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# Enhancing EFL/ESL instruction through gamification: a comprehensive review of empirical evidence

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**Introduction:** In the landscape of English language education, the integration of gamification has marked a transformative trend. This systematic review, utilizing a rapid evidence assessment methodology, critically examines thirty empirical studies from the Web of Science, spanning the years 2010 to 2022. It aims to synthesize the current body of research on the incorporation of gamification into EFL/ESL pedagogy.

**Methods:** The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) was followed when conducting this study to provide a comparative study on the methodology and results of systematic reviews on the use of various digital gaming platforms in China, Malaysia, the United Arab Emirates, Korea, the Netherlands, Saudi Arabia, Iran, Spain, Turkey, and Ecuador. The synthesis of studies under review identifies a spectrum of gamification components incorporated within the educational frameworks.

**Results:** Our analysis reveals an ascending trajectory in the prevalence of gamification within this academic sphere and corroborates its efficacy as a catalyst for language acquisition. The synthesis of studies under review identifies a spectrum of gamification components incorporated within the educational frameworks.

**Discussion:** The collected evidence underscores gamification's role in enhancing English proficiency, influencing learners' attitudes and emotional engagement positively, and fostering an immersive language learning milieu. Furthermore, this review delineates strategic insights and identifies key gamification components instrumental in orchestrating gamified educational experiences. The implications of the findings extend to pedagogical practices, providing a guide for educators in the design and implementation of gamified language learning environments.

## KEYWORDS

gamification, EFL/ESL pedagogy, empirical review, learning outcomes, gamification strategies

## 1 Introduction

In a variety of nations where English is not the primary language, it has risen to become the leading foreign language and serves as a common means of communication. Not only is the competency of mastery of English a necessity for students, it is also deemed as an essential objective and reason for students learning English as a Foreign Language (EFL) and English as a Second Language (ESL). Therefore, it is of paramount importance for educators to focus on improving students' skills in the fundamental areas of listening, speaking, reading, and writing in English. These competencies form the cornerstone of language acquisition and have emerged as

significant focal points for scholarly research (Liu and Chu, 2010; Zohud, 2019; Dehghanzadeh et al., 2021). The twin forces of globalization and the rapid expansion of digital technologies have significantly have concurrently engendered challenges for numerous students, provided with the unavoidable and prevailing trend of the global usage of the language and different digital contexts and various channels. These individuals have encountered the stark realization that their conventional English education is insufficient for comprehension and communication in the Digital Age (Wu et al., 2014). Our conventional perception towards language learning is that limited to traditional classroom settings, in which students have been used to be taught to read, listen, write and present in face-to-face communications with handwritten forms at times. With the advancement and widespread of digital technologies in relation to classroom learning, learners' competence in mastering digital literacy has been also been expected as part of their learning process, together with their traditional mode of acquiring the second language well. The ability of master English language well goes along with their equipment of digital knowledge as both of them are closely related in everyday life in the global world in the new era. In response to this educational shortfall, there has been a concerted effort to integrate innovations in multimedia technologies within EFL pedagogy. Such advancements aim to ameliorate the quality of English foreign language instruction in the early twenty-first century, addressing the emergent needs of contemporary learners. The reasons that explain why technologies have been introduced in education settings is due to the growing expectation on motivational forces from learners which could be facilitated by original use of digital tools and assistance in both face-to-face and online classrooms. The commonality of the shift of mode of learning is another reason that justifies the student autonomy in learning independently outside the classroom contexts, which could in return minimize the workload of teachers and develop an automatic system and mechanism to assist students to learn better with the emergence of various digital softwares and applications.

Gamification constitutes a cutting-edge trend in the landscape of contemporary English in many educational settings including English as a Foreign Language (EFL) and English as a Second Language (ESL). This pedagogical strategy can be delineated as the application of game design elements and gaming principles within educational contexts. The idea of gamification in education is not a complete novelty. For the first time, the gamification of education was mentioned in the 1980s (Bowman, 1982, Malone, 1980, 1982, as cited in Seaborn and Deborah, 2015). Later, Chapman and Rich (2018) characterized gamified education as a collection of activities taken in reality (but supported by the ICT system) to discover and validate activities, view progress, and communicate and collaborate with other players. Generally, gamification can be understood as an integration of game elements and game thinking in activities that are not games (Palová and Vejačka, 2022). Games have typical characteristics which are vital in gamification and which are used to motivate and facilitate educational process, namely: Narrative and users—constituted by all course participants; Player control—participants control the pace of the study consecution; Immediate feedback—users get an evaluation of performed task instantly; Challenges—tasks performed consecutively towards defined objectives or goals; Progress mechanism—a process of accomplishing tasks and acquiring amounts of points for them. After reaching a predefined level of points users are rewarded with various rewards such as badges of accomplishment for completing certain actions. This can be repeated multiple times to promote the reaching the goal of the study and supported by the publishing of users' ranking according to their levels of

achievement; Social contact—allows competitive or cooperative problem-solving within the process of education (Palová and Vejačka, 2022). According to Aguiar-Castillo et al. (2021), gamification is the use of game design elements in non-game contexts and there are rules to follow within the framework of elements of game design but cannot be considered as full-fledged games. There are several levels of game elements where a gamified system can borrow its design—Game interface design patterns, Game design patterns and mechanics, Game design principles and heuristics, Game models and Game design methods. In other words a gamified system is designed to look and/or feel like a game but not go all the way (Aguiar-Castillo et al., 2021). Gamification concept generally performs as external events that influence intrinsic as suggested in Self Determination Theory (CET). Game design elements or mechanics such as points, badges and leaderboard may be considered as an external reward as these game mechanics can provide feedback on performance and driver to motivate user's behavior (Peter et al., 2019). Additionally, Lo and Mok (2019) have highlighted the utility of gamification in second language (L2) acquisition, noting that elements such as word association, goal execution, and dialogue construction can leverage the familiarity of digital natives with gaming experiences. This familiarity has a direct and transferable relevance in digital L2 learning experiences, enhancing both engagement and language skills (Lo and Mok, 2019). The primary objective of gamification is to render the learning process more engaging and accessible to students, thereby fostering an inclusive educational environment.

Research has shown many advantages of gamification in educational contexts. For example, recent studies have validated the potential of gamification to improve student motivation, engagement, and interaction in education, while allowing them to immerse themselves in experiential learning. This is particularly important in the context of psychology, where motivation is seen as the driving force behind the behavior with a dynamic relationship between internal and intrinsic forces and affective processes leading to personal, social, and psychological well-being (Li et al., 2023). It is posited that gamification not only facilitates but also incentivizes student participation in the learning process, potentially leading to enhanced educational outcomes (Deterding et al., 2011; Lee and Hammer, 2011; Kapp, 2012; Bicen and Kocakoyun, 2018). Badges, rewards, cumulative point systems, and competitive scoring mechanisms serve as tangible incentives for students, promoting desirable behaviors within educational settings (Shortt et al., 2021). Kapp (2012) contends that gamification transcends the mere integration of game mechanics and elements to augment the interest level in learning activities. Instead, gamification endeavors to transform the very essence of the learning experience while simultaneously amplifying learner autonomy. This educational approach offers a secure environment that fosters student engagement and enjoyment. Gamers create community pedagogical resources, and act as language advisers, teachers, and translators for those with similar interests (Lo, 2020). Within this gamified context, learners are recipients of instantaneous feedback, which is crucial for the learning process. As they engage with and surmount challenges, they not only succeed in their immediate goals but also garner a profound sense of achievement. This comprehensive approach not only stimulates learner interest but also redefines the educational journey as a whole. Gamification applications can be used for measurement and evaluation purposes, help teachers quickly and practically determine the learning levels of students. They offer students the opportunity to

receive instant feedback on their learning. With the use of these applications, especially for formative assessment purposes, is becoming more common day by day (Bolat and Taş, 2023).

