificial intelligence and big data, providing refined personalization of teaching. However, for these innovations to be successful, it will be necessary for both educators and students to adapt to new technologies and the new challenges they bring, ensuring that the use of these tools is efficient and benefits the learning process of everyone involved.

FINAL CONSIDERATIONS

The present study investigated the use of educational platforms in the personalization of teaching, with the objective of understanding how these tools are being implemented in schools and what impact they have on the students' learning process. From the analysis of data and references, it was possible to identify that educational platforms have great potential to transform teaching, adapting it to the individual needs of each student. The personalization of teaching is facilitated by these tools, which offer the possibility of adjusting the content according to the pace and difficulties of the students, providing autonomous and student-centered learning.

The main findings indicate that, although educational platforms have a significant capacity to promote the personalization of teaching, the effective implementation of these tools in schools still faces considerable challenges. Among these challenges, the lack of adequate technological infrastructure, the resistance of some educators to the adoption of new technologies, and the scarcity of continuing education for teachers stand out. These factors limit the potential of platforms and hinder their full use in many educational contexts. In addition, technological limitations, such as compatibility with devices and internet connection, represent important obstacles that must be overcome in order for platforms to reach their full personalization potential.

The study also revealed that the use of educational platforms can have a positive impact on students' academic performance, especially when personalization is carried out. The adaptation of content to the individual needs of students, along with flexibility in time and pace of learning, was pointed out as one of the main advantages of the platforms. However, the effectiveness of these tools depends not only on their technological implementation, but also on the ability of educators to use these platforms in a strategic and adaptive way. The mediation of the teacher, who must be prepared to interpret the data generated by the platforms and guide the students, was identified as an essential element for the success of the personalization of teaching.

Despite the advances, the challenges related to the adaptation of educators and the lack of resources still need to be faced. To ensure that the personalization of teaching reaches its full potential, it is necessary to invest in continuing education for teachers and improvements in school infrastructure. Overcoming these challenges is essential for educational platforms to be used efficiently and contribute to the transformation of education. Regarding the contribution of this study, it provided an insight into the key aspects of personalizing teaching through educational platforms. The results obtained highlight both the opportunities and the limitations of this process, allowing a clear understanding of the factors that influence the success of personalization in the school context. This study contributes to the debate on the implementation of educational technologies and points out ways to improve the use of these tools.

However, the findings of this study indicate that research is needed to broaden the analysis of the barriers faced by schools in the adoption of educational platforms, as well as to investigate the best practices in teacher training for the use of these technologies. Exploring the impact of platforms on the learning of different groups of students, such as those with learning difficulties or those with special needs, would also be a relevant area for future studies. In addition, it would be important to evaluate the long-term effects of platforms on student learning, considering aspects such as knowledge retention and the development of cognitive and social skills.

Therefore, although the results of this study provide an important basis for understanding the relationship between educational platforms and personalization of teaching, there is a clear need for research to expand knowledge on the subject and expand the possibilities for improvement in the use of these technologies in the educational context.

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