ISSN 1982-5587

Research articles

Game-based learning strategies: a typological proposition through a hermeneutic approach

Estratégias de aprendizagem baseadas em jogos: proposta tipológica fundamentada em uma abordagem hermenêutica

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HOW TO CITE: PRADO, V. H. *et al.* Game-based learning strategies: a typological proposition through a hermeneutic approach. **Revista Ibero-Americana de Estudos em Educação**, Araraquara, v. 21, e20968, 2026. eISSN: 19825587. DOI: https://doi.org/10.21723/riaee.v21i00.2096802

Abstract

Although the use of digital and analog games in education is increasing, the term Game-Based Learning (GBL) remains imprecise in the literature and is frequently confused with gamification and serious games. This ambiguity hinders the adoption of structured pedagogical approaches based on commercial entertainment games. The present study distinguishes GBL from other game-related educational strategies and proposes a typology grounded in the pedagogical intentionality attributed to commercial entertainment games within formal or semi-formal educational contexts. Adopting a hermeneutic approach, the study identifies recurring forms of pedagogical appropriation and organizes them into three proposed strategies: (1) Games to Foster Interest, (2) Games as Platforms for Skill and Competency Development, and (3) Modified Games. To illustrate the applicability of the proposed typology, the study presents a multivocal mapping of educational uses of commercial entertainment games across different contexts. The analysis indicates that these approaches are already present in educational practice, although they are rarely systematized or clearly differentiated in the literature. The proposed typology offers a conceptual and practical reference to support both teaching practice and future research.

Keywords: Game-Based Learning (GBL); commercial games in education; pedagogical strategy; typological classification.

Resumo

Embora o uso de jogos digitais e analógicos na educação esteja crescendo, o termo Game-Based Learning (GBL) permanece impreciso na literatura e é frequentemente confundido com gamificação e jogos sérios. Essa ambiguidade dificulta a adoção de abordagens pedagógicas estruturadas baseadas em jogos comerciais de entretenimento. O presente estudo distingue o GBL de outras estratégias educacionais relacionadas aos jogos e propõe uma tipologia fundamentada na intencionalidade pedagógica atribuída aos jogos comerciais de entretenimento em contextos educacionais formais ou semi-formais. Adotando uma abordagem hermenêutica, o estudo identifica formas recorrentes de apropriação pedagógica e as organiza em três estratégias propostas: (1) Jogos para Despertar Interesse, (2) Jogos como Plataformas para o Desenvolvimento de Habilidades e Competências e (3) Jogos Modificados. Para ilustrar a aplicabilidade da tipologia proposta, o estudo apresenta um mapeamento multivocal de usos educacionais de jogos comerciais de entretenimento em diferentes contextos. A análise indica que essas abordagens já estão presentes na prática educacional, embora raramente sejam sistematizadas ou claramente diferenciadas na literatura. A tipologia proposta oferece um referencial conceitual e prático para apoiar tanto a prática docente quanto futuras pesquisas.

Palavras-chave: *Game-Based Learning* (GBL); jogos comerciais na educação; estratégias pedagógicas; classificação tipológica.

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Submitted: February 23, 2026
Reviewed: May 21, 2026
Approved: May 22, 2026

Financial support: Nothing to declare.

Conflicts of interest: Nothing to declare.

Ethics committee approval: Does not apply.

Data availability: No research data was used. Study conducted at Universidade Federal do Rio de Janeiro (UFRJ), Rio de Janeiro, RJ, Brasil.

INTRODUCTION AND RESEARCH PROBLEM

Entertainment games can be seen as an accessible educational solution, highly adaptable (Prensky, 2021), and with a high adoption rate among current students (Prado, 2021). Furthermore, having guidelines regarding their use allows for a significant expansion of the teacher's toolkit, given that thousands of games are released annually (Statista, 2025).

While there is an increasing amount of research showing the effects of utilizing games in education and the reasons for doing so (Hamari, 2015), here is almost no research that proposes an approachable and general way of implementing commercially available entertainment games for educational purposes. Many studies focus on *ad hoc* solutions, built for specific content and/or for specific settings, with limited or no possibility of adaptation, which diminishes the teacher's autonomy and capacity to better suit the solution to their reality (Little, 1995).

