


ACTIVE METHODOLOGIES AND GAMIFICATION AS A LEARNING ENGAGEMENT STRATEGY: AN EXPERIENCE REPORT USING KAHOOT IN THE CLASSROOM <https://doi.org/10.63330/aurumpub.022-004>**Márcio Luiz Oliveira de Aquino¹, Plínio da Silva Andrade², Gilson Barbosa Franco³, Patrícia Moura dos Santos⁴, Rafael Rocha Soares⁵, Rosane Simonetti⁶ and Rubens Palhares da Fonseca⁷****ABSTRACT**

This article was written by students on the Master's course in Education at the Leonardo da Vinci University, on the subject of “Active methodologies and gamification” and presents a reflection on the role of active methodologies in the educational process, highlighting gamification as a resource capable of promoting greater student motivation, participation and autonomy in an inclusive manner. The experience reported consisted of using the Kahoot application in the classroom to assess content and stimulate interaction between students. The study shows that by transforming assessment into a playful activity, the digital resource contributed to engagement, collaboration and the retention of content in a dynamic way. The research proved to be important as a didactic tool for students with Autism Spectrum Disorder because the teacher's mediation as a guide to the process favors a more meaningful and inclusive learning environment. Thus, the practice revealed that gamification can be an effective strategy for boosting results in the contemporary educational context.

Keywords: Gamification; Inclusion; Learning.

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INTRODUCTION

The use of active methodologies combined with gamification proves to be an effective strategy for engaging autistic students, as it promotes active participation, motivation, and knowledge construction in a playful and meaningful way. Tools such as Kahoot enable interactive activities mediated by technology, transforming learning into a more dynamic and accessible experience (Schneider et al., 2024). For autistic students, gamification contributes to organizing thought, developing attention, and fostering socialization, while respecting different learning paces.

The combination of challenges, rewards, and immediate feedback stimulates autonomy and reduces the anxiety often present in traditional assessment processes. In this context, the teacher's role is fundamental as a mediator, ensuring necessary adaptations and encouraging cooperation among peers. Thus, gamification, when integrated with active methodologies, can become an inclusive resource, promoting learning and social interaction among students in the school environment.

The contemporary educational scenario has undergone significant transformations, driven by constant technological evolution and new social and cognitive demands from students. In this context, Alves (2018) asserts that it is essential to rethink traditional teaching methods, seeking alternatives that foster greater interaction, motivation, and active participation in the learning process. Active methodologies emerge as pedagogical approaches that place the student at the center of knowledge construction, encouraging critical thinking, autonomy, and collaborative problem-solving.

Among the various strategies linked to active methodologies, gamification stands out as an innovative resource capable of enhancing engagement and making learning more dynamic and meaningful. By incorporating typical game elements—such as challenges, rewards, immediate feedback, and level progression—gamification fosters the creation of motivating environments, stimulating curiosity and student persistence in proposed activities.

This article, produced by students in the Master's program in Education at Leonardo da Vinci University, aims to analyze the applicability of active methodologies, focusing on gamification as a pedagogical strategy aimed at increasing engagement and improving teaching-learning processes. It seeks to understand how the integration of these approaches can contribute to building more attractive, interactive, and effective educational experiences, considering the challenges and possibilities of current teaching practices. Thus, it intends to offer theoretical and reflective contributions that support the adoption of innovative methodologies aligned with the needs of 21st-century learners.

The article will be structured as follows: Chapter 2 will briefly discuss the importance of active methodologies in the school context, presenting them as useful tools for student learning. Subsection 2.1 will address Project-Based Learning and exemplify the development of a recyclable waste collection app. Subsection 2.2 will describe the flipped classroom methodology, which consists of reversing actions that

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occur inside and outside the classroom. Subsection 2.3 will conceptualize gamification in pedagogical practice to develop socio-emotional skills and new learning for students with ASD. Chapter 3 and its subsections will report the conception, implementation, and analysis of an educational product based on the use of the Kahoot platform. Chapter 4 will describe the methodology adopted in the research, which was designed as descriptive, qualitative, and bibliographic, with its analysis in field research. Chapter 5 will present the analyses and discussions of the research addressed in this article, emphasizing that active methodology strategies aim to reorganize traditional teaching. Finally, conclusions and theoretical references will be provided.

METHODOLOGY

The research is characterized as bibliographic, as it is based on the analysis of previously published works, such as books, scientific articles, dissertations, theses, and official documents related to the topic under study. According to Gil (2008), bibliographic research is developed from materials prepared earlier, allowing the researcher access to a broad theoretical framework capable of supporting the proposed reflection. In this sense, a careful selection of current and recognized academic sources was carried out, with the aim of gathering different theoretical perspectives and identifying relevant contributions to understanding the phenomenon investigated.

This is a qualitative research approach, as it does not seek to quantify data but rather to understand, interpret, and discuss the meanings attributed to the object under analysis. According to Minayo (2001), qualitative research works with a universe of meanings, values, and attitudes, enabling an in-depth reading of the reality studied. Thus, the methodology adopted allows for understanding the complexity of the phenomenon investigated, highlighting its subjective and interpretative aspects, in order to build a critical and well-founded analysis based on the theoretical framework consulted.

Regarding the procedures, the research involved several stages and specific techniques. It is characterized as bibliographic, based on books, scientific articles, theses, and dissertations that discuss active methodologies, gamification, and inclusive pedagogical practices. According to Gil (2008), bibliographic research, developed from previously prepared materials, allows for gathering a broad theoretical framework, contributing to the construction of critical analyses of the object investigated. In this sense, a careful selection of current and recognized academic sources was carried out, with the aim of gathering different theoretical perspectives and identifying relevant contributions to understanding the phenomenon investigated.

