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A Qualitative Review of Gamified Digital Learning Applications and Their Motivational Features

Dr Shahla Shabeeh Shaheen[1], Bushra Faridi[2]

[1]Assistant Professor, Department of Education, Aligarh Muslim University
[2]Research Scholar, Department of Education, Aligarh Muslim University

Abstract

Gamification in education involves using features that are based on games and principles in traditional learning contexts to motivate, engage, and improve learning achievement with desired outcomes. This study employed a qualitative literature review approach to synthesise insights from recent academic research and digital learning applications published between 2013 and 2025. This research studied widely used educational platforms like Duolingo, Kahoot, Quizizz, Prodigy Math, and Class Dojo and identified key gamified features. Some examples are badges, leaderboards, points, levels, and feedback systems. Sources were taken from databases that are scholarly, including Google Scholar, Science Direct, Springer Link, ERIC and Frontiers in Education, as well as peer-reviewed journal articles published between 2013 and 2025, and studies focusing on gamified educational applications, motivational features, and learning impacts used in primary, secondary and higher education contexts. A total of 26 peer-reviewed studies and five major gamified educational apps were analysed using thematic content analysis. Key themes that have been identified include motivation, engagement, collaboration, and usability. The study emphasised the benefits, such as an increase in engagement of the learner, better collaboration, improved motivation, and self-paced learning. This review also highlights challenges such as superficial engagement, over-competition, and accessibility inequalities. The findings suggest that gamification, when pedagogically aligned, can be an effective approach to foster active, student-centred learning. This paper concludes by recommending future research on long-term learning outcomes and ethical aspects of gamified environments in education.

Keywords: Gamification, digital learning, educational technology, motivation, engagement, game-based learning, usability.

Introduction

In recent years, the revolution of digital learning environments has led to the mainstream adoption of gamification as a pedagogical tool. Unlike traditional instruction, gamified platforms create interactive, goal-oriented learning experiences that leverage human psychology—specifically motivation, competition, and achievement. Gamification in education matters because it bridges the gap between enjoyment and education. By transforming passive learning into active participation, it addresses problems such as student disengagement, low motivation, and reduced attention spans (Hamari et al., 2019). The term gamification was defined as “the use of game design elements in non-game contexts.” In educational

settings, gamified features are used to increase engagement and sustain learner interest. (Deterding et al., 2011).

Some gamified applications like Duolingo, Kahoot, Quizizz, Prodigy Math, and Class Dojo reflect the trend towards interactive learning and student-centred learning. These applications encourage regular practice, immediate feedback, and collaborative learning, which are crucial for fostering deep, sustained engagement and creating positively engaging environments that emphasise active participation and perseverance, revolutionising the way learners educate, compete, and collaborate.

In the last ten years, gamified learning in education has become a transformative force. Student motivation has been improved by blending learning objectives with game mechanics, engagement, and performance, aiming to transform passive learning into active participation. It is a crucial aspect of digital pedagogy in the 21st century (Bai et al, 2022). The increasing integration of digital technologies and mobile learning has made gamification more accessible and scalable across diverse educational levels. It covers primary schools up to universities. Gamified apps have shifted from optional supplements to core components of online and blended learning environments (Ristianto et al., 2025). Moreover, the COVID-19 pandemic increased the adoption of gamified learning apps, emphasising their potential for maintaining social presence, engagement, and learning continuity (Zairon et al., 2025).

The relevance of gamification lies in its foundation pertaining to psychological and motivational theories. Self-Determination theory holds that motivation is driven by the need for self-paced efficiency, autonomy, collaboration, competence, immediate feedback and relatedness. Gamified learning focuses on these needs through choice-focused learning paths, challenges, and competition or collaboration. (Deci & Ryan, 2000). Another theory, Flow Theory, explains that gamified tasks create balance between difficulty and skill and produce immersive flow states that enhance cognitive absorption and an enjoyable environment. (Csikszentmihalyi,1990). These principles focus on gamified learning environments, often traditional ones, in terms of perseverance and satisfaction. (Christopoulos & Mystakidis, 2023; Ukgoda, 2025). Gamification features include enhancing motivation, engagement, collaboration, and usability. The goal is to provide an updated stance on the pedagogical potential, psychological foundations, and practical challenges of gamified learning in contemporary education.