For educators unaccustomed to games and/or this area of study, implementing games and derivatives in education can offer a serious challenge. Aside resource related issues, there is also a problem of terms and orientation concerning the many different uses of games – and their components - in education, simply put, with the interchangeable use of terms, it is difficult to find bearings within current literature regarding straightforward approaches that are not *ad hoc* creations or specific settings.

Regarding the potential of games used as educational tools, with research indicating various positive outcomes, it is safe to say that the lack of common definitions and general orientation regarding use results in implementation challenges and ill-explored potential.

Nowadays, YouTube videos and films are also used as educational tools. Research suggests that YouTube videos can serve as effective pedagogical tools to enhance the teaching and learning process. A platform offers a wide range of educational content, such as video lessons, experiments, and science-focused channels, that can support various instructional purposes, including content delivery, illustration, engagement, assessment, and simulation in science education (Aranha et al., 2019). However, the effectiveness of these resources relies heavily on pedagogical mediation, as the impact of video lessons is closely tied to the teaching practices employed (Franco; Paulo, 2024).

While ample studies show positive outcomes from pedagogical uses of games – their principles and related technologies – challenges such as clear definitions of different uses diminish the accessible nature of this very use. This implies that one of the primary benefits of using commercial entertainment games in education lies in their accessibility in terms of ease of use and familiarity by students, as well as accessibility in terms of costs and implementation options for teachers. However, the lack of consolidated implementation strategies or even consistent terminology to classify these different approaches can discourage teachers who are willing to experiment with them.

Based on a hermeneutic approach, this paper proposes a typology of game-based learning strategies grounded in pedagogical intentionality and maps educational uses of commercial entertainment games in order to illustrate the proposed categories.

DISTINCT USES OF GBL TERM AND STUDY DELIMITATION

While existing literature may adopt broader definitions that encompass diverse uses of games, including serious games, simulations, and gamified environments (Becker, 2021), this paper argues for a more precise delimitation. Game-based learning, as defined herein, is characterized by using commercial titles whose original purpose is entertainment, yet which are appropriated and applied by educators as structured tools for the development of knowledge, skills, and competencies within formal or semi-formal learning settings. The defining feature is not the nature of the game itself, but the pedagogical intentionality and structured use that reorients the game toward educational ends.

In this study, *game-based learning* is not employed as a generic descriptor for any educational use of games or game-derived systems. Rather, it is understood as a pedagogical strategy based on the intentional integration of commercial entertainment games into educational practices, with clearly defined learning objectives. This definition applies equally to analog and digital games, provided that they constitute complete, self-contained systems originally developed for entertainment purposes. The format of the game is secondary to its status as a finished entertainment product that is pedagogically repurposed without requiring redesign or the creation of an *ad hoc* instructional tool. This approach distinguishes itself from other uses of games in education, such as the development of educational games, the application of serious games, or the use of gamification techniques, by emphasizing the structured appropriation of games not initially conceived for educational contexts, but which are deliberately mobilized for teaching and learning purposes.

This study proposes three ways of utilizing commercial entertainment games (analog or digital) in education, which is not the same as developing educational games. In this sense, the current research does not include 'educational games' – these are built specifically for education and usually *ad hoc*. Furthermore, this research proposes a more objective distinction between gamification, game-based learning, and serious games, as a possible solution for those seeking to implement these strategies but are not scholars of these respective areas. Therefore, the theoretical background part of this research is done to illustrate the current issue with definitions and to exemplify how the three approaches proposed are already in use, albeit not being classified as such. However, the current research does not intend to elaborate on the how or why of these different uses of games, as well as other related discussions, such as their effectiveness, for there are ample studies focused on this (Aljilani; Kadobayashi, 2015).

