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GAMIFICATION IN PRACTICE: SLR ON KEY COMPONENTS, ELEMENTS AND DESIGN PRINCIPLES

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Abstract: This systematic literature review (SLR) explores gamification in educational contexts, focusing on its elements, components, and design principles. Spanning studies from 2019 to 2023 in computer and social sciences, the review identifies key gamification elements, evaluates frameworks, and discusses challenges and future directions. A total of 13 articles were analyzed, with findings emphasizing the role of gamification frameworks like Octalysis in enhancing engagement and motivation. Core elements such as points, badges, leaderboards, feedback, and narratives are identified as fundamental to effective gamified systems. Components like personalized avatars, community-building, and timed activities enhance learner immersion and adaptability. Design principles such as clear goal setting, immediate feedback, and balancing intrinsic and extrinsic motivators are highlighted as critical to meaningful educational experiences. Challenges include potential overemphasis on extrinsic rewards, inclusivity issues, and the complexity of implementation. The study emphasizes the importance of aligning gamification elements with learning objectives to foster deep, sustainable engagement. The review concludes by advocating for research into long-term effects, the role of intrinsic motivation, and the integration of emerging technologies like augmented and virtual reality. This SLR provides valuable insights for designing adaptive, inclusive, and impactful gamified learning systems, offering practical guidance for researchers and educators aiming to optimize student outcomes.

Keywords: *gamification, component, element, design, principle*

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INTRODUCTION

Gamification, the application of game-design elements in non-game contexts, has emerged as a promising approach to enhance learning outcomes across various domains, including English language learning. The integration of game elements such as points, badges, leaderboards, challenges, and feedback into educational settings aims to create engaging,

motivating, and effective learning experiences (Dichev & Dicheva, 2017; Subhash & Cudney, 2018). As the field of gamification in education continues to grow, researchers have explored its potential to improve learners' engagement, motivation, and proficiency in English language acquisition. One of the key advantages of gamification in English language learning is its ability to increase learner engagement. By incorporating game elements, educators can create a more interactive and enjoyable learning environment, which can lead to higher levels of participation and persistence (B. Huang et al., 2020; Looyestyn et al., 2017). Gamification can also enhance motivation by providing clear goals, immediate feedback, and a sense of progress, which are essential for language learning (Seaborn & Fels, 2015; Yildirim, 2017).

Moreover, gamification has been shown to improve language proficiency in various aspects, such as vocabulary acquisition, grammar understanding, reading comprehension, and writing skills (Dehghanzadeh et al., 2019; Hung, 2018). By providing a more engaging and less stressful environment for language practice, gamification can help learners overcome barriers and achieve better learning outcomes (Yildirim, 2017). However, the implementation of gamification in English language learning is not without challenges. Educators must carefully design and align gamification elements with learning objectives to ensure that they foster deep learning rather than superficial engagement (Hanus & Fox, 2015). Additionally, the competitive nature of some gamification elements, such as leaderboards, can create anxiety and negatively impact learners who are less competitive or confident (Koivisto & Hamari, 2019).

As the field of gamification in English language learning continues to evolve, it is essential to consider the long-term effects of gamification on language proficiency and investigate how different elements can be optimized for diverse learner populations. Future research should also explore the potential of combining gamification with other pedagogical approaches, such as flipped learning or project-based learning, to create more comprehensive and effective learning experiences (B. Huang et al., 2020; Toda et al., 2019). By addressing these challenges and exploring new avenues for research, educators can harness the power of gamification to revolutionize English language learning and prepare learners for success in an increasingly globalized world.

This systematic literature review (SLR) aims to consolidate and synthesize the current knowledge on gamification elements, components, and design principles. By analyzing a wide range of studies, this review seeks to provide a detailed overview of the fundamental building blocks of gamification and the theoretical frameworks that underpin successful gamified systems. The primary objectives of this SLR are:

1. **Identification of Gamification Components:** To identify the core components that form the foundation of gamified systems, such as points, badges, and leaderboards. These components are the building blocks used to create game-like experiences in non-game contexts, providing structure and a framework for engagement.
2. **Identification of Gamification Elements**: To identify the essential elements that enhance the user experience in gamified systems, such as narratives, challenges, feedback mechanisms, and rewards. These elements contribute to the overall

experience, motivation, and retention by adding depth and meaning to the gamification process.

3. **Identification of Gamification Design Principles**: To identify the fundamental design principles that underpin the creation of effective gamification solutions. It involves understanding the theoretical and practical frameworks that guide how gamification can be implemented to achieve specific goals, such as enhancing user engagement, motivation, and learning outcomes.

By addressing these objectives, this review aims to provide a comprehensive resource for researchers, practitioners, and designers interested in leveraging gamification to enhance user engagement and achieve desired outcomes. The findings of this SLR will contribute to a deeper understanding of gamification, offering valuable insights into how to design and implement gamified systems that are both effective and sustainable.

PROBLEM STATEMENT

The application of gamification in education has emerged as a promising strategy to increase student engagement, enhance motivation, and improve learning outcomes. Gamification involves the use of game design elements and mechanics in non-game contexts, such as classrooms, with the goal of making learning more interactive and enjoyable. However, despite the increasing adoption of gamified approaches in educational environments, there is a lack of consensus regarding the specific gamification components, elements, and design principles that are most effective in fostering positive educational outcomes. The literature on gamification highlights various components such as points, badges, leaderboards, rewards, and feedback mechanisms, yet it remains unclear which combinations of these elements are most impactful for different learning objectives and contexts.

Moreover, while some studies suggest the benefits of competition, achievement systems, and instant feedback, the evidence on how these elements interact and contribute to long-term learning engagement is inconsistent. Additionally, many of the current gamification frameworks focus on isolated aspects of the gamified experience rather than providing a holistic, integrated design approach that incorporates the full range of educational needs. This fragmented understanding poses a challenge for educators who are eager to incorporate gamification into their teaching practices but are unsure of how to design and implement it in a way that maximizes its effectiveness.

Furthermore, the diverse student population, varying levels of technological access, and different learning environments all present unique challenges to the application of gamification. The absence of a well-defined and universally applicable set of design principles further complicates the process of creating educational experiences that are both motivating and pedagogically sound. There is a pressing need for comprehensive research that not only identifies the key components and elements of gamification but also provides a detailed, evidence-based framework for their design and application in educational settings.
This study seeks to address these gaps by investigating the core gamification components, elements, and design principles that can be strategically employed to create more effective

and engaging educational experiences. By synthesizing existing research and offering actionable insights, this research aims to equip educators with a robust set of tools and guidelines for successfully integrating gamification into diverse learning environments. Ultimately, the goal is to contribute to a more systematic and informed application of gamification in education, ensuring that its potential to enhance student learning is fully realized.

