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Gamification as a Pedagogical Strategy for the Strengthening of Reading Comprehension in Basic Primary School

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Abstract

This study explores the impact of a pedagogical proposal based on gamification to improve reading comprehension in fifth-grade primary school students in Montería, Colombia. Through a qualitative approach with an action-research design, four phases were developed: diagnosis, proposal design, implementation, and evaluation. The gamified platform *Ta-tum* was implemented, allowing students to engage with reading activities organized as literary cases for detectives, earning points and medals. Results show significant improvement in literal and inferential levels, while critical reading skills demonstrated slight progress. The findings highlight that gamification not only increases student motivation and participation but also contributes to the development of reading competencies. This approach reinforces the need to integrate innovative technological tools into the teaching-learning process.

Keywords: gamification, reading comprehension, Ta-tum platform, pedagogical strategy, educational innovation, ICT, reading competencies.

Introduction

Context and Problem Statement

In recent years, the integration of digital technologies in education has transformed traditional teaching-learning dynamics, offering new opportunities to improve academic outcomes. In this context, gamification, understood as the use of elements and mechanics of video games in educational environments, has emerged as an innovative strategy to increase student motivation and commitment (Deterding et al., 2011). However, its application in areas such as reading comprehension remains limited, despite the fact that this competence is essential for cognitive and academic development.

Reading comprehension, defined as the ability to interpret, analyze, and evaluate texts, faces significant challenges in school contexts, particularly in elementary school. According to recent reports from the Saber Tests in Colombia (ICFES, 2020), a considerable proportion of elementary school students are below the expected level in reading skills, especially at the inferential and critical levels. This scenario is worrisome, given that reading is a transversal skill that has a direct impact on performance in other areas of knowledge (Solé, 2006).

In Montería, Colombia, difficulties in reading comprehension are aggravated due to factors such as limited access to innovative pedagogical resources and the lack of strategies that motivate students. In this context, the need arises to implement pedagogical proposals that combine technology and play to address these problems and promote significant learning in elementary school students.

Importance of the Problem

Gamification has proven to be an effective tool to promote active learning and improve content retention in various educational contexts (Kapp, 2012). By incorporating game dynamics, such as achieving rewards and overcoming challenges, this strategy can transform activities that are traditionally perceived as monotonous into motivating and engaging experiences for students. In the field of reading, gamified platforms such as *Ta-tum* offer an interactive space where students take on active roles, solve literary mysteries and get immediate feedback, which contributes to the development of reading skills in a playful way.

Brief Literature Review

Gamification in education has been the subject of study in recent decades due to its potential to transform the way students interact with learning content. Research such as that of Kapp (2012) and Deterding et al. (2011) has identified that this strategy promotes intrinsic motivation, by incorporating elements such as scores, medals and progressive challenges that generate a sense of achievement in students. However, the success of gamification depends on its pedagogical design, which must be aligned with the learning objectives and characteristics of the students (Hamari et al., 2014).

In the context of reading comprehension, gamification has shown promising results, particularly at the literal and inferential levels. Studies such as those by Sánchez and García (2019) highlight that gamified platforms facilitate access to texts of varying complexity, promoting the analysis and interpretation of information. In addition, the immediate feedback offered by these platforms allows students to identify their areas for improvement, while reward systems increase their active participation in the proposed activities.

In Colombia, recent research has begun to explore the impact of gamification on the development of reading skills in elementary school. According to García and Torres (2021), gamified digital tools not only improve reading performance, but also encourage collaboration and problem-solving among students. However, studies also warn of the need to adapt these strategies to the socio-educational context, ensuring that resources are accessible and culturally relevant.

Despite these advances, there is still a gap in the literature related to the specific application of gamified platforms in strengthening the critical level of reading comprehension. This level, which involves evaluating and reflecting on the content of texts, is essential for training autonomous readers and critical citizens (Solé, 2006). Therefore, the present study seeks to contribute to this field, analyzing the impact of the *Ta-tum* platform on the development of literal, inferential and critical levels of reading comprehension in fifth grade students.

