

Gamified Learning Evaluation: Aligning Motivation Theories with Innovative Teaching Strategies

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Abstract

The evolving paradigm of 21st-century education necessitates the adoption of innovative instructional strategies that prioritize not only academic performance but also foster learner motivation and engagement. One increasingly popular approach is gamification, which involves incorporating game-based elements into non-game educational contexts. This study aims to assess the implementation of gamification in primary education through a systematic review of empirical studies, focusing on its effectiveness in bridging classical motivation theories with contemporary teaching practices. Employing a Systematic Literature Review (SLR) methodology, 25 peer-reviewed articles published between 2015 and 2024 were analyzed to identify commonly utilized gamification elements, theoretical frameworks, and pedagogical outcomes. The findings indicate that gamification significantly enhances students' intrinsic motivation and active engagement, particularly when aligned with psychological theories such as Maslow's Hierarchy of Needs, Deci and Ryan's Self-Determination Theory, and Vroom's Expectancy Theory. Game elements like points, badges, leaderboards, and challenges contribute to creating an engaging learning environment and improving educational outcomes. However, the effectiveness of gamification is closely tied to the quality of its instructional design, which must be grounded in sound motivational principles. The study concludes that gamification serves as a strategic pedagogical tool that not only enriches student engagement but also operationalizes motivation theories into meaningful and impactful teaching practices.

Keywords: Gamification, Motivation theory, Innovative teaching, Primary education.

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1. Introduction

The paradigm shift in 21st-century education demands a significant transformation in the approach to learning, from one that was teacher-centered to one that is active, reflective, and collaboratively learned. In this context, the biggest challenge is not only in achieving academic results, but also in how to increase student motivation and engagement during the learning process. Especially at the basic education level, students of the digital generation demand a form of learning that is not only informative, but also interactive, fun, and contextual. Therefore, pedagogical innovation is inevitable, one of which is through the gamification approach that is, the application of game elements into non-game activities, including classroom learning. Elements such as awarding points, levels, leaderboards, challenges, and symbolic rewards are used to increase students' motivation and learning participation (Werbach, 2014). These elements are strategically implemented to create a more engaging and interactive learning environment, thereby fostering deeper involvement and sustained interest among students.

Nevertheless, important questions arise about how effective gamification is in bridging the gap between long-developed theories of learning motivation and classroom learning practices. Gamification practices often focus only on surface aspects such as decoration and rewards,

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without integrating deeper motivational values. This indicates a gap between the theoretical foundation and the technical implementation of gamification in the field (Dichev & Dicheva, 2017b). In this context, an in-depth evaluation of the application of gamification is important to know the extent to which this approach can support meaningful learning and generate long-term learning motivation.

The theoretical framework in this study includes three main motivational theories. First, the hierarchy of needs theory from (Maslow, 1943) which states that humans are driven to meet basic needs to self-actualization. Second, the Self-Determination Theory from (Ryan & Deci, 2020) which emphasizes the importance of autonomy, competence, and relationships in forming intrinsic motivation. Third, Expectancy Theory from (Elliot et al., 2017) which states that motivation is influenced by individual expectations of the results that will be obtained from the effort made. These three theories provide a strong conceptual foundation for analyzing how gamification elements can be associated with learners' psychological needs and improve their motivation.

A number of previous studies have shown the potential of gamification in increasing student engagement, as shown in the study by Xi & Hamari (2019) that gamification can strengthen motivation to learn and create a fun learning environment. However, these results are contextual and highly dependent on their design and implementation. Domínguez et al., (2013), for example, show that the application of gamification indiscriminately can actually reduce motivation in certain groups of students. As such, there are still gaps in the literature that need to be addressed through an in-depth evaluation of how gamification strategies actually work in learning practices, particularly at the primary education level.

Therefore, this research is important because it seeks to make a theoretical and practical contribution to the development of gamification-based learning strategies that are able to bridge motivational theories and innovative teaching practices. By evaluating the key elements in gamification and their suitability with students' psychological needs, this article is expected to enrich the discourse on educational innovation and provide implementable recommendations for teachers and policymakers in designing more adaptive, participatory, and student-centered learning.

