

THE REFLECTIONS OF GAMIFICATION ON STUDENT ENGAGEMENT ACCOUNTING SCIENCES

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ABSTRACT

This study aims to understand how the reflexes of gamification act in the engagement of students of undergraduate courses in Accounting Sciences. The technological changes that have taken place in recent decades are reflected in

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the behavior of society and, with this, changes are observed in the profile of Accounting Science students. The use of active methodologies is presented as an alternative for an innovative and dynamic teaching, breaking the paradigm of traditional teacher-centered education, in which the student is a spectator. A board game was developed and, subsequently, data gathering was carried out through focus groups, with second-year Accounting Sciences students from three private higher education institutions. For data analysis, thematic content analysis was used, based on the analysis categories. In relation to the results, sub-dimensions of engagement emerged, which are configured as theoretical contributions. In the behavioral engagement dimension, the sub-dimensions collaboration, interaction, performance and competition emerged. In the cognitive dimension: curiosity, challenge and active search. Finally, in emotional engagement, the sub-dimensions of dialogue, positioning and interaction emerged. It is concluded that the game stimulated students to critical and reflective learning, making it possible to build and rebuild the proposed knowledge.

Keywords: Gamification; Critical Social Theory; Engagement; Accounting Teaching.

OS REFLEXOS DA GAMIFICAÇÃO NO ENGAJAMENTO DE ALUNOS DE CURSOS DE CIÊNCIAS CONTÁBEIS

RESUMO

Este estudo tem como objetivo compreender como os reflexos da gamificação atuam no engajamento de discentes de cursos de graduação em Ciências Contábeis. As transformações tecnológicas ocorridas nas últimas décadas estão se refletindo no comportamento da sociedade e, com isso, observam-se modificações no perfil dos estudantes de Ciências Contábeis. A utilização de metodologias ativas apresenta-se como alternativa para um ensino inovador e dinâmico, rompendo o paradigma da educação tradicional centrada no professor, na qual o discente é um espectador. Elaborou-se um jogo de tabuleiro e, na sequência se procedeu a coleta de dados por meio de grupos de foco, com acadêmicos do segundo ano de Ciências Contábeis de três instituições privadas de ensino superior. Para análise dos dados, utilizou-se a análise de conteúdo temática, a partir das categorias de análise. Em relação aos resultados emergiram subdimensões do engajamento, as quais se configuram como contribuições teóricas. Na dimensão engajamento comportamental, emergiram as subdimensões colaboração, interação, desempenho e competição. Já na dimensão cognitiva: curiosidade, desafio e busca ativa. E, por fim, no engajamento emocional emergiram as subdimensões diálogo, posicionamento e interação. Conclui-se que o jogo estimulou os alunos a um aprendizado crítico e reflexivo, possibilitando construir e reconstruir o saber proposto.

Palavras-Chave: Gamificação; Teoria Crítico Social; Engajamento; Ensino de Contabilidade.

1 INTRODUCTION

Education in accounting has been characterized as a formal structure, originating from traditional and mechanistic aspects, which emphasizes the teaching of legislation and technical standards (Dellaportas & Hassal, 2013). However, technological transformations in recent decades have had an impact on society's behavior, leading to changes in the profile of Accounting students (Gainor, Blin & Zheng, 2014).

The role of education, therefore, involves proposing a teaching process focused on reflective analysis of the subject's historical context, aiming to provide conditions for the transformation of the educational process (Mizukami, 1986). In the critical social approach, the educator is seen as the subject who appropriates knowledge throughout the process, from the preparation of knowledge to the part where they engage in dialogue with the students (Mizukami, 1986).

According to Saviani (2013), the critical theory of education rescues at the level of consciousness the essential characteristics of education that have been present in educational practice for centuries, while current theories have not surpassed or vanished them, leading to alienation. In this sense, it can be inferred that teachers need to be aware from the beginning of their training that, from a sociocultural perspective, the teaching process is not merely about transferring knowledge but rather about creating a condition that allows students to generate and construct new knowledge (Freire, 2004).

The use of active methodologies presents itself as an alternative for innovative and dynamic teaching, breaking the paradigm of traditional education centered on the teacher, where the student is seen as a mere spectator (Gainor, Blin & Zheng, 2014). Gamification should be understood as a possibility to bring innovations to the learning process and enhance the achievement of educational objectives (Nasu, 2020). The implementation of games in education (gamification) is a strategy that aims to maximize engagement, learning, and motivation of students to help them in problem-solving (Brigham, 2015).

The term "Gamification" originated in 2008 and was related to the digital industry (Deterding, Khaled, Nacke & Dixon, 2011). However, the word "gamification" became popular and common parlance around 2010 (Deterding et al., 2011). With the aim of retaining user attention, the strategy of applying game elements in educational contexts has been rapidly spreading (Deterding et al., 2011).

In the educational context, the incorporation of gamified lessons can contribute by increasing student participation and interaction, enabling them to not only engage in activities but also feel encouraged to ask questions (Lee & Hammer, 2011; Buckley & Doyle, 2016). This is relevant in pedagogy because stimulating curiosity is an act that contributes to the development of the student's imagination, capable of eliciting emotions and influencing the student's ability to question themselves (Freire, 2004).

The potential of using Gamification in education stands out due to its ability to influence participants in cognitive, emotional, and social aspects. Through the implementation of rules and game mechanics, this strategy seeks to instigate students to engage in new experiments and discoveries (Lee & Hammer, 2011).