The main objective of this study was to evaluate the impact of a pedagogical proposal based on gamification, using the *Ta-tum* platform, to strengthen reading comprehension in fifth grade students in Montería, Colombia.

This article is organized into five main sections. First, the introduction is developed, which includes the context, the relevance of the problem and a review of the literature related to gamification and reading comprehension. Next, the theoretical framework describes the conceptual foundations of gamification, its pedagogical applications and its relationship with reading skills. The third section details the methodology used, including the study design, participants, instruments, and analysis procedure. In the fourth section, the results obtained are presented and discussed in the light of previous research, highlighting the practical and educational implications of the study. Finally, the conclusion summarizes the main findings, limitations of the study, and recommendations for future research.

Theoretical Framework

Gamification Fundamentals

Gamification is defined as the integration of elements, mechanics and dynamics of video games in non-playful contexts with the purpose of motivating and engaging participants (Deterding et al., 2011). In education, this strategy has gained popularity due to its ability to transform traditional activities into interactive and engaging experiences. Items such as points, medals, leaderboards, and challenges are used to encourage active participation, problem-solving, and meaningful learning (Kapp, 2012).

The potential of gamification lies in its ability to activate intrinsic motivation, by allowing students to take active roles in their learning process. According to Deci and Ryan (2000), intrinsic motivation is enhanced when students experience autonomy, competence and social connection, aspects that can be fostered through gamified dynamics. In this sense, gamification not only enriches learning, but also promotes soft skills such as collaboration, creativity, and resilience (Hamari et al., 2014).

Gamification and Reading Skills

Reading comprehension is a complex process that involves the interaction between the reader, the text, and the context, and is organized into three main levels: literal, inferential, and critical (Solé, 2006). The literal level focuses on the identification of explicit information in the text; the inferential level involves interpreting implicit relationships and meanings; and the critical level focuses on evaluating, reflecting and making judgments about the content and purpose of the text.

In this context, gamification offers an innovative approach to address each of these levels. For example, gamified activities can help students identify key information (literal level) through search games; solving mysteries based on textual clues (inferential level); and participate in debates or critical analysis of texts (critical level). In addition, gamified platforms such as *Ta-tum* allow

students to take on active roles, such as literary detectives, to solve cases and accumulate rewards, which incentivizes their commitment and participation.

Gamification, ICT and Active Learning

The integration of Information and Communication Technologies (ICT) in the educational field has transformed traditional pedagogical approaches, allowing for more interactive and student-centred learning. In this framework, gamification is positioned as a strategy that uses ICT to promote active learning, where students not only receive information, but also actively participate in its construction and application (Hamari et al., 2014).

Active learning, according to Bonwell and Eison (1991), involves a process in which students take leading roles in activities that promote critical thinking, problem-solving, and collaboration. Gamified platforms such as *Ta-tum* incorporate these principles by structuring activities that combine narrative, interactive challenges, and digital rewards, motivating students to explore and participate autonomously.

In addition, the use of ICT in gamification makes it possible to personalize learning experiences, adapting activities to the needs and levels of students. According to Kapp (2012), the immediate feedback offered by digital platforms helps students identify their strengths and areas for improvement, while game elements, such as medals and leaderboards, generate a sense of achievement and belonging.

Challenges and Opportunities of Gamification in Reading Comprehension

Despite its benefits, the implementation of gamification in the development of reading skills presents significant challenges. On the one hand, teachers may face difficulties in the design and use of gamified platforms due to the lack of training in ICT and digital pedagogy (Sánchez & García, 2019). On the other hand, it is essential to ensure that gamified activities do not become an end in themselves, but are aligned with learning objectives and promote a deep understanding of the texts.

