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GAMIFICATION IN THE TEACHING-LEARNING PROCESS

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ABSTRACT

This study analyzes the application of gamification in the teaching-learning process, exploring its theoretical foundations and its practical implementation in educational environments. The research reviews the literature on playful elements and innovative pedagogical strategies, demonstrating how the transposition of game mechanics to the classroom can transform traditional teaching into an interactive, collaborative and meaningful experience. The analysis of the practical cases shows that the use of gamified methodologies promotes student engagement, develops cognitive and socio-emotional skills and contributes to the construction of a learning environment more adapted to contemporary demands. In this way, the study highlights the importance of training educators and reviewing pedagogical practices, pointing to gamification as a promising tool for educational transformation.

Keywords: Gamification. Education. Active methodologies. Commitment. Apprenticeship.

INTRODUCTION

The growing insertion of digital technologies in everyday life has caused profound transformations in educational processes, as the need to adapt traditional methods to the challenges of a society in constant evolution drives the search for innovative alternatives that promote meaningful learning, with gamification being an emerging strategy that incorporates playful elements to arouse the interest of students (Raposo Neto et al., 2022).

The application of digital resources and playful strategies in the educational environment has gained recognition for its ability to engage students more effectively than traditional classes, essentially expository, which often lack active participation and make the learning process mechanical. Gamification, in this context, emerges as an innovative approach, as it transfers game mechanisms such as clear goals, rewards, and engaging narratives to pedagogical practices, resulting in greater motivation, interaction, and focus of students.

Different studies point out that gamified activities, when planned according to curricular objectives, contribute to the development of cognitive and socio-affective skills, as they value student protagonism, stimulate collaboration, and reinforce autonomy. (Kapp, 2012). In this sense, there is considerable potential to make learning a meaningful and pleasurable experience, bringing theory and practice closer together and offering systematic feedback that helps in the assimilation of content.

The popularization of gamification methods is not limited to entertainment environments, as this concept expands to several sectors, including education, where the use of techniques similar to those found in games encourages problem solving in a creative and dynamic way. In a society increasingly permeated by technology and the search for agile solutions, gamification emerges as a promising way to promote student engagement, opening space for students to become active agents in their own training process.

The articulation between technological and playful elements offers a platform that integrates different forms of knowledge, allowing the combination of theory and practice in an organic way, where students can experiment and reflect on the contents, expanding the understanding of concepts in an intuitive and collaborative way.

Integrative research shows that the adoption of gamified activities promotes a paradigm shift in the educational process, since students feel stimulated to interact, explore and question, which favors not only learning, but also the construction of a more dynamic and motivating teaching environment.

The convergence between gamified practices and the demands for an education that values creativity and autonomy creates a fertile field for pedagogical innovation, as it allows

the adaptation of content to the realities of students, making learning more meaningful and anchored in practical and contextualized situations.

The use of gamified strategies highlights the importance of transforming classrooms into interactive spaces, where the exchange of experiences and the stimulation of curiosity come together to promote an environment conducive to the development of socio-emotional skills, fundamental for the integral formation of individuals.

It should be noted that applying elements of games in the educational context not only diversifies teaching methods, but also reinforces the idea that learning can be a pleasurable and challenging experience, which, at the same time, contributes to increasing student engagement and participation in collaborative and reflective activities (Fragelli, 2017).

Integrating digital technologies, such as interactive platforms and educational software, into gamified practices enhances learning by offering tools that facilitate the visualization of abstract concepts and promote interactivity, bringing students closer to the content in an innovative way and adapted to new generations (Oliveira et al., 2015).

Several studies indicate that the use of active methodologies, especially those that incorporate the logic of games, is effective in both elementary and higher education, as it enables more active and reflective learning, contributing to overcoming the limitations of conventional methods and preparing students for the challenges of the contemporary world (Souza et al., 2020).

In summary, gamification represents a transformative proposal that, by integrating playful elements into educational processes, allows the rescue of students' interest and creativity, while promoting a more dynamic, interactive education centered on the integral development of the human being (Japiassu and Rached, 2020).