Moreover, albeit the proposed distinction between all three education strategies with games and its derivatives (gamification, game-based learning and serious games), it is understood that any interchangeable use of terms in current literature, may have occurred due to the recent consolidation of academic discussions on these different uses and the easy association between terms, given the interdisciplinary, transcendent, and easily associable nature of games and their derivatives. In this sense, by no means does this study suggest a demerit or shortcoming of the diverse practices and research done so far, only an attempt at establishing an objective definition and practical suggestion for implementing one of these approaches by educators seeking to employ games as educational tools.

GAMES AND THEIR EDUCATIONAL APPLICATIONS

The use of games in educational settings has expanded significantly, driven not only by their motivational appeal but also by their capacity to structure pedagogically meaningful experiences (Becker, 2021; Kishimoto, 2017). This evolution parallels developments in the digital entertainment industry, which has contributed to new formats, languages, and mechanisms for instructional design.

Among the approaches that have gained particular prominence are game-based learning (GBL), as previously defined, and gamification. While GBL involves the structured use of complete commercial entertainment games to support learning objectives (Baek; Whitton, 2013; Karsenti; Parent, 2020; Prensky, 2021), gamification is characterized by the incorporation of individual game elements, such as points, challenges, and feedback loops, into non-game tasks to enhance engagement and motivation (Deterding et al., 2011). Gamification does not involve full games and can be applied in both digital and analog contexts, using structured incentive systems and narrative framing to support participation without requiring digital interfaces (Prado et al., 2024). One of the most widely recognized examples of gamification is Duolingo, which applies game elements such as points, rewards, progression systems, streaks, and challenges to motivate user engagement with language-learning tasks (Duolingo, 2026).

Gamification's adaptability has led to its application in multiple domains, including education, healthcare, and marketing, where its motivational mechanisms have been linked to increased engagement and behavioral persistence (Bai; Hew; Huang, 2020; Hamari, 2015). GBL, in turn, employs the game itself as the central learning activity, wherein elements of the game experience, such as its systems, mechanics, interactions, and thematic context, are intentionally mobilized to facilitate the development of specific knowledge or skills (Al Fatta; Maksom; Zakaria, 2018). As is the case with game-based learning and other educational strategies derived from games, gamification is not restricted to specific demographics, such as gamers or younger audiences, and can also be employed in corporate training contexts addressing complex or highly specialized topics (Passeto; Hora; Alves, 2025).

DEFINING GAME-BASED LEARNING, GAMIFICATION, AND SERIOUS GAMES FOR PRACTICAL CLASSIFICATION AND VISUALIZATION OF IMPLEMENTATION

There are some possible reasons for the interchangeable use of terms, such as the lack of definition regarding the orientation of the umbrella terms, determining which term encompasses a broader range of different practices. Some articles suggest that game-based learning encompasses gamification and serious games, as well as any other practices that use games, in any form, for educational purposes. This is a logical linguistic view of these terms, since 'game-based learning' could include any pedagogical practice derived from games in any sense or form. However, it can also be understood that this requires a 'game' in a more holistic form and not the use of only game elements, as it is with gamification (Deterding et al., 2011).

Using this broader definition of 'game-based learning', there are 'serious games' and 'educational games', both involve games developed with specific non-entertainment goals (Antunes, 2014). Serious games also encompass training simulations. However, these uses will not be addressed here beyond this succinct clarification, due to these creations being *ad hoc* productions, often inflexible in terms of adaptation, limiting the autonomy of the teacher.

The term 'serious game' is not distinguished from games by being 'less fun,' as this is a highly subjective concept based on the individual's experience (Sharp; Thomas, 2019). Its distinction also does not come from being more important; the 'seriousness' to which the term refers comes from the objectives of its development extending beyond the game – as in training (Boller; Kapp, 2018, p. 40). Games, on the other hand, are autotelic activities (Juul, 2011, p. 41), contained within themselves, whose purpose is to entertain, yet they are not any less serious as any competitive *gamer* or *gambler would* confirm. The distinction lies in the purpose of development of the game in question. Both games are capable of entertaining and engaging players; however, serious games are developed with the purpose of training the player in something specific, while entertainment-focused digital games are developed to entertain, although they can be used for teaching as is the case with game-based learning approach.