Next, a case study was applied, which describes and analyzes the practical application of the Kahoot tool in the classroom, with direct observations, interaction records, and collection of qualitative and quantitative data through questionnaires, engagement records, and informal interviews with students



and teachers, allowing the identification of potentialities, limitations, and pedagogical implications of the resource in the learning context. This combination of sources and techniques enabled data triangulation and a robust analysis of the engagement dynamics promoted by Kahoot.

As for the methodological approach, this is a qualitative investigation, as it does not aim to quantify data but to understand and interpret educational phenomena in their context. According to Minayo (2001), qualitative research works with meanings, values, and attitudes, which aligns with the purpose of this study, centered on analyzing perceptions and the impacts of using Kahoot as a pedagogical resource. This choice allows capturing nuances related to engagement, motivation, and student inclusion—aspects that would hardly be revealed by quantitative methods alone.

In terms of nature, the research is classified as applied, as it seeks to produce knowledge aimed at solving specific problems in the educational field, especially regarding the use of gamification and active methodologies as teaching and inclusion strategies. Unlike basic research, which focuses on expanding theories without immediate commitment to practice, applied research concentrates on concrete and usable results in everyday pedagogy.

Thus, the methodology adopted can be summarized as applied research, with a qualitative approach, bibliographic foundation, and experience report, suitable for understanding and discussing the role of gamification in the teaching-learning process, especially concerning the inclusion of students with Autism Spectrum Disorder. This combination not only allowed the study to be grounded in solid references but also enabled the analysis, in a real context, of the potentialities and challenges of using Kahoot as a pedagogical resource. By articulating theory and practice, the investigation contributed to understanding innovative teaching strategies and reaffirmed the importance of active methodologies and gamification as pathways for building an inclusive, dynamic, and meaningful education. This classification highlights the relevance of the investigation both theoretically and practically, reaffirming the research's commitment to innovative and inclusive education.

ACTIVE METHODOLOGIES: A BRIEF HISTORICAL OVERVIEW

Active learning methodologies are pedagogical approaches that place the student at the center of the teaching-learning process, encouraging active participation, collaboration, and autonomy in knowledge construction. They emerged as an alternative to traditional teaching, where the teacher was the holder of knowledge and the student a passive recipient (Bacich; Moran, 2018).

Instead of focusing on the transmission of information by the teacher, active methodologies seek to engage students in practical activities, such as problem-solving, projects, debates, and case studies, where they are encouraged to question, research, experiment, and build their own knowledge (Martins; Silva; Almeida, 2021). With encouragement from the teacher, students begin constructing knowledge

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based on a presented problem, an exposed concept, or even a current situation introduced and studied by them.

The word “methodology” derives from “method,” originating from the Latin *methodus*, which means “path or way to accomplish something.” The method, in turn, is the process used to achieve a specific goal or acquire knowledge. According to Nascimento and Feitosa (2020), in the educational context, teaching methodology refers to the application of different methods to conduct the teaching-learning process.

They arose from a reflective need, which marked a stimulus to critical thinking, whether personal or social, where the search for something new clarified a doubt or question. In other words, they did not emerge at a single moment or from a single author, but rather as an evolutionary movement over time, influenced by various theorists and educators.

Although many believe that the so-called “active methodology” is a recent concept, its essence is ancient. Aristotle already referred to it, as did the Chinese thinker Confucius, who, around 500 B.C., wrote: “What I hear, I forget; what I see, I remember; what I do, I understand.”

The proposal for an education that actively involves and stimulates learners has existed for centuries, although the term itself is modern. Thinkers such as Paulo Freire, John Dewey, Malcolm Knowles, Carl Rogers, and Lev Vygotsky did not use the expression “active learning,” but advocated practices aligned with these principles. Going even further back in history, Socratic philosophy in the 5th century B.C. sought to provoke listeners through the interrogative method. If we were to look for an “originator” of this approach, we would need to go back millennia in the history of education (Nascimento; Feitosa, 2020).

The term “active learning” was introduced only in the 1930s by the English professor R. W. Revans (1907–2003). In general terms, active learning encompasses any activity that goes beyond simple listening, involving reading, writing, discussion, or problem-solving. It is considered active because, unlike the traditional lecture, it does not limit itself to passive listening, which requires little mental effort from students and does not always guarantee full attention to the transmitted content.

At the beginning of the 20th century, thinkers such as John Dewey developed psycho-pedagogical works, such as the theory of knowledge, where he defended the importance of experience and active participation of the student in the learning process. This idea is seen in the 1960s, when Problem-Based Learning (PBL), developed by Dewey, emerged in the health field, focusing on problem-solving as a form of learning.

In the 1990s, Professor Eric Mazur developed “Peer Instruction” (PI), based on acquiring knowledge and skills through cooperation among students of different statuses and abilities, organization and engagement, cognitive conflict, error management, communication, and empathy. These processes

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help both the helper and the helped to learn during a PI or mentoring session. This method fosters collaborative learning between tutor and tutee, providing substantial gains in deepening certain areas and/or knowledge (Azevedo et al., 2022).

From 2000 onwards, active methodologies gained space in formal and informal education, with the spread of new technologies and the search for more engaging and effective approaches. We see progress among students who are encouraged to be more active and responsible for their own learning, especially post-pandemic, through involvement in practical activities, debates, and projects that stimulate skill development, taking them beyond technical knowledge and aiming at developing critical thinking, problem-solving, collaboration, and communication.

In this context, the teacher acts as a facilitator of the learning process, guiding and encouraging students. Thus, active methodologies seek to connect learning with the student's reality, making it more relevant and meaningful as an integral element in the social evolutionary process (Ferreira et al., 2024).