To achieve learning outcomes, learners solve challenges in game-based settings in simple or complex virtual simulation environments. (Zhan et al., 2022) Another study found that gamification encourages positive learning processes, increases performance, and boosts competence. Feedback alerts learners who are making progress, and encourages them to develop and engage through prizes and a sense of victory (Bodnar et al., 2016). It also positively influences their achievement and self-efficacy and engages them in scientific inquiry. (Wang & Zheng, 2020). Some findings disagree and view the impact of gamification as contentious. (Elgün and Kaya 2015) argued that results were extremely dependent on the students who used it and the setting in which gamification was applied, despite some studies showing the positive influence of game-based learning on student achievement. (Hamari, 2014)

Gamification makes students feel better when they finish a job, but it can make them anxious when they fail or leave it unfinished. (Dominguez 2013). These games are meant to increase the drive that comes from outside sources, but they can sometimes make people feel more manipulated and lose control. Students were less motivated to study and less ready to do so when they saw rewards as a form of control (Hanus & Fox, 2015).

One negative aspect of students not being interested in game-based learning is that it makes things more competitive, which makes them less interested because gamification encourages competition over teamw-

ork and sharing (De-Marcos et al., 2014).

Overview of Popular Gamified Apps

Duolingo: A globally recognised language-learning app, it employs points, streaks, levels, and achievements to sustain learner motivation. It combines short lessons, instant feedback, and daily challenges, promoting self-paced and gamified language acquisition (Vesselinov & Grego, 2020).

Khan Academy: A wide range of subjects, for all levels of understanding and expertise and all ages.

Kahoot: It transforms classroom quizzes into competitive live games where students answer questions via mobile devices. It reinforces learning through immediate feedback, leaderboards, and visual engagement, promoting collaboration and excitement in both in-person and online settings (Plump & LaRosa, 2017).

Quizizz: Asynchronous learning, creates memes and avatars, and tracks the progress of the learner to make sure the assessments are engaging. To reduce exam pressure and anxiety and maintain the level of motivation, it supports formative assessment and self-paced review. (Zainuddin 2020).

Prodigy Math: This app is designed for elementary students to solve problems and challenges to earn points, rewards and feedback, increase the achievement level, and enhance intrinsic and extrinsic motivation. (Bai et al., 2022).

ClassDojo: It emphasised classroom management and social-emotional learning. Educators give points for positive behaviours such as teamwork, effort, participation and collaboration. Facilitates parent-teacher communication and community-building. (Robertson, 2019).

Gamification in India

Antiz Technologies: It is a highly interactive, computer-based, Gamified, and Immersive Learning experience.

BYJU'S: The games are designed to make learning fun and engaging for children. The system offers a variety of kits and games catering to different age groups and learning styles.

Guru-G Learning Labs: This platform is a daily mentor and assistant for teachers.

SplashLearn: It is a game-based math and reading program for students. It features personalised learning paths, adaptive difficulty, and progress tracking to support individual student needs.

OckyPocky: It is a vernacular-based English- learning app for preschool kids. Features include a collection of nursery rhymes, songs, and learning videos in English, Hindi, and Telugu, parental time management and control, and activity-based videos for kids and parents

VOOT Kids: It is an engaging educational application. It is a comprehensive platform that offers a range of educational content, including TV shows, books, and stories, catering to children's entertainment and learning needs.

Stepapp: It is a gamified educational application for students and educators. The application offers personalised learning experiences through animations and quizzes.

It wasn't clear which factors were most critical for educational games. Along with considering the effects on learning, factors such as motivation, user experience, and usefulness were also taken into account. Some evaluations aren't based on solid science, making the results less reliable, and more studies are needed on game evaluations that use new technologies. (Mathrani, 2016)

Objectives

1. To study the key game-based features in major gamified educational applications.
2. To analyse literature between (2013–2025) on the use of games in digital learning systems.
3. To identify the common challenges associated with gamified learning applications.