When games are applied in the educational context, emotions are influenced as students learn to overcome failure and develop persistence. This allows them to experience different identities during the game, and shyness gives way to an outgoing character (Lee & Hammer, 2011).

The use of gaming strategies in pedagogical planning constitutes an active methodology that aligns with the critical social approach. According to this theoretical perspective, the school, as a place of knowledge, needs to focus on clarity and quality in communicating ideas and facts. The school should propose a pedagogy capable of frequently stimulating students' curiosity (Freire, 2004). The act of learning in a critical and reflective manner, by the students, assumes that effective learning occurs when the student becomes an active participant in constructing and reconstructing knowledge, alongside the teacher, who is also considered a subject within this context (Freire, 2004).

The new generation of students is immersed in digital technologies from birth, and as a result, educational institutions need to adapt through pedagogical planning that aligns with this new reality (Nogueira, Leal, Miranda & Casa Nova, 2020). For this new profile of students, who are accustomed to analog or digital games, traditional teaching methodologies are less effective, which highlights the importance of implementing differentiated methods, such as gamified lessons, to direct, establish, and achieve learning objectives and enhance student engagement (Nasu, 2020).

The use of active methodologies through gamification has piqued the interest of researchers both nationally and internationally. In Brazil, recent research has investigated the use of active methodologies and gamification elements in the accounting teaching and learning process, aiming to understand students' learning styles (Souza; Meurer; Costa & Musial, 2020); the development of competencies in accounting students through the introduction of a gamified course in an Accounting undergraduate program (Durso; Reginato, & Cornacchione, 2019); the application of a board game in Cost Accounting to promote playful learning (Alves, 2019). On an international scale, studies have explored the application of gamification in a distance learning program in Public Accounting at the Military University of Nueva Granada in Colombia (Gómez & Contreras, 2020); the use of a gamified e-quiz to assess learning outcomes among Engineering students at Damietta University during remote teaching (Areed, Amasha, Abougalala, Alkhalaf, & Kahiry, 2021); possibilities of applying entrepreneurship and accounting knowledge through board games to foster understanding of these concepts and stimulate critical thinking and problem-solving skills (Rosli, Khairudin & Saat, 2019); and Díez-Pascual and Garcia Días (2020) examined the use of Kahoot to gamify lessons for revising theoretical content. However, this research differs from the others by analyzing the gamification phenomenon through the lens of critical social theory, which perceives the student as capable of producing their own intelligence, rather than being a mere recipient of transferred knowledge (Freire, 2004).

Furthermore, considering the perspective of critical social theory in the gamification of education, it becomes possible to implement methodologies that view the student as an active and curious subject, capable of developing new skills through playful and enjoyable learning experiences. Thus, the game becomes

a form of emancipation for the student, as the teacher does not provide all the tools, but instead provokes behavior and the student responds to the stimuli. This study also explores different dimensions of engagement (Behavioral, Cognitive, and Emotional).

In conclusion, this research becomes relevant in both theoretical and practical aspects. Theoretically, it contributes by promoting reflection on the relationship between gamification in the teaching process and student engagement. Practically, it provides guidance to teachers in implementing new teaching strategies through the use of games to strengthen student learning.

With this, this work becomes relevant in the sense of contributing theoretically, by fostering reflection on the relationship between gamification in the teaching process and student engagement. Additionally, it has the potential to provide practical contributions, guiding teachers in the implementation of new teaching strategies through the use of games to strengthen student learning.

In light of the above, the research question is presented: How does gamification impact the engagement of undergraduate students in Accounting courses? Based on this guiding question, the objective is defined as understanding how the effects of gamification influence the engagement of students in Accounting undergraduate courses.

In addition to this introduction, the second section will present the theoretical framework, highlighting the key aspects related to critical social theory. Concepts related to different forms of engagement will be presented, and the section will conclude by explaining the origin, use of gamification, and its relationship with learning. In the third section, the methodological design will be described in detail, including the process of constructing and applying a gamified activity. The fourth section will focus on the analysis of the results obtained from the application of the game. Finally, in the last section, the concluding remarks of the work will be presented, along with any limitations and suggestions for future research.

Overall, this research aims to shed light on the intersection between gamification, critical social theory, and student engagement in Accounting courses. By doing so, it seeks to contribute to both theoretical knowledge and practical approaches to enhance the learning experience of students through the innovative use of gamified teaching methods.

2 THEORETICAL FRAMEWORK

2.1 Critical Social Approach in Education

In the Brazilian context, one of the prominent works related to the Critical Social approach, or as referred to by Mizukami (1986) as the socio-cultural approach, is the work of Paulo Freire. In this approach, the teaching-learning process must take into consideration the students' world knowledge, what they have assimilated as individuals in their everyday lives. It is necessary to create opportunities for the students to take on an active role and not merely be passive recipients of transmitted knowledge (Mizukami, 1986). Paulo Freire's proposal emphasizes the development of a liberating pedagogy that aims for the

emancipation of the individual, enabling them to exercise the right to be happy and free from the oppression of dominant classes. This approach empowers individuals to reflect politically on their social reality. The political nature of educational development cannot be ignored, as it is essential for individuals as components of the historical process (Rambo, 2018).