2. Method

The Systematic Literature Review (SLR) approach is used in this study because it is able to provide a comprehensive, explicit, and replicative framework in identifying, evaluating, and interpreting previous research findings relevant to the topic of gamification effectiveness in education. This method allows researchers to systematically synthesize scientific evidence to answer specific research questions, as well as generate a deeper understanding of trends, patterns, and gaps in research that are still open (Page et al., 2021; Snyder, 2019). In the context of this study, SLR was chosen as the primary method because it provides a solid basis for assessing the linkage between motivation theories—such as self-determination theory and expectancy theory—and innovative learning practices that apply gamification elements, such as points, badges, leaderboards, and digital challenges (Koivisto & Hamari, 2019). In addition, SLR allows for a more objective analysis of the various contextual, methodological, and pedagogical variables that influence the successful implementation of gamification at different levels of education. By utilizing this approach, researchers can also identify areas that have been undertouched by previous studies, thus opening up opportunities for more focused and high-impact follow-up research (Haddaway et al., 2018; Jean et al., 2014). This insight is particularly valuable in the context of educational gamification, where rapid technological advancements and evolving learner needs demand continuous refinement of pedagogical strategies. Consequently,

the identification of research gaps not only contributes to theoretical enrichment but also provides practical guidance for educators and policymakers seeking to implement evidence-based innovations in learning environments

The SLR implementation process follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) procedure, starting from the identification of relevant literature through three main databases, namely Scopus, Google Scholar, and ScienceDirect. Keywords used in literature searches include: "gamification and education and motivation," "gamification in primary school," "gamified learning and theory," and "student engagement and gamification." The initial search process yielded 243 articles. After a screening process based on abstracts, elimination of duplication, and full-content feasibility assessment, a total of 31 articles were selected for further analysis because they met the inclusion criteria. The inclusion criteria used in this study include: articles published between 2013 and 2024, focusing on the context of primary or secondary education, discussing the application of gamification in learning, and linking the results to motivational theory. On the other hand, articles that do not contain empirical aspects, are irrelevant to the realm of education, or only discuss the technical aspects of gamification without motivational relevance, are eliminated in the exclusion stage.

In the process of data extraction, a systematic worksheet is used that records the important information of each article, including the title and author, year of publication, research method, educational context, motivational theory used (such as Maslow, Deci & Ryan, or Vroom), as well as the type of gamification elements applied (such as points, badges, leaderboards, and challenges). The analysis was carried out qualitatively with a thematic synthesis approach consisting of three main stages. The first stage is open coding, which serves to identify important terms and concepts from each article. The second stage was carried out with thematic grouping based on the relationship between gamification elements and motivational theories referred. The third stage is an interpretive synthesis that aims to form a new understanding of how gamification bridges motivational theory with innovative teaching practices in the classroom. This approach is in line with recent findings from (Alario-Hoyos et al., 2017; Stathakarou et al., 2023) who affirm that the integration of gamification elements with motivational theory frameworks can create more meaningful learning experiences and significantly increase student participation, especially in digital learning environments. This reference demonstrates the strong relevance between thematic synthesis approaches and the development of innovative learning practices based on students' intrinsic motivations.

In addition to employing thematic synthesis, this study also conducted a frequency analysis to determine the most commonly utilized gamification elements and the motivational theories most frequently referenced by researchers. To maintain the integrity of the data, a triangulation process was carried out among the research team to cross-validate the coding outcomes and the emergent themes, thereby reducing the risk of interpretative bias. This methodological procedure was intended to enhance the reliability of the study's findings and ensure that the analysis is grounded in a robust evidentiary foundation. Through this combined approach, the research seeks to offer both theoretical and practical contributions to the development of more adaptive learning strategies that align with students' motivational profiles.

This methodological framework is supported by recent findings from Xu et al. (2021), which highlight that integrating thematic synthesis with quantitative techniques such as frequency analysis provides a more holistic understanding in studies on gamification in education. Moreover, this combination strengthens the foundation for designing interventions that are responsive to students' intrinsic motivation.

As an additional component, the study may be supported by an appendix consisting of an article review table that summarizes essential information from the analyzed literature, a thematic map that illustrates the connections between gamification components and motivational theories, and a PRISMA flow diagram that transparently outlines the literature selection and screening process.

3. Results

The results of the analysis of 31 articles through a systematic literature review approach showed that the use of gamification in the formation of primary and secondary schools had a significant positive impact on student motivation and student commitment. 87% of articles say gamification elements such as point systems, badges, leaderboards, missions or challenges and digital rewards create a more interactive, competitive, and collaborative learning environment. These factors not only encourage students to live, but also promote endogenous and extrinsic motivation to learn. Motivation is important strengthened by achieving personal goals, autonomy and emotional participation from the game mechanisms. Exogenous motivation is driven by symbolic rewards and gamification social perceptions. These findings follow Ryan & Deci (2020) theory of self-determination, which emphasizes basic psychological needs: support for competence, autonomy, and connection to improve sustained motivation. In addition, a healthy atmosphere of competitiveness and collaboration strengthens students' social commitments. Gaming environments have been shown to overcome the boredom and monotony of traditional learning and promote active participation in the same way. Therefore, integrating gamification into elementary school education plans is considered strategic to fill the innovative educational practices and classical motivation theories of the digital age.