Results and findings:

Objective:1 To study the key game-based features in major gamified educational applications.

Table 1 highlights key gamification features used in educational applications and their roles in enhancing learning. Elements like points, levels, badges, and leaderboards drive motivation through achievement and friendly competition, while feedback loops provide instant correction to support improvement.

Feature	Description	Example
Points/Rewards	Encourage achievement through immediate feedback and progress recognition.	Duolingo, Quizizz
Levels and Progression	Structure learning into gradual challenges to promote mastery.	Prodigy, Duolingo
Badges and Achievements	Symbolic tokens of success that reinforce accomplishment.	ClassDojo, Kahoot!
Leaderboards	Enable competition and social motivation.	Kahoot, Quizizz
Feedback Loops	Provide real-time correction and guidance.	Duolingo, Prodigy
Social Interaction	Fosters teamwork, cooperation, and community.	ClassDojo, Kahoot!

Table 1: Key game-based features

Social activity fosters a sense of community and collaboration, making learning more engaging and interactive. Together, these features encourage both individual progress and cooperative participation in digital learning environments.

Objective:2 To analyse literature between (2013–2025) on the use of games in digital learning systems.

Empirical evidence between 2013 and 2025 consistently supports the motivational impact of gamified applications. Several studies (Table 2) revealed that there is an increase in participation, motivation and engagement among students. This makes things easier to understand, sustaining motivation, thereby improving the physical condition of the student. Moreover, students with intellectual disabilities were reportedly required less help due to gamified learning. (Amriani, A. et al. 2013, Barata, G. et al. 2013, Barata, G. et al. 2013, Betts, B. et al. 2013, Brown, D. et al. 2013, Cheong, C et al. 2013, Hakulinen, L. 2014, Attali, Y. 2014, Abrams, S. 2014, Landers and Landers 2015, Barata, G. et al. 2014, Bonde, M.T et al. 2014, Aldea, A. et al 2014, Butgereit, L. 2015, J Martí-Parreño, et al. 2016).

A study found that professors across disciplines tailor their instruction based on quizzes through Kahoot, which increases classroom participation and further engages all students. (Plump, C. M., & LaRosa, J.

2017). Another review finds improvements in both student engagement and behaviour management through a gamified e- portfolio. (Abdul Wahab, 2017) Gamified Learning Management Systems (LMS) significantly foster user satisfaction and participation (Baharin et al., 2025). Likewise, Al Rousan and Ayasrah 2025 developed an enhanced gamification model of AI that improved engagement and motivation among secondary school students. Cognitive performance and student persistence have been improved because of Prodigy Math (Bai et al., 2022). It improved student engagement by integrating tests, escape rooms, and serious games. This platform helps students stay motivated to be involved in the learning process. (Hasan et al., 2019). These findings affirm that gamification not only boosts short-term engagement but also promotes long-term academic achievement when aligned with pedagogical goals. However, the significance of gamification extends beyond academic outcomes.

Consequently, research into AI-driven and immersive gamification suggests future learning systems will integrate adaptive algorithms, virtual environments, and personalised challenges, evolving from simple point-based systems to intelligent, emotion-aware learning ecosystems (Dörr & Aylon, 2025). One-Up Learning - a gamification platform based on motivational theories and inspired to improve students' gameful experiences, competition and overcoming barriers for creating gamified learning applications. (Dicheva, D., Irwin, K., & Dichev, C., 2018) Another finding showed that gamified e-quiz apps (i.e., Socrative, Quizizz, and iSpring Learn LMS) and paper-based quizzes evaluated students' performance, particularly as formative assessment after completing each topic and increased motivation and engagement in the learning process. (Zainuddin, Z. et al. 2020). The main game elements are the PDCA cycle (Plan, Do, Check, Act) and behavioural attitudes to stimulate change, fostering more sustainable behavioural attitudes and motivation to promote and ensure the quality of learning. (Oliveira, R. P 2021)

Another study indicates that badges and leaderboards enhance learning outcomes regarding the heuristics and biases, supporting the gamification and increasing competition and cognitive challenges (Legaki, N.-Z. et al., 2021). Aguiar-Castillo et al. (2022) found that game-based elements increase motivation and performance. The speed, timing, direction and environment of their learning are all in students' hands, increasing usability and motivation. Alsadoon et al. (2022) found that competition for points and badges showed their desire to learning, achievement, motivation, and classroom satisfaction.