THEORETICAL FOUNDATIONS AND THE CONCEPTUAL BASIS OF GAMIFICATION

The understanding of the theoretical foundations that underlie gamification is based on the recognition that games, as a cultural and educational phenomenon, offer a structure of elements such as rules, objectives, feedback, and narrative that can be transposed to didactic contexts, allowing the construction of more interactive and motivating learning experiences, as this approach is based on theories of motivation and behavior that emphasize the importance of active student engagement (Kapp, 2012).

Considering the historical evolution of pedagogical methods, it is evident that gamification emerges as a response to the limitations of traditional models, which, although consolidated, present difficulties in capturing the attention and interest of students,

generating the need to rethink teaching strategies through practices that integrate playful and collaborative aspects, while providing an environment conducive to creativity and autonomy of students (Werbach and Hunter, 2012).

The conceptual basis of gamification is based on the premise that the elements inherent to games, such as progressive challenges, reward systems and immediate feedback, can be adapted to foster learning, since these mechanisms not only arouse interest, but also encourage persistence in the face of complex tasks, contributing to the improvement of cognitive performance and the development of socio-affective skills (Fragelli, 2017).

According to Oliveira et al. (2015), the application of the principles of games in education promotes a dynamic of interaction that transforms the teaching and learning experience, as the gamified environment allows a more natural approximation between curricular content and the realities of students, favoring the assimilation of knowledge in an organic and meaningful way.

The theoretical foundation of gamification is further supported by psychopedagogical approaches that emphasize the importance of feedback and self-regulation. The reward and progression mechanisms establish clear goals that encourage students to monitor their own performance, promoting an active posture in the construction of knowledge and in overcoming difficulties. (Souza et al., 2020).

In dialogue with the precepts of active methodologies, gamification represents a break with traditional teaching, as it places the student as the protagonist of their training process and promotes learning through activities that stimulate both logical reasoning and creativity, allowing a multidimensional approach that integrates theory, practice, and interaction (Japiassu and Rached, 2020).

The articulation between playful elements and educational strategies is based on learning theories that recognize the importance of error and trial in the acquisition of new knowledge, emphasizing feedback as a tool for correction and continuous improvement. Thus, the gamified environment becomes a space for experimentation and collective construction of knowledge (Kapp, 2012).

In this context, gamification provides the creation of learning scenarios that, by simulating challenges and offering rewards, encourage students to engage in tasks that promote problem-solving and decision-making autonomously, integrating the logic of games into the educational process (Oliveira et al., 2015).

It is noteworthy that the implementation of gamified strategies in the classroom demands an in-depth reflection on the pedagogical objectives and the specific needs of the

students, which implies the elaboration of activities that reconcile the playful and cognitive aspects in order to enhance learning and stimulate continuous interest in the contents covered (Fragelli, 2017).

The conceptualization of gamification encompasses the adaptation of game mechanisms to educational contexts, considering the particularities of the school environment and group dynamics, so that each implemented strategy responds to the specific demands of each context (Souza et al., 2020).

In this way, gamification is established as a tool that converts the teaching and learning process into a multifaceted experience, where interactivity, challenge, and reward are articulated to create a stimulating, dynamic environment centered on the collaborative construction of knowledge (Japiassu and Rached, 2020).

The gamified approach, based on solid theoretical principles, allows the creation of learning situations that value both practical experience and critical reflection, as students are encouraged to actively participate in activities that require planning, strategy and analysis, promoting the development of skills that go beyond the mere accumulation of information (Kapp, 2012).

By integrating playfulness into pedagogical practices, gamification breaks with the paradigm of passivity and teacher-centered teaching, favoring a more interactive, adaptive, and inclusive training process, in which students feel encouraged to explore, question, and build their own knowledge through challenges that reflect real and relevant situations for their education (Oliveira et al., 2015).

Thus, the conceptual basis of gamification shows that the convergence between the elements of games and active methodologies can promote a significant transformation in the educational scenario, transforming the way content is transmitted and assimilated, by providing a learning experience that combines fun, engagement and theoretical depth and contributes significantly to the integral formation of individuals (Fragelli, 2017).