It is important to distinguish game-based learning as a pedagogical strategy from broader or incidental practices often referred to as *learning with games* or informal *recreational game use*. While it is acknowledged that games - by virtue of their complexity, interactivity, and simulation capacities - may produce incidental learning outcomes even in contexts not structured for educational purposes, such cases fall outside the scope of this study. In *learning with games*, educational benefits may emerge passively or retrospectively, without prior definition of learning objectives or pedagogical mediation (Gee, 2003). Similarly, recreational use of games, even when it results in the acquisition of relevant knowledge or competencies, is not inherently a pedagogical practice unless deliberately appropriated within an instructional context. By contrast, the conception of game-based learning adopted in this research presupposes a teacher- or curriculum-led intervention grounded in pedagogical intentionality (Freire, 1970), in which commercial entertainment games are deliberately selected and employed to achieve defined educational goals. In this sense, the game operates as a pedagogical tool whose educational use is guided by intentional instructional objectives and teacher mediation. This distinction underscores the argument that game-based learning, as a strategy, is not synonymous with the mere presence of games in the learning environment, but with their purposeful and pedagogically structured use.

HERMENEUTIC TYPIFICATION OF PEDAGOGICAL INTENTIONALITY IN GAME-BASED LEARNING

The present study defines *game-based learning* not as a general expression encompassing any educational use of games, but rather as a specific pedagogical strategy grounded in the intentional and structured use of commercial entertainment games for educational purposes.

The typification proposed in this study is grounded in a hermeneutic perspective, which understands meaning as something constructed through interpretation and contextualized human intentionality rather than derived exclusively from the intrinsic properties of an object (Dilthey, 2010). From this perspective and considering the proposition of this study, games are not interpreted as fixed artifacts or experiences, but as tools whose pedagogical function emerges through the intentionality and mediation established by the educator within a specific instructional context. Consequently, the same commercial entertainment game may assume different educational functions depending on how it is interpreted, appropriated, and integrated into the teaching and learning process. The three proposed strategies emerged through the interpretative identification of recurring pedagogical functions attributed to commercial entertainment games across different educational contexts and implementations.

The three strategies proposed herein are distinguished by the instructional function attributed to the game within a clearly articulated teaching and learning plan. In all cases, the game is appropriated by the educator with defined objectives and integrated into a broader educational sequence. These strategies are not mutually exclusive and may intersect in applied contexts; nonetheless, each is conceptually delineated to serve distinct pedagogical purposes.

Games to Foster Interest

Games to Foster Interest refers to the pedagogically intentional use of commercial entertainment games as instruments to introduce academic content, contextualize curricular topics, or activate relevant prior knowledge. In this strategy, the game is not expected to convey educational content autonomously, nor is it used with the sole aim of generating passive engagement or incidental motivation. Rather, it serves as a structured entry point for content-driven discussions and learning sequences, selected for its capacity to evoke emotional, thematic, or narrative elements that can be meaningfully articulated with specific learning goals. For example, a history-based game such as *Assassin's Creed* (UBISOFT, 2007) may be used to present the visual and sociopolitical context of a particular historical period, thereby supporting students in constructing a more situated understanding of the topic under study (Karsenti; Parent, 2020). The educational value in this approach lies in the deliberate mediation by the teacher, who frames the gameplay experience as part of a broader instructional plan and explicitly connects in-game representations to curricular content. The game, therefore, operates as a pedagogical resource that stimulates interest while simultaneously supporting the construction of disciplinary knowledge.

This use does not limit itself to specific topics, such as history, as it does not limit itself to tangential learning of broader concepts and themes. It includes using the interest in games or a specific game, to teach specific knowledge, such as parabolas and vectors, using the game Angry Birds (Lamb, 2013). In this sense, interest and/or attention to a specific topic is stimulated via the interest in a specific game.

Games as Platforms for Skill and Competency Development

Games as Platforms for Skill and Competency Development refers to the structured pedagogical use of commercial entertainment games, a medium in which students can engage with, to practice, and refine specific competencies, whether cognitive or social-emotional. This strategy is characterized by using commercial games as pedagogical instruments that allow students to actively demonstrate their learning, to practice relevant skills, and to respond to instructional challenges within a structured and intentional educational design.