However, the benefits of gamification in higher education include helping achieve desired educational goals, assessing learners' strengths and weaknesses, improving student motivation and learning, and increasing the acceptability of gamification strategies and their ability to increase involvement of students in the learning process. (Alzahrani, F. J., 2022). Through the use of points, badges and awards, educators and course designers can evaluate and monitor an online course to improve and increase motivation in the learning environment. (Ghai &Tandon 2022). Gamified activities motivate students in their learning and create an engaging environment is the main challenge of teaching. (Portela, 2022)

Previous research (Tavares, 2022) and (Christopoulos, A., & Mystakidis, S., 2023) have shown that gamified features such as leaderboards and badges improved student engagement, collaboration, knowledge retention and learning, while limited-time game activities make students more anxious. Many studies emphasise its potential to enhance social interaction, collaboration, and inclusivity, aligning with the broader goals of constructivist education (Sikora et al., 2024) and (Pollard, 2025). Collected data on engagement, academic performance, and attitudes with the help of scales, the results of which show improvements in the participation levels, academic achievement, and positive attitudes towards mathematics compared to the control group. These findings effectively increase experiences and cognitive outcomes in mathematics. (Maryana. M 2024).

Another review shows improvements in engagement and behaviour management. Students show high levels of self-control, regulation and motivation, with positive behaviours. ClassDojo were effective in fostering a responsive learning environment. (Benzizoune, O. 2024). A game, based on challenge, points and rewards, increased motivation and engagement, especially when integrated with adaptive feedback. Personalised learning, adaptive difficulty, learner-directed paths, and design of the content develop the strongest dual gains in satisfaction and achievement. (Orozco, M. T. V., & Crosetti, B. L. D. B. 2025).
Compared to the non-gamified system, the gamified system improved performance. and the program content addressed students' psychological needs. Learning progress depends on individual learner differences, game experience, and learners' expectations of the gamified system. (Ojonuba, S. E., & Türkmen, G. 2025). The other study reveals that the adopted game engines, augmented reality, native languages, and various gamification elements were also a growing emphasis on personalisation and user-centred design. (de Sales, J. J. C., & Oliveira, S. R. B., 2025). According to studies, gamified learning influences language learning and increases motivation and engagement. The "Language Quest" is a language-learning application that features interactive activities, rewards, challenges, and achievement - tracking features that enhance language skills. (Safatian, F. 2023).
Self-Determination Theory (SDT) and learning models to enhance learner engagement and academic performance, and through adaptive gamification strategies that support theories centred on autonomy, competence, and relatedness, enabling personalisation based on individual learning preferences and improving motivation. (Zairon, I. Y et al. 2025).
Gamification fosters positive attitudes towards learning; the effectiveness of competition depends on the course design. The impact of game features (badges, leaderboards, feedback, etc.) on engagement and motivation varies according to learning environments and traits. (Ukgoda, H. 2025). In the Computer Programming Fundamentals course, students show high usability. The mean score for usability is 89.4%, for educational usability is 89.6%, and for user experience, the mean score is 89.0%, enhancing the positive impact on motivation. (Abas, A., 2025)
Using the StandByMe gamified platform, increased awareness of gender-based violence, examined the influence of individual differences, and revealed that the effect is likely attributable to more focused and cognitive engagement in the individual modality and fostered higher levels of motivation. (Gini, F. (2025).
The ABCCI game is a Learning-Based on Scientific Creativity that has emerged as an innovative educational tool among students, positively evaluating gamification elements, such as rewards and immediate feedback, for their role in enhancing motivation and learning. (Talavera-Mendoza et al. 2025)
The gamification theories, such as models, frameworks, mechanics and elements, support learning. Results show that research is needed into this evolving learning approach, and gamification is most likely to be effective when instructional design principles are used to ensure it meets learners' needs. (Triantafyllou, S.A et al. 2025). Both studies on augmented reality (AR) and gamification enhanced the experience and received high usability scores, and students found the tools effective for their learning, with strong correlations between usability, learning speed, knowledge reinforcement and adjusting game elements to individual needs. (Ristianto, S. et al. 2025), (Mejía-Gracia, C. A. et al. 2025)