Nonetheless, empirical research on the application of gamification within the domain of EFL/ESL education has yielded mixed outcomes. While certain studies underscore the potential educational benefits of gamification, the findings are not universally conclusive. Despite this, it is evident that scholarly interest in the pedagogical utility of gamification in the context of EFL education has surged in the recent decade (Hung, 2018; Fithriani, 2021); other scholars maintain that gamified learning remains an under-explored area within the realm of English language teaching. The incorporation of gamification in EFL classrooms has been relatively obscure, attributed in part to the scarcity of research within this area in particular the gap between the theories and real life application of in classrooms. In addition, there are limitations for individual educators to experiment different forms of gamified teaching tools in face-to-face classrooms due to the constraints of time and resources to be supported by the institutions. Furthermore, data in the prior research was mainly collected during pandemic and post-pandemic time after 2019 in virtual classroom settings. In other words, gamified classrooms are usually more common in online teaching and learning. The currently more popular academic discourse has been shifted to focus on the emergence of GenAI instead. In other words, studies have indicated that the application of gamification encounters various obstacles, among which are a restrictive curriculum that may not accommodate the flexibility required for game-based learning activities, limited access to high-tech facilities for both teachers and students, a general unfamiliarity with gamification principles among educational stakeholders, and disparate attitudes towards the adoption of gaming methodologies in educational settings (Hung and Young, 2015; Phuog, 2020).

On the other hand, it could be argued that research on the impact of gamification on EFL instruction and learning has produced a spectrum of findings. There is a substantial body of literature that has documented the affirmative effects of gamification on EFL learning. These reported benefits include the alleviation of students' anxiety related to English language learning (Hwang et al., 2017; Hung, 2018; Barcomb and Cardoso, 2020), the enhancement of students' interest, motivation, and engagement in the learning process (Hwang et al., 2017; Bicen and Kocakoyun, 2018; Zohud, 2019; Reynolds and Taylor, 2020; Zou, 2020; Almusharraf, 2023), the improvement of students' learning performance (Wu et al., 2014; Hwang et al., 2017; Ling et al., 2019; Zohud, 2019; Barcomb and Cardoso, 2020), and the promotion of learner autonomy (Zohud, 2019; Setiawan and Wiedarti, 2020; Zou, 2020). To be specific, a subset of studies has presented a more nuanced view, indicating that while gamification may lead to better performance among students compared to a control group in the short term, such enhancements do not necessarily translate into sustained improvements in final learning outcomes (Dominguez et al., 2013; Calvo-Ferrer, 2017). Learning outcomes in this study are mainly defined as significant positive effects on cognitive, motivational, and behavioral learning outcomes, with game fiction and social interaction as key moderators. The outcomes could also be regarded improved performance in assessments and exams, mediated by increased self-testing behavior. The learning outcomes could be measured during the learning progress, in the form of engagement, motivation, and learning achievement, particularly in cognitive outcomes.

Research has indeed shown that students who engage with traditional pedagogical interventions are sometimes more successful

than those who use gamified methods (Hanus and Fox, 2015). This phenomenon may be attributed to various factors, including the greater familiarity that students typically have with conventional teaching techniques as opposed to the novel gamified approaches which may seem alien and thus less effective. Additionally, the competitive aspect of many gamified environments can be off-putting for some learners who may not thrive under competitive pressure or simply do not enjoy competitive scenarios (Kirsch and Spreckelsen, 2023). Technical issues also pose significant challenges to the successful implementation of gamified learning (Tabassum, 2024). For instance, unreliable Internet connections can disrupt the continuity of gamified applications, which often require a stable online environment. The pace of the game itself can be another hindrance, as some students may find it too fast and struggle to keep up, while the lack of detailed explanations post-game can leave learners confused and without a clear understanding of the material (Ebadi et al., 2021). When it comes to mobile learning, the effectiveness of gamification can be compromised by the multifunctionality of mobile devices. Students might be inclined to use their devices for personal or social interaction rather than for educational purposes (Stockwell, 2010), and the potential for distraction is high, with various notifications and functions pulling the students' attention away from learning tasks (Dahlstrom et al., 2015).

Furthermore, the contradictory results (Hanus and Fox, 2015) concerning the influence of gamification on students' motivation, satisfaction, empowerment, and achievement scores can also be a result of the suitability of gamification applications themselves, which may not be universally appropriate or effective for all educational contexts or learner profiles. Individual factors such as age, gender, and personality, along with other issues, also play a crucial role in how gamification is received by students. Gamification tools, such as points, badges, and leaderboards, have been widely used in higher education to enhance student engagement and motivation (Santana et al., 2016; Limantara et al., 2019). These elements can be integrated into learning activities to promote learning success, particularly in e-learning environments (Strmečki et al., 2015). The use of these tools has been found to have a positive impact on student engagement and achievement (Rahman et al., 2018). However, it is important to consider the specific needs of different types of learners when designing gamified learning activities (Strmečki et al., 2015). In Smiderle et al.'s (2020) study, it was found that introverted participants in both control and experimental groups had a higher number of points, badges, and logins. A statistical significant difference was found in the number of points and ranking views between the introvert and extrovert students who used the gamified version, thus indicating that there is a difference between how different users with different personality traits receive the effect of gamification. In addition, a statistically significant difference was found in the accuracy gain of the introverted participants who used the gamified version. This result detected a negative effect of the ranking on extroverted participants and positive and not significant in introverted participants; extroverts preferred badges. However, unlike Jia et al. (2016) who found that extroverts tend to be more motivated by points, levels, and ranking. Given these diverse and complex considerations, it is clear that further research is warranted to better understand the conditions and contexts in which gamification can be most beneficial for language learning. The influence of gamification on students' motivation, satisfaction, empowerment, and achievement scores is complex and context-dependent. While some studies have found positive effects (Hamari et al., 2014; Dicheva et al., 2015; Mohammed

and Ozdamli, 2021), others have reported contradictory results, suggesting that the suitability of gamification applications themselves may play a role (Hanus and Fox, 2015). The use of specific gamification mechanics, such as badges, levels, feedback, points, and leaderboards, has been identified as particularly motivating (Mohammed and Ozdamli, 2021). However, the design and implementation of gamification in educational settings require careful consideration to ensure positive outcomes.

Given the identified gaps in the current literature regarding the benefits of gamifying classrooms, its application and wide use of gamification in EFL/ESL education and its limitations and perceptions towards the importance and necessity of gamifying learning process, the study aims to conduct a comprehensive review of empirical research in this field. The focus will be on examining three critical questions that are central to understanding the role and efficacy of gamification in language instruction. The objective of this research paper is to furnish the audience with an overview of the contemporary application of gamification within the context of empirical studies on EFL and ESL instruction. It aims to elucidate the potential educational outcomes attributable to the integration of gamification in EFL/ESL pedagogy, as well as to identify specific gamification elements that have been implemented in the design and execution of gamified learning engagements.