In the Freirean conception, the work in education should be dialogical and based on problematization, meaning it should be a pedagogical approach developed through dialogue between the teacher and the student. This approach is crucial for problematizing real-life situations relevant to the students' daily experiences (Auler, 2002). From this perspective, it can be inferred that teachers need to be aware, from the beginning of their training, that the teaching process, under the sociocultural perspective, goes beyond the mere transfer of knowledge. It should create conditions for students to produce and construct new knowledge (Freire, 2004).

The role of the teacher is not just that of a transmitter but also a facilitator, while the responsibility of constructing knowledge lies with the student. In this way, the student becomes an active participant in their own learning, and the teaching process goes beyond the teacher's role. It becomes a mutual exchange of knowledge and experiences between all involved parties (Zani & Nogueira, 2006). There is no one correct model for education; however, the development of methodologies that present challenges to students is essential. By facing these challenges, students provide diverse responses, enabling them to transform themselves and their reality, thereby generating new knowledge (Mizukami, 1986).

The purpose of education, therefore, is to propose a pedagogical process that fosters reflective analysis of the individual in society and their historical context, enabling them to transform the educational process (Mizukami, 1986). Thus, this work should be understood as an action aiming to produce in each individual what has been historically constructed by humanity. The challenge in this process lies in first identifying the elements that individuals need to assimilate and then finding the most effective way to achieve the proposed objectives (Saviani, 2013).

Furthermore, school education aims to contribute to the broader population, allowing individuals to appropriate historically produced knowledge and providing them with the means to express their thoughts in an organized manner (Saviani, 2013). In the educational process, teachers and students need to walk together and be driven by dialogue (Mizukami, 1986). As Freire stated, "There is no teaching without learning, and both explain each other. Despite their differences, the subjects of teaching and learning cannot be reduced to the condition of objects of one another. Those who teach also learn in the process of teaching, and those who learn also teach while they learn" (Freire, 2004, p. 31).

In this perspective, the Historical-Critical progressive tendency, also known as Critical Social of contents, refers to the school as an environment capable of disseminating content that is relevant to social reality. The school should provide individuals with content that reflects their lives in society, giving them a solid foundation to actively participate in society (Pereira, 2017).

In this approach, it is crucial for the individual to recognize themselves as historical and social beings and to be aware of their power to intervene in reality.

This capacity must be instigated through problematization, where students are challenged to use their creativity and critical thinking to present solutions to real-world issues (Pereira, 2017). Problematization contributes to the progress of the student, as they feel challenged to take responsibility for solving problems. This type of education is one in which the individual critically reflects on their actions and perceives themselves as active agents in the world (Freire, 2004).

In the process of teaching and learning, in the critical social approach, the educator is understood as the subject who appropriates knowledge throughout the entire process, from the moment of their preparation to the part where they engage in dialogue with the students (Mizukami, 1986). Furthermore, the teaching work during this development is based on stimulating the curiosity of the students, encouraging the exercise of their imagination and emotions, and fostering discussions about the subject and its rationale (Freire, 2004). It is highlighted in this context that curiosity is indispensable for the enhancement of knowledge and the critical thinking of the individual.

2.2 Engagement

Engagement is characterized by expressive learning, where students feel motivated and intimately connected to the activity and understand its significance. Students' engagement in activities related to skills such as responsibility, creativity, motivation, and innovation is a pathway to developing decision-making abilities (Moran, 2018). It is a process that refers to the affective, cognitive, and behavioral dimensions, involving the students' emotions in their educational actions (Vitória, Casartelli & Costa, 2018).

Engagement is defined from two perspectives: students and educational institutions. Kuh (2009) highlights that, in addition to students' personal engagement, students' participation characteristics are also related to their effort and involvement in proposed activities. From the perspective of educational institutions, participation is defined by policies and strategies aimed at involving students in actions that promote learning. Fredricks, Blumenfeld, and Paris (2004) explain engagement through three aspects: behavioral, emotional, and cognitive.

Regarding behavioral engagement, this dimension is associated with collaborative aspects and the relationships between students and the development of activities. The basis of this type of participation analysis lies in frequency, effectiveness, and regularity in relation to the time allocated for the proposed tasks and assignment submissions (Viter, 2013; Vitória et al., 2018). In this case, students' engagement is manifested in supporting traditional characteristics, behavioral performance, task execution, meeting deadlines, and seeking grades (Moran, 2018).

Harris's research (2008) demonstrated that in behaviorally classified engagement, students emphasize delivering academic work and extracurricular activities, instead of prioritizing the learning and achievement process. Seen from the behavioral perspective, which only expresses concern with students' engagement, a process is triggered in which they merely display behavioral engagement clearly, not feeling part of the learning process (Harris, 2008). Therefore, for effective engagement, it is necessary for educational practices to

be applied in a way that develops attitudes related to cognitive, affective, and behavioral aspects in students (Vitória et al., 2018).

Behavioral engagement can produce positive results in the learning process because it is related to students' satisfaction with the rules of the learning environment. As a result, they tend to be more active in the activities proposed by teachers, leading to increased learning. Therefore, the sense of responsibility observed through behavioral engagement is a demonstration of students' commitment to learning (Harris, 2008). Students also show enthusiasm for their participation in class (Vitória et al., 2018).