Table 2. Analyse literature between (2013–2025)

No.	Study	Focus/Themes
1	Amriani et al. (2013)	Improves engagement and motivation, uses competition and cooperation.

2	Barata et al. (2013).	Enhances student engagement and encourages competition and cooperation.
3	Barata et al. (2013).	Increases participation in learning, improves motivation competition and cooperation.
4	Betts et al. (2013).	Promotes deeper understanding, high learning experience, supports motivation, competition and cooperation
5	Brown et al. (2013).	Engages students with special needs and encourages motivation and independence in learning.
6	Cheong et al. (2013).	Enhances learning via quizzes, boosts motivation, competition and cooperation
7	Domínguez et al. (2013).	Improves engagement and performance and affects practical learning outcomes.
8	Hakulinen et al. (2014)	Improves engagement and motivation and supports competition and cooperation.
9	Landers & Landers (2015)	Examines the effectiveness of gamified learning and improves engagement, motivation, competition, collaboration and performance.
10	Abrams & Walsh (2014)	Enhances vocabulary learning engagement, promotes motivation, and competition.
11	Attali & Arieli-Attali (2014)	Examines motivation in assessments and its influences on performance, Engagement, competition, and cooperation.
12	Barata et al. (2014).	Identifying student engagement types improves motivation, engagement, competition and cooperation.
13	Bonde et al. (2014).	Enhancing learning through simulations increases motivation, engagement, competition and cooperation.
14	Aldea et al. (2014).	Using serious games in education promotes engagement, cooperation, motivation, competition and cooperation
15	Butgereit (2015)	Applying gamification in ICT learning encourages motivation, engagement, competition and cooperation.
16	Martí-Parreño et al. (2016)	Reviews of gamification in education focus on engagement, motivation, competition and cooperation.
17	Plump & LaRosa (2017)	Uses Kahoot for classroom engagement, supports collaboration and active learning.
18	Abdul Wahab & Joy (2017)	Increasing motivation through e-portfolios enhances student engagement.
19	Dicheva et al. (2018).	Examines motivational factors and highlights the role of competition.
20	Hasan et al. (2019).	Promotes collaborative learning and enhances motivation in Moodle.
21	Zainuddin et al. (2020).	Improving quiz-based learning boosts motivation and engagement.
22	Oliveira et al. (2021).	Links gamification with sustainability and focuses on usability and motivation.

23	Legaki et al. (2021)	Studies cognitive challenges in gamification use competition to influence learning.
24	Aguiar-Castillo et al. (2022)	Applying AR-based gamification enhances student motivation.
25	Aguilos & Fuchs (2022)	Evaluates the usability of e-learning systems and links usability with motivation.
26	Alsadoon et al. (2022).	Improving achievement and satisfaction enhances motivation in learning.
27	Alzahrani et al. (2022)	Reviews distance learning gamification, focusing on motivation and usability.
28	Ghai & Tandon (2022)	Integrates gamification into design to improve usability and engagement.
29	Portela (2022)	Examines user experience in e-learning and enhances engagement levels.
30	Tavares (2022)	Improves knowledge retention and supports motivation and usability.
31	Christopoulos & Mystakidis (2023)	Reviews gamification in education, promotes collaboration and motivation.
32	Sikora et al. (2024).	Using game-based technologies enhances engagement and collaboration.
33	Maryana et al. (2024).	Improves cognitive learning outcomes and increases student engagement.
34	Benzizouni (2024)	Enhances classroom management and supports feedback and collaboration.
35	Orozco et al. (2025)	Improves user experience in learning and boosts motivation and engagement.
36	Baharin et al. (2025).	Designs gamified LMS systems and enhances usability and collaboration.
37	Ojonuba & Türkmen (2025)	Applies gamification in web education and improves engagement and usability.
38	de Sales & Oliveira (2025)	Reviews mobile educational games and focuses on usability in learning.
39	Al-Rousan & Ayasrah (2025)	Measures engagement and motivation and validates gamification scales.
40	Safatian, F. (2023)	Improving language learning motivation enhances learning outcomes.
41	Ristianto, S. D et al. (2025).	Personalises gamified learning, improves usability and motivation.
42	Zairon et al. (2025)	Supports virtual classroom learning and enhances collaboration and motivation.
43	Ukgoda, H. (2025)	Examines the impact on learning outcomes and improves motivation and engagement.