Although the principles underlying active methodologies have ancient origins, their modern formulation is anchored in 20th-century pedagogical theories, such as those proposed by Dewey, Piaget, and Vygotsky, which provided more consistent systematizations about the student's role as a protagonist in the learning process. This historical trajectory shows that, over time, there has been a movement to overcome traditional teacher-centered teaching, giving way to practices that stimulate autonomy, collaboration, and critical and meaningful knowledge construction. Understanding this evolution allows us to relate past and present, highlighting how these methodologies have become increasingly relevant to address contemporary educational challenges.

However, the application of active methodologies still faces significant obstacles today. Among them are the resistance of some school sectors to abandon traditional teaching models, insufficient teacher training to deal with innovative practices, and infrastructure limitations that hinder the implementation of technological resources and participatory dynamics.

PROJECT-BASED LEARNING: DEVELOPMENT OF A RECYCLABLE WASTE COLLECTION APP

Project-Based Learning (PBL) is an active methodology that seeks to bring students closer to real-world contexts, promoting knowledge construction through the resolution of concrete problems. John Dewey (1916) already advocated that education should be experiential, guided by practice and by the critical engagement of students. Later, William Kilpatrick (1918) consolidated the so-called Project Method, considered the embryo of PBL.

According to Moran (2018), active methodologies aim to develop student autonomy, granting them a central role in the learning process. In this context, PBL presents itself as a pathway to integrate theory and practice, stimulating creativity, innovation, and collaboration. This article presents a practical

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example of PBL through the development of an application for selective collection of recyclable waste in residential condominiums, in which users accumulate points that can be exchanged for goods or monetary values.

PBL finds its roots in Dewey's (1916) thought, which defended the importance of experience for critical formation. For him, "education is not preparation for life; education is life itself." In the same vein, Paulo Freire (1996) highlighted the relevance of a liberating education, in which the student assumes an active role in the construction of knowledge.

Kilpatrick (1918) complemented this by proposing that real projects be used as strategies to connect school knowledge with practical life. Papert (1980), with his constructionism, reinforced the idea that learning occurs more effectively when the individual builds something meaningful for themselves and for the community.

PBL directly dialogues with cooperative learning as proposed by Johnson and Johnson (1999), in which group work enhances the development of socio-emotional skills. Internationally, Larmer and Mergendoller (2010), linked to the Buck Institute for Education (BIE), presented practical guides that structure PBL as an essential methodology for the 21st century.

In Brazil, José Moran (2018) emphasizes the importance of pedagogical innovation and the integration between digital technologies and active methodologies. Lilian Bacich and Moran (2018) point out that PBL stimulates protagonism, critical thinking, and the resolution of real problems. Pedro Demo (2015) argues that learning through research is central to developing autonomy and critical reflection—fundamental aspects of PBL.

Celso Vasconcellos (2015) and Cipriano Luckesi (2018) contribute to this reflection by discussing innovation, critical practices, and formative assessment as part of integral education. Vasconcellos (2015) reinforces that active methodologies aim not only at cognitive mastery but also at ethical, socio-emotional, and civic development, connecting to the need to prepare critical and autonomous individuals for the challenges of the contemporary world. For Luckesi (2018), understanding the historical evolution and theoretical foundations of these practices allows us to recognize their relevance as a pathway to a more inclusive and transformative education.

Among active methodologies, Project-Based Learning stands out as a practice capable of integrating knowledge, stimulating teamwork, and fostering the resolution of real problems. However, its implementation faces limitations such as lack of resources, the need for continuous teacher training, insufficient time for proper project development, and the diversity present in classrooms. Doug Lemov (2011), widely cited in teacher training and educational exams in Paraná, points out classroom strategies that help overcome some of these barriers, favoring more engaging and organized teaching. Recognizing these difficulties, while valuing the potential of PBL, is essential to sustain a critical and realistic view of

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active methodologies, reaffirming their role as an instrument of innovation and strengthening the student's integral formation (Lemov, 2011).

Project methodology: Recyclable waste collection App

The project developed by Professor Rubens Palhares (author) aimed to create an application focused on managing selective waste collection in residential condominiums. The methodology followed the stages of Project-Based Learning (PBL):

Problem Identification – The problem of improper disposal of solid waste in urban areas was identified, directly impacting the environment.

Planning – Students, guided by the teacher, mapped the needs of condominium residents and defined how the application could contribute to sustainable collection.

Research and Construction – Students investigated existing solutions and developed digital prototypes, applying programming and design concepts.

Collaboration – In groups, students tested functionalities such as the points system and user interface, collectively discussing improvements.

Delivery and Socialization – The application was presented as the final product, with the possibility of real implementation in condominiums.

Reflection – Students evaluated the process, identified learning outcomes, and proposed future improvements.

This process illustrates what Moran (2018) emphasizes: PBL enhances meaningful learning when it connects students to real-world problems.

Project stages according to PBL

In addition to the general methodology, the project was organized into specific stages inspired by the logic of Project-Based Learning. These phases were systematically followed by the students:

Planning: Definition of functionalities, detailed scope, requirements, and division of responsibilities.

Design: Screen definition, wireframe creation, screen development, and evaluation with corrections.

Development: Database construction, API implementation, back-end integration, and server configuration.

Testing: Verification of proper functioning and usability analysis of the system.

Presentation: Preparation of slides and pitch training for project communication.