The literature on the use of gamification in English language learning consistently highlights its positive impact on student motivation, engagement, and learning outcomes (Dehghanzadeh et al., 2021; Kaya and Cilsalar Sagnak, 2022; Laura-De La Cruz et al., 2023; Putu Wulantari et al., 2023). However, there is a lack of consensus on the specific gamification elements that contribute to these outcomes, with some studies calling for further research in this area (Al-Dosakee and Ozdamli, 2021; Dehghanzadeh et al., 2021). This study also emphasizes the need for more research on the use of gamification in different educational contexts, in particular the higher education contexts.

## 2 Research questions

The research study aims to provide a response to the following main research questions:

1. How is gamification a strategy or an approach used within various teaching methodologies in EFL/ESL classes?
2. What are the factors affecting the relationship between gamification and EFL outcomes?
3. What gamification elements should be used in designing gamified learning activities in EFL/ESL classes?

## 3 Methodology

### 3.1 Research design

The choice to deploy an effective evidence evaluation review in this study is informed by its increasing popularity as a literature review methodology in recent years, especially when timely results are needed. The principal advantages of a rapid evidence review lie in its ability to maintain a rigorous approach to identifying, appraising, and

synthesizing evidence from existing studies while significantly reducing the time required to produce results compared to a full systematic review (Varker et al., 2015).

Rapid assessments such as rapid on-line methods, diagnostic tests and speed reading can be a useful approach to assess language proficiency of learners and work to monitor the immediate traces of students' knowledge structures in working memory (Kalyuga, 2006). Despite of the fact that the aforementioned traditional tests, especially the in-class writings and test scores, may not provide reliable evidence for diagnostic purposes and are not suitable for dynamic learning environments, there is potential for these assessments to be embedded into adaptive e-learning packages. A systematic review consists of three phases: development, processing, and reporting. For this study, the researchers selected high-quality SSCI-indexed journal articles through these three phases, analyzed their main viewpoints of the use of gamification in EFL/ESL instruction and learning, and carried out an analysis and discussion of the results.

### 3.2 Database and search strategy

In the development phase, literature was searched from the bibliographic database of Web of Science, providing that Web of Science has been noted to be a prestigious database, with a greater impact in terms of most cited authors and publications, and is selective in what journals it indexes, focuses on high-quality, peer-reviewed sources. It provides detailed citation metrics and analysis tools. To identify relevant publications, the search terms used in this study were "Gamification in EFL," "Gamification in ESL," "Gamification in EFL teaching," "Gamification and English as a Foreign Language," "Gamification and English as a Second Language," "Gamified English language teaching," "Gamified English learning," "Gamification and English Language Instruction," and "Gamification and English Language Learning." As gamification was not widely used until the second half of 2010 (Giannetto et al., 2013), the search period of this review article was limited to between 2010 and 2022 to collect the most relevant and up to date literature and select the high-quality journal articles in the field. The search results were limited to SSCI database, because these SSCI-indexed journal articles could represent the highest-level relevant research studies in English (Ziegeler, 2023). In the phase of refining search results and selecting high-quality publications for the rapid evidence evaluation review, the researchers delineated specific inclusion criteria to ensure that the studies under consideration were both relevant and methodologically sound. Initially, the temporal scope was set from 2010 to 2022, aligning with the emergence and rise of gamification in education and ensuring a modern perspective on the subject matter (Caponetto et al., 2014). The reason for limiting the search to articles published up to 2022 is due to the publication lag inherent in the Web of Science database. Web of Science, while considered a gold standard database, can sometimes have a delay of 6–12 months or more in fully indexing and making newly published articles searchable. To ensure the most up-to-date research available is captured at the time of conducting the review, the study opts to search up to the end of 2022 in order to minimize the risk of missing any key studies that may have been published in early 2023 but not yet indexed in Web of Science. Studies were required to specifically address the use of gamification in the context of EFL/ESL teaching and learning, thereby excluding research

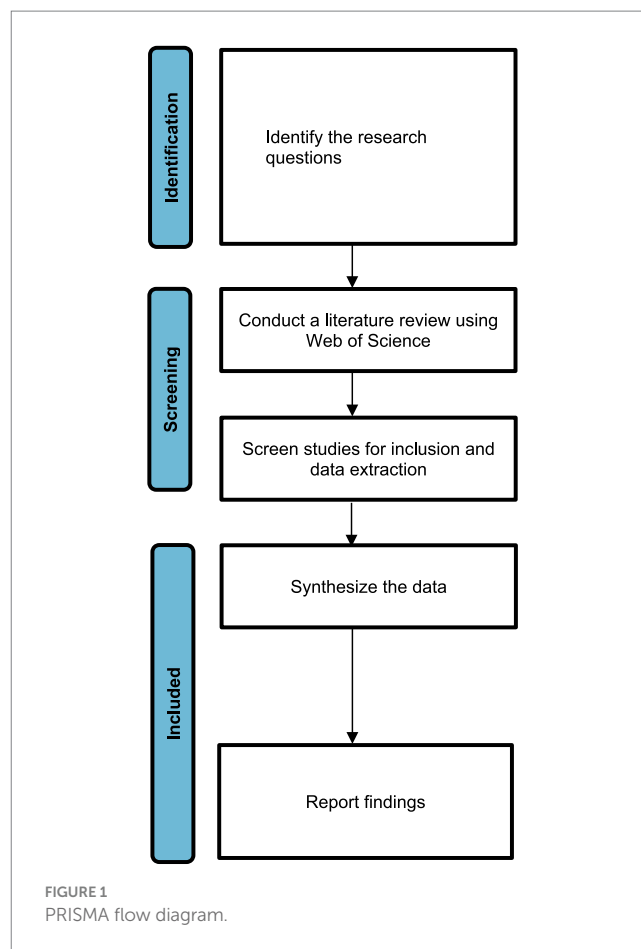
focused on educational games, video games, and serious games, which, although related, are distinct from gamification as defined by Kapp (2012). Kapps' gamification application was then mainly focused on the effectiveness of Kahoot, which was widely studied and found to have a positive impact on EFL/ESL classrooms (Kapp, 2012). Kapp's study (2012) implies serious games and gamification are both trying to solve a problem, motivate people, and promote learning using game-based thinking and techniques. He makes it clear that gamification is not badges, points, and rewards, but reduces the complexity and uses broad generalizations to represent reality. In other words, Kapps' gamification focuses more intrinsically motivating and deeper elements of games such as: challenge, mystery, story, constructive feedback, socialization and other elements that make games inherently engaging in classrooms (Kapp, 2012).

In addition, the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) was followed when conducting this study, which is the golden framework and standard for reporting the methodology and results of systematic reviews so as to ensure transparency, completeness, and quality. The PRISMA checklist was utilized throughout the review process, from the initial literature search to data extraction, synthesis, and reporting. Furthermore, only studies published in peer-reviewed journals were considered, effectively ruling out grey literature such as conference papers, book chapters, theses, and non-empirical literature reviews or analyses of secondary data. This criterion underscores the commitment to academic rigor and the value placed on the peer review process as a marker of research quality. Additionally, the researchers focused exclusively on empirical research, thus emphasizing studies based on actual observation or experimentation over theoretical or speculative ones. Lastly, the methodologies of the studies were taken into account, with the inclusion criteria favoring qualitative, quantitative, quasi-experimental, or mixed-methods research. This approach aimed to capture a wide array of empirical insights while maintaining a high standard of research design and analysis. Through these meticulously crafted inclusion criteria, the study was positioned to aggregate a body of evidence that would shed light on the utility, effectiveness, and challenges of gamification in facilitating English language acquisition. Figure 1 illustrates the PRISMA flow diagram regarding the research and review process.