44	Abas & Din (2025)	Enhances usability in programming courses and improves student engagement.
45	Gini (2025)	Promotes cooperative learning. Enhances collaboration and engagement.
46	Talavera-Mendoza & Paucar (2025)	Evaluates the usability of serious games and improves engagement in training.
47	Triantafyllou et al. (2025)	Reviews gamification in education, focusing on motivation and collaboration.
48	Dörr & Aylon (2025)	Using immersive technologies enhances engagement in learning.
49	Pollard (2025)	Integrates gamification across disciplines, promotes collaboration and engagement.
50	Mejía-Gracia & Hernández-García (2025)	Combines Augmented Reality with gamification and improves usability and motivation.

Thematic Analysis

Frequency of key themes identified in gamified education studies between 2013 and 2025. According to the analysis, motivation (92%) and engagement (88%) emerged as the most dominant themes, highlighting their main role in gamified learning research (fig. 1) while usability (72%) and collaboration (68%) were also significant but slightly less emphasised. This indicates that most studies focus on how gamification enhances learner motivation and active participation. And all the review suggests that effective gamification relies on balancing motivational design with interactive and accessible learning features.

Theme	**Frequency (%)**	**Key Insight**
Motivation	92%	Gamified features such as rewards and progress tracking stimulate both intrinsic and extrinsic motivation.
Engagement	88%	Learners show greater attention and persistence when interactive, game-like features are present.
Collaboration	68%	Leaderboards and multiplayer modes foster teamwork and social learning.
Usability	72%	User-friendly interfaces and feedback loops increase sustained participation and satisfaction.

Table 3. Frequency of key Themes in Gamified Education Studies (2013-2025)

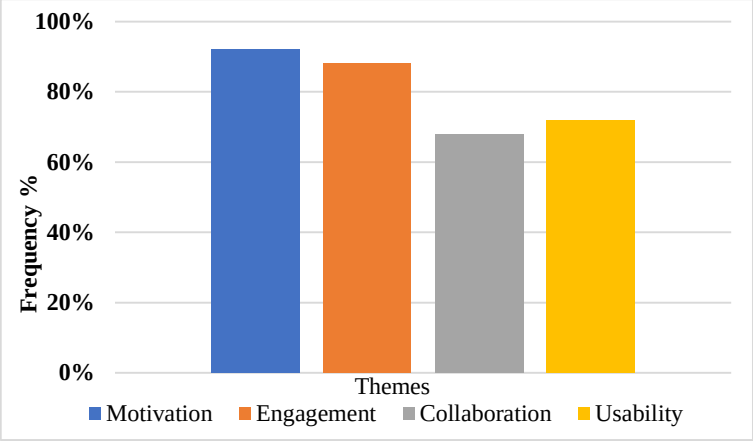

Figure 1. Frequency of key Themes in Gamified Education Studies (2013-2025)

Despite these advancements and revolutions, barriers and challenges persist. Some learners are slightly motivated, as they are more interested and focus on rewards rather than deep knowledge, learning and engagement (Hanus & Fox, 2015). Digital inequality, screen tiredness and unstructured teaching are still problems that make application difficult. (Oliveira et al., 2021). Thus, understanding the motivational and design principles behind gamified learning tools remains crucial for optimising their educational value.