Regarding cognitive engagement, psychological involvement is linked to the learning process. This type of engagement stimulates deeper cognitive abilities, such as analysis, investigation beyond the content, critical and reflective thinking, and problem-solving, aiming to construct increasingly complex knowledge. According to the authors, the cognitive perspective is related to self-regulation, learning goals, and students' efforts to learn (Fredricks, Blumenfeld & Paris, 2004).

In the concept of cognitive and behavioral engagement, Siqueira (2021) mentions that behaviors of commitment, effort, and participation are incisive and interconnected in students' learning participation. However, in behavioral engagement, students focus their strengths and commitment on task execution and completion. The cognitive level is related to the deepening of learning and understanding of active behavior, involving students' efforts to comprehend the content and activities. Therefore, both aspects are related but distinct, complementing each other. One determines the other, as students who want to complete the activity on time will engage in understanding the content and knowledge of each task, and students who maintain a relationship with the activity also feel motivated to submit it on time (Siqueira, 2021).

Regarding emotional engagement, Reeve (2012) believes that students display interesting responses and positive attitudes towards the learning process. The author argues that group activities provide motivation, autonomy, and participation, thereby improving students' performance during the activities. Effective participation requires dialogue among peers, as through this communication, students not only assess each other but also establish a relationship of information exchange and content related to cooperation, contributing to problem-solving and project execution. This dialogue takes place in various environments, both virtual and in-person, inside and outside the classroom, providing these students with a variety of experiences and interactions (Moran, 2018).

Emotional engagement is associated with students' positive and negative responses to elements present in educational activities and resources. However, these constructive and expansive attitudes do not always guarantee that emotionally driven behavior is genuinely correct (Siqueira, 2021). Emotional engagement refers to the feeling of belonging to a group or educational institution. This study establishes a connection between the student's emotional response and the methodology used. It involves working with colleagues and teacher-researchers from a variety of disciplines to increase student autonomy

and prepare them to develop decision-making skills (Siqueira, 2021). In Figure 1, a diagram illustrates the main associations of the forms of engagement.

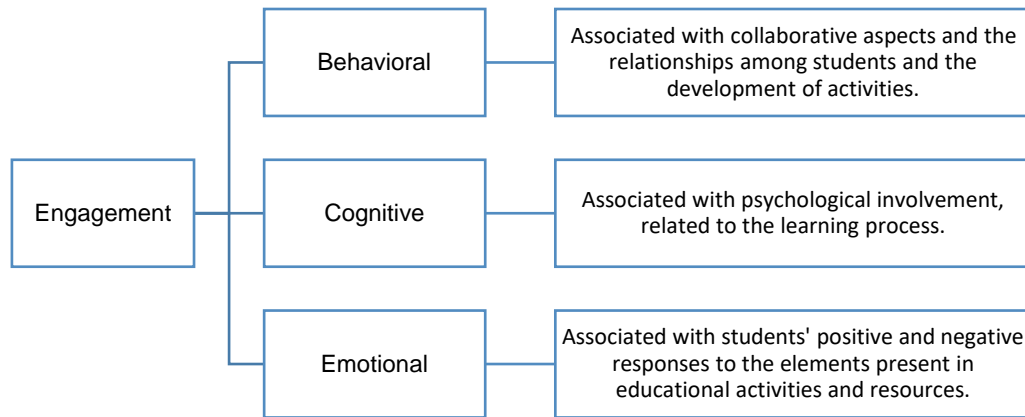


Figure 1. Engagement
Source: Developed by the authors (2021).

Engagement is related to the student's participation in the proposed activities to develop learning. The student's involvement is seen as a decision based on action in the activity, and thus, students demonstrate interest in actively participating in the process (Coates, 2005). Engagement should be understood as a process in which feedback plays an important role and is an essential activity in teaching practice. Martins and Ribeiro (2017) emphasize the importance of considering engagement as a variable but also essential for assessing the quality of higher education (Price, Handley & Millar, 2011).

2.3 Origin and Use of Gamification and Its Relationship with Learning

The term gamification was initially used in 2008, gained popularity from 2010, and was related to digital media (Deterding, Khaled, Nacke & Dixon, 2011). It should be understood as a process that applies the logic of games to other areas of knowledge, providing enjoyable activities through various strategies that propose challenges and entertainment to individuals (Alves, Minho & Diniz, 2014). Gamifying educational content contributes to cognitive development through the systematic structuring of rules that students need to follow to solve initially simple problems, which gradually become more complex. As they progress through the stages, players must develop new strategies. Gamification also has an impact on students' emotional well-being, as it allows them to self-assess their failures instead of becoming discouraged (Lee & Hammer, 2011).

The importance of reflecting on the current context of education and the changes yet to come is highlighted. Therefore, attention is directed towards the educational environment, and it becomes essential to implement gamification and game strategies in pedagogical planning, tailored to the objectives of the disciplines (Nasu, 2020). Content structured in the form of games aims to provide a flexible student-centered learning environment, contributing to the development of student autonomy (Areed, Amasha, Abougalala, Alkhalaf & Khairy, 2021).

Several studies exemplify how gamification is used in the learning process. One such study by Souza et al. (2020) developed a study in which they created

an Accounting Trail game to increase the engagement of accounting undergraduate students. The game consists of a board, and players roll dice to start the game. When they answer a question correctly, they advance the number of spaces rolled on the dice. The first player to reach the designated endpoint wins. The competencies targeted with the production and application of the game are knowledge about the subject matter covered in the questions elaborated for the game. The results of the study demonstrated that the implementation of active methodologies in the accounting teaching process proved to be effective for student engagement, motivation, and commitment.

