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Educational games: unlocking the potential of playful learning

El juego educativo: desbloqueando el potencial del aprendizaje lúdico

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Abstract

The educational approach based on learning through play has experienced significant growth in terms of recognition and acceptance in recent years. This article delves into the exploration of how play can play a fundamental role as a facilitator of learning, offering a detailed perspective on its benefits and essential considerations. From a historical standpoint, key elements of playful learning in Greek and Roman civilizations are examined, along with the adaptation of specific games to address the particular needs of students..

Keywords: Educational play, cognitive benefits, social skills, intrinsic motivation, examples of educational games.

Resumen

El enfoque educativo basado en el aprendizaje a través del juego ha experimentado un crecimiento notable en términos de reconocimiento y aceptación en los últimos años. Este artículo se sumerge en la exploración de cómo el juego puede desempeñar un papel fundamental como facilitador del aprendizaje, ofreciendo una perspectiva detallada sobre sus beneficios y consideraciones esenciales. Desde una mirada histórica, se examinan los elementos clave del aprendizaje lúdico en las civilizaciones griega y romana, junto con la adaptación de juegos específicos para abordar las necesidades particulares de los estudiantes.

Palabras clave: Juego educativo, beneficios cognitivos, habilidades sociales, motivación intrínseca, ejemplos de juegos educativos.

Introduction

In the vast landscape of learning, play has endured as an unbreakable thread weaving through the human experience since the early stages of civilization. This article embarks on a fascinating journey, unraveling the intricate relationship between play and education throughout history. From the oldest archaeological evidence to oral traditions passed down through the centuries, we will explore the evidence indicating that play has been a constant companion in humanity's journey.

We will delve into Roman society, where play reached its zenith in events such as gladiator battles and circus games. However, we will also discover how play was ingrained in everyday life, from children's mischief to the political strategies of adults. In our journey, we will clarify the essence of playful learning, emphasizing that it goes beyond playing for fun. This concept encapsulates an educational purpose, merging the joy of play with solid pedagogical objectives.

We will explore how play not only entertains but also stimulates critical thinking, problem-solving, and creativity. We will analyze studies supporting how play-based educational methods enhance memory and information retention. Additionally, we will examine how games play a vital role in the development of social and emotional skills, fostering collaboration, communi-

cation, and empathy in educational settings.

Diving deeper, we will explore how the playful element enhances students' intrinsic motivation, turning the learning process into an engaging and meaningful experience. Finally, we will provide concrete examples of successful educational games, highlighting their positive impact on student learning across various educational levels and subject areas. This journey illuminates the educational power of play, unlocking its potential to enrich the journey of knowledge.

ducativo del juego, desbloqueando su potencial para enriquecer la travesía del conocimiento.

Game in Antiquity and Classical Rome

Since the dawn of civilization, play has been an intrinsic manifestation of human nature. In antiquity, play not only constituted a form of entertainment but also played a significant role in the social, cultural, and educational life of various civilizations. Far from being a modern trend, play is deeply rooted in the history of humanity. From ancient times, various civilizations, including the Greeks and Romans, recognized and employed play as an integral part of daily life, using it for amusement. However, González *et al.* (2016) mention that in the case of the Egyptians and Indians, play was used to practice and improve motor skills.

Plato makes a reference to the use of play in antiquity in his work "The Laws." In it, the philosopher gives practical value to play as an autotelic activity, suggesting that three-year-old children should use authentic tools on a reduced scale for future builders. Aristotle, in his book "Politics," considers the education of youth and advocates for a balance between study and play. He argues that education should not be solely academic but should also include recreational and sports activities to promote the complete development of the individual. According to Aristotle, play and recreation contribute to character formation and the overall well-being of society.

The Stagirite, in the eighth book of "Politics," describes the need to include music and gymnastics in the education of young people. Music, in this context, does not only refer to music itself but to all arts and cultural activities. Gymnastics, on the other hand, refers to physical exercise and sports. He mentions the need for play for rest in the following terms: "games must be introduced, carefully timing their use, with the intention of applying them as a medicine, as the emotional movement they produce is a relaxation, and through this pleasure, rest is achieved" (VIII 35, 1528).

In "Nicomachean Ethics," Aristotle examines the idea of eudaimonia, which refers to the full and flourishing realization of life. Although he does not directly refer to play, his concepts about the pursuit of well-being and happiness suggest that recreational and playful activities can play a significant role in achieving a fulfilled life.