This approach encompasses a variety of pedagogical uses in which the game serves as a means for eliciting student responses, enabling both the development and observation of targeted competencies. The game provides a shared environment and toolset through which students articulate their answers, engage with curricular content, and apply disciplinary concepts in a situated manner.

Beyond disciplinary content, this strategy also includes the intentional use of games to stimulate or assess social-emotional competencies, such as collaboration, communication, creativity, curiosity, and others (Prado et al., 2022b). In such cases, the learning goal is not embedded in the game's content per se, but in the interaction it affords and the behaviors it elicits (Gee, 2003).

This strategy further supports the use of games as formative assessment tools, provided that the criteria for evaluation are explicitly defined and the teacher mediates the experience with clear instructional prompts and observation frameworks. Whether through guided gameplay, in-class discussion, or reflective tasks, the game becomes an instructional space in which students' competencies are not only developed but also made visible to the educator.

Games Through Modification

Games through Modification involve the pedagogical adaptation of commercial entertainment games by altering their structure, content, or constraints to align more closely with specific curricular goals. Modifications may range from minor rule changes to the creation of custom levels, scenarios, or objectives, provided that the recognizable identity and mechanics of the original game are preserved (Silva; Cazassa, 2022). The objective is to increase the pedagogical relevance of the game without transforming it into an *ad hoc* educational product. This strategy allows educators to exercise greater curricular alignment while maintaining the engagement potential of familiar and professionally designed game environments. Although the modification may serve to motivate a specific interest or to stimulate a specific skill, to classify the GBL strategy, the primary intention of use must be observed.

MULTIVOCAL ILLUSTRATIVE MAPPING

In order to illustrate the applicability and existing presence of the three proposed game-based learning strategies, this section presents a multivocal mapping - which encompasses a heterogeneous set of sources, both formal peer-reviewed papers and informal material as sites or games - according to the pedagogical function attributed to the game in each case. The selection criterion was not centered on evaluating the empirical robustness or recency of each individual case, but rather on the clarity with which each example illustrates one of the proposed game-based learning strategies. This approach seeks to facilitate conceptual visualization and practical understanding of the typology, particularly for educators and readers who are not specialists in game studies. While some works may present overlapping characteristics or outcomes, they are classified here based on the primary pedagogical strategy evidenced in their design, implementation, or analysis. This mapping is not intended to be exhaustive.

It is important to note that the corpus includes examples of both unmodified commercial entertainment games and modified versions or adaptations, particularly in cases where such modifications do not result in the creation of *ad hoc* educational products but rather preserve the structure and recognizability of the original game. This is especially relevant in the strategy identified as *Modified Games*, where the educational value is enhanced through adjustments that remain anchored in the original game's identity.

It is further acknowledged that these categories are not mutually exclusive, and a single case may exemplify more than one strategy simultaneously, as is evident in some of the works discussed below. The proposed categories are therefore defined primarily by the pedagogical function attributed to the game within the instructional context, rather than by the game itself. Consequently, the same game may support different game-based learning strategies depending on the intended educational objective and the form of pedagogical mediation employed. Games such as Chess, traditional playing card systems, or sandbox-oriented digital environments may, for example, be used to stimulate interest in a topic, develop specific competencies, or support modified educational activities under different instructional conditions.

The selection of works was based on a targeted search for publications that explicitly or implicitly described the pedagogical use of commercial entertainment games in formal or semi-formal learning settings. Searches were conducted using academic databases (e.g., Scopus, Web of Science, ERIC) and conference proceedings, supplemented by manual selection of works already known to the authors through prior research activity in the field. Keywords such as "game-based learning", "commercial games in education", "digital games for learning".

Because the terminology surrounding educational uses of games is frequently employed in an interchangeable or inconsistent manner across the literature, a strictly systematic review approach centered exclusively on predefined descriptors could risk excluding conceptually relevant cases or artificially separating practices that share similar pedagogical intentionalities. For this reason, the present study adopts a hermeneutic and multivocal mapping approach focused primarily on identifying recurring forms of pedagogical appropriation rather than exhaustively cataloging works according to rigid terminological boundaries.