Five exclusion criteria were used: (1) studies conducted before January 2010; (2) studies that did not investigate the use of gamification to support EFL/ESL teaching and learning; (3) the study was relevant to the present research topic but in the form of book chapters, conference papers, unpublished thesis, literature reviews and secondary data analysis; and (4) the study was not empirical research. Table 1 outlines and summarizes the database used, with the exclusion and exclusion criteria of those database and population or demographic variables:

During the selection phase, the investigative team conducted an appraisal of the titles, abstracts, and keywords, making determinations on the suitability of papers for inclusion in the data synthesis based on established eligibility criteria. In instances of ambiguity regarding inclusion, the investigators consulted the full-text articles for a more informed resolution.

The preliminary retrieval using the specified search terms resulted in a corpus of 533 scholarly articles. Subsequent to the exclusion of redundant articles and conference proceedings, a total of 81 articles remained. A thorough examination of the abstracts, keywords, and



methodologies of these articles ensued to further refine the selection by excluding those that fell outside the ambit of this research's thematic focus. In the end, this rigorous systematic review incorporated 30 scholarly articles. Drawing inspiration from the methodology outlined by Dehghanzadeh et al. (2021), such rapid demand for LES requires a shift from traditional to advanced learning methods. This shift is especially important since learners often complain that LES is difficult, challenging, and stressful, especially when it comes to application of its various skills (e.g., speaking, writing, reading, listening) in real life situations. Figure 2 delineates the publication selection schema employed in the current investigation.

## 4 Findings

### 4.1 Overview of research on gamification in EFL/ESL education

Table 2 summarizing empirical data below presents a synthesized overview of the studies incorporated that examine the application of gamification in the context of EFL/ESL education.

The span of publication dates ranges from 2010 to 2022, with a significant concentration of these studies emerging in the past five years, signaling that the exploration of gamification in EFL/ESL pedagogy is an emergent research domain. The array of digital learning platforms utilized in the reviewed research is diverse, extending beyond the ubiquitously employed Kahoot (Hung, 2017;

TABLE 1 Inclusion and exclusion criteria for database used.

Database	Inclusion criteria	Exclusion criteria	Population or demographic variables
Research focused on educational games, video games, and serious games	v		Distinction from gamification (Kapp, 2012)
Studies conducted before January 2010		v	
Studies that did not investigate the use of gamification to support EFL/ESL teaching and learning		v	
Empirical research		v	Actual observation or experimentation over theoretical or speculative ones
Peer-reviewed journals like conference papers, book chapters, theses, and non-empirical literature reviews or analyses of secondary data		v	Academic rigor and the value placed on the peer review process as a marker of research quality
Qualitative, quantitative, quasi-experimental, or mixed-methods research	v		Capture a wide array of empirical insights while maintaining a high standard of research design and analysis

Zou, 2020; Alawadhi and Abu-Ayyash, 2021; Ebadi et al., 2021; Chen, 2022; Almusharraf, 2023) to include platforms such as TipOn (Hong et al., 2022), ClassDojo (Homer et al., 2018), Edmodo (Lam et al., 2018), as well as gamified English learning applications prevalent in China like Baicizhan (Dindar et al., 2021) and Shanbay (Fan and Wang, 2020), in addition to bespoke gamified software or web pages (Hwang et al., 2017; Hung, 2018). This variety underscores the crucial part that digital gamification resources serve in the realm of EFL/ESL education. Padlet has also been regarded as a versatile and engaging educational tool with gamification elements, facilitating student collaboration, peer feedback, and active learning in both virtual and physical classrooms (El Shaban and Abobaker, 2021). It serves as an interactive platform for various educational activities, including

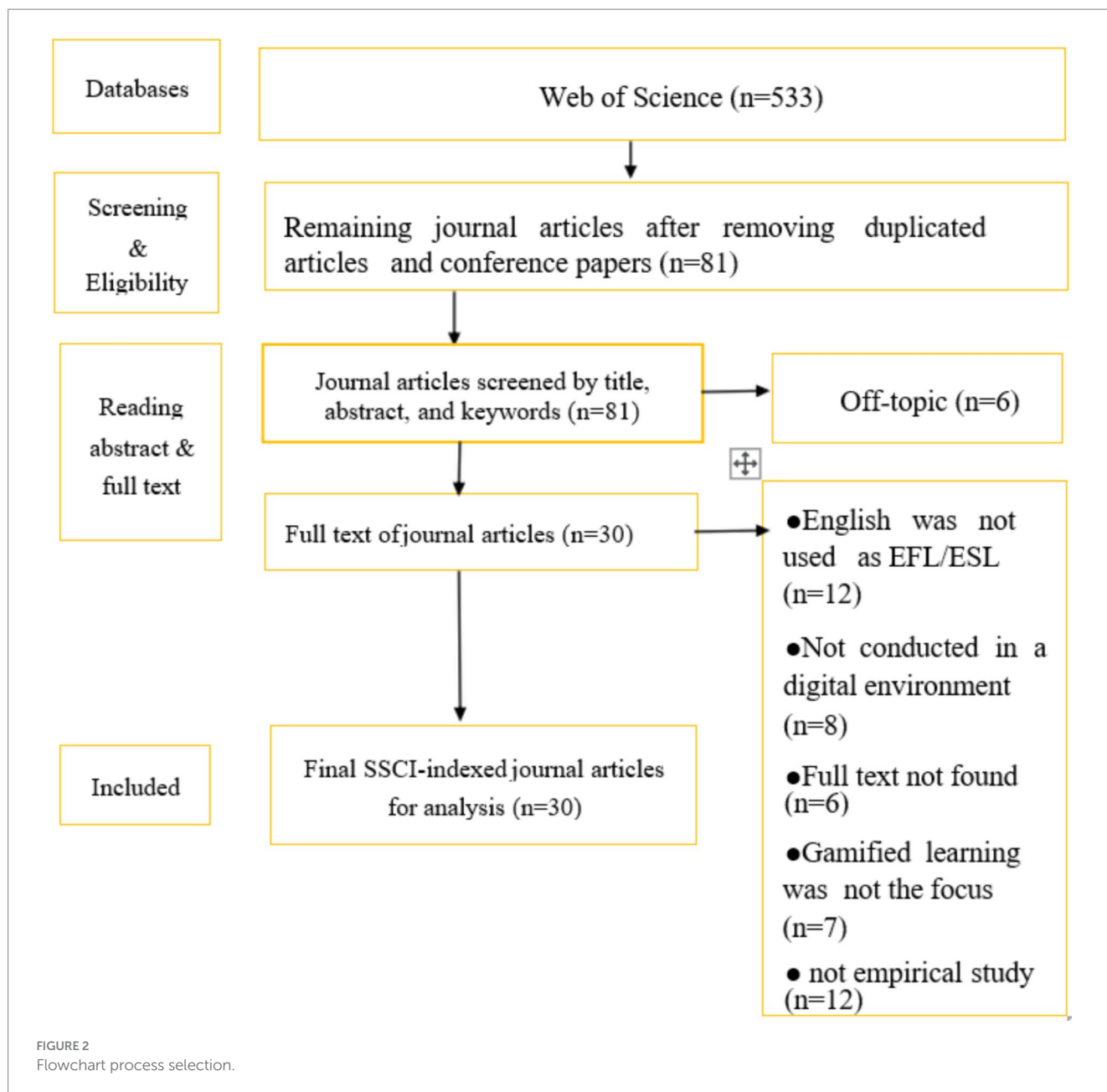
assignments, assessments, and brainstorming sessions (Wood, 2016). Using Padlet, students display their answers publicly and upload the photos using their cellphones in an interactive learning setting for peer review and instructor feedback, which could also be supplemented with the collaborative deployment of other gamified tools like Kahoot. The research has been predominantly disseminated through prestigious SSCI-indexed journals, reflecting an academic predilection for the fusion of contemporary technology with linguistic education.