REVIEW OF LITERATURE

Recent studies have demonstrated the effectiveness of gamification in various contexts. For instance, Wu et al. (2021) found that gamified mobile applications significantly improved vocabulary learning and academic performance among students, while Ndegwa et al. (2023) reported that gamified reading apps enhanced reading proficiency and motivation among young learners in Kenya. In the health domain, Kubota et al. (2022) explored the use of a theory-based exergame to promote physical activity among tweens, finding that the exergame positively influenced self-efficacy towards physical activity, although technical improvements were needed to enhance overall engagement and usability. A comprehensive review and meta-analysis conducted by Nylén-Eriksen et al. (2025) investigated the effects of game-thinking tactics, such as gamification and serious games, on educational outcomes in nursing education. The analysis of data from 70 trials including 8,348 participants revealed that these tactics markedly enhanced students' academic performance, especially in information acquisition. In educational context, Bhatia (2024) explores the transformative potential of gamification in English language teaching, highlighting its role in increasing student engagement and improving learning outcomes. The research employs a mixed-methods approach to provide empirical evidence supporting the integration of game elements into language instruction. In other hand, John (2024) research investigates the role of gamification in fostering teacher-student connection, improving teacher immediacy, and augmenting students' willingness to engage in communication within English language courses. The research highlights the beneficial effects of gamified methods on classroom interactions and language learning.

Gamification and Its Core Elements

Points: One common gamification tool that pays users for doing chores or attaining benchmarks are points. They encourage a sense of accomplishment and advancement by providing instantaneous comments and allowing one to accrue points or incentives, hence opening new levels. Recent research shows that points greatly improve engagement and learning results, especially in learning environments where instantaneous feedback is important. For example, Maryana et al. (2024) indicated that including gamification components like points into the curriculum improved academic achievement of the pupils. Comparably, a longitudinal study comprising 1,001 higher education students by Sidiropoulos & Lampropoulos (2024), found that gamified learning environments produced

better academic achievement than conventional learning settings. These results highlight how well points might increase student involvement and learning results.

Badges: Badges serve as visual representations of achievements. They recognize users' accomplishments and can motivate continued engagement by providing a sense of progress and mastery (Ndegwa et al., 2023). Velázquez-García et al. (2024), examined the implementation of digital badges as a gamification method in higher education, revealing that they markedly enhanced student motivation and engagement by acting as concrete incentives for academic accomplishments. Neerupa et al. (2024), revealed that the integration of gaming components, such as badges, improved the entire learning experience and positively impacted academic results. The application of 3D-printed physical and virtual badges in a computer engineering course, revealing that both forms enhanced student performance and decreased dropout rates, thereby underscoring their efficacy in fostering engagement and retention in STEM education (Lara-Cabrera et al., 2023). These findings highlight the significance of badges in improving user retention and sustained motivation, particularly when integrated with additional gamification components such as points and leaderboards.

Leaderboards: Leaderboards rank users based on their performance, fostering a sense of competition. They can motivate users to improve their performance to achieve higher rankings (Alzahrani & Alhalafawy, 2023). A study conducted by Wang et al. (2025) revealed that personalised leaderboards markedly improved motivation and learning outcomes, especially among highly competitive learners. A longitudinal quasi-experiment conducted by Tumbaco-Loor & Llerena-Izquierdo (2024), determined that leaderboards positively affected learners' time-on-task and academic performance by offering real-time feedback and promoting competitiveness. A study by Balci et al. (2022) revealed by comparing badges and leaderboards that both aspects increased student motivation, with leaderboards being especially beneficial in fostering goal-setting behaviours and performance. A systematic review by Jaramillo-Mediavilla et al. (2024) highlighted that leaderboards contribute to increased student engagement and improved academic outcomes when thoughtfully implemented. Another systematic review by Li et al. (2024) emphasized that leaderboards enhance engagement by providing comparative feedback and encouraging desired behaviors, but also stressed the importance of careful design to mitigate negative effects, such as discouragement among lower-ranked students. These findings highlight the capacity of leaderboards to improve motivation and academic achievement when applied strategically, considering the varied qualities and requirements of learners.

Challenges and Quests: Challenges and quests are tasks or objectives that users must complete. They provide structure and goals, keeping users engaged by offering a sense of purpose and progression (Kubota et al., 2022). Recent research have underscored its efficacy in educational environments. A 2024 study published in Curriculum and Teaching Methodology highlighted that quests and challenges are essential in gamified learning settings, enabling students to apply information in practical contexts, thereby improving engagement and learning outcomes (Han & Chen, 2024). A study by Tang & Hare (2023) revealed integrated gamification elements, including challenges and quests, into a serious game for engineering education, resulting in enhanced student engagement and improved learning outcomes. Additionally, a study by Alotaibi (2024) emphasized the potential of

game-based learning to promote cognitive, social, and emotional development in early childhood education, underscoring the role of structured challenges in enhancing learning experiences. The findings indicate that integrating challenges and quests into educational settings might improve problem-solving abilities and cultivate persistence, hence positively impacting the learning experience.

Feedback and Progress Tracking: Immediate and continuous feedback is crucial in gamification. It helps users understand their progress and areas for improvement, enhancing motivation and engagement Baars et al. (2022). Ruiz et al. (2024) had examined 90 treatments and determined that gamification tactics, especially those with fast feedback, favourably impacted student behaviour and learning outcomes across affective, cognitive, and behavioural domains. A study by Jaramillo-Mediavilla et al. (2024) indicated that gamification components, such as real-time feedback mechanisms, markedly enhanced students' academic performance and motivation by delivering immediate, actionable insights customised to individual performance. Gamification applications providing rapid and constructive feedback enhanced student engagement and learning results, emphasising the significance of personalised feedback in educational contexts (Diaz et al., 2024). These findings highlight the essential importance of prompt and ongoing feedback in gamified learning settings, promoting increased motivation, engagement, and academic success.

Storytelling and Narrative: Incorporating storytelling elements can make gamified experiences more engaging by providing context and meaning to the tasks. A compelling narrative can enhance user immersion and motivation (Ndegwa et al., 2023). A study published in Education and Information Technologies by Liu (2024) examined the effects of AI-enhanced gamification techniques, such as interactive storytelling, on English as a Foreign Language (EFL) learning outcomes. The results demonstrated that the incorporation of story elements markedly enhanced student motivation and language competency. Ruiz et al. (2024) examined the effects of gamification on school engagement, revealing that narrative-driven gamified interventions markedly enhanced students' emotional and cognitive participation in learning activities. Lampropoulos & Kinshuk (2024) investigated the use of virtual reality and gamification in education, highlighting that immersive storytelling in virtual settings can enhance engagement and improve learning results.These studies highlight the efficacy of storytelling in educational settings, where the alignment of narrative components with learning objectives can markedly improve the learning experience.

Avatars: Avatars allow users to create and customize their virtual representations. This personalization can increase user engagement and identification with the gamified system (Kubota et al., 2022). Recent research has further examined these processes. Ballou et al. (2024) developed the Basic Needs in Games Scale (BANGS) to assess how game features, including avatar customization, satisfy players' psychological needs, thereby enhancing intrinsic motivation and engagement. Kao et al. (2022) examined the impact of auditory and visual avatar customisation, discovering that both modalities augment user identification and autonomy, resulting in heightened intrinsic motivation and immersion. These findings underscore the significance of avatar customisation in enhancing motivation and engagement within gamified settings.