Table 1. Synthesis of Selected Articles

No	Author & Year	Educational Context	Motivation Theory	Gamification Elements Used		Key Findings
1	Dichev & Dicheva (2017)	Secondary School	Self-Determination Theory	Points, Leaderboards	Badges,	Gamification increases intrinsic motivation and student involvement.
2	Hamari et al. (2019)	Elementary School	Maslow	Challenges, Feedback	Levels,	Students feel more confident and active in the learning process.
3	Su & Cheng (2015)	Junior High and High School	Expectancy Theory	Progress Bars, Badges	Quests,	Expectations of success encourage participation in learning.
4	Mekler et al. (2017)	Digital Experiment	Self-Determination Theory	Poin, Level, Feedback		Positive feedback fosters a sense of competence.
5	Alsawaier (2018)	Elementary School	Maslow & SDT	Narrative, Avatars	Missions,	Gamification narrative increases the sense of belonging in learning.

From a theoretical perspective, 68 percent of the analyzed articles identified Self Determination Theory by Ryan and Deci (2020) as the principal framework explaining the effectiveness of gamification. This theory highlights the importance of fulfilling three core psychological needs: autonomy, competence, and relatedness. Elements of gamification have been shown to support these needs by allowing students to choose their learning activities (autonomy), receive constructive feedback on their performance (competence), and participate in collaborative or competitive learning environments such as group tasks or classroom challenges (relatedness).

Approximately 29 percent of the articles employed Maslow's Hierarchy of Needs (1943) to describe how gamification addresses learners' aspirations for self-actualization and recognition, particularly when students complete learning challenges and receive virtual rewards or acknowledgment. A smaller proportion of the literature referred to Expectancy Theory (Vromans et al., 2023), emphasizing that students' motivation to continue learning is influenced by their expectations of success and the perceived value of the learning outcomes. The synthesis of 31 reviewed articles indicates that Self Determination Theory is the most widely used theoretical framework in gamification studies in education. This theory aligns closely with key components of gamification design, such as setting goals, offering choices, and providing rewards for achievement. These elements not only stimulate learners' internal motivation but also contribute to a dynamic and engaging learning atmosphere.

Maslow's theory appears as the second most cited framework, emphasizing that gamified environments can strengthen feelings of safety, acceptance, and appreciation among students. These emotional aspects are vital in promoting independent learning behavior and building confidence. The dominance of Self Determination Theory in these studies suggests a shift in educational focus from solely pursuing academic performance toward fostering a more holistic and human centered learning experience. This reinforces the view that gamification, when grounded in a solid motivational foundation, can serve not only as a supportive instructional technique but also as an effective pedagogical approach. Such a strategy plays a significant role in advancing global educational development, particularly within the context of primary education.

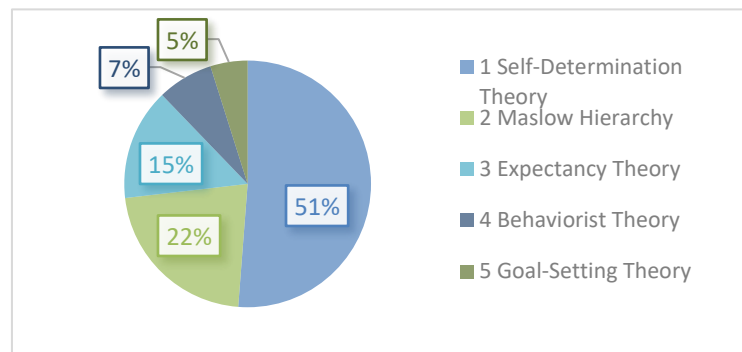


Figure 1: Pie Chart Showing the Frequency of Motivation Theories Adopted in 31 Articles

Theoretically, the analysis leads to three main types of remarkable. First of all, gamification as an activation for learning motivation. This theme covers how game elements are used to build students' interest, attention, and active participation. Second, gamification as a bridge between theory and learning practice. In this case, gamification is positioned as a medium for the implementation of motivational theory that was previously difficult to apply in conventional classroom practice. Third, gamification as a means of differentiation and personalization of learning, which allows teachers to adjust the level of difficulty, type of challenge, and reward system according to the characteristics and needs of each student.