However, these difficulties also represent opportunities to innovate in pedagogical practices. Gamification, when implemented correctly, can overcome traditional barriers in teaching reading by motivating students to be actively involved in their learning. Likewise, their ability to integrate narrative and technology allows them to address critical competencies such as the interpretation of digital information and critical thinking, essential skills in the twenty-first century.

Methodology

Study Design

This study was developed under a qualitative approach with an action research design, which allowed to identify, implement and evaluate a pedagogical proposal based on gamification to strengthen reading comprehension in fifth grade students. This design is appropriate because it combines practical intervention with a process of reflection and continuous improvement, involving both students and teachers in the development and evaluation of the strategy (Kemmis & McTaggart, 2000).

Participants

The sample was composed of 30 fifth-grade students and a teacher from an educational institution in Montería, Colombia. The students, aged between 9 and 11, came from diverse socioeconomic backgrounds. The participating teacher had experience in the use of ICT and was familiar with innovative pedagogical approaches, which facilitated the implementation of the proposal.

Data Collection Instruments

1. **Participant Observation**:
    - It was used to record students' interactions with the *Ta-tum platform* and their level of participation in activities.
    - The data were collected through a field diary, recording observations on motivation, collaboration and achievements.
2. **Focus Groups**:
    - Conducted with students at the end of the implementation to explore their perceptions of gamification and how it influenced their reading comprehension.
    - Topics included experience with the platform, perceived challenges, and the impact on their learning.

3. **Semi-structured interview**:
    - Applied to the participating teacher to identify their perception of the effectiveness of the proposal, the strengths of the RED and the areas for improvement.
4. **Diagnostic and Final Tests**:
    - Designed to assess reading comprehension levels (literal, inferential and critical) before and after the implementation of the gamified strategy.

Procedure

1. **Diagnostic phase**:
    - A diagnostic test was applied to identify the students' initial level of reading comprehension and an analysis of their needs was carried out.
2. **Design of the Proposal**:
    - Based on the *Ta-tum* platform, gamified activities organized in literary cases were structured. Each case was aligned with the literal, inferential and critical levels of reading comprehension.
3. **Implementation of the Proposal**:
    - Over a six-week period, weekly 90-minute sessions were held in which students interacted with the platform, solving cases and accumulating points and medals.
4. **Evaluation of Results**:
    - At the end of the implementation, a final test was applied to compare reading comprehension levels. In addition, qualitative data obtained through observation, focus groups, and interviews were analyzed thematically.

Data Analysis

The qualitative data were analyzed using a thematic analysis approach, categorizing the responses around the perceptions, motivation and competencies developed. The results of the diagnostic and final tests were compared descriptively to assess changes in reading comprehension levels.

Results

Changes in Reading Comprehension Levels

The analysis of the diagnostic and final tests showed significant improvements in the reading comprehension levels of the students after the implementation of the gamified proposal. The results can be summarized as follows:

1. **Literal Level**:
    - In the diagnostic test, 50% of the students achieved a satisfactory performance at this level. After the intervention, this figure rose to 85%, indicating considerable progress in the identification of explicit information in the texts.
2. **Inferential Level**:
    - Initially, only 30% of the students showed ability to interpret and relate implicit information. At the end of the implementation, 70% achieved adequate performance, evidencing substantial progress.
3. **Critical Level**:
    - This level showed the least progress. While in the diagnostic test only 10% of the students achieved a satisfactory performance, in the final test this figure increased to 30%. Although there was improvement, the result reflects the need to continue strengthening this level.

Student Perceptions

The focus groups revealed that the students positively valued the gamified experience, highlighting aspects such as motivation, interaction and playful dynamics. Some representative comments include:

- *"I liked it because I felt like I was playing while learning new things."*
- *"Solving the cases made me think more and look for clues in the texts."*

In addition, students noted that reward items, such as points and medals, incentivized them to put more effort into activities. The narrative of literary cases was also highlighted as a factor that increased their interest and participation.