The inclusion criteria required that the game used in each case be a complete entertainment product (digital or analog), not originally designed for education, and that its educational application be clearly mediated by an instructional intention. Studies were excluded when the game had been custom developed for educational use or when its application was purely recreational. Although the mapping was not intended to be exhaustive, selection continued until conceptual saturation was reached, that is, until each of the three proposed strategies could be represented by a coherent and sufficiently varied set of cases. The objective was not to quantify frequency, but to illustrate conceptual distinctions with documented examples across multiple disciplines and contexts.

Game-based learning strategies are intrinsically connected to the systems, interactions, and thematic characteristics of the selected games; therefore, their effective pedagogical implementation presupposes that educators possess at least a functional understanding of the games being employed. For this reason, some examples discussed throughout this study are presented concisely, prioritizing their illustrative alignment with the proposed typology rather than exhaustive descriptions of each game or implementation context. In some cases, the discussion also includes examples suggested by the authors as conceptually compatible with the proposed strategies.

MAPPING OF PROPOSED APPROACHES ON CURRENT LITERATURE

Games to foster interest

The following works illustrate the use of commercial entertainment games as pedagogical entry points for introducing themes, contextualizing curricular content, and stimulating student interest in specific topics or disciplinary discussions.

- Karsenti and Parent (2020): Describes the use of Assassin's Creed (UBISOFT, 2017) to contextualize historical topics in the classroom and foster student engagement with history content.
- Lamb (2013): Presents Angry Birds (2009) as a way to introduce parabolas and vectors in secondary mathematics by linking gameplay to formal content.
- Aljilani and Kadobayashi (2015): Discusses the educational potential of commercial entertainment games through the concept of tangential learning, analyzing how Assassin's Creed stimulated player interest in historical topics beyond the game itself.
- Sqire (2005): Analyzes classroom implementations of Civilization III (Firaxis Games, 2001) in world history education, showing how the game stimulated student engagement with historical topics while encouraging hypothetical reasoning, interpretation of historical processes, and discussion of alternative historical scenarios.
- Prado (2021): Digital entertainment games were used as part of a program to increase students' confidence in their professional possibilities in the games industry.

Additional examples conceptually compatible with this strategy include games such as SimCity (Maxis, 1989) and Subnautica (Unknown Worlds Entertainment, 2018), whose thematic and systemic structures may support introductory discussions related to urban planning, infrastructure management, ecology, and marine biology. Likewise, games such as Pokémon (Game Freak, 1996) may stimulate interest in topics related to classification systems, ecology, and biological relationships when pedagogically mediated.

Game as plataforms for skill and competency development

The following works exemplify the use of commercial entertainment games as structured environments through which students may develop, demonstrate, or exercise cognitive, procedural, and social-emotional competencies under pedagogically mediated conditions.

- Gee (2003): Examines how interactions with commercial entertainment games may support the development of literacy practices, identity formation, and problem-solving competencies through engagement with game systems and narratives.
- Prado et al. (2022b): Describes the use of games in school community events designed to stimulate collaboration, communication, participation, and social-emotional competencies among students.
- Prado et al. (2022a): Reports the use of commercial entertainment games in public schools to support the development of students' digital aptitude and technological competencies through structured pedagogical activities.
- Bonnechère et al. (2016): Reviews the use of commercial entertainment video games in rehabilitation contexts, highlighting their application in the development and recovery of motor, cognitive, and coordination-related competencies through structured mediated activities.
- Chase and Simon (1973): Investigates memory and cognitive skill acquisition through structured chess play among novice and expert players.

Additional examples conceptually compatible with this strategy include cooperative and puzzle-oriented games such as Portal 2 (Valve, 2011), Overcooked (Ghost Town Games, 2016), and Keep Talking and Nobody Explodes (Steel Crate Games, 2015), whose gameplay structures may facilitate the development of problem-solving, communication, spatial reasoning, teamwork, and collaborative decision-making skills.