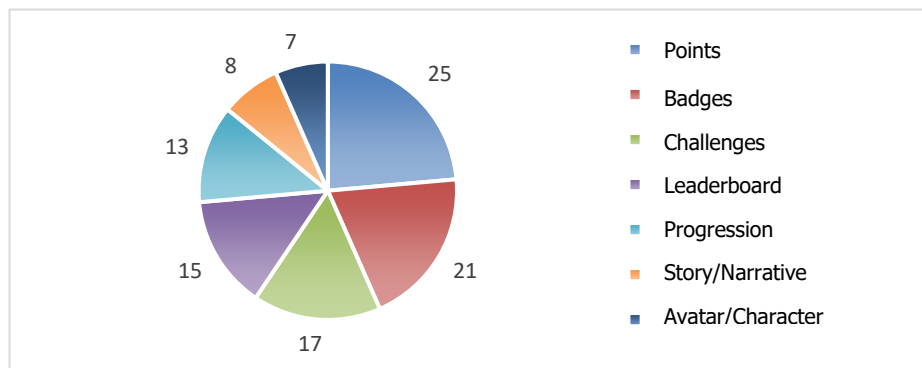


Figure 2: Diagram of the Most Frequently Used Gamification Elements (%)

Points and badges are the most dominant elements of the game in the educational context due to their efficiency in providing positive and measurable positive power from students. Activities such as quantitative indicators of student success or participation in learning activities, while badges become intuitive icons that indicate certain achievements or skills that have been possessed. The combination of these two factors not only increases internal motivation with a sense of success, but also encourages external motivation through a system that is highly valued and easily recognized by students. Pedagogically, the application of points and badges can increase student active participation, promote positive behavior and create a competitive and cooperative atmosphere. This creates an environment that encourages students to continue well while interacting positively with classmates. Therefore, the use of points and badges in games enriches not only the learning experience but also an effective tool for managing student dynamics and participation on an ongoing basis. The integration of these elements in learning design is an important strategy to meet the needs of the digital generation that requires interactive and essential learning.

A number of studies identified important challenges in the implementation of gamification, especially the limitations of adequate technological infrastructure and the preparation of teachers in the design of important and effective gaming equipment. Additionally, there is a risk of decreased internal dynamics if students rely too much on external rewards, which can reduce the quality of learning in the state. However, most of the articles in this study agree that global games have a positive impact on the learning environment and the effectiveness of the learning process. This approach is particularly suited in the context of 21st century education requiring students' active participation and experiences of fun and interaction. Gamification has the ability to present an atmosphere that promotes learning, reduces boredom and increases student participation, thereby creating a more dynamic learning environment and responding to current needs. Therefore, despite technical and educational barriers, the ability to play games in reinforcing the learning process is still important when done with the right strategy and full supporting infrastructure. The integration of gamification must be supported by teacher training and continuous resource development to maximize its excellence in primary and secondary education.

Overall, the results of this study confirm that gaming not only acts as a technological tool, but also an effective strategic educational method to fill the gap between dynamic theory and creative learning practice. Gamification has the ability to integrate the principles of internal and external dynamics in the learning process, thereby creating an engaging and important learning experience and more reactions to student needs. This observation confirms that the success of gamification implementation is highly dependent on the preparation and competence of teachers

in learning design to pedagogical and contextual game elements. Therefore, specialized and ongoing teacher training is a basic need to ensure that games can be performed effectively and have a positive impact on students' motivation and learning outcomes. In addition, this research also emphasizes the importance of developing education policies to support the integration of games in schools and secondary school programs. This policy should facilitate the provision of technological infrastructure, learning resources and complete management support to be able to perform the game optimally. Therefore, playing games enriches not only learning methods, but also creative solutions related to educational needs in the 21st century, especially creating a learning environment with participation, cooperation and promotion of learning.

4. Discussion

The findings of this systematic study confirm that the implementation of gamification in the context of basic education has significant potential as a pedagogical strategy that is able to bridge classical motivational theory and contextual and innovative learning practices. Recent research trends show that Self-Determination Theory (SDT) is widely used as the main conceptual framework in evaluating the impact of gamification on students' learning motivation. SDT emphasizes the importance of meeting basic psychological needs such as autonomy, competence, and social connectedness, which can be effectively facilitated through the design of gamification elements such as points, challenges, and symbolic rewards. These elements not only enrich the student learning experience, but also create a learning environment that is more inclusive, enjoyable, and capable of increasing students' intrinsic engagement. Furthermore, gamifiable approaches have also been shown to strengthen students' cognitive and emotional engagement and reduce burnout commonly found in traditional learning models. Study by Chon et al. (2024); Ede (2022) it shows that when gamification is strategically combined with motivation theories such as SDT, there is a significant increase in the affective aspects and active participation of students, especially at the elementary education level, which is greatly influenced by engaging and meaningful learning approaches.