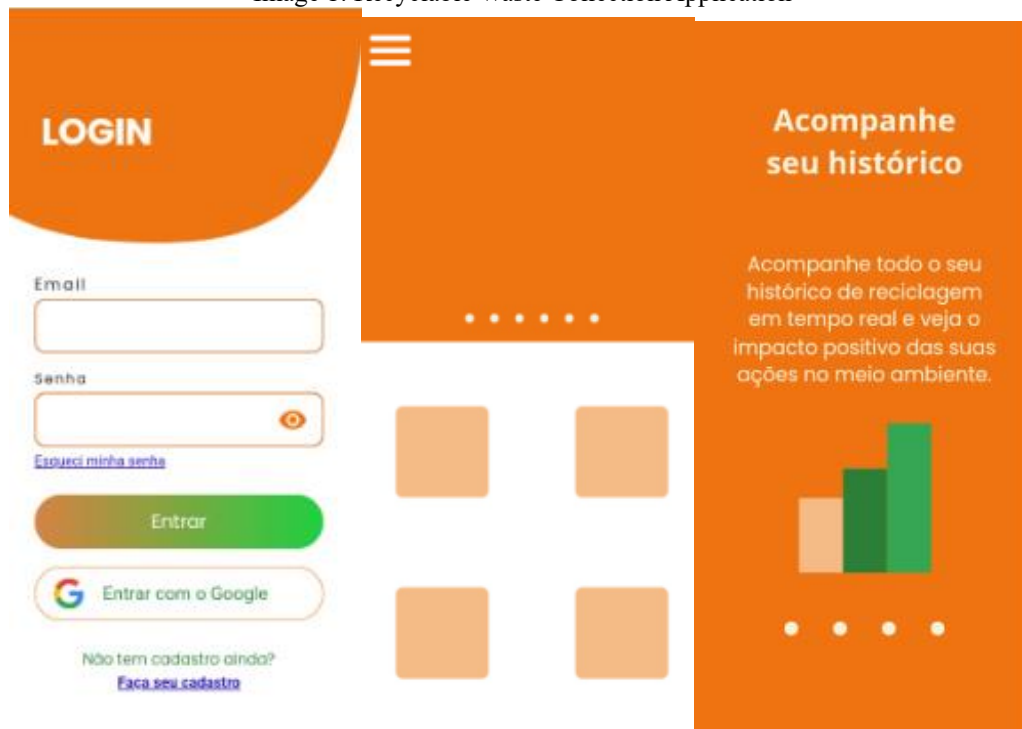
These stages fostered collective work organization and ensured greater clarity in the learning process, directly reflecting the principles of PBL: protagonism, collaboration, critical reflection, and practical application.

The development of the recyclable waste collection app demonstrated how Project-Based Learning can transform the classroom into a space for innovation and social impact. The methodology enabled students to learn actively, collaboratively, and meaningfully, developing technical and socio-emotional skills continuously and integratively, aiming to prepare them to face academic, professional, and personal challenges, promoting autonomy, critical thinking, collaboration, and adaptability in the contemporary world (authors' emphasis).

According to Dewey (1916), education must be linked to experience; Freire (1996) reinforces the importance of critical participation; Moran (2018) and Bacich (2018) point to pedagogical innovation; and Demo (2015) reminds us that research is the foundation of active learning. Thus, PBL is confirmed as an essential tool for preparing students for the challenges of the 21st century.

Below are images of the application that is under construction:

Image 1: Recyclable Waste Collection Application



Source: Prepared by the academic (2025).

The first screen shows the Login page, with fields labeled Email and Password, an option to Forgot my password, and buttons for Enter and Sign in with Google, followed by a link to Create your account. The second screen displays the main navigation layout with an orange header and four square



icons representing different functional categories. The third screen presents an informational section titled Track your history, with text encouraging users to monitor their recycling history in real time and observe the positive environmental impact of their actions.

Image 2: Application under development for Recyclable Waste Collection



Source: Prepared by the academic (2025).

The first screen shows the section Exchange your points for coupons, explaining that users can redeem accumulated points for discount coupons and exclusive rewards at partner stores. The second screen presents the section Recycle → Points, indicating that each recycled material earns points based on its weight, and the more you recycle, the more points you accumulate. The third image displays the application logo, LiShop, featuring a recycling bin icon in two color variations (orange and green) on contrasting backgrounds.

FLIPPED CLASSROOM

The flipped classroom model emerged as a response to the limitations of traditional teaching, marked by the centrality of the teacher and the passivity of the student. This historical and educational context was driven by the need to overcome practices focused solely on content transmission and to expand student participation in the learning process. With the advancement of digital technologies and increased access to information, it became possible to shift content delivery to moments prior to class, freeing up in-person time for activities such as analysis, debate, and problem-solving—making learning more active and meaningful (Moran, 2018).

This shift profoundly transformed the role of the student, who ceases to be merely a recipient of information and assumes greater autonomy and protagonism in their educational journey. By accessing content beforehand and arriving in class prepared to discuss and collectively construct knowledge, the



student develops competencies such as responsibility, collaboration, and critical thinking. In this way, the flipped classroom promotes a more holistic education, integrating cognitive, social, and attitudinal dimensions, in line with the perspective of innovative and democratic education (Vasconcellos, 2015; Luckesi, 2018).

As described by Martins, Silva, and Almeida (2021), this methodology consists of inverting the actions that occur inside and outside the classroom. It considers discussions, assimilation, and understanding of content (practical activities, simulations, tests, and others) as central objectives led by the student in the classroom, in the presence of the teacher, who acts as a mediator in the learning process. Meanwhile, the transmission of knowledge (theory) preferably takes place outside the classroom. In this case, study materials must be made available in advance so that students can access, read, and begin to understand the proposed content.

The teacher assumes the role of mediator, guiding discussions and facilitating the execution of activities to be carried out in the classroom, based on the knowledge and content previously accessed by the student—that is, outside the classroom environment (Martins; Silva; Almeida, 2021). The teacher can then dedicate classroom time, in the presence of students, to consolidating knowledge, clarifying doubts, and supporting the development of their learning.