The breakdown of educational levels targeted by these studies shows a distribution of 60% in higher education, 27% in secondary education, and 13% in primary education. The majority of the research adopts an experimental design. To investigate the role of gamification in EFL/ESL, researchers have employed a myriad of methodologies, including quantitative, qualitative, quasi-experimental, and mixed methods. A broad spectrum of data gathering techniques has been utilized, such as surveys, classroom observations, interviews, research diaries, student self-reflections, checklists, and pre-and post-assessments.

The focus of language learning within these studies encompasses a variety of instructional and learning components, with English vocabulary instruction constituting 23%, speaking 17%, writing 13%, college-level English 13%, grammar 10%, listening 10%, reading 6%, morphological awareness 3%, literature 3%, and business English 3%. These components are integral in thoroughly investigating the research questions posed. Notably, some studies have amalgamated multiple learning dimensions; for instance, Fan and Wang (2020) explored university students' EFL learning across vocabulary, reading, and speaking in China. The geographical scope of these empirical studies spans across a range of EFL/ESL learning contexts, including, but not limited to, China, Malaysia, the United Arab Emirates, Korea, the Netherlands, Saudi Arabia, Iran, Spain, Turkey, and Ecuador. Hwang et al. (2017) found that a game-based learning environment for English listening comprehension reduced anxiety and improved student behavior. This is consistent with the positive impact of Kahoot on engagement and classroom dynamics in EFL courses, as reported by Almusharraf (2023). Furthermore, the use of digital game mechanics, as studied by Lam et al. (2018), has been shown to enhance argumentative writing quality among secondary students. These findings collectively suggest that game-based learning can have a positive impact on student behavior, anxiety, and engagement in EFL classrooms and gamification is a strategy or used within various teaching methodologies in EFL/ESL classes at different both tertiary and secondary levels. Table 3 summaries the distinctive research findings regarding various methodologies of gaming tools deployed in different academic settings in different cities.

## 4.2 Educational implications of gamification in EFL/ESL

As depicted in Table 2, the preponderance of the empirical investigations under review have conveyed that both learners and educators maintain favorable views on the integration of gamification within EFL/ESL instruction. The consensus is that gamified educational frameworks have unambiguously augmented student engagement and motivation in the English learning process (Liu and Chu, 2010; Hwang et al., 2017; Ge, 2018; Homer et al., 2018; Hung,



2018; Sun and Hsieh, 2018; Ho, 2020; Zou, 2020; Alawadhi and Abu-Ayyash, 2021; Kaban and Karadeniz, 2021; Chen, 2022; Qiao et al., 2022; Almusharraf, 2023) and stimulated students' interest and engagement in English learning (Hung, 2018; Kingsley and Grabner-Hagen, 2018; Sun and Hsieh, 2018; Ho, 2020; Zou, 2020; Alawadhi and Abu-Ayyash, 2021; Wang et al., 2021). Previous studies have highlighted gamification's role in cultivating an authentic context for language acquisition (Wu et al., 2014; Mei and Yang, 2019) and in diminishing the anxiety associated with the English language learning process (Hwang et al., 2017; Hung, 2018). Furthermore, gamified approaches have been shown to contribute to enhancements in English language skill proficiency and overall linguistic capability (Sandberg et al., 2014; Hung, 2017; Hwang et al., 2017; Sevilla-Pavón and Haba-Osca, 2017; Lam et al., 2018; Zou, 2020; Hong et al., 2022). Investigations have also evidenced the effectiveness of gamification in promoting self-directed learning habits and supporting the

development of learner autonomy (Sandberg et al., 2014; Rueckert et al., 2020), as well as in enhancing students' retention of knowledge (Ge, 2018; Chen et al., 2019).

Hwang et al. (2017) conducted a study to investigate the nuanced impact that game-based learning environments have on learners' behaviors and levels of anxiety related to the English language. The research entailed the creation of a problem-based game specifically tailored for English listening comprehension, which was then utilized by 77 ninth-grade students. The study employed a quasi-experimental design to assess changes in the participants' levels of English anxiety, their motivation to learn, and their actual learning achievements. The students were divided into two groups: the experimental group, which consisted of 39 students, engaged with the problem-based English listening game, while the control group, comprising 38 students, received traditional instruction methods. Through the analysis of pre-test and post-test scores, as well as

TABLE 2 Quantitative description of the reviewed empirical data extraction table.

Authors	Publication source	Learning environment	Educational level	Methodology	Data collection method	Experimental	Gamification elements	Learning outcomes	Content language learning	Research location
<a href="#">Ebadi et al. (2021)</a>	Interactive Learning Environments	Kahoot	Higher education	Qualitative	Open-ended questionnaires, semi-structured interviews	Yes		Disadvantages of Kahoot	Grammar	Iran
<a href="#">Lam et al. (2018)</a>	Language Learning & Technology	Edmodo	Secondary school	Qualitative	Pre- and post-test written essays, students' online Edmodo postings, interview	Yes	Points-based system, leaderboard, feedback, role-playing	Improvement in writing performance, blended learning approach	Writing	China
<a href="#">Hong et al. (2022)</a>	Computer Assisted Language Learning	TipOn	Secondary school	Quantitative	Questionnaires, pre- and post-test	Yes	Gamified questions	Positive learning performance, positive attitude toward gamification	Grammar	China
<a href="#">Alawadhi and Abu-Ayyash (2021)</a>	Education and Information Technologies	Kahoot	Higher education	Mixed method	Semi-structured interview, survey	Yes	Quiz	Positive attitude towards Kahoot, increased motivation, improved classroom engagement, and enhanced learning experience	Vocabulary, grammar items	UAE
<a href="#">Hung (2017)</a>	Interactive Learning Environments	Kahoot	Higher education	Quasi-experimental	Summative assessment, a perceptive survey, and student interview		Quiz, points, time limit, leaderboard, nickname, sound effects	Positive student learning performance, perceptions, and preferences		China

*(Continued)*



TABLE 2 (Continued)