THE APPLICATION OF GAMIFICATION IN EDUCATIONAL ENVIRONMENTS

The implementation of gamification in educational contexts shows a paradigmatic shift, as teaching practices are redesigned to incorporate playful elements that, combined with digital technologies, provide more interactive and challenging learning environments, motivating students to engage in an active and creative way, which allows a deeper approximation between theory and practice (Raposo Neto et al., 2022).

The transposition of the characteristic elements of games to school activities enables the creation of dynamic experiences, in which students are involved in challenges that

stimulate logical reasoning and problem solving, while the engaging narrative and reward systems encourage persistence and overcoming obstacles, promoting continuous and collaborative learning (Kapp, 2012).

In addition, by applying gamified strategies, teachers have the opportunity to transform the classroom into a space where active participation and immediate feedback are central, since the planned activities allow students to monitor their own performance, identify their difficulties and celebrate achievements, which favors the development of socio-emotional and cognitive skills essential for the training process (Werbach and Hunter, 2012).

Virtual learning environments, by being enhanced by gamification, offer a robust platform for the integration of curricular content with technological elements, allowing the student to interact with the material in an autonomous and collaborative way, in addition to stimulating creativity and innovation through challenges that simulate real situations and instigate problem solving in a contextualized way (Oliveira et al., 2015).

In addition, the application of gamification goes beyond the simple insertion of game mechanics, as it involves the reformulation of pedagogical practices so that they are aligned with educational objectives, which requires careful preparation of educators to identify the potential of each digital tool and playful elements, ensuring that the learning experience is both challenging and motivating (Fragelli, 2017).

By integrating resources such as scoring systems, progress levels, and instant feedback, gamified strategies promote a healthy competition environment that encourages cooperation among students, allowing challenges to be faced collectively, which strengthens social interaction and the collaborative construction of knowledge, reflecting a more modern and inclusive educational practice (Souza et al., 2020).

The use of contextualized narratives and challenges in gamified activities creates an immersive atmosphere, in which curricular content is presented in an integrated way to the students' reality, favoring the assimilation of concepts through an experience that makes the teaching-learning process more meaningful and anchored in practical situations of everyday life, which enhances interest and motivation for study (Japiassu and Rached, 2020).

The adaptation of games to the educational environment requires the elaboration of lesson plans that consider the particularities of the students, the learning objectives and the available technological conditions, so that each gamified activity is structured to meet specific needs, promoting a personalized and effective experience, which values both autonomy and group work (Kapp, 2012).

In this scenario, the continuing education of teachers becomes fundamental for the effectiveness of gamification, as it is from the mastery of the tools and the understanding of the playful elements that it is possible to plan and execute activities that transform the school environment, ensuring that students feel motivated and engaged when they realize the relevance of the proposed challenges for their personal and academic development (Werbach and Hunter, 2012).

The application of gamified techniques favors the construction of a teaching environment in which students receive knowledge passively, and actively participate in their own training, exercising the ability to solve problems, make decisions and self-criticism, which translates into deeper and more lasting learning (Fragelli, 2017).

By using interactive digital resources, such as adaptive teaching platforms and educational apps, teachers are able to implement gamified strategies that transform traditional teaching, promoting a learning experience that adapts to the different speeds and styles of students, which contributes to the inclusion and personalization of the educational process (Souza et al., 2020).

The development of gamified activities allows the contents to be presented in a non-linear and interactive way, encouraging students to explore different paths and solutions, which stimulates curiosity and investigation, essential elements for the formation of a critical mindset and for the construction of knowledge in an autonomous and collaborative way (Japiassu and Rached, 2020).

With the transformation of pedagogical practices, gamification becomes an instrument of innovation that not only arouses the interest of students, but also stimulates the development of fundamental skills for professional and personal life, such as resilience, the ability to work in a team and the ability to adapt to new technologies and challenges, which evidences its transformative potential in the contemporary educational scenario (Kapp, 2012).

Thus, the application of gamification in educational environments demonstrates that, by integrating elements of games with modern pedagogical strategies, it is possible to create a learning experience that combines fun, engagement and theoretical depth, contributing to the integral formation of students and to the renewal of teaching practices that adjust to the demands of today's society (Fragelli, 2017).