Modified games

The following works illustrate the pedagogical adaptation of commercial entertainment games through modifications to rules, structures, scenarios, or interaction systems in order to align them more directly with instructional objectives while preserving the recognizable identity of the original game.

- Abbott (2019): Examines analog tabletop games that were modified for educational purposes while retaining their structural identity.
- Macedo, Petty and Passos (2005): Discusses adaptations of traditional games to align with instructional objectives in classroom settings.
- Mojang Studios (2016): A modified version of Minecraft with classroom features and lesson integration, designed to support curricular goals, while preserving the recognizable mechanics and sandbox structure of the original game.
- Teachergaming LLC. (2015): An educational adaptation of Kerbal Space Program designed to support science and engineering instruction while maintaining the core simulation systems of the original game.
- UBISOFT (2018, 2019, 2021): Modifies the Assassin's Creed environment through the Discovery Tour versions, removing combat and integrating guided historical exploration to support educational use while preserving the original game world and visual identity.
- Silva and Cazassa (2022): Presents adaptations of traditional children's games and playful activities for science education, modifying their structures and interaction systems to reinforce scientific concepts and instructional objectives.
- Morais (2019): Discusses the pedagogical adaptation of traditional word and language games, such as word searches and bingo-based activities, to support early literacy development and foundational language skills.

Additional examples conceptually compatible with this strategy include games such as Monopoly (Parker Brothers, 1935), whose rules and economic systems may be adapted to simulate alternative financial or social dynamics for educational purposes. Likewise, sandbox-oriented environments such as Fortnite Creative (Epic Games, 2018) may allow educators to construct customized educational activities, scenarios, or challenges while preserving the recognizable structure and interaction systems of the original game.

The mapped examples are not intended to constitute an exhaustive catalog of educational uses of commercial entertainment games, but rather an illustrative demonstration of recurring pedagogical tendencies aligned with the proposed typology. Because the classification is grounded primarily in the pedagogical function attributed to the game rather than in the game itself, the same title may support different strategies depending on the instructional objectives and forms of mediation employed. Consequently, overlaps between strategies may occur, and a single educator may modify a game for specific educational purposes, such as developing particular competencies while simultaneously utilizing the game's characteristics to stimulate student interest.

CONCLUSION AND FUTURE DIRECTIONS

This study proposed a hermeneutically grounded typology of three distinct strategies for the pedagogical use of commercial entertainment games in educational contexts. Through a multivocal illustrative mapping, the analysis demonstrated that the proposed strategies — Games to Foster Interest, Games as Platforms for Skill and Competency Development, and Modified Games — are already present across diverse educational practices, although they are rarely systematized or clearly differentiated in the literature. The selected examples served to illustrate recurring forms of pedagogical appropriation associated with each proposed strategy and to support the conceptual distinction between them.

The proposed typology seeks to support educators in identifying and implementing different game-based learning strategies by emphasizing the pedagogical intentionality attributed to the game within the instructional context. Likewise, the proposed typology may provide a more structured basis for distinguishing between different forms of game-based educational intervention in academic and pedagogical contexts. Such distinctions may facilitate more precise analyses of pedagogical outcomes, comparisons between strategies, and the development of future studies focused on specific forms of educational game appropriation.

Future research may include systematic or broader literature reviews focused specifically on expanding and documenting examples associated with each proposed strategy, contributing to a more extensive mapping of educational uses of commercial entertainment games across different disciplines and contexts. Such efforts may support both educators and researchers in identifying and documenting pedagogical uses aligned with each strategy while contributing to the development of applied and empirical studies grounded in more clearly defined conceptual frameworks.

ACKNOWLEDGMENTS

The authors would like to thank the Coordination for the Improvement of Higher Education Personnel (CAPES), Brazil, for the support provided to this research.

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VHP: Conceptualization, Methodology, Writing – original draft. MFS: Methodology, Validation, Writing – review & editing. CADMD: Writing – review & editing. ECM: Data analysis, Writing – review & editing. All authors reviewed the manuscript and approved the final version submitted for publication.

Editor: Prof. Dr. José Luís Bizelli