This strategy proposes changes to certain elements of in-person teaching, offering an alternative to the traditional logic. In this regard, several professors from Harvard, Olin College, MIT, University of Québec / Montréal, Universidad de Chile, among others, discuss this approach as a prerequisite for implementing active learning methodologies and for enhancing the value of in-person classroom spaces.

In this approach, both the teacher and the student must adopt new roles. The student ceases to be a spectator and begins to act actively, becoming the protagonist of their own learning. The teacher steps off the stage, no longer acting as a lecturer, and positions themselves closer to the student, assisting in the learning process and assuming the role of guide, tutor, or mentor.

GAMIFICATION IN PEDAGOGICAL PRACTICE TO DEVELOP SOCIO-EMOTIONAL SKILLS AND NEW LEARNING IN STUDENTS WITH ASD

Originating from the English word Gamification, which combines game design with the idea of applying principles used in games to create engagement in various contexts, students set goals, follow a specific set of rules, and receive feedback on their learning performance. Moreover, game components stimulate healthy competition while promoting teamwork, emotional regulation, and empathy (Alves, 2018).

The word Gamificação (from the English Gamification) is a neologism derived from the word game, which in Portuguese means jogo (Caffe, 2019). Digital Game-Based Learning refers to the



integration of games into learning experiences to increase engagement and motivation. Gamification involves the use of a pedagogical system developed within game design but implemented in a non-game context—and the game itself, which may be digital or not (Amriani et al., 2013).

Autism Spectrum Disorder (ASD) is characterized by differences in the development of communication, social interaction, and behavioral patterns, which may include restricted interests and difficulties with cognitive flexibility (Silva, 2012). However, many autistic students show strong affinity for technological resources and structured activities—features that closely align with the logic of games. Therefore, when applied in a planned and sensitive manner to individual needs, gamification can be an effective tool to foster meaningful learning and promote school inclusion.

According to Feitosa (2021), gamification in the classroom does not simply mean playing for the sake of playing, but rather using game mechanics (such as scoring, missions, rankings, rewards, levels, and challenges) within the pedagogical process. These elements create a more dynamic and motivating environment, capable of transforming curricular content into enjoyable and interactive experiences. For students with ASD, this approach offers specific benefits, such as greater predictability in tasks, stimulation of focused attention, and the possibility to learn at their own pace.

One of the main benefits of gamification for autistic students is intrinsic motivation. Many face emotional barriers with traditional teaching methods, which can lead to anxiety or lack of interest (Silva, 2012; Teixeira, 2018). By transforming activities into game-like stages, with clear rewards and immediate feedback, students feel more engaged and secure in their learning journey. According to Kapp (2012), the visual and concrete nature of games facilitates the understanding of rules and objectives—an essential aspect for students who struggle with abstraction.

Beyond fostering motivation and engagement, gamification has proven to be an effective pedagogical strategy for developing social and communicative skills. For students with Autism Spectrum Disorder (ASD), digital games and gamified activities can support the acquisition of verbal language and oral expression, especially when students still face expressive difficulties, by promoting mediated interactions and functional language use situations.

When games are developed in other languages, they can enhance foreign language learning, expanding opportunities for communication and social interaction. In this sense, gamification contributes not only to academic learning but also to holistic development, supporting autonomy, collaboration, and inclusion (Moran, 2018; Bicudo; Cruz, 2020).

According to Bicudo and Cruz (2020), games and gamified activities can be structured collaboratively, encouraging peer interaction and teamwork. By completing group challenges, autistic students have the opportunity to experience cooperation, negotiation, and respect for social rules in a



controlled and motivating environment. This practice helps reduce social isolation and fosters a sense of belonging and inclusion.

Gamification supports pedagogical differentiation, as it allows for the adaptation of difficulty levels, types of rewards, and modes of participation according to individual needs (UNESCO, 2021). For some students, rewards may be linked to point accumulation; for others, to unlocking content or earning digital badges. What matters is that the progression system is clear, fair, and tailored to the student's profile. This flexibility aligns with the principle of inclusive education, which seeks to respect the uniqueness of each learner.

Technology has been a major ally in applying gamification for autistic students. Digital platforms such as Kahoot, Classcraft, Duolingo, and Minecraft Education Edition offer adaptable resources that can be used across different subject areas. The use of these tools stimulates attention, supports memory, and allows teachers to monitor student progress in real time. For autistic students, who often show greater interest in digital activities, these resources represent a concrete opportunity for engagement and meaningful learning.

However, it is important to emphasize that gamification must be used in a planned and intentional manner. It is not about replacing the curriculum with games, but rather enriching pedagogical practices with strategies that spark interest and respect the specificities of each student. The teacher must select resources according to learning objectives and continuously monitor outcomes, assessing whether the strategy truly promotes progress in cognitive, social, and emotional development. It is essential that the student's family and the multidisciplinary team accompanying them are involved in this process, ensuring an integrated and coherent approach.

The implementation of gamification must also take into account potential challenges. Some autistic students may show resistance to change or difficulty in dealing with new rules. Others may become frustrated with competition or pressure for quick results. Therefore, it is up to the teacher to create a safe environment in which mistakes are understood as a natural part of the process and rewards are linked to effort and individual progress, not just final performance. This perspective strengthens the student's self-esteem and prevents feelings of exclusion.

In summary, gamification in the classroom for autistic students presents itself as an innovative and promising strategy, capable of uniting playfulness with pedagogy in favor of inclusion and learning (Vianna, 2013). By transforming the school space into an environment of challenges, rewards, and discoveries, gamification creates opportunities for cognitive, social, and emotional development for students on the spectrum. More than a methodology, it is a pedagogical stance committed to recognizing differences, valuing each student's potential, and building a truly inclusive school (Amriani et al., 2013).