Timed Activities: Timed activities instill urgency, compelling users to accomplish tasks within a designated timeframe, so augmenting engagement, cognitive function, and decision-making abilities under pressure. Nonetheless, these activities must be meticulously crafted to mitigate stress and anxiety. Recent research has examined these dynamics. Ghoulam & Bouikhalene (2024) revealed that although timed challenges enhance cognitive abilities like critical thinking and problem-solving, they require careful moderation to prevent undue stress. A further investigation into gaming and students' reaction times emphasised that timed activities might enhance judgement and decision-making, while underscoring the necessity of moderation to mitigate anxiety (Whitaker & Whitaker, 2024). Huang & Wang, (2025) examined the incorporation of gamified pedagogical activities in design education, revealing that these methods substantially enhanced good emotions while diminishing negative ones, particularly alleviating anxiety and despair. Baah et al. (2024) investigated the impact of gamification on motivation and cognitive load, demonstrating that although gamified components can improve learner engagement, they require careful calibration to prevent cognitive overload.

Collaboration: Collaborative elements encourage users to work together towards common goals. This can foster a sense of community and enhance motivation through social interaction (Alzahrani & Alhalafawy, 2023). A recent meta-analysis by Slamet & Meng (2025) aggregated evidence from several educational contexts, suggesting that gamification markedly promotes collaborative learning experiences by augmenting engagement and cooperation among learners. A study by Chaiyarat (2024) revealed that the integration of gamified collaborative tasks in educational settings enhanced creative problem-solving skills and elevated student motivation for learning. These findings highlight the efficacy of collaborative gamification features in fostering positive interdependence and improving learning outcomes.

Competition: Competitive elements can drive users to improve their performance by pitting them against each other. This can increase engagement and motivation through rivalry (Ndegwa et al., 2023). A meta-analysis conducted by Jaramillo-Mediavilla et al. (2024) revealed that gamification tactics, incorporating competitive components, markedly enhanced student engagement and academic achievement across diverse educational settings. Marinho et al. (2025) indicates that incorporating both competitive and collaborative elements in gamified educational settings might enhance engagement and immersion in the learning experience. Educators should develop activities that promote collaboration while integrating competitive elements to enhance focus and increase student satisfaction.

Missions: Missions are overarching goals that guide users through a series of tasks or challenges. They provide a long-term objective that can keep users engaged over extended periods (Kubota et al., 2022). Bassanelli et al. (2025) in their study explores the role of gamification in fostering sustainable behaviours. The research highlights that integrating game design components, such as missions, can effectively captivate individuals and promote behavioural modification towards sustainable objectives. Integrating missions into gamified interventions offers participants explicit objectives and challenges, so augmenting motivation and promoting sustained engagement in sustainable habits. Kirchner-Krath et al. (2024) examines the utilisation of gamification components, such as missions, in fostering

sustainable practices within business settings. The study indicates that missions within gameful systems can foster good emotional and social experiences, therefore encouraging employees to embrace and retain sustainable behaviours in the workplace. These studies highlight the efficacy of missions as a gamification component in enhancing engagement and fostering sustainable behaviours in many situations.

Effectiveness of Gamification

The effectiveness of gamification in educational settings has been extensively studied, with numerous findings demonstrating its potential to enhance learning outcomes and student engagement. A thorough meta-analysis conducted by M. Li et al. (2023) aggregated data from 41 investigations encompassing more than 5,000 people. The research revealed a substantial favourable impact of gamification on student learning outcomes (Hedges' g = 0.822). It also discovered moderating factors like user type, educational discipline, design principles, duration of gamified experience, and learning environment.

Research by Wu et al. (2021) showed that gamified mobile applications significantly improved vocabulary acquisition and overall academic performance among students. These applications utilized game mechanics to foster a competitive yet collaborative learning environment, which encouraged active participation and sustained interest in learning materials. Similarly, Duterte (2024) executed a mixed-methods study with 133 undergraduate students from three private universities in Manila, Philippines. The study revealed that including gamification components such as points, badges, leaderboards, and collaborative challenges into online learning environments markedly enhanced student engagement, motivation, and academic success.

Furthermore, several studies have indicated that gamification can be particularly effective in enhancing learning for specific demographics and in various educational settings. For example, Ndegwa et al. (2023) reported that gamified reading apps notably improved reading proficiency and motivation among young learners in Kenya, especially in under-resourced settings where traditional educational resources might be limited. An empirical study conducted by D. Li & Jianxing (2025) examined 22 gamified learning monitoring systems and their effects on student behaviour and academic performance. The results demonstrated a substantial positive correlation, indicating that these methods can moderately improve student involvement and academic achievement. Panmei & Waluyo (2023) investigated the pedagogical application of gamification in English vocabulary instruction in higher education. Their research emphasised that well-designed gamified methods can significantly improve vocabulary acquisition results. Sidiropoulos & Lampropoulos (2024) carried out a longitudinal study that compared online, traditional, and gamified learning methods. The research found that gamification has a positive impact on students' learning outcomes and academic performance over time.

Challenges and Limitations

Gamification has demonstrated potential in boosting student engagement and improving learning outcomes; however, recent studies have brought to light various challenges and limitations that deserve thoughtful attention. A meta-analysis conducted by Li, Hew, and Du (2024) revealed that while gamification significantly enhances students' intrinsic motivation and their perceptions of autonomy and relatedness, its effect on perceived competence remains minimal. The study indicates that poorly designed gamification elements, like public leaderboards, can unintentionally diminish perceived competence in lower-performing students, which in turn may reduce their motivation. The study further highlights the significance of harmonising gamification strategies with the psychological needs of students to prevent any possible adverse effects. One major concern is the potential for gamification to be perceived as manipulative, which can decrease intrinsic motivation (Bennani et al., 2022). Additionally, the effectiveness of gamification can vary based on individual preferences and cultural factors (Alzahrani & Alhalafawy, 2023).

Additionally, a narrative review by Fuchs (2023) highlights the potential dangers of placing too much emphasis on extrinsic rewards in gamification. While this approach may foster short-term engagement, it risks compromising deep learning and intrinsic motivation. The review emphasises that a competitive culture, driven by specific gamification elements, may impede collaboration and prioritise individual success over shared advancement. Furthermore, a systematic literature review conducted by Khaldi et al. (2023) indicates that numerous gamified e-learning systems in higher education are devoid of a theoretical foundation, resulting in outcomes that are either ineffective or counterproductive. The authors propose the creation of thorough frameworks that seamlessly blend gamification with well-established educational theories to improve effectiveness. It is also essential to consider the target audience, context, and desired outcomes when designing gamified systems (Kubota et al., 2022). Lester et al. (2023) identify a critical obstacle to effective gamification in universities: the discordance between game aspects and curricular objectives. Educators frequently have difficulties in incorporating gamified activities that correspond with learning objectives, resulting in surface involvement instead of profound learning. The study underscores the necessity for meticulous planning and alignment to guarantee that gamification augments, rather than undermines, educational goals. An umbrella review conducted by Klock et al. (2023) examines the ethical dilemmas related to gamified educational applications. The research highlights concerns including cognitive manipulation, absence of voluntariness, and social comparison as possible hazards. It necessitates the formulation of ethical guidelines to address these issues and guarantee that gamification activities honour students' autonomy and well-being.

