Playfulness and digital games in education: Exploring the potential of technology for the teaching and learning process

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ABSTRACT

The objective of this research was to analyze the potential of playful games and digital technologies for the teaching and learning process. To this end, an integrative review research was carried out, which involved the survey of articles on the SciElo and Google Scholar platforms. During the search survey, search descriptors "AND" and "OR" were used in conciliation with specific keywords. In addition, only scientific articles in Portuguese published between 2022 and 2023 were selected. As a result, it was found that the implementation of playful games and technologies in the school environment reveals significant advantages for the teaching-learning process, especially for students with Attention Deficit Hyperactivity Disorder (ADHD). The analysis emphasizes the crucial role of these tools in promoting a dynamic and effective educational approach, although they face challenges such as a lack of technological skills and resources in institutions. The role of the educator in the diversification of teaching strategies is also highlighted, using games as a methodological resource to stimulate learning and increase student participation, resulting in improvements in class performance and dynamics. The continuing education of teachers is highlighted as essential to adopt innovative pedagogical practices, even in the face of obstacles in the implementation of playful activities. It is concluded that the integration of games and technologies in the educational context offers a promising way to improve teaching, highlighting the importance of the role of the educator and the investment in technological resources to provide a more effective and meaningful education.

Keywords: Digital games, Playful, Education, School inclusion, Technology.

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INTRODUCTION

Playful games have been a fundamental tool in the cognitive, emotional and social development of children and adults. Playful games provide a dynamic learning environment where participants can explore, experiment, and learn interactively. With the advancement of digital technology, new ways to incorporate these playful elements have emerged, creating a range of electronic games and educational applications. This convergence between games and digital technology has revolutionized the way we learn and engage with knowledge, offering immersive and personalized experiences (DIONIZIO, 2019).

Utilizing digital technology in games provides a variety of benefits, including the ability to simulate complex scenarios, provide instant feedback, and adapt the difficulty level according to the player's progress. In addition, digital games allow for greater accessibility, reaching a wider and more diverse audience. In the educational context, they can be used to teach academic concepts, develop specific skills, and promote collaboration and teamwork (SANTOS; PEREIRA, 2019).

In education, the integration of playful games and digital technologies offers unique opportunities to engage students in meaningful and motivating ways. By creating interactive and engaging learning environments, educators can increase students' interest in content and promote more effective learning. In addition, the personalization of digital games makes it possible to adapt teaching to the individual needs of each student, providing a more personalized and efficient learning experience (GADELHA et al., 2019).

Thus, the objective of this research was to analyze the potential of playful games and digital technologies for the teaching and learning process. It is hoped that the results of this research will provide theoretical and practical subsidies for the understanding of the role of playful games and digital technologies in education. Understanding the potential of these tools is crucial for enhancing educational practices and promoting more meaningful and engaging learning.

METHODOLOGY

The research was conducted through an integrative review, a method that allows for a comprehensive and systematic analysis of the existing literature on a given topic, bringing together data from different studies to offer a holistic view of the subject. This approach was chosen due to the need to understand the potential of playful games and digital technologies in education, exploring diverse perspectives and evidence available in the literature.

To carry out the data collection, the Google Scholar and Scielo platforms were used, using specific keywords and search descriptors such as "educational games", "digital technologies in education", "learning through games", among others. The combination of Boolean operators "AND" and "OR" was employed to refine the results and ensure the relevance of the selected articles.

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Inclusion criteria were established for the selection of articles, which included the choice of only scientific articles, Brazilian articles, articles in Portuguese, full articles, free articles, articles associated with the topic of interest, and articles published in the period between 2022 and 2023. Other types of studies, such as theses, conference abstracts, and reports, were excluded from the analysis to ensure the quality and relevance of the data obtained.

Data analysis was performed in two distinct stages. In the first stage, the abstracts and titles of the articles found were read, selecting those that met the established inclusion criteria. Then, in the second stage, the selected articles were read in full, allowing for a more in-depth analysis of the content. As a result, a final sample of three scientific articles was obtained for analysis and discussion.

RESULTS AND DATA ANALYSIS

As a result, it was possible to obtain a sample of 3 scientific articles, as shown in chart 1.

Based on the data obtained and the perception of the students surveyed, it was observed that a large majority recognize playful activities and games as facilitating instruments for new learning, in addition to contributing to the improvement of school performance. The difficulties encountered in carrying out the games, according to the academics, were minimal, one of them being related to the time needed to carry out this type of work, which can lead teachers to give up due to lack of knowledge about methodologies that go beyond the traditional model. In this sense, the importance of continuing education for teachers is highlighted. Although the adoption of these activities has contributed to the teaching and learning process of the various contents worked, there is still a long way to go to overcome traditional teaching in Brazil. However, the experience described demonstrates that it is possible for teachers to innovate teaching methods, promoting interaction, integration and collaboration in the development of knowledge in an efficient way, based on an interdisciplinary approach.