Alves (2019) published a study with the objective of improving student engagement in the teaching and learning process of Cost Accounting. The developed game was called "Easy Cost," which is a board game where students start by rolling a dice, and depending on the number rolled, the player advances that many spaces. Each space represents a department in a business that the player needs to manage. The player must make decisions to keep the company running and win the game. The expected competencies with the gamification of cost content are the development of knowledge about the subject and skills for decision-making strategies. The results showed that the game contributed to content retention and influenced attention and socialization among students, enhancing a fun learning experience.

Soares (2018) aimed to present experiences in the classroom regarding the application of active methodologies using games in the teaching and learning process. Examples of games used included crosswords, word searches, card games, and memory games. Through these games, students were able to memorize technical terms from the subjects in a relaxed manner. Gamifying the content expanded students' knowledge about the main concepts covered in the disciplines. According to the study's results, the application of games in the teaching process positively influenced students' motivation.

Considering the above, if the educator's goal is to provide an environment that welcomes students so that everyone participates in the process and learning is meaningful, gamification becomes an option that, when well planned, provides means for even the most introverted students to become engaged with the game and encouraged to ask questions. It also allows them to establish comparisons between individual and social interactions (Song, Ju & Xu, 2017). A pedagogically planned game aligns with the critical social approach because, according to this theory, it is the teacher's duty to motivate and challenge those who listen, speak, respond, and interact so that they can produce an understanding of the subject matter instead of merely receiving it passively (Freire, 2004).

3 METHODOLOGICAL DESIGN

Regarding the objectives, the nature of this study is explanatory, aiming to deepen the subject of study to better understand the reality, document, classify, analyze, and explain the phenomena under study (Andrade, 2002). In terms of the approach to the problem, it is characterized as a basic qualitative research. The basic qualitative study is a process in which researchers are interested in understanding the meaning of an event for the research subject, where the main

objective is to discover and explain these meanings (Merriam & Tisdell, 2015). Given the focus on basic qualitative research, the researchers' interests consist of how people interpret their experiences, how they construct their worlds, and ultimately, understanding the meaning they attribute to their experiences (Merriam & Tisdell, 2015, p. 24).

To achieve the objective of this study, which is to explore how gamification reflects on the engagement of students in an undergraduate Accounting program, a study was conducted in two phases: the first phase involved the creation and application of a game, and the second phase investigated the students' engagement in seeking answers for the game (active methodology). Based on the understanding that students become active agents in the teaching and learning process, a board game was chosen for its easy understanding of rules and dynamic nature.

In Figure 2, the game developed by the researchers is presented, titled "Accounting Bookkeeping Trail." It was designed for content review, with questions related to basic accounting principles. The central idea of the game is to move along the trail, which consists of 39 questions that can lead to advancing or moving backward during the competition. As the main focus of the game is learning, students were allowed to seek assistance from their peers in cases where they did not know the answer, drawing from pre-existing knowledge or conducting research using electronic resources.

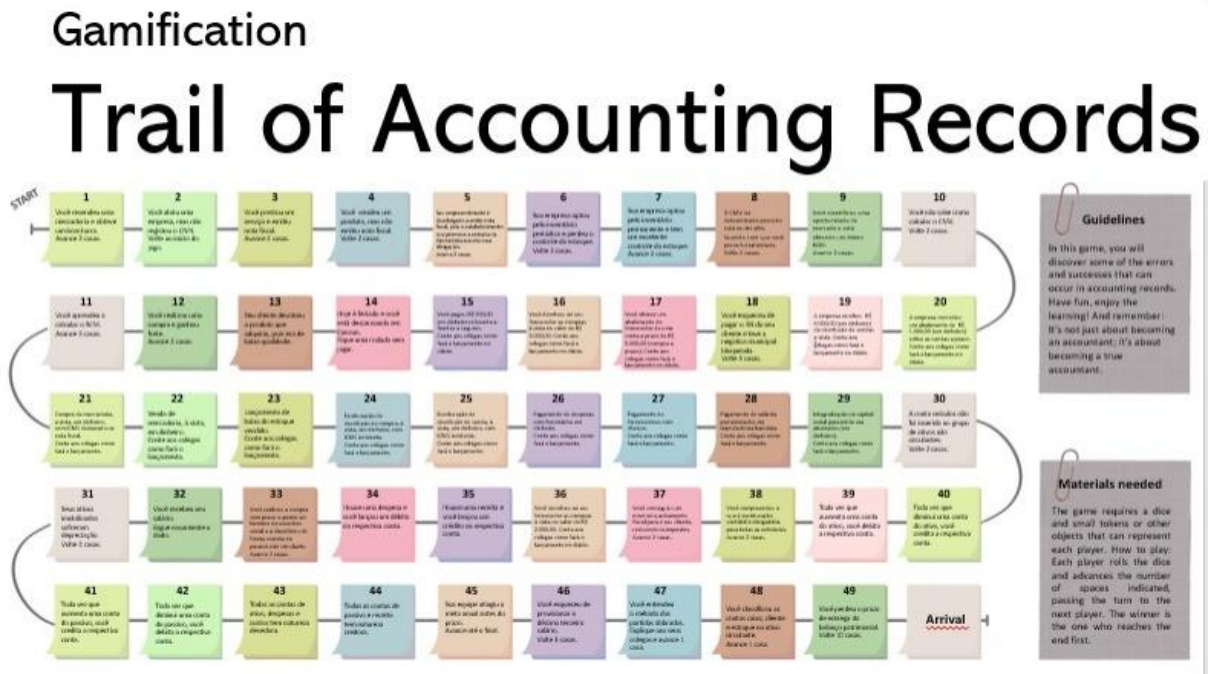


Figure 2. Accounting Bookkeeping Trail
Source: Developed by the authors (2021).