The influence of play in Roman society was profound and varied, with events such as gladiator battles and circus games playing a prominent role in everyday life and the social structure of

ancient Rome. Gladiator battles were an extremely popular spectacle that attracted various social classes. These events were held in amphitheaters, such as the Colosseum, and featured thrilling battles between armed gladiators.

In addition to being entertainment, gladiator battles had strong political and social symbolism. Roman emperors used these events to consolidate their power and gain favor with the people. In the case of circus games, especially chariot races in the Circus Maximus, they were exciting and massive events. Charioteer teams competed in intense races, and favoritism for a team could divide society. Also, in Rome, games were associated with religious festivals and public celebrations. They were events that united the community and served as a showcase for the magnificence of the Empire.

The games reflected Roman values such as bravery, competitiveness, and resilience in the face of adversity. Gladiators, despite being slaves, could gain renown and admiration through their performance in the arena. However, constant exposure to violence in the games, especially in gladiator battles, may have contributed to a certain desensitization of Roman society to cruelty and brutality. The games also highlighted social inequalities, as many participants were slaves or marginalized individuals, emphasizing the social divisions of the time, educational games, motivation, and engagement.

Playful Learning

Playful learning, also known as educational play, is a pedagogical strategy that uses games as a tool to facilitate learning and skill development in students. In the early years of formal education, educational play is presented as an inseparable tool for learning. During this initial period, teaching through play is not only welcomed but considered essential for the cognitive and social development of students. However, as students progress in their educational journey, play tends to be progressively relegated, ceasing to be an integral part of the school experience.

According to Franco (2022), it is particularly noticeable that upon reaching university, the perception towards play undergoes a significant shift. Too often, play is associated with a lack of seriousness, and its presence in academic contexts can be misunderstood as a sign of lack of commitment or low-quality learning. This transition from considering play synonymous with learning to perceiving it as unserious suggests a shift in cultural and educational perception as students advance in their education.

In the current times where new teaching models have been developed, it is necessary to consider structural changes in teaching and learning, which is why a renewal of the methods that teachers use has been necessary. This is where play becomes important as it promotes the development of competencies in the student (learning) rather than the teacher's instruction. Díaz (2012) asserts that play promotes motivation for learning, participation, and stimulation.

On the other hand, Stojanović *et al.* (2016) emphasize that, according to the degree of student

involvement, learning outcomes are favored. Rodríguez *et al.* (2017) mention that the use of playful strategies in the learning process during early childhood is recognized as the most favorable and meaningful methodology for connecting with the curriculum content. This approach not only benefits the acquisition of knowledge but also enhances the children's ability to inquire and solve problems.

The implementation of these strategies not only sparks scientific curiosity but has proven to be extremely positive at various educational levels. The inclusion of playful activities not only results in a more engaging educational environment but also effectively stimulates the interest and active participation of students, promoting comprehensive and lasting learning.

According to Burgos *et al.* (2017), inquiry-based scientific exploration emerges as a path to meaningful learning for students. This approach not only allows them to express themselves freely but also encourages the formulation of questions, reflection, creativity, proposal presentation, and discovery. Active and participatory interaction in the process of scientific inquiry not only enriches the educational experience but also enhances students' autonomy by actively engaging them in their own learning process, thus promoting a more dynamic and enriching educational environment.

An Integrated Perspective on Cognitive Benefits of Play

Play is a powerful tool in the development of essential skills such as critical thinking, problem-solving, and creativity, which are fundamental to learning and human development. These capabilities enable individuals to navigate the complexity of the current world, adapt to rapid changes, and face emerging challenges.

In this regard, critical thinking is defined as the ability to rigorously analyze and evaluate evidence, formulating well-founded judgments. It is the foundation for the analysis and evaluation of information and arguments. Paul and Elder (2006) expand this definition, stating that critical thinking also includes the ability to actively analyze information, question assumptions, and reach well-founded conclusions, emphasizing its importance for informed decision-making and problem-solving in everyday life. Betancourt-Zambrano *et al.* (2020) highlight the relevance of developing this skill from childhood, not only in academic but also in work and personal contexts.