METHODOLOGY

Identification

In selecting several suitable papers for this report, the systematic review process is comprised of three principal phases. The initial phase involves the identification of pertinent keywords and the exploration of related and synonymous terms. This is accomplished through the use of resources such as thesauri, dictionaries, encyclopedias, and an examination of terminology used in previous studies. Once a comprehensive list of relevant keywords was established, search strings were constructed and applied to the Scopus and Web of Science (WOS) databases, as detailed in Table 1. This meticulous process of keyword identification and search string formulation is critical, as it ensures the inclusion of all relevant literature. In this first step of the systematic review, the research successfully retrieved a total of 299 papers from both databases, laying a robust foundation for subsequent phases of the review.

Table 1 The Search String

Scopus	**TITLE-ABS-KEY (gamification AND element AND component AND (design OR principle)) AND PUBYEAR > 2018 AND PUBYEAR < 2024 AND (LIMIT-TO (SUBJAREA , "COMP") OR LIMIT-TO (SUBJAREA , "SOCI")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (LANGUAGE , "English")) AND (LIMIT-TO (SRCTYPE , "j")) AND (LIMIT-TO (PUBSTAGE , "final"))**
WOS	gamification AND element AND component AND (design OR principle) (Topic) and 2019 or 2020 or 2021 or 2022 or 2023 (Publication Years) and Article (Document Types) and English (Languages) and Computer Science (Research Areas)

Screening

The second step involved a thorough and systematic review of the abstracts of the records that had been initially selected. During this phase, each abstract was meticulously examined to determine its relevance and adherence to the predefined selection criteria (see Table 2). Any records whose abstracts did not meet these criteria were subsequently excluded from further consideration. This screening process was crucial in ensuring that only the most pertinent and high-quality studies were included in the final analysis, thereby enhancing the validity and reliability of the research findings.

Table 2 The selection criterion in searching

Criterion	Inclusion	Exclusion
Language	English	Non-English
Time line	2019 – 2023	< 2019
Literature type	Journal (Article)	Conference, Book, Review
Publication Stage	Final	In Press
Subject Area	Computer Science/Social Science	Besides Computer Science /Others

Eligibility

In the third step of the systematic review process, referred to as the eligibility phase, a total of 31 articles were prepared for detailed examination. During this stage, each article's title and key content were meticulously reviewed to verify their adherence to the inclusion criteria and their relevance to the current research objectives. This rigorous assessment was essential to ensure that the selected articles aligned with the aims of the present study. Consequently, 13 articles were excluded from further consideration because they did not qualify as pure science articles based on empirical evidence. As a result, 13 articles met the eligibility criteria and were deemed suitable for in-depth review and analysis (see Figure 1).

Data Abstraction and Analysis

Figure 1 outlines a process for conducting a systematic literature review (SLR) using a flow diagram to illustrate the steps involved in identifying, screening, and selecting relevant studies. This structured approach ensures that the review is comprehensive, relevant, and focused on the specific research questions.

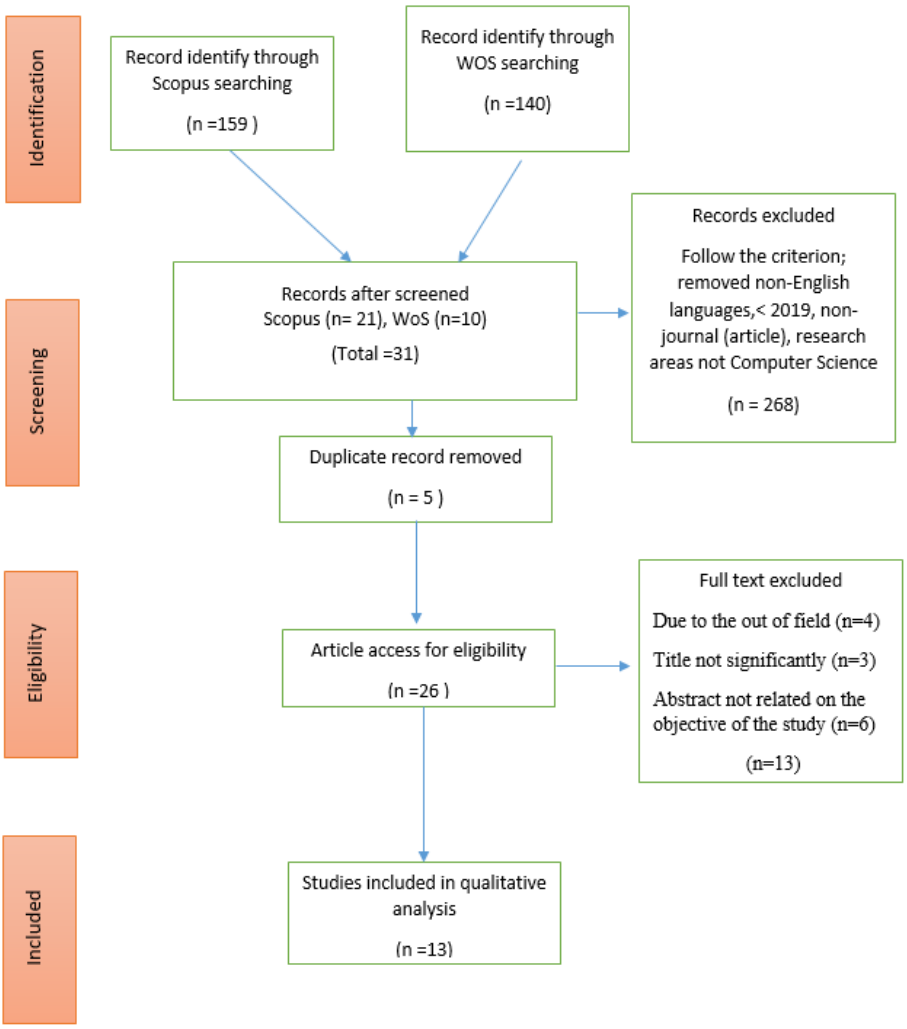

Figure 1. Flow diagram of the proposed searching study (Moher D, Liberati A, Tetzlaff J, 2009)

RESULTS AND DISCUSSION

The study highlights that engagement and motivation are fundamental to effective gamification, crucial for keeping users involved and driving their participation through both intrinsic enjoyment and extrinsic rewards. Gamification has a notable impact on education and user experience, improving learning outcomes and satisfaction, and it offers potential for transforming traditional assessment methods, supporting health initiatives, and fostering social interaction and innovation. Emerging elements like accessibility, cognitive development, and adaptability underscore areas for further research and development in gamified systems.