Teacher Perception

The interview with the participating teacher reflected a positive assessment of the gamified proposal. According to the teacher, the *Ta-tum* platform facilitated the integration of technological and pedagogical elements, improving student engagement and attention. However, areas for improvement were also identified, such as the need for more time to work on the critical level and the importance of including activities that strengthen collaborative work.

Classroom Observations

Participant observation revealed an increase in the active participation of students during the sessions. The literary cases generated debates and group discussions that fostered collaboration and critical thinking. In addition, it was observed that the least motivated students were initially progressively involved in the activities thanks to the gamified elements.

Discussion

Interpretation of the Results

The results obtained in this study show that gamification, implemented through the *Ta-tum* platform, is an effective strategy to improve literal and inferential levels of reading comprehension in fifth-grade students. The significant increase in these levels confirms findings from previous research that highlight the positive impact of gamified dynamics on the learning of key competencies (Hamari et al., 2014; Kapp, 2012). Students were able to identify explicit information and relate implicit concepts in texts more effectively, reinforcing gamification's ability to transform the learning experience.

However, the critical level showed limited progress, suggesting that longer interventions and specific activities are required to strengthen this competence. This result is consistent with studies such as those by Sánchez and García (2019), who point out that the development of the critical level requires a more deliberate pedagogical approach and extended times of reflective practice.

Relationship with Previous Studies

The present study adds additional evidence to the existing body of literature by demonstrating that gamification not only increases student motivation and engagement, but also contributes to the development of specific reading skills. Previous research such as that of Deterding et al. (2011) highlights that the elements of reward and narrative, used in platforms such as *Ta-tum*, stimulate students' interest, facilitating meaningful learning. In the Colombian context, this study coincides with the findings of García and Torres (2021), who argue that gamified platforms have a high potential to overcome traditional barriers in learning to read.

Practical Implications

The results of this study have important implications for educational practice. Firstly, gamification can be an effective tool to address reading difficulties in primary school, especially at the literal and inferential levels. The interactive storytelling and reward systems built into platforms like *Ta-tum* offer an innovative approach that connects with students' interests, promoting greater engagement.

Second, this study highlights the importance of training teachers in the use of gamified technologies, ensuring that activities are aligned with pedagogical objectives and designed to foster deep learning. Finally, the implementation of gamified strategies must be accompanied by critical reflection on the time dedicated to each level of reading comprehension, in order to strengthen skills such as analysis and critical evaluation.

Conclusion

This study shows that gamification, implemented through the *Ta-tum* platform, can be an effective pedagogical strategy to strengthen reading comprehension in elementary school students. The results show significant improvements in literal and

inferential levels of reading comprehension, as well as an increase in student motivation and participation. The interactive storytelling and reward elements offered by the platform played a key role in transforming the learning experience, promoting active and meaningful engagement.

However, limited advances at the critical level underscore the need to design more specific and prolonged activities to address this competency, which is essential for the development of autonomous and reflective readers. In addition, teacher training is presented as a fundamental component to ensure the effective implementation of gamified strategies and their alignment with pedagogical objectives.

Implications and Recommendations

The findings of this study have important implications for educational practice and future research. On the one hand, they highlight the potential of gamification to overcome traditional barriers in the teaching of reading, connecting content with students' interests and motivations. On the other hand, they emphasize the importance of integrating these strategies into broader curricular plans that allow for a balanced development of reading skills.

It is recommended that future studies explore the impact of gamification in different educational contexts and areas of knowledge, using mixed methodological approaches to more accurately assess its effectiveness. In addition, it would be valuable to implement longitudinal studies that analyze how gamification can influence sustained learning and the transfer of reading skills to other contexts.

In conclusion, gamification represents a promising pedagogical tool that, when implemented in a reflective and contextualized way, has the potential to transform the teaching of reading, promoting meaningful learning and strengthening key competencies for students' academic and personal lives.

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