Therefore, by incorporating game elements into teaching, the educator not only expands their repertoire of didactic strategies but also reaffirms their role as a mediator of knowledge and agent of social transformation. For autistic students, this approach can mean not only learning curricular content but also strengthening essential life skills such as communication, autonomy, and cooperation. In this way, gamification establishes itself as a fertile path for promoting inclusive education in the 21st century.

Socio-emotional learning is a set of teachable competencies or skills considered fundamental for success in school and life. It is a process through which children acquire and apply knowledge, skills, and attitudes to develop healthy identities, manage emotions, achieve personal and collective goals, feel and show empathy for others, establish and maintain supportive relationships, and make responsible and careful decisions (Teixeira, 2018).

A game can be described as a structured form of play. According to extensive studies, play is one of the most effective and powerful catalysts for learning (Mardegan, 2014). Play has been shown to increase overall well-being and creativity in both children and adults. Thus, the artificial boundaries that once existed between serious learning and fun play are now collapsing. The technological revolution of the 21st century has also combined technology with learning and fun, resulting in a boom in the educational games industry (Amriani et al., 2013).

According to Amriani et al. (2013):

“At its core, every game is a learning game. They provide rich content, engagement, and motivation, leveraging subject knowledge and a variety of skills in players. However, a learning game is best defined as one designed with the primary goal of conveying the learning material specifically embedded in the game. Digital learning games combine current technology, allowing for an entirely new level of interaction, collaboration, and a unique learning experience.”

Digital learning games, in particular, trigger high levels of engagement and motivation. They often induce a state of flow through immersion, clear goals, immediate feedback, and a balance between skill and challenge. Therefore, digital learning games can, in many ways, be considered an ideal platform for learning.

We can affirm that gamification in the classroom can help teachers create experiences that fully engage their students. Gamification captures their attention and motivates them, as they strive to achieve a goal. When students feel positive about their learning process and know they will be rewarded in some way for their efforts, they stop being passive observers and become active participants (Alves, 2018). In doing so, they are able to effectively absorb information and store it in long-term memory, as the knowledge itself is linked to the favorable experience provided by the educator through gamification (Amriani et al., 2013).

Gamification makes learning fun and interactive.

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Although the teacher may have a variety of learning goals and objectives to achieve throughout the lessons, none of these outcomes can be effectively reached if students are not genuinely excited about what they are learning. Gamification makes learning not only informative but also fun and exciting. It also adds an interactive element to lessons. This creates a sense of immersion, offering students the opportunity to feel like an integral part of the overall learning process (Alves, 2018).

Gamification in lessons allows students to see real-world applications and benefits of the subject matter. They can see firsthand how their choices within the game result in consequences or rewards. If they do not perform well, they are not rewarded for their actions or cannot progress to the next level. Essentially, the teacher gives them the chance to explore a topic in depth and understand how they can apply this information outside the virtual classroom, all within a fun and risk-free environment. Then, when they venture into the world, they will be empowered to put that knowledge to good use in professional or personal settings, learning to manage their emotions (Alves, 2018).

Social and emotional learning is about helping students develop the ability to manage their emotions and build positive behavior throughout their developmental process. Gamification is important because it enables students to learn how to make responsible decisions for academic success, resolve conflicts to build healthy relationships, manage their emotions to avoid negative behaviors, and make ethical decisions regarding others.

Gamification can be used to motivate and increase engagement in social-emotional learning. The use of gamification as an educational tool can help students solve new problems they face daily. According to Dicheva et al. (2015):

“The use of educational games as learning tools is a promising approach due to the ability of games to teach and the fact that they reinforce not only knowledge but also important skills such as problem-solving, collaboration, and communication.” (DICHEVA et al., 2015, p. 6)

One strategy for using gamification to learn emotional regulation is for teachers to create Choice Boards for students, labeled and color-coded according to a Mood Meter. Once students become “emotion scientists,” they can increase their self-awareness by having agency to select differentiated activities aligned with their moods. For example, students in the yellow zone can be guided toward creative problem-solving activities. They might use Google Jamboard (an interactive whiteboard where teachers and students can write, draw, add notes, research results, or open presentations) or create in Minecraft. Children in the red zone can channel their mood into competitive activities, such as classroom debates. They may also be guided to develop argumentation skills through competitive video games. Children in the blue zone may be more inclined toward inquiry-based lessons or empathy-based activities.



Creating choice boards aligned with the mood meter is, in fact, an easy step toward gamifying emotional learning. It can promote a sense of autonomy, competence, and relatedness—the three components of self-determination theory, innate human needs that can lead to human flourishing. Good games do this, as players feel agency over experiences that seem within reach. By planning lessons that incorporate self-determination theory, a sense of well-being can be fostered, creating happier classrooms for everyone (UNESCO, 2021).

Games can allow children to practice emotions in consequence-free environments. With careful guidance, games can help children manage emotions, gain perspective, demonstrate empathetic concern, and exhibit prosocial behaviors.

Gamification consists of using game elements, dynamics, and mechanics in non-game contexts, with the goal of engaging, motivating, and enhancing learning. It differs from educational games, which are created specifically to teach certain content, and from game-based learning, which uses the game itself as the central teaching resource. Gamification, therefore, does not necessarily require a complete game, but rather the incorporation of features such as points, missions, rankings, and rewards into the teaching-learning process, stimulating student protagonism and motivation (Moran, 2018; Fardin; Leite, 2020).

In the case of students with Autism Spectrum Disorder (ASD), whose main characteristics include difficulties in verbal and non-verbal communication, limitations in social interaction, and the presence of repetitive and restrictive behavior patterns, gamification presents itself as a relevant pedagogical opportunity. Games, by offering task predictability, visual stimulation, and structured interaction possibilities, can support both concentration and socialization. Games allow students to learn at their own pace, respecting their specificities, through an interactive environment that reduces anxiety and creates opportunities for engagement (Bicudo; Cruz, 2020; Schmidt; Bosa, 2017).