Additionally, the study identifies key gamification elements such as points, leaderboards, badges, and rewards that enhance user engagement and motivation by providing feedback, tracking progress, and recognizing achievements. Other elements like challenges, social robots, and customizable avatars contribute to a personalized experience, while adaptations such as sign language avatars and physical activity tracking address

specific user needs. Effective design principles include user-centered design, continuous feedback, and inclusive and educational alignment, with emerging trends like non-visual engagement strategies and educational innovation highlighting advanced approaches in gamification.

Gamification Components

Engagement

Engagement is the most frequently cited component in gamification literature, appearing in 10 different studies. This high frequency indicates that engagement is central to the concept of gamification. Engagement in gamification refers to the extent to which users are actively involved and emotionally invested in a gamified system. The prominence of engagement in studies like Riedmann et al. (2024) and Shohieb (2019) suggests that it is a critical success factor for gamified applications, whether in educational settings, health interventions, or corporate training. Engaging users effectively often involves creating a sense of flow, where users are fully absorbed in the task at hand, lose track of time, and find the activity intrinsically rewarding. This can be achieved through carefully designed challenges, rewards, and feedback mechanisms that are aligned with the users' goals and motivations. The repeated emphasis on engagement across multiple studies highlights its versatility and the necessity for a well-structured approach to keep users interested and active over prolonged periods.

Motivation

Motivation, appearing in 9 studies, is closely related to engagement but focuses specifically on the internal and external drivers that encourage users to take action within a gamified environment. Intrinsic motivation refers to doing an activity for its inherent satisfaction, such as playing a game because it is fun and enjoyable. In contrast, extrinsic motivation involves engaging in an activity to achieve a separable outcome, like earning points or badges. Studies like Kummanee et al. (2020) and Sheffler et al. (2020) discuss how both intrinsic and extrinsic motivators are essential in gamification. By leveraging these motivators, gamification can foster sustained user participation and drive behavioral change. For instance, using points and badges can provide immediate gratification, while setting longer-term goals or missions can appeal to users' intrinsic motivations by aligning the game’s objectives with their personal values or interests. Understanding the balance between intrinsic and extrinsic motivation is crucial for designing effective gamification strategies that keep users motivated over time.

Education

Education as a gamification component is highlighted in 4 studies. This component underscores the potential of gamification to enhance learning outcomes by making educational content more engaging and interactive. By incorporating game elements such as

challenges, points, and feedback, educational gamification aims to make learning experiences more enjoyable and effective. Studies like Kummanee et al. (2020) and Gulinna & Lee (2020) show that gamification can cater to various learning styles, increase knowledge retention, and improve academic performance. Gamification in education can also encourage collaboration among students, promote problem-solving skills, and provide immediate feedback, which is crucial for learning. The focus on education in gamification suggests a growing recognition of its value in formal and informal learning environments, pointing towards a need for further research into its long-term effects on learning efficacy and student engagement.

User Experience

User experience (UX), cited in 3 studies, is a critical component that directly affects how users perceive and interact with a gamified system. A positive user experience is essential for maintaining user satisfaction and fostering continued engagement. Studies by Shohieb (2019) and Kubota et al. (2022) emphasize the importance of intuitive design, ease of use, and visually appealing interfaces in gamified applications. UX in gamification involves understanding the user journey, minimizing friction points, and providing seamless navigation and interaction. By focusing on UX, developers can ensure that gamified systems are accessible and enjoyable for a wide range of users, including those with varying levels of technological proficiency. Good UX design also considers the feedback loop, ensuring that users receive timely and meaningful feedback on their actions, which can enhance motivation and engagement.

Assessment

Assessment, mentioned in 2 studies, highlights the use of gamification to evaluate user performance and learning outcomes. Gamified assessments can provide immediate feedback, which is vital for learning and improvement. Studies like Gasca-Hurtado et al. (2019) and Kaeophanuek & Chaisriya (2022) discuss how gamification can transform traditional assessment methods by making them more interactive and engaging. Instead of relying solely on quizzes or exams, gamified assessments can include missions, quests, or challenges that require users to apply their knowledge and skills in a simulated environment. This approach can reduce anxiety, increase motivation, and provide a more comprehensive evaluation of user capabilities. The emphasis on assessment in gamification points to its potential to revolutionize traditional methods of evaluation in education and professional training.

Health

Health as a gamification component, cited in 2 studies, underscores the potential of gamification to promote healthy behaviors and outcomes. Gamification in health can involve elements like points, badges, and leaderboards to encourage users to engage in physical activity, adhere to medication regimens, or improve their diet. Studies by Kubota et al. (2022)

and Gray et al. (2019) demonstrate how gamified health interventions can increase motivation, adherence, and overall health outcomes. By making health-related activities more engaging and rewarding, gamification can help individuals achieve their health goals more effectively. This component's presence in the literature indicates a growing interest in leveraging gamification for public health initiatives, chronic disease management, and overall wellness promotion.

Social and Innovation

The social component, also cited in 2 studies, emphasizes the role of gamification in fostering social interaction and community building. Gamification can create social environments where users collaborate, compete, and share achievements, as noted by Riedmann et al. (2024) and Alsubhi et al. (2021). These social interactions can enhance user engagement by fostering a sense of belonging and encouraging cooperative behaviors. Innovation, mentioned in 2 studies, highlights the potential of gamification to drive creative thinking and problem-solving. Kummanee et al. (2020) and Gulinna & Lee (2020) discuss how gamification can provide a safe space for experimentation, where users can explore new ideas and approaches without fear of failure. The inclusion of social and innovation components suggests that gamification can be a powerful tool for fostering collaboration and creativity in various contexts.

Other Components

Less frequently mentioned components like accessibility, cognitive development, and adaptability, each cited only once, indicate niche areas or emerging trends in gamification. Accessibility, mentioned by Shohieb (2019), stresses the importance of designing gamified systems that are inclusive and usable by people with disabilities. Cognitive development, highlighted by Gray et al. (2019), points to the potential of gamification to enhance cognitive skills such as memory, attention, and problem-solving. Adaptability, cited by Kaeophanuek & Chaisriya (2022) emphasizes the need for gamified systems to be flexible and responsive to individual user needs, allowing for personalized experiences that cater to different learning styles, preferences, and abilities. The limited discussion of these components in the literature suggests opportunities for further research and development to enhance the inclusivity and effectiveness of gamified systems.