On the other hand, problem-solving is identified as a key cognitive process for finding solutions to complicated situations, involving understanding the problem, generating strategies, and applying critical thinking techniques. Mayer & Wittrock (2006) argue that this process goes beyond the simple use of strategies, being fundamental in various disciplines and aspects of daily life.

As for creativity, it is characterized by the ability to generate new and valuable ideas, solutions, or products. Amabile (1996) proposes that it arises from the interaction between individual ability, the creative process, and the social or cultural environment, highlighting its essential role not only in the arts but also in science, technology, education, and business to foster innovation and adaptation.

Finally, according to the arguments presented, it is important to emphasize that educational games promote cognitive and social development in the educational process, as noted by Betancourt-Zambrano *et al.* (2020). These games, when properly designed, offer a platform to teach young people to analyze information, formulate relevant questions, and make informed decisions, also facilitating the acquisition of important social skills such as collaboration, communication, and teamwork.

Educational Games and the Development of Social Skills

Educational games are a key tool in the development of social skills in children and young people, providing an interactive and engaging platform for learning and practicing essential life skills. Through play, participants can experience simulated situations that reflect real social challenges and contexts, allowing them to develop and strengthen a variety of social skills in a practical and meaningful way.

Firstly, educational games often require players to communicate with each other to achieve common goals, exchange information, or negotiate roles and responsibilities. This process promotes the development of verbal and non-verbal communication skills, including active listening, clear expression of ideas, and proper interpretation of others' messages.

Secondly, many games are designed to be played in groups, encouraging participants to collaborate and work together towards a shared goal. This experience teaches the importance of teamwork, including task delegation, mutual trust, peer support, and constructive conflict management.

Thirdly, by interacting in playful environments, players are exposed to different perspectives and needs, which can foster empathy and interpersonal understanding. Games that simulate social situations or require participants to take on specific roles can help children and young people empathize with others and develop a greater sensitivity to others' emotions and viewpoints.

Fourthly, educational games can also serve as a testing ground for conflict resolution strategies. The inherent challenges in the game and interaction with other players can generate conflicts that require negotiated solutions, teaching participants to effectively resolve disagreements, compromise, and find solutions that benefit all parties involved.

Fifthly, during the course of a game, children and young people face critical decisions that can influence the outcome of the game for themselves and their team. These situations promote the development of decision-making skills and can foster leadership qualities, such as initiative, team motivation, and the ability to guide others towards common goals.

Sixthly, educational games often incorporate rules and norms that reflect society's expectations of appropriate behavior. Through play, participants learn the importance of following rules, acting with integrity, competing fairly, and showing respect for other players.

Educational Games as Motivation and Engagement

Ryan & Deci (2000) provide a fundamental theoretical framework when discussing how intrinsic motivation, that motivation that arises from interest or enjoyment in the task itself, plays a crucial role in learning. They argue that when students find pleasure and satisfaction in the learning process, they are more inclined to engage deeply and persist in the face of challenges.

Additionally, in the work of Plass & Kaplan (2016), titled "Emotional Design in Digital Media for Learning," explores how elements of emotional design, including playful aspects of learning materials, can enhance motivation and learning by making the content more appealing and personally relevant to students. This study emphasizes the importance of considering how playful elements can emotionally impact students, enhancing their interest and commitment to learning.

On the other hand, Hamari *et al.* (2016) in their article "Challenging Games Help Students Learn: An Empirical Study on Engagement, Flow and Immersion in Game-Based Learning," demonstrate how games designed to be challenging and engaging can facilitate a state of flow in students. This flow state, characterized by total immersion in the activity, is indicative of high intrinsic motivation and is associated with positive learning outcomes. The cited study provides empirical evidence that playful elements, when effectively integrated into educational design, can be a powerful tool to capture students' attention and foster sustained engagement.

Games That Can Be Adapted to Address Specific Student Needs

There are various games that have proven to be adaptable to address specific student needs, whether to strengthen cognitive skills, enhance the learning of specific concepts, or foster the development of social skills. Some examples of games that can be adapted to meet diverse educational needs are as follows:

Lumosity App: It is a platform that offers a variety of games designed to improve cognitive skills such as memory, attention, and reasoning (Lumosity, 2024). These games can be adapted according to the cognitive areas that students need to reinforce, customizing the training approach.