Objective: 3 To identify the common challenges associated with gamified learning applications.

Superficial engagement

- Students often care about getting points and rewards instead of learning the material.
- Motivation is often temporary; when rewards are taken away, or the novelty wears off, it disappears.
- Putting too much focus on "winning" can make people forget about the deeper learning goals. (Hanus & Fox, 2015; Zainuddin et al., 2020)

Over-competition

- Students can compete negatively when they see leaderboards and rankings.
- Students who do well in school have a positive attitude, but those who are having trouble may feel stressed, anxious, or lose interest.
- Too much focus on competition makes it harder to work together, feel for others, and get help from friends. (Plump and LaRosa, 2017; Christopoulos and Mystakidis, 2023)

Barriers to digital accessibility and equality

- Poor internet connection, old devices, and poor digital literacy skills become barriers to gamified learning experiences.
- This makes a huge gap between rich and poor students.
- Students with disabilities have a hard time adjusting because gamified apps are hard to use and do not work with screen readers or adaptive interfaces. Baharin et al. (2021) and Oliveira et al. (2025)

Issues with usability and interface

- Some apps are hard to use because they have tech problems, lag, or bad navigation.
- Issues with usability and interfaces can make people confused, angry, or mentally overloaded.
- Feedback systems that aren't easy to understand lower learner satisfaction and retention. (Ristianto et al., 2025; Bai et al., 2022)

Teaching misaligned

- Sometimes, gamified parts are added without clear educational goals, which can make the results of learning not match up.
- Gamified design might make fun more important than learning or building skills.
- It might be hard for teachers to use gamified tools in a way that fits with their lesson plans. (Hanus and Fox, 2015; Ukgoda, 2025)

Cognitive Overload

- Too many interactive or visual elements can be too much for students, especially those who have trouble paying attention.
- Multiple rewards, timers, and feedback messages that happen at the same time can be distracting instead of engaging. (Ristianto et al., 2025)

Data Privacy and Ethical Concerns

- They collect personal data, learning analytics, and behavioural metrics without being completely honest about how bad they are for the learner's privacy.
- People are worried about gamified systems and how they protect student data privacy, and how they are used in a moral way. (Pollard, 2025; Dörr and Aylon, 2025)

Lack of Long-Term Research Evidence

- Some studies indicate short-term effects of engagement or involvement, while evidence regarding long-term effects on learning remains limited.
- There are only a few studies that show how well people remember things, how well they use what they've learnt, or how long they stay interested and motivated after using something for a short time. (Zairon et al., 2025; Ristianto et al., 2025)

Gaps in Teacher Readiness and Training

- Many teachers don't have the technical knowledge and confidence to use gamified systems well.
- If teachers don't get proper training, they might not use features enough or use gamification principles the wrong way. (Baharin et al., 2025; Sikora et al., 2024)

Limitations of Culture and Context

- Gamified strategies might not work in all cultural or educational settings.
- Competitive designs can be at odds with cultures that value working together or with others, which makes them less inclusive. (Christopoulos and Mystakidis, 2023; Pollard, 2025)

Conclusion:

The present study reviewed and analysed literature from 2013 to 2025 on the use of gamification in education, highlighting its motivational, pedagogical, and usability features. It was found that the elements based on games like badges, levels, leaderboards, points, and feedback systems have an important role in enhancing learner engagement, motivation, and collaboration. Applications like Duolingo, Kahoot, Quizizz, Prodigy Math, and ClassDojo demonstrate that when designed purposefully, gamification fosters self-paced, interactive, and student-centred learning experiences aligned with educational goals. However, the review also identified significant challenges that covered superficial engagement, too much competition and lack of digital equality, impacting the long-term effectiveness of gamified learning. These limitations highlight the need for balanced and inclusive gamification design that emphasises intrinsic motivation, collaboration, and accessibility. Overall, gamification holds great potential to transform

modern education, but its success depends on pedagogical alignment, equitable access, and sustainable implementation to ensure meaningful and lasting learning outcomes.

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