Authors	Publication source	Learning environment	Educational level	Methodology	Data collection method	Experimental	Gamification elements	Learning outcomes	Content language learning	Research location
Ho (2020)	Innovation in Language Learning and Teaching	A game named “Draw Anything”	Higher education	Mixed method	Questionnaires, interviews, and a writing test	Yes	Digital drawing	Enhancing students’ behavioral, cognitive, and motivational engagement	Narrative writing	China
Qiao et al. (2022)	British Journal of Educational Technology	Moodle	Higher education	Mixed method	Pre- and post-tests, semi-structured interview	Yes	A point-based reward framework, leaderboard, progress bar, badges, and a gold trophy cup	Students’ cognitive and motivational outcomes	Morphological awareness	China
Homer et al. (2018)	Educational Technology & Society	ClassDojo	Elementary school	Mixed method	Pre-and post-test, teacher observation, student survey, teacher reflection	Yes	Digital badges and points, avatar	Oral score, motivation and behavior	Speaking	China
Ge (2018)	Computers & Education	Rain Classroom	Higher education	Quantitative	Pre-, post-, and delayed post-test, questionnaire	Yes	Quiz, points, time limit, immediate feedback	Better knowledge retention, stimulating learning motivation	College English	China
Kaban and Karadeniz (2021)	SAGE Open	Raz-Kids	Elementary school	Quantitative	Pre- and post-test, motivation questionnaire	Yes	Level system, timer, quizzes	Reading motivation	Reading	Turkey
Dindar et al. (2021)	British Journal of Educational Technology	Baicizhan, Wechat	Higher education	Quantitative	Questionnaire, test	Yes	Points, leaderboard, badge, raffle, gift card	Differences and similarities between gamified cooperation and competition condition	Vocabulary	China
Fan and Wang (2020)	Behaviour & Information Technology	Shanbay Word, Shanbay Reading, Shanby Colloquial Language	Higher education	Quantitative	Questionnaires	No	Role-play, badge, progress bar, words memorising player killing	Gamified interaction, users’ learning experience and learning style	Vocabulary, reading, speaking	China

(Continued)

TABLE 2 (Continued)

Authors	Publication source	Learning environment	Educational level	Methodology	Data collection method	Experimental	Gamification elements	Learning outcomes	Content language learning	Research location
Chen et al. (2019)	ReCALL	PHONE Words	Higher education	Mixed method	Questionnaire, pre-, post- and delayed post-test, log files, interview	Yes	Badges, quiz, sticker, word list	Vocabulary acquisition and retention	Vocabulary	China
Wang et al. (2021)	Sustainability	XploreRAFE +	Higher education	Qualitative	Interview, observation, students' essays, video recordings	Yes	Leader board, timer, bonus points	Piquing curiosity, optimal learning experience, and experiencing meaningfulness	English writing	China
Sevilla-Pavón and Haba-Osca (2017)	Iberica		Higher education	mixed method	Questionnaires	Yes	Points, performance graphs, quests, avatars, a reward system	Improving students' linguistic, digital and intercultural ability and motivation	Business English	Spain
Chen (2022)	Education and Information Technologies	Kahoot, Padlet	Higher education	Qualitative	Questionnaire	Yes	Quiz, QR code, feedback	Students' positive perceptions toward gamification, motivation, engagement	College English	China
Luo et al. (2021)	Education and Information Technologies		Secondary school	Mixed method	A survey with open questions, a semi-structured interview			Teachers' negative attitudes and limited skills toward gamification		China
Lee and Park (2020)	Computer Assisted Language Learning	A location-based AR app	Higher education	Mixed method	Open-ended questions, reflection papers, students' scenes	Yes	Progress bar, scores, leaving comments	Supporting students' affective, cognitive, and social domains	College English	Korea
Sandberg et al. (2014)	Computers & Education	Self-designed application	Elementary school	Quasi-experimental	Pre- and post-test	Yes	Rewards, storyline, control	Positive learning outcomes, more efficient learning	Vocabulary	Netherlands

(Continued)

TABLE 2 (Continued)

Authors	Publication source	Learning environment	Educational level	Methodology	Data collection method	Experimental	Gamification elements	Learning outcomes	Content language learning	Research location
Kingsley and Grabner-Hagen (2018)	The Reading Teacher		Secondary school	Qualitative	Observation	No	Narration, badge, achievement, rewards, quest, progression, feedback	Engagement, multiple pathways for achievement, autonomy	Vocabulary	
Rueckert et al. (2020)	Foreign Language Annals	<a href="https://www.rezzly.com">rezzly.com</a>	Higher education	Mixed method	Questionnaire, written reflections, teacher journal	Yes	Badges, points, progress bar	Brain-friendly format, learning autonomy	College English	Ecuador
Mei and Yang (2019)	Sustainability	A mobile AR-based and environment-themed scavenger	Higher education	Mixed method	Questionnaire, observation, interview	Yes	Geolocation-based games, tours, and interactive stories	Improving their environmental knowledge and environmental awareness	Writing	China
Krishnan et al. (2021)	Sustainability	Classcraft	Higher education	Design and Development Research	Questionnaire	Yes	Level system, avatar, reward, storyboard, quest, points, assessment	Enhancing teachers' professional competency		Malaysia
Sun and Hsieh (2018)	Journal of Educational Technology & Society	Gamified interactive response system	Secondary school	Mixed method	Questionnaire, pre- and post-test	Yes	Polling activities, challenge, clickers	Improving the students' levels of intrinsic motivation, overall engagement, emotional engagement, and focused attention	English	China
Almusharraf (2023)	Interactive Learning Environments	Kahoot	Higher education	Mixed method	Survey	Yes	Challenge, competition, teamwork, review quiz, rewards, grades	Motivation, improving classroom dynamics	Literature	Saudi Arabia

(Continued)

TABLE 2 (Continued)

Authors	Publication source	Learning environment	Educational level	Methodology	Data collection method	Experimental	Gamification elements	Learning outcomes	Content language learning	Research location
Zou (2020)	Journal of Computers in Education	Edpuzzle, Kahoot	Elementary school	Mixed method	Observations, researcher journals, students' self-reflection, interviews	Yes	Real-time feedback, videos, competitions, collaborations, discussions	Motivation, engagement, developing learning skills and confidence, improving performance	Vocabulary, expressions	China
Hung (2018)	ELT Journal	Self-designed gamification webpage	Higher education	Mixed method	Questionnaire, interview	Yes	Videos, feedback, collaborative learning, tokens, dice, QR-code cards	Motivation, engagement, reducing anxiety	Speaking and listening	China
Hwang et al. (2017)	Computers & Education	Self-designed game	Secondary school	Quasi-experimental	Pre-and posttests, questionnaire	Yes	Battle, trigger points, coding result	Learning motivation, learning achievement, anxiety	Listening	China
Wu et al. (2014)	Educational Technology Research and Development	Digital learning playground	Secondary school	Mixed method	Test, interview, questionnaire	Yes	Situational plots, illustrated cards, feedback, group collaboration	Learning performance, communication ability, authentic language use	Speaking	China
Liu and Chu (2010)	Computers & Education	Handheld English Language Learning Organization	Secondary school	Mixed method	Questionnaire, interview	Yes	Songs, listening materials, conversational materials, virtual and real reward	Motivation, incorporating ubiquitous games into the English learning process	Listening and speaking	China

TABLE 3 Summary of researches conducted regarding various gaming platforms.