The research article finding based on the proposed searching criterion

Gamification Components	Frequency	Authors
Engagement	10	Riedmann et al., 2019; Shohieb, 2019; Tanouri et al., 2020; Alsubhi et al., 2019; Kummanee et al., 2019; Abenes et al., 2020; Sheffler et al., 2020; Gasca-Hurtado et al., 2019; Gulinna et al., 2020; Gray et al., 2019

Motivation	9	Riedmann et al., 2019; Shohieb, 2019; Tanouri et al., 2020; Kummanee et al., 2019; Abenes et al., 2020; Sheffler et al., 2020; Gray et al., 2019; Gulinna et al., 2020; Kubota et al., 2022
Education	4	Shohieb, 2019; Kummanee et al., 2019; Kaeophanuek et al., 2022; Gulinna et al., 2020
User Experience	3	Shohieb, 2019; Alsubhi et al., 2019; Kubota et al., 2022
Assessment	2	Gasca-Hurtado et al., 2019; Kaeophanuek et al., 2022
Health	2	Kubota et al., 2022; Gray et al., 2019
Social	2	Riedmann et al., 2019; Alsubhi et al., 2019
Innovation	2	Kummanee et al., 2019; Gulinna et al., 2020
Accessibility	1	Shohieb, 2019
Cognitive Development	1	Gray et al., 2019
Adaptability	1	Kaeophanuek et al., 2022

Table 3 Synthesized data for gamification components from the results of this SLR

Gamification Elements

Points

Points are the most used gamification element, mentioned in 9 studies. This widespread use reflects the effectiveness of points as a straightforward and versatile feedback mechanism. Points serve multiple purposes in gamified systems: they provide immediate feedback on user actions, indicate progress, and can be used to unlock rewards or advance to higher levels. The study by Tanouri et al. (2023) and Kummanee et al. (2020) illustrates how points can enhance user engagement by creating a sense of achievement and encouraging continuous participation. By allowing users to accumulate points, gamified systems tap into the psychological reward of seeing tangible progress, which can be particularly motivating. Additionally, points can be tied to performance metrics, making them a valuable tool for assessing user progress and providing personalized feedback.

Leaderboards

Leaderboards, cited in 5 studies, introduce a competitive element to gamification. They rank users based on their performance or achievements, fostering a sense of competition and encouraging users to improve their standing. Shohieb (2019) and Kubota et al. (2022) discuss how leaderboards can motivate users by leveraging social comparison, where individuals are driven to outperform others to achieve a higher ranking. However, while leaderboards can boost motivation for some users, they can also have negative effects on others, particularly

those who consistently rank lower. To mitigate this, gamified systems often include tiered leaderboards or provide alternative paths to recognition to ensure that all users feel valued and motivated, regardless of their performance relative to others.

Badges

Badges, also mentioned in 5 studies, are another popular gamification element. Badges serve as visual representations of achievements and milestones, providing users with a sense of accomplishment and recognition. Studies by Sheffler et al. (2020) and Abenes et al. (2023) highlight the role of badges in enhancing user motivation by acknowledging achievements and encouraging further exploration and participation. Unlike points, which are often accumulated continuously, badges are typically awarded for specific accomplishments or milestones, making them particularly effective for recognizing significant achievements. The use of badges can also encourage users to explore different aspects of a gamified system, as they often serve as indicators of mastery or expertise in specific areas.

Rewards and Feedback Systems

Rewards and feedback systems, each mentioned in 4 studies, are fundamental to the effectiveness of gamified systems. Rewards serve as incentives that encourage users to engage with the system, reinforcing desired behaviors and providing a sense of accomplishment. Tanouri et al. (2023) and Sheffler et al. (2020) discuss how rewards can be used to increase user motivation by offering tangible benefits, such as gift cards or virtual items, or intangible rewards, such as status or recognition within a community. Feedback systems, on the other hand, provide users with information about their performance, helping them understand what they are doing well and where they need to improve. This immediate feedback is crucial in maintaining user engagement, as it keeps users informed about their progress and guides them towards achieving their goals. Effective feedback systems, as noted by Shohieb (2019) and Gasca-Hurtado et al. (2019), are designed to be clear, specific, and constructive, helping users stay motivated and focused on their objectives.

Challenges

Challenges, appearing in 3 studies, are designed to test users' skills and abilities, often pushing them to learn and grow. They are essential for maintaining user interest and engagement over time, as they provide a dynamic and evolving environment that requires users to continually adapt and improve. Studies by Kummanee et al. (2020) and Gray et al. (2019) indicate that challenges are particularly effective when they are tailored to the user's skill level, offering just the right amount of difficulty to keep users engaged without causing frustration. Well-designed challenges can create a sense of accomplishment and mastery, motivating users to continue participating in the gamified experience.

Social Robots and Customizable Avatars

Social robots and customizable avatars, each cited once, represent more personalized and interactive elements of gamification. Social robots, mentioned by Riedmann et al. (2024), can provide companionship and support, enhancing user engagement through social interaction. These robots can simulate social presence and provide users with a sense of being understood and supported, which can be particularly motivating in contexts like health and education. Customizable avatars, discussed by Shohieb (2019), allow users to personalize their experience by creating a digital representation of themselves within the gamified system. This personalization can enhance engagement by allowing users to express their identity and see themselves reflected in the game environment. It also fosters a sense of ownership and attachment to the gamified experience, increasing the likelihood of sustained participation.

Sign Language Avatars and Dashboards

Sign language avatars and dashboards, each cited once, illustrate how gamification can be adapted to meet specific user needs. Sign language avatars, mentioned by Shohieb (2019), provide accessibility for users who are deaf or hard of hearing, ensuring that they can fully participate in gamified experiences. Dashboards, discussed by Alsubhi et al. (2021), offer users a comprehensive view of their performance and progress, allowing them to track their achievements and identify areas for improvement. By providing users with a clear and organized overview of their activities, dashboards can enhance motivation and engagement by making it easier for users to see their progress and set future goals.

Physical Activity Tracking and Audio Feedback

Physical activity tracking and audio feedback, each mentioned once, reflect the use of gamification in health and wellness applications. Physical activity tracking, as noted by Kubota et al. (2022), uses gamification to encourage users to engage in physical exercise by tracking their movements and providing rewards for reaching certain milestones. Audio feedback, discussed by Bräuer & Mazarakis (2022), enhances user engagement by providing real-time auditory cues and feedback, which can be particularly effective in fitness and exercise applications where visual feedback might not be feasible.

STEAM Challenges, Interactive Content, Adaptive Content, and Timed Challenges

These elements, each cited once, represent more specialized applications of gamification. STEAM challenges, mentioned by Kummanee et al. (2020), integrate science, technology, engineering, arts, and mathematics into gamified experiences, encouraging users to engage with complex, interdisciplinary content in a fun and interactive way. Interactive content, discussed by Kummanee et al. (2020), allows users to actively participate in the learning process, enhancing engagement and retention. Adaptive content, as noted by Kaeophanuek & Chaisriya (2022), adjusts the difficulty and nature of the content based on the user's

performance, ensuring that each user is challenged at an appropriate level. Timed challenges, highlighted by Gray et al. (2019), add a sense of urgency and excitement to gamified experiences, encouraging users to act quickly and think on their feet.