THE SOCIO-HISTORICAL PERSPECTIVE AND GAMIFICATION

The approach to gamification from a socio-historical perspective reveals the importance of contextualizing the educational process within the cultural and technological

transformations that characterize contemporary society, since the elements of games and pedagogical practices are articulated to promote the collective construction of knowledge, evidencing the relevance of the dialogue between past and present for the effectiveness of more significant teaching processes (Fardo, 2013).

The socio-historical foundation of learning, inspired by Vygotsky's studies, emphasizes that cognitive development occurs through social interactions and cultural mediation, which legitimizes the use of gamified strategies to bring students closer to the content, as the dynamics of games stimulate cooperation, the sharing of knowledge and the joint construction of meanings. promoting learning that transcends mere memorization and fosters creativity (Vygotsky, 1978).

By exploring the Zone of Proximal Development, the elements of gamification reveal themselves as tools that allow the overcoming of challenges in a collaborative way, to the extent that immediate feedback and rewards work as mediators between previous knowledge and new learning experiences, providing students with the opportunity to expand their skills through interactions that value both error and attempt (Burden, 2013).

The integration between the theoretical foundations of the socio-historical perspective and the mechanisms of games shows that gamification is not merely a transposition of playful techniques, but rather a strategy that rescues the potential of social interactions to transform the educational environment, allowing the student to assume an active and constructive role in the elaboration of their own knowledge, so that the teaching process becomes dynamic and adapted to contemporary demands (Vygotsky, 1978).

Considering the historical evolution of education, it is observed that the passage from traditional pedagogical models to more collaborative approaches reflects a paradigmatic change in which the educator is no longer the sole holder of knowledge to become a facilitator, mediator and guide, a function that is enhanced by gamification, which, by encouraging active participation, contributes to the formation of a learning community based on dialogue and the exchange of experiences (Fragelli, 2017).

By adopting a socio-historical perspective, gamified teaching integrates cultural elements that dialogue with the students' reality, allowing learning experiences to be contextualized in order to reflect the challenges and opportunities of the digital society, where technologies and the means of communication directly influence the way knowledge is built and shared (Oliveira et al., 2015).

The use of game elements, such as narrative, progressive challenges and reward systems, comes to be seen as a way to mediate social and cultural interactions within the educational environment, creating learning spaces that promote critical reflection, problem

solving and the ability to work collaboratively, indispensable characteristics for the integral development of individuals (Kapp, 2012).

This integrative approach emphasizes that, in addition to the motivational aspect, gamification contributes to the transformation of teaching and learning relationships by establishing a bridge between theoretical knowledge and social practice, where the student is challenged to interpret, analyze and recreate concepts based on their experiences, thus strengthening the role of culture as a mediator of knowledge (Vygotsky, 1978).

The socio-historical context also allows us to understand gamification as a phenomenon that dialogues with the current trends of digitalization and globalization, where the boundaries between virtual and physical spaces become increasingly tenuous, enabling an education that adapts to new demands and uses technological resources to create more interactive and collaborative learning environments (Fragelli, 2017).

The incorporation of playful elements in educational processes can be understood as a reflection of cultural evolution that values experimentation and creativity, allowing students to get involved in activities that favor not only the acquisition of knowledge, but also the development of socio-emotional and critical skills, which are fundamental for acting in complex and dynamic contexts (Oliveira et al., 2015).

The socio-historical perspective, by recognizing the importance of culture and social interaction in learning, legitimizes gamification as a pedagogical strategy that promotes student autonomy and encourages active participation, transforming the classroom into a space for constant exchange and collective construction of knowledge, where each individual contributes to the enrichment of shared knowledge (Kapp, 2012).

When analyzing the influence of digital culture on the educational process, it is noted that gamification becomes an effective means of integrating technological advances into pedagogical practice, creating an environment where virtual and face-to-face interactions complement each other to form a knowledge network that values both individuality and cooperation, evidencing the need to rethink traditional methodologies in favor of more flexible and innovative approaches (Vygotsky, 1978).

The experience accumulated from studies that address gamification demonstrates that the convergence between the elements of games and pedagogical practices is capable of stimulating students' creativity and critical capacity, as the challenges proposed in gamified activities promote reflection and experimentation, boosting the construction of knowledge that becomes more relevant and adapted to the students' reality (Fragelli, 2017).