Researcher(s)	Aim of study and research questions	Methodology	Targeted students	Research results
Hwang et al. (2017)	Investigate impacts of game-based learning on learners' behaviors and levels of anxiety Q2. What are the factors affecting the relationship between gamification and EFL outcomes? Q3. What gamification elements should be used in designing gamified learning activities in EFL/ESL classes?	A problem-based game tailored for English listening comprehension	77 ninth-grade students	Positive effect on student learning, motivation and achievement in learning English Students with higher levels of English anxiety improved learning achievement more than students with lower levels of anxiety
Almusharraf (2023)	Effectiveness of Kahoot in bolstering engagement and invigorating classroom dynamics during reviews of writing structures, terms, and concepts within online English literature courses Q1. How is gamification a strategy or an approach used within various teaching methodologies in EFL/ESL classes? Q2. What are the factors affecting the relationship between gamification and EFL outcomes? Q3. What gamification elements should be used in designing gamified learning activities in EFL/ESL classes?	Half of sessions integrated Kahoot to revisit and assess previously covered material, compared to the other half of the course using traditional format	EFL undergraduate students in Saudi Arabia	Higher student engagement levels facilitated by Kahoot and positive attitudes towards a game-based environment Kahoot's positive impacts disregarded varying ages, genders, and social backgrounds of learners
Lam et al. (2018)	Examine impacts of digital game mechanics on the quality of argumentative writing Q1. How is gamification a strategy or an approach used within various teaching methodologies in EFL/ESL classes? Q3. What gamification elements should be used in designing gamified learning activities in EFL/ESL classes?	First experimental group engaged in a blend of gamified and traditional learning methods, incorporating a points system and a leaderboard, which was a display of high-score chart; the second experimental group participated in blended learning without gamification; and the control group adhered to a conventional direct-instruction approach led by teachers	Secondary students in Hong Kong	Frequency of on-topic contributions in an online platform, Edmodo, was enhanced Gamification may boost engagement but not necessarily better argument writing skills

questionnaire responses regarding learning motivation and English language anxiety, the study discovered that the English listening game had a positive effect on student learning. Specifically, it was observed that the game-based learning approach significantly elevated the students' motivation and achievement in learning English when contrasted with the outcomes of the conventional instructional approach. It was also found that "students with higher levels of English anxiety improved their learning achievement more

than did the students with lower levels of anxiety" (Hwang et al., 2017, p. 39).

The research conducted by Almusharraf (2023) examined the impressions of undergraduate students regarding the effectiveness of Kahoot in bolstering engagement and invigorating classroom dynamics during reviews of writing structures, terms, and concepts within online English literature courses for EFL students in Saudi Arabia. The study spanned 16 literature class sessions over the course of a semester, with

half of these sessions following a traditional format, and the other half integrating Kahoot to revisit and assess previously covered material. The findings from Almusharraf's study indicated that student engagement levels were notably higher during the sessions that incorporated game-based learning facilitated by Kahoot. Additionally, the results highlighted students expressed positive attitudes toward learning within a game-based environment. The utilization of Kahoot in the classroom was associated with enhancing student motivation and enriching the overall classroom dynamics. As shown from Almusharraf's experiment, an important aspect of the study's outcome was that the benefits of the game-based approach were universally experienced across the student body. The research found no significant differences in the perceptions of Kahoot's impact among students of varying ages, genders, and social backgrounds, suggesting that game-based learning tools like Kahoot have a wide-reaching potential to positively influence EFL learning experiences regardless of demographic factors.

While gamification in EFL/ESL education has received positive feedback from both students and some educators, there are nuances and contradictions in teacher perspectives as evident in the literature (Krishnan et al., 2021; Luo et al., 2021). Krishnan et al. (2021) argue in favor of gamification, stating that it can be an asset for EFL teachers, enhancing their professional competency. They note that teachers recognize the advantages of increased student engagement through gamified learning and are thus motivated to become proficient in digital and gaming tools as part of course preparation. Teachers understand that gamification elements like leaderboards, progress bars, badges, and points can stimulate active student participation and motivation. Consequently, they adapt their teaching roles to facilitate the tracking of student progress and foster a competitive yet collaborative learning environment. On the other hand, Luo et al. (2021) present a more skeptical view from teachers regarding the adoption of gamification, particularly in the context of secondary schools in China. These EFL teachers expressed concerns about potential loss of control in the classroom and were wary of the implications of gamification on students' exam scores. The high-stakes nature of the College Entrance Examination in China places a premium on traditional teaching methods that are perceived to directly contribute to exam performance. As a result, these teachers question the ability of gamification to provide substantive learning opportunities and fear it may dilute pedagogical goals and teaching efficiency. Technical limitations and the desire for aesthetically pleasing, easy-to-use tools also contribute to their reluctance. The contrast in views between Krishnan et al. (2021) and Luo et al. (2021) can be attributed to differences in educational contexts and priorities. In Krishnan et al.'s study, the participants seemingly did not face the pressure of high-stakes testing, whereas Luo et al.'s participants were preparing for the highly competitive College Entrance Examination, where the stakes for English proficiency are considerably higher. This disparity highlights the complex balance educators must strike between innovative teaching methods and the demands of traditional assessment models.

### 4.3 Gamification components employed in the reviewed studies

The synthesis of studies under review identifies a spectrum of gamification components incorporated within the educational frameworks. Predominant among these are elements such as point

systems, digital credentials, evaluative commentary, structured interrogatives, and visual indicators of progression. Subsequent in frequency of application are hierarchical rankings, temporal constraints, narrative constructs, and multimedia enhancements inclusive of auditory and visual stimuli. Less commonly integrated, yet noteworthy components comprise virtual personas, cooperative interactions, competitive engagements, and scenario-based challenges, among others. In these gamified environments for English as a Foreign Language (EFL) or English as a Second Language (ESL) instruction, the paradigm typically revolves around an accumulative points-based or stratified levels system, which encompasses leaderboards, progress indicators, virtual representations, credentials, and responsive feedback mechanisms. Such environments are designed to incorporate elements of challenge or competition, with the provision of rewards predicated upon the successful demonstration of knowledge by participants.

Table 4 offers an enumeration of the gamification constituents as cited in the scrutinized literature. The table presents a hierarchy of these elements based on the frequency of their reported usage. The predominant gamification elements, as indicated by their higher frequencies, are point systems (N=11) and digital badges (N=8). These are closely followed by evaluative feedback and structured interrogatives, each with a frequency of 7 occurrences. Visual progression indicators are cited in 5 of the reviewed publications. Additional elements such as hierarchical rankings and temporal constraints, along with narrative and storytelling techniques, are documented with a frequency of 4. Virtual personas and cooperative engagement strategies are noted in 3 instances, in parity with multimedia components incorporating auditory and visual effects. Competitive elements are also reported with a frequency of 4. Less frequently observed in the studies are scenario-based challenges and role-playing exercises, each with 2 instances of application within the gamified EFL/ESL instructional contexts. This data illustrates a diverse yet consistent application of gamification techniques, with a clear preference for point accumulation and badge systems to engage learners in the reviewed educational settings. All these demonstrate the most common gamification element to be employed is "points" (N=11), followed by digital badges (N=8), feedback and quiz (N=7). Otherwise, the least popular gamification elements include "challenges," "competition" and "roleplaying" (N=2). The findings could have implied that with the support, easy access and availability from different gamified platforms in the digital market, it is easier for

TABLE 4 The gamification elements employed in the publications reviewed.