Gamification Elements	Frequency	Authors
Points	9	Riedmann et al., 2019; Shohieb, 2019; Tanouri et al., 2020; Kummanee et al., 2019; Abenes et al., 2020; Sheffler et al., 2020; Gasca-Hurtado et al., 2019; Gray et al., 2019; Kubota et al., 2022
Leaderboards	5	Shohieb, 2019; Kummanee et al., 2019; Abenes et al., 2020; Sheffler et al., 2020; Gasca-Hurtado et al., 2019
Badges	5	Tanouri et al., 2020; Kummanee et al., 2019; Abenes et al., 2020; Sheffler et al., 2020; Gasca-Hurtado et al., 2019
Rewards	4	Tanouri et al., 2020; Kubota et al., 2022; Sheffler et al., 2020; Gray et al., 2019
Feedback Systems	4	Shohieb, 2019; Gasca-Hurtado et al., 2019; Alsubhi et al., 2019; Kaeophanuek et al., 2022
Challenges	3	Kummanee et al., 2019; Gray et al., 2019; Kubota et al., 2022
Social Robots	1	Riedmann et al., 2019
Customizable Avatars	1	Shohieb, 2019
Sign Language Avatars	1	Shohieb, 2019
Dashboards	1	Alsubhi et al., 2019
Physical Activity Tracking	1	Kubota et al., 2022
Audio Feedback	1	Brauer et al., 2022
STEAM Challenges	1	Kummanee et al., 2019
Interactive Content	1	Kummanee et al., 2019
Adaptive Content	1	Kaeophanuek et al., 2022
Timed Challenges	1	Gray et al., 2019

Table 4 Synthesized data for gamification elements from the results of this SLR

Gamification Design Principles

User – Centered Design

User-centered design, cited in 4 studies, emphasizes designing gamified systems with the user's needs, preferences, and experiences at the forefront. This principle ensures that the gamified experience is tailored to the target audience, enhancing engagement and satisfaction. Riedmann et al. (2024) and Alsubhi et al. (2021) discuss how user-centered design involves extensive user research and iterative testing to refine the user interface and experience continually. By focusing on the user, gamified systems can be more intuitive, enjoyable, and effective, leading to higher levels of user retention and satisfaction. User-centered design also considers accessibility, ensuring that gamified systems are usable by people with a wide range of abilities and disabilities.

Continuos Feedback

Continuous feedback, also mentioned in 4 studies, is a crucial principle for maintaining user motivation and guiding behavior. Feedback can come in many forms, such as progress bars, scores, or messages, and it provides users with information about their performance and areas for improvement. Shohieb (2019) and Gasca-Hurtado et al. (2019) emphasize that continuous feedback helps users stay engaged by constantly reinforcing positive behaviors and correcting mistakes. Effective feedback should be timely, specific, and actionable, helping users understand exactly what they need to do to improve and succeed.

Inclusive Design and Educational Alignment

Inclusive design and educational alignment, each cited in 3 studies, focus on ensuring that gamified systems are accessible to all users and aligned with educational goals. Inclusive design, as discussed by Shohieb (2019) and Kaeophanuek & Chaisriya (2022), ensures that gamified experiences are accessible to users with diverse needs and abilities, promoting equity and inclusivity. Educational alignment, noted by Kummanee et al. (2020) and Shohieb (2019), ensures that gamification supports educational objectives, enhancing learning outcomes by making educational content more engaging and interactive. By aligning gamification with educational goals, educators can enhance student motivation, improve knowledge retention, and support the development of critical thinking and problem-solving skills.

User Engagement Strategies and Game Design Principles

User engagement strategies and game design principles, each mentioned in 2 studies, are critical for creating compelling and effective gamified experiences. User engagement strategies, discussed by Tanouri et al. (2023) and Alsubhi et al. (2021), focus on keeping users actively involved and motivated through dynamic content, rewards, and social interaction.

Game design principles, mentioned by Shohieb (2019) and Gasca-Hurtado et al. (2019), provide a framework for creating engaging and enjoyable gamified experiences, drawing on best practices from game design to enhance user experience and satisfaction.

Integration of Health Theories, Reward Systems and Motivational Incentives

Integration of health theories, reward systems, and motivational incentives, each cited once, highlight specialized applications of gamification. The integration of health theories, discussed by Kubota et al. (2022), involves incorporating concepts from health psychology into gamified systems to promote healthy behaviors and outcomes. Reward systems, as noted by Sheffler et al. (2020), focus on providing users with incentives to encourage desired behaviors, while motivational incentives emphasize the use of various strategies to keep users engaged and motivated.

User Centric Design, Non Visual Engagement Strategies, and Educational Innovation

User-centric design, non-visual engagement strategies, and educational innovation, each mentioned once, represent emerging trends and specialized approaches in gamification. User-centric design, highlighted by Alsubhi et al. (2021), emphasizes putting the user at the center of the design process to create more effective and engaging gamified experiences. Non-visual engagement strategies, discussed by Bräuer & Mazarakis (2022), focus on engaging users through auditory and tactile feedback, which can be particularly effective for users with visual impairments. Educational innovation, mentioned by Kummanee et al. (2020), emphasizes the use of gamification to introduce new and innovative approaches to education, enhancing learning outcomes and engagement.

STEAM Integration, Adaptive Learning, Personalized Education, Motivational Design, and Cognitive Engagement

STEAM integration, adaptive learning, personalized education, motivational design, and cognitive engagement, each cited once, represent niche areas or innovative applications of gamification. STEAM integration, as noted by Kummanee et al. (2020), involves incorporating science, technology, engineering, arts, and mathematics into gamified experiences to promote interdisciplinary learning. Adaptive learning, discussed by Kaeophanuek & Chaisriya (2022), focuses on creating personalized learning experiences that adapt to the user's needs and abilities, enhancing engagement and learning outcomes. Personalized education, motivational design, and cognitive engagement emphasize the importance of tailoring gamified experiences to individual users, designing systems that motivate and engage users, and supporting cognitive development and engagement.

Gamification Design Principles	Frequency	Authors
User-centered design	4	Riedmann et al., 2019; Gasca-Hurtado et al., 2019; Alsubhi et al., 2019; Kaeophanuek et al., 2022
Continuous feedback	4	Riedmann et al., 2019; Shohieb, 2019; Gasca-Hurtado et al., 2019; Kummanee et al., 2019
Inclusive design	3	Shohieb, 2019; Gulinna et al., 2020; Kaeophanuek et al., 2022
Educational alignment	3	Shohieb, 2019; Kummanee et al., 2019; n et al., 2022
User engagement strategies	2	Tanouri et al., 2020; Alsubhi et al., 2019
Game design principles	2	Shohieb, 2019; Gasca-Hurtado et al., 2019
Integration of health theories	1	Kubota et al., 2022
Reward systems	1	Sheffler et al., 2020
Motivational incentives	1	Sheffler et al., 2020
User-centric design	1	Alsubhi et al., 2019
Non-visual engagement strategies	1	Brauer et al., 2022
Educational innovation	1	Kummanee et al., 2019
STEAM integration	1	Kummanee et al., 2019
Adaptive learning	1	Kaeophanuek et al., 2022
Personalized education	1	Kaeophanuek et al., 2022
Motivational design	1	Gray et al., 2019
Cognitive engagement	1	Gray et al., 2019