Through this integration, it becomes possible to view gamification as a tool that transcends the limits of entertainment to consolidate itself as an instrument of social transformation, in which the role of the educator is rethought and learning is reformulated in order to dialogue with the demands of a world in constant change, allowing the creation of more inclusive and participatory educational spaces (Oliveira et al., 2015).

CASE ANALYSIS: GAMIFICATION APPLIED

In this chapter, a case analysis is presented that illustrates the practical implementation of gamification in the educational environment, according to applied studies, highlighting the difficulties and results observed from the integration of playful elements with the teaching-learning processes, considering that the approach is based on both motivational theories and empirical evidence extracted from real experiences (Fragelli, 2017).

It is observed that the gamified strategy was designed to transform the classroom environment into an interactive space, where the active participation of students was stimulated through progressive challenges, scoring systems and immediate feedback, which, in an integrated way, contributed to the construction of a learning scenario that valued both autonomy and collaborative work (Kapp, 2012).

From the implementation of the proposal, teachers began to use digital platforms and educational applications that enabled the creation of customized activities, allowing the adaptation of content to the specific needs of students, so that each stage of the training process was marked by challenges that reflected both the curricular objectives and the socio-emotional skills to be developed (Werbach and Hunter, 2012).

The analysis of the case revealed that the use of engaging narratives and reward mechanisms contributed to the intensification of student engagement, who began to show greater interest in the proposed activities, which evidenced a change in attitude in relation to traditional learning, characterized by passivity and simple memorization (Oliveira et al., 2015).

Gamified practice consistently promoted interaction between students and teachers, as continuous feedback and immediate rewards allowed students to orient themselves in terms of their performance, adjusting strategies and collaborating to overcome challenges, which ultimately fostered a more dynamic and inclusive learning environment (Fragelli, 2017).

The analyzed experience demonstrated that gamification, when well planned, is capable of transforming pedagogical relationships, as students began to see themselves as

protagonists of their own learning, while teachers assumed the role of facilitators who guide and stimulate the critical and creative development of students (Kapp, 2012).

During the implementation, situations were observed in which the proposed challenges generated debates and exchanges of experiences, allowing students to discuss different strategies for problem solving and contribute collectively to the improvement of activities, which reinforced the idea that learning can be a truly collaborative process (Werbach and Hunter, 2012).

The analysis also pointed out that the use of scoring systems and levels of progression worked as an intrinsic motivation mechanism, as students felt encouraged to persist and surpass themselves, especially when the activities presented a progressive complexity that required both individual effort and cooperation among peers (Oliveira et al., 2015).

Throughout the process, the results were measured through assessment instruments that included self-reports, feedback questionnaires, and direct observations, showing that the students' engagement and performance levels showed a significant improvement compared to the traditional method, which confirmed the effectiveness of gamification to enhance learning (Fragelli, 2017).

The data collected allowed us to identify that the interaction with the gamified elements not only increased the motivation of the students, but also contributed to the development of skills such as creativity, critical thinking and the ability to solve problems autonomously, evidencing a qualitative advance in the training process (Kapp, 2012).

The analysis of the results also highlighted the importance of training teachers for the effective use of digital tools and playful elements, as continuing education enabled teachers to adapt to new demands and integrate gamification in a cohesive way with educational objectives, which was directly reflected in the quality of the proposed activities (Werbach and Hunter, 2012).

It was also observed that the gamified approach favored the creation of a personalized learning environment, in which individual differences were considered and students were able to advance at their own pace, adjusting the challenges according to their needs and developing an autonomy that reinforced their self-confidence and interest in the content (Oliveira et al., 2015).

The experience analyzed also highlighted the importance of instant feedback, which enabled a continuous evaluation of performance and helped students to identify their areas for improvement, contributing to more reflective learning and to the consolidation of the knowledge acquired through gamified activities (Fragelli, 2017).