At the beginning of the game, the classes were divided into groups of 4 and 5 students as per their choice. Each group was given a game board of "Accounting Bookkeeping Trail" and colored buttons so that each player could choose their marker/piece to represent them during the competition. Finally, each group was provided with a dice. After this step, general instructions were given,

where each formed group had to elect a representative/responsible for conducting the game. Their responsibility included reading the questions on the game board and controlling the duration of the game, which should be limited to a maximum of 90 minutes. After the game phase, the research proceeded to the second part with the formation of focus groups for discussion and recording of perceptions obtained during the competition. It is worth mentioning that this activity was carried out in 03 (three) different cities, in classes of the second year of the Accounting Sciences course, due to the content being studied at this stage of their education. The participants, locations, dates, and other data collection information are presented in Table 1.

Table 1
Participating Institutions in the Research

Institution	A	B	C
city	Assis Chateaubriand	Cascavel	Pato Branco
Classification of the Institution	Private Institution	Private Institution	Private Institution
Date of Game Application	27/07/2021	30/07/2021	13/08/2021
Number of Students per Class	18 Students	19 Students	13 Students
Date of Focus Group	03/08/2021	06/08/2021	13/08/2021
Number of Participants in the Focus Group	18 Students	04 Students	13 Students

Source: Elaborated by the authors (2021).

For the focus group discussions, sound, video, and photo resources were used to record and later collect and transcribe the impressions and experiences of the students. It is important to note that participation in the focus groups was voluntary, and participants were informed that they could withdraw from the group at any time without the need to explain the reason for their departure. Although focus groups typically consist of 6 to 12 participants according to the literature, in this study, all volunteers were accepted.

The focus group sessions were conducted under the supervision of moderators, who used a semi-structured interview guide (Byers & Wilcox, 1991). The interview guide was adapted from Cohen, Delage, Alencar, and Menezes (2020) and included 13 questions related to the analyzed topics. For example, cognitive questions were used to assess whether the students had prior knowledge of gamified activities, such as "Have you ever come across anything related to the theme of 'gamification applied in learning environments'?"

Emotional questions aimed to identify the participants' feelings during the learning process, such as "Did you feel engaged in the learning process while playing the game in your group? How was the experience? (Pleasurable, fun, exciting...)."

Lastly, behavioral questions were asked to understand the students' perceptions of their learning during the task, for instance, "Do you think gamified activities facilitate your learning process? Why?"

The participants were also encouraged to provide any additional comments or suggestions: "Is there anything else that you would like to share with the researchers? Any additional feedback or suggestions that were not covered

during the focus group but that you believe are important for the researchers to know?"

For data analysis, thematic content analysis was employed following Bardin's (2010) methodology. Text editors and spreadsheet software were used to facilitate data interpretation by the researchers and expedite data tabulation related to the proposed themes of behavioral engagement, cognitive engagement, and emotional engagement in the study.

4 ANALYSIS AND DISCUSSION OF RESULTS

4.1 Behavioral Engagement

Table 2 presents fragments of empirical reports related to each sub-dimension of behavioral engagement.

Table 2
Behavioral Engagement

"Empirical Reports"	"Sub-dimensions"	"Engagement"
"[...] the game was very interesting because if one of the participants didn't know the answer, the other would help, and this interaction was very participative [...]" "[...] sometimes sharing your knowledge with a colleague is a way of absorbing more. When I explained a topic to a colleague, I absorbed more, memorized more when I tried to teach someone than when I just copied or read."	Collaboration	Behavioral
"All students interacted well, at least in our group there was always interaction, and of course, the objective was always to reach the end first." "We reached the end and started again because we found it interesting how we were discussing in a fun way." "[...] also, because it was a different activity, a new way, everyone was very engaged, even when we reached the end, our group started again because we found it interesting how we were discussing in a fun way."	Interaction	
"Everyone was very proactive, everyone was very focused on performing the activity."	Performance	
"I thought it was cool that even though there was this competitive aspect, when we reached the checkpoint and couldn't remember, one person helped the other [...]" "Everyone was really engaged in playing because it was something new and everyone wanted to win. There was a lot of interaction among the participants, and everyone really enjoyed the game."	Competition	

Source: Research data (2021).

Regarding behavioral engagement, sub-dimensions related to collaboration, interaction, performance, and competition were identified from the students' statements. This type of engagement is related to students' attitudes,

interaction, collaboration, and frequency in completing the proposed activities. Behaviorally engaged students feel comfortable and adopt the institution's rules (Harris, 2008; Viter, 2013; Moran, 2018; and Vitória et al., 2018). Interaction among students was also understood from the reports, as some participants emphasized that everyone interacted during the activity. Although this type of engagement is related to the frequency, time, and effectiveness in performing the proposed activities (Viter, 2013), it reflects on students' learning process, as they demonstrate commitment and a sense of responsibility (Harris, 2008; Vitória et al., 2018).