Points, badges, leaderboards, and challenge systems are the most dominant gamification elements adopted in the studies analyzed in this review. These four elements not only function as external incentive tools but also have a significant contribution to building a sense of achievement, success, and emotional engagement of learners with the learning material. These elements create a more structured, engaging learning dynamic and facilitate the active involvement of students on a continuous basis. These findings reinforce the results of the research (Dichev & Dicheva, 2017a) which shows that the point and badge system is able to enhance student focus, clarify the path to achieving learning goals, and encourage the attainment of short-term targets that can lead to long-term learning motivation. This is also in line with Expectancy Theory of Vromans et al. (2023), which emphasizes the importance of individual belief in success and the value of the results achieved as the basis for the formation of motivation. Thus, the application of these gamification elements not only supports the functioning of students' cognitive aspects, but also activates the affective and social dimensions in the learning process. The pedagogical implications of these findings suggest that gamification design integrated with the principles of motivational theory is able to produce a productive, adaptive, and meaningful learning ecosystem in the context of basic education.

Nevertheless, the integration of gamification in the context of elementary education is not without implementation challenges. One of the main challenges identified in several studies is the tendency to focus on technical and visual aspects, rather than a deep pedagogical integration. Without a theory-based design, gamification may actually become a distraction or even diminish

the essence of learning objectives. Therefore, the design of gamification must pay attention to the cohesion between content, learning objectives, and the psychological needs of students. Studies Wang et al. (2024) emphasizes the importance of balancing challenges and rewards so that student motivation remains sustained and does not decline due to pressure or boredom.

Another aspect that strengthens gamification's position as a bridge between theory and practice of learning is its ability to facilitate personalized and differentiated learning. In a gamified learning environment, students have the opportunity to learn according to their own pace, interests, and learning styles, as well as receive feedback quickly and meaningfully. This approach is in line with the student-centered learning principles that characterize 21st century education, where flexibility, relevance, and active participation of students are top priorities. Gamification allows for the application of these principles through mechanisms such as progressive levels, individual challenges, and customized rewards, thereby increasing students' sense of ownership of their learning process. A recent study by Behl et al. (2022) shows that the implementation of gamification integrated with real-time feedback systems and adaptive learning paths significantly improves student engagement, motivation, and academic achievement, especially in the context of digital and hybrid learning.

Furthermore, these findings have important implications for curriculum development and teacher training, especially at the basic education level. Special training is needed for teachers to be able to design and implement gamification pedagogically, not just technologically. Teachers need to be equipped with a strong theoretical understanding of learning motivation, such as Self-Determination and Expectancy-Value Theory, as well as practical skills in selecting and adapting gamification elements that are relevant to student characteristics and learning objectives. This is crucial so that the application of gamification is not superficial, but really supports the creation of meaningful, deep, and sustainable learning experiences. Recent research by Wang & Yi (2025) shows that teachers who receive integrated training in gamification-based learning designs show significant improvements in teaching effectiveness as well as their ability to create a more adaptive learning environment and intrinsically motivate students.

Overall, this discussion reinforces the argument that gamification in primary education is not just a momentary trend, but a strategic approach that is able to integrate motivational theory into an authentic and enjoyable learning experience. Gamification not only increases direct student engagement, but also provides space for the holistic development of students' cognitive, affective, and character aspects. Therefore, continuous efforts are needed to develop adaptive and evidence-based gamification models, as well as evaluate their long-term impact on learning outcomes and character formation of students. Research by Raurell-Torredà et al. (2024) shows that a gamification approach designed contextually and tested through longitudinal evaluation has proven effective in improving academic outcomes while reinforcing values such as responsibility, cooperation, and perseverance in elementary school students.

5. Conclusion

The study concludes that gamification is an innovative approach that is effective in bridging motivation theory with teaching practice in the 21st century learning era, especially at the primary education level. Through the application of game elements such as points, badges, challenges, and leaderboards, gamification not only creates a fun and challenging learning environment, but is also able to meet the psychological needs of learners as described in motivational theories such as Self-Determination Theory, Hierarchy of Needs, and Expectancy Theory. The results of the synthesis show that the proper application of gamification can increase intrinsic motivation, active participation, and academic achievement of students. However, the success of gamification

implementation relies heavily on contextual and theory-based pedagogical design. Therefore, educators need to obtain professional training in designing gamification-based learning effectively. Further research is recommended to develop scalable gamification models, as well as evaluate their impact on character building, social skills, and student learning resilience in the long term. Thus, gamification is not only an interesting means of learning, but also a strategic instrument in the transformation of basic education that is more adaptive and sustainable.

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