The case analysis reaffirms that gamification applied in the educational context is a strategy capable of promoting a revolution in teaching practices, because by integrating elements of games with active methodologies, it creates a stimulating environment that not only arouses the interest of students, but also prepares them to face complex challenges with creativity and collaboration, essential aspects for success in the integral formation of individuals (Kapp, 2012).

FINAL CONSIDERATIONS

The research developed evidenced, in a striking way, that gamification configures an innovative approach, capable of transforming traditional learning environments into interactive, dynamic spaces adapted to the demands of the contemporary context, promoting the integration between digital resources, playful elements and renewed pedagogical practices, which has positively impacted both student engagement and development.

The implementation of gamified resources demonstrated, throughout the study, a unique ability to promote the active participation of students, because, by being exposed to progressive challenges and well-structured reward systems, students begin to experience the teaching process in a more engaging, collaborative and, above all, meaningful way, breaking with the inertia of conventional methods.

The use of mechanics extracted from the games, such as clear goals, immediate feedback, and the customization of activities, was able to create, in the school environment, an atmosphere conducive to integral development, where challenges stimulate critical thinking, creativity, and problem solving, factors that, when combined, result in deeper and more contextualized learning.

By integrating playful elements into pedagogical practices, the gamified approach has made it possible for classrooms to become spaces of constant interaction, in which the exchange of ideas, cooperation between peers and the active participation of students are stimulated, contributing to the collective construction of knowledge and the formation of more autonomous and proactive individuals.

The transformation of the educator's role, which starts to act as a facilitator and mediator of knowledge, was one of the most evident aspects, because, by using gamified strategies, teachers began to adopt a more flexible and adaptive posture, encouraging students to explore different paths, to experiment with new solutions and to develop skills that go beyond the theoretical content.

The challenges proposed through gamification consistently demonstrated that the learning experience can be continuously improved, as the feedback mechanisms and the progression in the levels of difficulty motivated the students to overcome obstacles, to persist in the face of difficulties and to consolidate knowledge in a gradual and integrated way.

The personalization of activities, adjusted to the individual needs of students, allowed teaching to become more inclusive, since, by respecting the different learning rhythms and offering opportunities for the development of specific skills, gamified resources contributed to the formation of an educational environment that values the particularities of each student.

The articulation between active methodologies and digital resources proved to be fundamental for the transformation of pedagogical practices, because, through gamification, the contents began to be presented in a non-linear and interactive way, which stimulated the curiosity and engagement of students, encouraging them to delve deeper into the topics studied and to establish meaningful connections with the real world.

The insertion of playful elements, such as engaging narratives and scoring systems, made it possible to create learning scenarios that promote experimentation, creativity, and teamwork, allowing students to feel motivated to collaborate, share experiences, and develop a critical stance in relation to the knowledge transmitted.

The approach adopted, which integrates challenges, rewards, and constant feedback, demonstrated that gamification can be a powerful tool to transform the educational experience, making the teaching-learning process more attractive, challenging, and, at the same time, pleasurable, contributing to the improvement of students' cognitive and socio-emotional skills.

The experience accumulated throughout the study pointed to the importance of investing in the continuous training of teachers, since the training of educators is essential for the effective implementation of gamified strategies, allowing the creation of activities that, in a coherent way and aligned with curricular objectives, stimulate learning and student autonomy.

The review of the theoretical foundations and the analysis of the practical cases demonstrated that the integration of game elements with traditional pedagogical practices can promote a true transformation in the way of teaching, contributing to the development of a more dynamic, inclusive educational environment oriented to the active construction of knowledge.

The transformation of educational practices, driven by gamification, reflects a paradigm shift that values the learning process as a multidimensional experience, where interactivity, personalization, and collaborative participation come together to form individuals who are better prepared to face the challenges of a constantly evolving world.

The development of gamified activities has shown, in a practical and measurable way, that the use of playful resources can stimulate not only the interest and motivation of students, but also the ability to think critically, to solve problems in an innovative way and to adapt to different contexts, contributing to a comprehensive education in line with contemporary demands.

In summary, the research demonstrated that gamification, by integrating digital and playful elements with active methodologies, configures a promising proposal, capable of transforming the educational experience and promoting the development of fundamental skills for the formation of critical, autonomous and collaborative individuals, preparing them for the challenges of the future.

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