Studies conducted by López & Venustiano (n.d.) have found that students using the Lumosity App in the Problem-Solving Module expand on the theoretical content acquired in the classroom and increase interest in academic activities, enhancing their cognitive skills. The class becomes more interactive, and students' attention improves more easily.

Minecraft: Education Edition: The educational version of Minecraft: Education Edition presents itself as a versatile tool capable of adapting to the teaching of various concepts, from mathematics and sciences to history and literature. Educators have the ability to design customized worlds focusing on specific topics they want to address. Pérez *et al.* (2019) support this claim by

stating that the software provides teachers with instant and continuous feedback, which can facilitate learning through trial and error.

A standout feature of this game is that children can engage in a wide range of activities without fear of making mistakes or taking improper actions. Unlike the real world, in the Minecraft: Education Edition environment, there are no punishments or reprimands for inappropriate behavior, fostering a more open and motivating learning environment. This freedom allows students to explore, experiment, and learn in a unique way, contributing to a more participatory and engaged approach to the educational process.

Among Us: A game of deception and deduction, can be adapted to foster social skills such as communication, collaboration, and group decision-making. Educators can design in-game activities that promote teamwork and problem-solving.

Kerbal Space Program: This space simulation game can be adapted to teach scientific and mathematical concepts related to physics and engineering. Students can design and launch rockets, applying scientific principles in a playful environment. Regarding this, the Communication and Pedagogy Center (2013) states that Kerbal Space Program offers the possibility of gaining a deeper understanding of the various elements that impact the trajectory of spacecraft and the process of their development.

Scrabble: A classic game that can be adapted to reinforce language skills. Educators can customize the rules to focus on specific vocabulary, spelling, or even grammar, providing a language-centered educational experience. Puente & Puente (2015) argue that using Scrabble allows students to set individual goals, increase the difficulty level as they learn, and earn points as they complete different phases of the activity.

Civilization VI: A historical strategy game that can be adapted to teach concepts related to history, geopolitics, and decision-making. Educators can integrate customized missions and scenarios aligned with the study topics. Burguete (2020) mentions that this game offers opportunities for reflection from the very beginning of the game.

Mario Maker: Allows students to create their own levels in the Mario world. This tool can be adapted to foster creativity and problem-solving as students design and share their challenges.

Dragon Box Numbers: According to Gutiérrez *et al.* (2015), it is a game designed for tablets and computers that offers interactive teaching of mathematical concepts aimed at elementary and secondary school students. This game has the versatility to be adapted by educators to address specific areas of mathematics, such as fractions, geometry, or algebra.

It is important to highlight that the software provides immediate feedback, allowing the user to identify errors as they occur. Additionally, this interactive learning approach recognizes and respects the fact that each student progresses at their own pace. This aspect facilitates the imple-

mentation of discovery learning, allowing students to explore and understand mathematical concepts autonomously.

Conclusions

Collectively, gladiatorial contests and circus games were key elements in the social and cultural life of ancient Rome, providing entertainment, reflecting values, and playing a fundamental role in the consolidation of power and social cohesion in the vast Roman Empire.

It is concluded that play, by opening the imagination and fostering exploration, is fundamental to creative development. Through participation in games, individuals practice idea generation, adaptation, and the search for creative solutions—essential skills for creativity.

Educational games are a valuable pedagogical tool for the development of social skills. By integrating play into the educational process, educators and parents can provide learning experiences that are not only fun and engaging but also prepare children and youth to interact effectively and positively in diverse social contexts.

The role of playful elements in education has been widely studied and appreciated for its ability to increase students' intrinsic motivation, making the learning process more appealing and meaningful. In this context, various authors have contributed research highlighting how the integration of playful strategies in the educational environment can facilitate deeper engagement with learning materials and promote an enriching educational experience.

Similarly, the literature suggests that playful elements can be a catalyst for enhancing students' intrinsic motivation toward learning. The ability of games and playful activities to capture students' interest, coupled with the potential to promote positive emotional states and flow experiences, underscores their value in creating attractive and meaningful learning environments. These findings urge educators and curriculum designers to consider playful strategies as integral components of the educational experience to facilitate deep and lasting learning.

This article has showcased various games that can be adapted to address specific educational needs, offering a versatile and motivating tool in the educational environment. The key lies in the creativity of educators to personalize and tailor these gaming experiences according to the objectives and specific needs of students.

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