Table 5 Synthesized data for gamification design principles from the results of this SLR

PRACTICAL APPLICATION AND GAMIFICATION CHALLENGES

When deliberately used in educational contexts, gamification can convert conventional classroom dynamics into more engaging and student-centered experiences. The incorporation of gaming components into educational activities is not a novel idea; nonetheless, its practical application in formal education, especially in language classrooms, has gained traction due to its perceived efficacy in enhancing motivation, engagement, and learning outcomes. In practice, educators implement gamification using several tools and tactics. These may

encompass reward systems (e.g., points, stars, badges), progress tracking (e.g., levels, experience bars), competition (e.g., leaderboards), collaboration (e.g., team-based challenges), and narrative frameworks (e.g., story-driven quests). In the realm of English language acquisition, particularly regarding speaking proficiency, these factors can offer significant chances for learners to participate in genuine language use within a secure and encouraging setting. For instance, educators may designate roles to students in a simulated context—such as operating a restaurant or unravelling a mystery—where participants must engage in English to accomplish defined objectives. This approach promotes impromptu speaking, enriches vocabulary application, and fosters self-assurance. Moreover, language learning applications and digital platforms that gamify speaking activities through avatars, voice recognition, and immediate feedback have been utilised to enhance classroom instruction.

Nonetheless, despite these encouraging possibilities, the execution of gamification poses numerous significant problems. A primary consideration is the congruence between game mechanics and educational objectives. In the absence of a well-defined instructional design, gamified activities may provide amusement yet fail to deliver educational significance. Certain instructors may implement gamification superficially, using points or badges without guaranteeing that these components substantively enhance language abilities or align with curriculum standards. Technological constraints present considerable obstacles, particularly in environments with restricted access to digital infrastructure. In numerous rural or under-resourced schools, such as those in Terengganu, Malaysia, the provision of reliable internet, devices, and technical assistance is frequently erratic. The digital divide might obstruct the fair execution of gamified learning experiences, especially when dependent on online tools or mobile applications. A further problem is sustaining student motivation over an extended period. While gamification can generate an initial surge in motivation, this effect may wane if learners regard the rewards as redundant or if tasks become tedious. To maintain engagement, game features must be meticulously diversified and tailored to learners' advancement and inclinations. Furthermore, excessive dependence on extrinsic motivation—such as acquiring points or rewards—may diminish intrinsic motivation, wherein students are motivated by authentic interest in learning rather than external incentives.

Instructor readiness and professional advancement are essential components for the effective execution of gamification. Numerous educators may be deficient in the training or assurance necessary to create effective gamified learning experiences. They may encounter time limitations in creating or modifying content, especially when reconciling the requirements of standardised curriculum and assessment protocols. In the absence of institutional support or access to gamification training, educators may have feelings of being overwhelmed or harbour scepticism regarding its efficacy. Moreover, evaluation in gamified contexts continues to be a multifaceted challenge. Conventional assessment techniques may insufficiently reflect the diverse abilities cultivated by gamified activities, especially in speaking, which encompasses fluency, pronunciation, grammar, and interactive communication. The creation of genuine and dependable evaluation instruments that correspond with gamified training remains a subject of continuous investigation.

In summary, the implementation of gamification in education, particularly for improving English speaking skill, presents significant potential, providing more engaging and tailored learning experiences. Nonetheless, actualising this potential necessitates surmounting various hurdles, including educational alignment, technological accessibility, sustained motivation, teacher preparedness, and assessment validity. Resolving these difficulties necessitates a cooperative endeavour among educators, policymakers, and researchers to create contextually relevant, sustainable gamification models that effectively support both educational and learning objectives.

CONCLUSION

This systematic literature review (SLR) on gamification elements, components, and design principles highlights the increasing relevance and application of gamification in educational contexts. Gamification established an innovative pedagogical strategy that leverages game-design elements—such as points, badges, leaderboards, challenges, feedback, storytelling, and avatars—to enhance learning experiences by increasing engagement and motivation. The literature review further emphasizes the effectiveness of these elements in fostering a more interactive and engaging learning environment, especially within digital and online education. Studies from 2019 to 2023 have shown that these game elements, when thoughtfully integrated into educational settings, can significantly improve various aspects of learning, including language acquisition, cognitive skills, and student retention. The literature also points out the challenges associated with gamification, such as the potential for fostering unhealthy competition or creating anxiety among students less comfortable with competitive environments. Furthermore, there is a recognized need for future research to explore the long-term impacts of gamification on learning outcomes and its potential synergies with other pedagogical approaches, like flipped learning or project-based learning. This review provides a comprehensive overview of the theoretical frameworks and practical applications of gamification, underscoring its value as a tool for enhancing student engagement and motivation in diverse educational settings.

The materials and methods section of this review outlines a rigorous and systematic approach to identifying and analyzing relevant studies on gamification from 2019 to 2023. The research process was structured into three primary phases: identification, screening, and eligibility assessment. Initially, the identification phase involved constructing comprehensive search strings using pertinent keywords related to gamification elements, components, and design principles, which were then applied to the Scopus and Web of Science databases. This thorough search yielded an initial pool of 299 articles. The subsequent screening phase focused on evaluating the abstracts of these articles against predefined inclusion criteria, such as language, publication type, and relevance to the research objectives. This critical screening step ensured that only the most pertinent and high-quality studies were retained for further examination. Finally, in the eligibility phase, a detailed review of the remaining articles was conducted, leading to the inclusion of 13 studies that met all criteria for in-depth analysis. The methodical approach described in this section underscores the review's commitment to

comprehensiveness and accuracy, ensuring that the findings are based on robust and relevant evidence from the existing body of literature on gamification in education.

The results of this systematic literature review highlight several key findings on the effectiveness and application of gamification in educational contexts. The review identifies critical gamification elements such as points, badges, leaderboards, challenges, and feedback, which are frequently employed to enhance user engagement and motivation. These elements provide immediate feedback, recognize achievements, and foster a sense of competition, all of which contribute to sustained user involvement and improved learning outcomes. Additionally, the findings underscore the importance of integrating design principles such as user-centered design, continuous feedback, and educational alignment to create effective gamified learning systems. The review also reveals emerging trends and new elements, such as social robots, customizable avatars, and adaptive content, which cater to diverse learner needs and preferences. Moreover, the study acknowledges the potential of gamification to revolutionize traditional educational practices by making learning more engaging, interactive, and tailored to individual needs. However, the findings also highlight some challenges, including the need for careful design to avoid negative impacts such as learner anxiety or disengagement. Overall, this review provides valuable insights into the design and implementation of gamification strategies in education, emphasizing the importance of balancing engagement with educational objectives to achieve optimal learning outcomes.

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