Authors	Objective	Methodology	Conclusion
Costa, Dias e Santos (2022)	Discuss the use of technology in learning with elementary school children who have ADHD	Bibliographic research	The implementation of playful games and technologies in the school environment presents several benefits for the teaching-learning process. Although some education professionals may feel discomfort due to a lack of technological skills and a scarcity of resources in institutions, the inclusion of these tools can provide a more dynamic and effective approach to education, especially for students with Attention Deficit Hyperactivity Disorder (ADHD). Studies show that the use of digital games can spark students' interest and help control symptoms such as hyperactivity and restlessness, facilitating engagement and completion of activities. Furthermore, investment in educational technology, including internet access and digital equipment, is essential to expand learning opportunities and raise education levels.
Sousa (2022)	Analyze the importance of a digital game for the teaching and learning process	Bibliographic research	The fundamental role of the educator in the teaching-learning process is evident at all stages, highlighting the importance of diversifying teaching techniques to make classes more attractive and productive. The use of games as a methodological resource aims to effectively stimulate learning, developing skills in students. In this sense, this project demonstrated that students felt motivated to learn mathematics in an interactive and enjoyable way, acquiring knowledge, problem-solving skills and promoting cooperation and teamwork. The results obtained using the application were positive, reflected not only in internal evaluations, but also external ones, demonstrating that mathematics classes have become more dynamic and effective. In conclusion, this study highlights the importance of teachers in proposing different strategies to disseminate knowledge to students, highlighting the relevance of everyday teaching practice to achieve success in teaching.

Lunkes et al. (2024)	Understand how the use of recreational resources, games, in the teaching and learning process, associated with the use of technologies, can help in the transposition of mathematical content	Experience report	Based on the data obtained and the perception of the students surveyed, it was observed that a large majority recognize recreational activities and games as facilitating instruments for new learning, in addition to contributing to improving school performance. The difficulties encountered in carrying out the games, according to the academics, were minimal, one of them being related to the time needed to carry out this type of work, which could lead teachers to give up due to a lack of knowledge about methodologies that surpass the traditional model. In this sense, the importance of continuing teacher training stands out. Although the adoption of these activities has contributed to the teaching and learning process of the different contents covered, there is still a long way to go to overcome traditional teaching in Brazil. However, the experience described demonstrates that it is possible for teachers to innovate teaching methods, promoting interaction, integration and collaboration in the development of knowledge efficiently, based on an interdisciplinary approach.

Source: Survey data (2024).

In view of the above, the benefits of implementing playful games and technologies in the school environment for the teaching-learning process are observed, especially highlighting their relevance for students with Attention Deficit Hyperactivity Disorder (ADHD). Costa, Dias, and Santos (2022) point out that, although some education professionals may experience discomfort due to a lack of technological skills and the scarcity of resources in institutions, the inclusion of these tools can provide a more dynamic and effective approach to education. The use of digital games is pointed out as an effective strategy to arouse students' interest and help control symptoms associated with ADHD, such as hyperactivity and restlessness, which facilitates engagement and completion of activities.

The analysis carried out by Costa, Dias and Santos (2022) highlights the importance of investing in educational technology, including access to the internet and digital equipment, as fundamental elements to expand learning opportunities and raise education levels. The survey highlights the need to overcome obstacles related to the lack of technological skills on the part of education professionals and the scarcity of resources in institutions, emphasizing the importance of continuous training and investments in technological infrastructure in schools.

Sousa (2022) highlights the essential role of the educator in the teaching-learning process, emphasizing the need to diversify teaching techniques to make classes more attractive and productive. The use of games as a methodological resource is pointed out as an effective strategy to stimulate learning, develop students' skills and promote interactivity in mathematics teaching. The study shows that the students felt motivated and engaged during the activities, acquiring knowledge, problem-solving skills and promoting cooperation and teamwork.

The positive results obtained with the use of the application demonstrate not only an improvement in the students' performance in internal assessments, but also external ones, indicating that mathematics classes have become more dynamic and effective. In conclusion, Sousa (2022)

highlights the importance of teachers in proposing differentiated strategies to disseminate knowledge to students, emphasizing that success in teaching requires a daily and innovative teaching practice.

Authors such as Lunkes et al. (2024) highlight that most students recognize playful activities and games as facilitating tools for new learning, associated with improved school performance. Despite this, the difficulties faced in the implementation of these activities were minimal, being mainly related to the time needed to carry them out and the lack of knowledge about alternative methodologies on the part of the teachers. These results highlight the importance of continuing education of teachers for the adoption of innovative pedagogical practices.

Although playful activities have contributed positively to the teaching and learning process, the study points out that there is still a long way to go to overcome traditional teaching in the Brazilian educational context. However, the experience described shows that it is possible for teachers to innovate in their teaching methods, promoting interaction, integration and collaboration in the development of knowledge in an effective way, through an interdisciplinary approach. This conclusion highlights the importance of investing in teacher training and in the promotion of pedagogical practices that encourage the active participation of students and the collaborative construction of knowledge.

FINAL THOUGHTS

In view of the evidence presented, it is noticeable that the introduction of playful games and technologies in the school environment offers significant advantages for the teaching-learning process. The analysis highlights the importance of these tools in promoting a more dynamic and effective educational approach, although there are challenges related to the lack of technological skills and resources in educational institutions.

In addition, the fundamental role of the educator in the diversification of teaching strategies is highlighted, including the use of games as a methodological resource to stimulate learning and foster student participation. The positive results obtained with the use of educational technologies reflect not only improvements in student performance, but also positive changes in the dynamics of classes.

Finally, the importance of continuing education of teachers for the adoption of innovative pedagogical practices is emphasized, even in the face of the challenges faced in the implementation of playful activities. Experience shows that it is possible to innovate in teaching methods, promoting interaction and collaboration among students, which contributes to the development of knowledge more effectively.

Therefore, it is concluded that the integration of playful games and technologies in the educational context offers a promising way to improve the teaching-learning process, emphasizing

the importance of the role of the educator, continuing education and investment in technological resources in schools to provide a more effective and meaningful education.

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