Among the benefits of gamification are the stimulation of attention, development of concentration, adaptability of difficulty levels and rewards, and the creation of different forms of participation according to the individual needs and profiles of students. These characteristics make this methodology consistent with the principles of inclusive education, as they promote equity of opportunity and respect for differences. However, it is essential that gamification be applied intentionally, aligned with clear learning objectives, to avoid becoming merely a playful resource disconnected from the formative process (Moran, 2018; Fardin; Leite, 2020).

PROPOSAL OF EDUCATIONAL PRODUCT AND EXPERIENCE REPORT WITH THE USE OF KAHOOT IN THE CLASSROOM

This proposal presents the design, implementation, and analysis of an educational product based on the use of the Kahoot platform as a gamification strategy in teaching. The proposal seeks to integrate



interactive technological resources into active methodology practices, aiming to foster student engagement, active participation, and the consolidation of meaningful learning, in alignment with contemporary educational demands.

THEORETICAL FOUNDATION AND OBJECTIVES OF THE EDUCATIONAL PRODUCT

Kahoot! is a free-access digital platform designed for creating and administering real-time interactive quizzes. Developed in 2013 by Norwegian educators in partnership with the Norwegian University of Science and Technology, the tool stands out for incorporating elements characteristic of digital games—such as scoring, time limits, rankings, and immediate feedback—into the pedagogical context (Callegari, 2021). These features configure what Dicheva et al. (2015) define as a Game-Based Student Response System (GSRs), promoting intrinsic motivation and active learning.

The design of the educational product was based on theoretical assumptions linked to gamification and active learning methodologies. Gamification is defined as “the use of game-based mechanics, where its aesthetics and logic are used to engage people, motivate actions, promote learning, and solve problems.” Vianna et al. (2013) add that it involves “the use of game mechanisms to solve a problem or simply to engage an audience in an activity.” In the educational field, Bacich and Moran (2018) emphasize that active methodologies place the student at the center of the process, encouraging them to act and reflect on their own learning.

In this sense, Kahoot has the potential to stimulate student participation and motivation through dynamic challenges, provide formative assessment with immediate feedback, promote interaction and peer collaboration, and accommodate different learning styles in an accessible and responsive environment (Castro; Manguiera, 2018).

PLANNING AND DEVELOPMENT OF THE PROPOSAL

The development of the educational product was structured in stages inspired by Didactic Engineering (Artigue, 1996), a methodology that, according to Chizzotti (1991, p. 26), allows “facts and events to be apprehended within a context of constant norms and [...] systematically observed, deliberately organized, and subject to planned intervention.”

Content Selection – The topic was defined based on a diagnosis of the class’s main difficulties. As Freire (1996) argues, it is essential that teaching be connected to students’ realities and needs.

Development of Assessment Items – Questions were constructed with clarity and objectivity, prioritizing alignment with learning objectives and emphasizing the importance of tailoring question formulation to the participants’ level of knowledge.



Platform Configuration – The quiz mode was chosen, with response times varying from 20 to 60 seconds depending on question complexity, following guidelines found in application manuals.

Infrastructure – The activity required a computer connected to a multimedia projector for displaying questions, as well as students’ personal mobile devices to access the platform via kahoot.it using a PIN code.

DESCRIPTION OF THE APPLICATION

The implementation took place in a high school/technical education class, during a session previously scheduled in the course syllabus. The application procedure included presenting the activity’s dynamics, during which the teacher explained the objectives and rules, guided students in accessing the platform, and instructed them to enter the PIN code to ensure a smooth start to the activity. During the interactive session, the questions were projected in real time, and responses were recorded individually. Points were awarded based on the accuracy and speed of responses, with the ranking updated after each item, which contributed to increasing student engagement. At the end of each round, the teacher discussed the correct answer, encouraging reflection on mistakes and correct responses, thereby reinforcing the formative nature of the activity. Finally, the system displayed a podium with the top three scorers and generated detailed reports, which were later used to inform instructional planning.

RESULTS AND OBSERVATIONS

The observed results demonstrate that using Kahoot in educational contexts provides a high level of student engagement, stimulating active participation from all students, including those who typically show less involvement in classroom activities (Schneider, 2024). This motivation is driven by the combination of playfulness, which makes the learning process more enjoyable, and healthy competition, which encourages a desire for improvement and interest in answering correctly. Licorish (2018) affirms that students’ attention is sustained throughout the activity, supported by the time constraints for responses and the fast-paced nature of the game—elements that significantly contribute to concentration and focus during the educational process.

Regarding interaction and collaboration, a notable increase in communication between students and the teacher was observed, especially during the discussion of answers. This collaborative environment strengthens collective learning, allowing students to share doubts, debate concepts, and construct knowledge together, moving beyond the traditional passive approach. This active interaction also fosters the development of socio-emotional skills, such as teamwork and respect for differing opinions.



Another relevant aspect is the learning monitoring enabled by the platform. The reports generated by Kahoot allow the teacher to closely track both individual and group performance, identifying strengths, specific difficulties, and topics that require further attention and review. This ongoing formative assessment provides valuable input for pedagogical adjustments, enabling targeted interventions that can enhance teaching effectiveness and promote more meaningful and lasting learning.

However, some challenges must be considered for the effective implementation of this tool. The requirement for a stable internet connection is a limiting factor, especially in contexts where technological infrastructure is still lacking. Inequality in access to technological devices such as smartphones, tablets, or computers can lead to digital exclusion and hinder full student participation. Another important point is the need to balance the number of questions and the time allocated for responses, avoiding cognitive overload and mental fatigue, which can compromise learning quality. Therefore, careful planning of the activity, along with the adaptation to available technological resources, is essential to ensure that the use of Kahoot maximizes its pedagogical benefits and effectively contributes to the teaching-learning process.