Considering a generation accustomed to games, proposing an activity that provides challenges and rewards, considering competition and cooperation among students, makes the activity more attractive, facilitating the learning process (Moran, 2015). The game applied in the educational context reflected proactivity, curiosity, and interest in participating in the activity. This is relevant because the act of learning cannot be achieved without openness to risk.

When related to theory, it is evident that the application of active methodology through a board game as a way to review content awakened the desire to seek knowledge, demonstrating its relevance in the educational context. As highlighted by Freire (2004), it is essential to stimulate curiosity, provoke imagination, and engage students emotionally. The excellence of pedagogical practice lies in adopting a teaching approach that aims to motivate and challenge learners to speak, respond, and participate in the process, acquiring competencies to develop autonomously based on what was proposed.

4.2 Cognitive Engagement: Analysis of Empirical Reports

In Table 3, empirical reports and fragments classified as cognitive engagement are presented.

Tabela 3
Cognitive Engagement

"Empirical Reports"	"Sub-dimensions"	"Engagement"
"It arouses a lot of curiosity, and in this game here, what we didn't know, we had to keep searching for."	Curiosity	Cognitive
"[...] It was quite challenging because we always want to get the answers right, but we can't always do it, so we search for the information, and it was a very cool interaction [...]."	Challenge	
"[...] Challenging our knowledge, it really happened. There were several times when we said, 'I think it's this,' then we would say, 'No, wait, let's research it to answer correctly.' It wasn't just about who had to answer; everyone helped each other, and I think it helped a lot."	Active search	
"Besides being fun, it was not only a way to review but also a means of identifying errors."		
"What we didn't know, we researched on our phones."		
"[...] We could be helping each other to have this quick thinking, to fall into the trap and answer right away. If you don't know it right away, then you research it [...]."		

"In subjects we didn't have knowledge of, we had to ask for the teacher's help or do some research."		
"Look, I felt quite interested in the way the game was designed. It showed me where I was facing more difficulties and encouraged me to focus more on studying those topics again. It gave me a better understanding."		
"Because there are several questions, you have to search for a lot of things. It sparks a different perspective [...]."		

Source: Research data (2021).

As for cognitive engagement, it was possible to understand that the following sub-dimensions emerged: curiosity, challenge, and active search. Awakening curiosity, challenging, and instigating students to engage in active search processes becomes essential in the academic environment. It is evident that the gamification methodology is relevant in the teaching and learning process, as "teaching is not transferring the intelligence of the object to the learner but instigating them so that, as a cognitive subject, they become capable of understanding and communicating what has been understood." (Freire, 2004, p. 118). It is important to awaken in the student the strength to create, to learn, to compare, to repeat, and to encounter rebellious doubts and an insatiable curiosity (Freire, 2004).

From the reports presented in Table 3, it is understood that the activity developed through a game provided students with the challenge of seeking understanding autonomously. Cognitive engagement is reflected in critical and reflective capacity, increasing curiosity, and facing challenges. This contributed to students' ability to construct knowledge based on what is being taught (Fredericks et al., 2004). In line with Critical Social Theory, learning occurs through the practice and curiosity of the learner in the search for information; of course, the limits of this freedom need to be monitored, but it is important to be in constant exercise (Freire, 2004).

Active search was also evident in the analysis, as at certain moments, as shown in Table 3, it was reported that "what they did not know, they researched and could also have a dialogue with the teacher." This shows that the cognitive level is related to a deep understanding of active behavior, involving students' effort to comprehend content and activities (Fredericks et al., 2004; Siqueira, 2021). With these statements, we can see the pedagogical method developed through dialogue between the teacher and the student, as described in the Freirean conception (Auler, 2002). It is emphasized that "[...] in conditions of true learning, the learners are transformed into real subjects of the construction and reconstruction of the knowledge taught, alongside the educator, who is equally a subject of the process." (Freire, 2004, p. 34).

4.3 Emotional Engagement

Table 4 lists the empirical reports and dimensions related to the reports that are classified as emotional engagement.

Table 4
Emotional Engagement

"Empirical Reports"	"Sub-dimensions"	"Engagement"
"To improve the relationship among friends."	Dialogue	
"They were not just questions for us to answer; it also brought knowledge, and in some scenarios, it presented different approaches."	Positioning	Emotional
"[...] Since the game was made with rules, we had a bit of difficulty at the beginning until we fully understood how the game works."		
"Oh, I felt like I participated a lot because we were in a group with people we felt comfortable with, and we could understand each other, ask our peers for help, and it was very engaging."		
"[...] I think we had more ease with the theoretical aspects because our learning here at college is very theoretical. However, in practical questions, we had more difficulty because they bring it to real-life situations."		
"I think it's very valuable because we can see the content from a different perspective, in a fun and different way compared to the usual classroom setting, board, or slides. So, the game really helps to remember and solidify the content."		
"[...] It was an activity to include everyone, for everyone to participate, so I don't think there was a negative aspect to it. It was really great."	Interaction	

Source: Research data (2021).

Regarding emotional engagement, it was possible to understand, based on the students' reports presented in Table 4, the emergence of the following sub-dimensions: dialogue, positioning, and interaction. In general, participants believe that reviewing the content and working in groups are the main positive points of the gamified activity. Interesting responses are presented by students in this type of engagement (Reeve, 2012).