RESULTS AND DISCUSSION

Contemporary education has been constantly seeking innovative strategies to meet the demands of a transforming society, marked by the presence of technology and the diversity of students in educational institutions. In this context, the inclusion of autistic students presents one of the major pedagogical challenges, as it requires practices that go beyond traditional teaching and learning models, valuing interactive, creative, and adaptable resources (Teixeira, 2018). One such practice that has gained significant traction is gamification—that is, the application of game elements in educational contexts to stimulate student participation, motivation, and engagement (Amriani et al., 2013).

Gamification in education is a strategy to increase engagement by incorporating game elements into a learning environment. The goal is to generate levels of involvement similar to those typically produced by games. The main objectives of gamification are to enhance certain skills—including emotional ones—introduce goals that give purpose to learning, engage students, optimize learning, support behavioral change, and foster socialization (Fardo, 2014).

According to Nascimento and Feitosa (2020), student autonomy is a central principle of active methodologies, as it places the learner as the protagonist of their own learning. In this context, research plays an essential role, acting as a catalyst for knowledge and stimulating curiosity. Through investigation, the student develops intellectual autonomy, seeking answers, analyzing information, and constructing conclusions independently. This process contributes to the development of critical awareness, enabling the student to question, reflect, and evaluate different perspectives.



Unlike the traditional model, in which knowledge is passively transmitted by the teacher, active methodology encourages students to participate actively. Thus, they do not merely receive information but construct it through their own discoveries and interpretations. This approach prepares them to deal with real-world problems, make informed decisions, and engage in lifelong learning. Autonomy, therefore, strengthens self-confidence and responsibility in the learning process. Active methodologies foster the development of socio-emotional competencies such as organization, discipline, and resilience. By becoming agents of their own education, students expand their capacity for adaptation and innovation. In this way, learning becomes more meaningful, personalized, and transformative (Bacich; Moran, 2018).

According to Martins, Silva, and Almeida (2021), the flipped classroom is an active methodology strategy that reorganizes the traditional teaching format. In this model, students engage with content before the in-person session, usually through videos, texts, podcasts, or other digital resources provided by the teacher. Classroom time, which was previously dedicated to theoretical exposition, is now used for practical activities, discussions, problem-solving, and application of learned concepts.

This inversion places the student as the protagonist of the process, requiring them to prepare in advance and actively participate in classroom interactions. The teacher, in turn, assumes the role of mediator, guiding, clarifying doubts, and encouraging collaboration among peers. In addition to promoting autonomy, the flipped classroom increases engagement, develops critical thinking skills, and strengthens collaborative learning. Thus, content is not merely memorized but understood and applied in various contexts, making learning more meaningful and lasting.

The experience demonstrates that Kahoot, when incorporated in a planned manner, can serve as an effective tool for formative assessment and a stimulus for active student participation, significantly contributing to the promotion of more meaningful and lasting learning (Dellos, 2015). The platform offers high adaptability, allowing its use across different subject areas and educational levels, thereby expanding its reach and pedagogical potential.

To maximize this potential, it is recommended that Kahoot be integrated into broader instructional sequences, ensuring its use is aligned with clear learning objectives and articulated with other methodological strategies, avoiding its isolated use as a mere playful resource. It is equally essential to ensure technological accessibility for all students, guaranteeing adequate availability of devices and quality internet connection to prevent digital exclusion and promote equity in access to educational activities (Castro; Manguiera, 2018).

Furthermore, it is crucial that the data generated by the platform be analyzed systematically and critically, serving as a basis for targeted pedagogical interventions, content reviews, and adjustments in instructional planning. In this way, Kahoot can be enhanced not only as an entertainment tool but also as a



robust resource for formative assessment and support for teacher decision-making, increasing the effectiveness of the teaching-learning process.

The use of Kahoot in different educational contexts requires recommendations that value both accessibility and intentional pedagogical planning. It is essential that the teacher adapt quizzes according to the specificities of the class, ensuring accessible resources for students with different needs, such as subtitles, images, appropriate response time, and clear language. Kahoot should be aligned with previously defined learning objectives, avoiding its use solely as a playful tool. When properly planned, it can enhance student participation, foster inclusion, and make the assessment process more interactive and formative, establishing itself as an innovative tool aligned with the practices of democratic and inclusive education (Moran, 2018; Vasconcellos, 2015).

CONCLUSION

This research has shown that the use of Kahoot as an educational product, grounded in the principles of active methodologies and gamification, constitutes an effective and relevant pedagogical strategy for contemporary teaching. It responds appropriately to the demands of an increasingly connected student body—digitally active and accustomed to interactive environments.

The experience presented demonstrates that the use of Kahoot in the classroom, when pedagogically planned, can be a highly valuable resource in the teaching and learning process, especially in the context of including students with Autism Spectrum Disorder (ASD). Gamification, combined with active methodologies, proved capable of increasing engagement, stimulating participation, and promoting interaction—transforming assessment moments into meaningful and less exclusionary experiences. For autistic students in particular, the playfulness, predictability of game stages, and immediate feedback offered by the platform support concentration, motivation, and socialization, helping to reduce learning barriers.

Finally, Kahoot's adaptability allows for the accommodation of different learning styles and paces, reinforcing its applicability across various educational levels and subject areas. However, its use must be integrated into broader instructional sequences aligned with clear objectives, to avoid it being used merely as a recreational tool. It is equally essential to ensure technological and structural accessibility, guaranteeing equitable participation for all. It is concluded that gamification, when applied inclusively, can be an effective strategy to enhance more meaningful and lasting learning, promoting not only knowledge but also inclusion and the holistic development of autistic students.



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