As shown in Table 4, along with reports about the students' positions regarding the game, excerpts of statements related to the sense of belonging are presented (Siqueira, 2021). Students felt good about engaging in the activity due to their confidence in the group they were part of (Reeve, 2012; Siqueira, 2021). The game in the educational environment aims to provide a scenario where the student becomes the protagonist, capable of making decisions about various options, and also to strengthen interaction through collaborative work and dialogue that occurs in various environments, either virtual or face-to-face (Tolomei, 2017; Moran, 2018).

There were reports that the game is a fun way of learning, distinguishing it from traditional classes and contributing to remembering and reinforcing content. It is understood that the activity in the form of a game is positive regarding the learning process and also has emotional reflections (Reeve, 2012). Another

highlight is obtaining immediate feedback from the group. In this sense, Moran (2018) argues that effective participation requires dialogue among peers, and through this communication, students not only evaluate each other but also establish a relationship of exchanging information and content related to cooperation, enabling problem-solving and project execution.

Thus, according to the critical social perspective, gamifying the teaching and learning process enables students to expand their ability to improve learning based on what is proposed in the game activity. This factor influences engagement, emotions, creativity, etc., allowing knowledge to go beyond the resources used (the game). Therefore, pedagogical work contributes to the student's ability to modify their reality, intervening and recreating instead of merely adapting (Freire, 2004). The teacher and the elements act as guides, while the student becomes the protagonist. When the game is carefully planned and oriented according to educational objectives, challenging students, they present better responses in constructing new understandings, maximizing their learning capacity (Freire, 1987).

When actions that were not planned occur, it becomes evident that the student also learns. This is the idea of the emancipation of the learning subject, of problematizing education, where the subject has the possibility of critically perceiving the context in which they are inserted (Mizukami, 1986). In this conception, there is a stimulus, but it is from the results that arise from this stimulus that the learning process becomes visible. Thus, the problem and the result are not previously established; they will be generated from the interactional process of the subject. In this context, Mizukami (1986) presents the role of education as a pedagogical process that aims at the reflective analysis inherent in humans in society about the historical context of the subject to whom they intend to propose conditions for transforming the educational process.

When comparing with previous studies, Rosli, Khairudin, and Saat (2019) found that applying gamification in accounting education reflected an increase in students' participation and critical thinking. Meurer, Costa, and Musial (2020) showed that gamification in the learning process of accounting is relevant and contributes to students' engagement, motivation, and commitment. Alves (2019) demonstrated that the game applied in the cost accounting subject resulted in high involvement and motivation of students. Gómez and Contreras (2020) verified that gamification promotes autonomy, motivation, commitment, and social interaction in public accounting students. However, based on the results of the work presented here, it was understood that the application of the game had effects on behavioral, cognitive, and emotional engagement of the participants, with sub-dimensions emerging, such as collaboration, interaction, performance, competition, curiosity, challenge, active search, dialogue, positioning, and interaction.

5 FINAL CONSIDERATIONS

This article aimed to understand how the effects of gamification influence the engagement of undergraduate students in Accounting courses. To achieve this objective, a board game was developed and applied to different classes.

Focus groups were then conducted to understand how the activity affected the students' behavior. It was noted that the groups made an effort to search for answers, clarify doubts, and win the game, demonstrating collaborative and competitive actions simultaneously.

The use of the gamification methodology contributed to the behavioral engagement of the students. They displayed behaviors related to the frequency in carrying out the proposed activities and the sense of belonging to the group they were interacting with. The analysis of behavioral engagement revealed the emergence of sub-dimensions: collaboration, interaction, performance, and competition.

Regarding **behavioral engagement**, it was observed that students displayed behaviors related to the frequency of completing the proposed activities and a sense of belonging to the group with whom they were interacting. From the analyses of behavioral engagement, the following sub-dimensions emerged: collaboration, interaction, performance, and competition.

Regarding **cognitive engagement**, it was noteworthy to awaken curiosity, challenge, and instigate the students to actively seek information beyond what was proposed. In cognitive engagement, the activity aroused the need to seek answers and information beyond the initial scope. Thus, the game in the academic environment can contribute to the expansion of students' capacities, challenging them, encouraging curiosity, questioning reality, and constructing new knowledge.

In **emotional engagement**, which relates to the students' positions, it helps them recall and consolidate the content. In emotional engagement, the points of emphasis were the interaction among participants and the feeling of belonging, which creates a pleasant environment and strengthens learning by influencing dialogue among students.

As a **theoretical contribution**, subcategories emerged from the three dimensions of engagement. In the behavioral dimension, sub-dimensions such as collaboration, interaction, performance, and competition emerged. In the cognitive dimension: curiosity, challenge, and active search. Finally, in emotional engagement, sub-dimensions like dialogue, positioning, and interaction emerged. Thus, it was observed that the game stimulated students to engage in critical and reflective learning, allowing them to construct and reconstruct the proposed knowledge. As a **practical contribution**, the identified sub-dimensions provide educators with elements to guide their teaching strategies. It is worth noting that this study allows for analytical generalizations to other contexts, courses, and subjects.

As a suggestion for future studies, the application of active gamified methodologies in different contents and methodological approaches is recommended. This would further enhance our understanding of the impact of gamification on student engagement and learning outcomes.

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