Gamification elements	Frequency (N)	Gamification elements	Frequency (N)
Points	11	Digital badges	8
Feedback	7	Quiz	7
Progress bar	5	Leaderboard	4
Time limit	4	Narrative & stories	4
Avatar	3	Videos & sound effects	4
Collaboration	3	Competition	2
Challenges	2	Roleplaying	2

the users to deploy those user-friendly elements in the education settings. On the other hand, “challenges,” “competition” and “roleplaying” could require more skill-set of the users with more time constraints and complicated methodology designs.

Lam et al. (2018) conducted a study to examine the impact of digital game mechanics on the quality of argumentative writing among secondary students in Hong Kong over a seven-week period. The study divided participants into three distinct groups: the first experimental group engaged in a blend of gamified and traditional learning methods; the second experimental group participated in blended learning without gamification; and the control group adhered to a conventional direct-instruction approach led by teachers. The gamification strategy implemented by the first experimental group incorporated a points system, rewarding students with points for contributing relevant and correct ideas pertaining to the discussion topics. Additionally, this group employed a leaderboard, which functioned as a dynamic high-score chart displaying student rankings based on their accumulated points and was updated biweekly. Upon analyzing the students’ written essays—both before and after the experiment—and their contributions to the online platform Edmodo, the findings suggested that the inclusion of gamification elements could enhance the frequency of on-topic contributions in an online environment. However, when comparing the argumentative writing skills of the two experimental groups, the results indicated no significant disparity in their improvement, implying that while gamification may boost engagement, it does not necessarily translate to better argument writing skills.

The findings concerning the application of gamification in the teaching of EFL and ESL elucidate a trio of pertinent insights. Initially, the investigation has determined that gamified learning environments substantially aid EFL/ESL students in the enhancement of their English language competencies, encompassing listening, speaking, reading, and writing skills. In this digital epoch, where traditional instructional methods might not suffice to captivate learners if the content lacks relevance, it becomes imperative for educational institutions to adapt by providing dynamic learning resources. The study underscores that gamification not only augments students’ English language capabilities but also cultivates a propensity for self-directed learning. This is achieved as gamification intrinsically and extrinsically motivates students to engage in learning both within the confines of the classroom and in external settings, by infusing the academic milieu with an amalgam of collaborative and competitive elements that render the experience both entertaining and interactive. Intrinsic motivation occurs when students are driven to learn independently by themselves due to internal drive and desire to be knowledgeable in the specific area of their interests and passion. On the other hand, extrinsic motivation takes place when there are external motivating forces such as gamified learning settings in the classrooms. In fact, both intrinsic and extrinsic motivation can take place at the same time in academic and non-academic settings. Moreover, the research validates the notion that gamification is a powerful instrument in the educational toolkit, corroborating previous scholarly works that advocate for its utility. As identified by Kaban and Karadeniz (2021), gamification transcends its role as a mere conduit for teaching and study; it also emerges as an effective tool for content review and learner assessment—a sentiment echoed by Almusharraf (2023) and Chen (2022). Such a multifaceted approach to education through gamification is indicative of its transformative impact on

pedagogical strategies and its potential to enrich the educational landscape, particularly within the context of EFL/ESL instruction.

Furthermore, the implementation of gamification has been shown to exert a favorable influence on learners’ attitudes and emotional states, including heightened interest, motivation, reduced anxiety, and an enhanced sense of accomplishment (Stoyanova et al., 2018). For instance, it is found that gamification in mathematics classes stimulated interest and promoted active learning, particularly among students with low intrinsic motivation. The amplification of student motivation represents one of the most consistently reported positive educational outcomes in the reviewed literature. An illustrative example of this is Chen’s (2022) research, which examined EFL learners’ perceptions regarding lessons that incorporated the evaluative features of Kahoot and the collaborative potential of Padlet. Similarly, Aziz (2022) also found that implementing Kahoot and Padlet in international student classrooms improved learning processes, encouraged critical thinking, and fostered an inclusive environment. DeWitt et al. (2015) utilized Padlet for interactive online debates, demonstrating its effectiveness in constructing new knowledge and facilitating collaborative learning. The outcomes of this investigation revealed that students acknowledged the merits of the gamified learning process, deeming it a novel, engaging, and game-like approach that contributed to their English language studies. For instance, by collaborating Padlet with Kahoot, student engagement could be greatly enhanced with an interactive classroom setting, given the learners are driven to be actively involved in the class activities and tasks by visualizing displaying their answers and choices in the questions set by the instructors in the prompts. A collaborative yet competitive learning environment could be created through peer conferencing. As a result, these visually powerful and interesting digital tools serve as measurement of students’ learning progress, effectiveness and quantified outcomes. This gamification methodology was found to stimulate their interest and engagement in learning English, bolstering their participation and fervor. Such strategies are instrumental in promoting learner motivation, which is a critical factor in driving engagement and is essential for the success of EFL education. The link between gamified learning environments and enhanced motivational levels among learners is therefore an integral aspect of the broader discussion on effective EFL instructional strategies.

Lastly, gamification has been recognized as an effective means of creating a more authentic language learning environment and fostering comprehensive literacy among students (Al-Dosakee and Ozdamli, 2021). Addressing the concern that Taiwanese EFL learners often display limited real-world communication skills, Wu et al. (2014) explored the impact of digital board games specifically tailored for EFL learning in Taiwan. The study aimed to determine whether such games could enhance students’ communicative abilities and intrinsic motivation by providing contextually relevant content and appropriate linguistic practice. The digital board games employed in Wu et al.’s study included various components such as a game board, illustrated cards, and game pieces, all designed to simulate real-life scenarios and demonstrate authentic language use, either through textual representation or game mechanics. The use of graphics, rules, thematic narratives, and tangible game pieces contributed to an engaging and immersive gaming experience. The research was conducted with 96 high school students in Taiwan, divided into three groups: one received standard instruction, another engaged with

digital board game-based language learning, and the third group used traditional board games for language learning. By evaluating the learning outcomes through a speaking test, it was revealed that the students who participated in the digital board game learning group displayed superior performance and enhanced communicative skills compared to the other groups. The study highlighted the digital gaming environment's role in encouraging students to use English more actively and confidently. Consequently, the researchers advocated for the integration of game-based learning into school curricula, emphasizing its value in providing a genuine language learning context and advancing actual communication abilities. In concert with these findings, [Chen \(2022, p. 21\)](#) also affirmed the efficacy of gamification in creating a more pleasurable and engaging learning atmosphere. The research by Chen underscored the ability of gamified learning to “create a good atmosphere, engagement, and collaborative opportunities to develop communicative abilities,” highlighting the multifaceted benefits of gamification, which include not only academic achievement but also the enhancement of language learners' communicative competence.

## 5 Discussion

The recent research on the application of gamification in EFL/ESL education contributes to the growing body of literature by emphasizing its expansive use across various aspects of language learning. This contrasts with some earlier studies, such as those by [Govender and Arnedo-Moreno \(2021\)](#) and [Phuong \(2020\)](#), which posited that online gamification was predominantly utilized for vocabulary acquisition and was infrequently applied to teaching broader content knowledge and grammatical structures. The current findings broaden this perspective, illustrating that gamification is not limited to vocabulary enhancement but extends to a comprehensive array of language domains including grammar, listening, speaking, reading, writing, pronunciation, college-level English, and even literature studies. This diversification of gamification's applicability demonstrates its versatility and underscores its potential for wide-ranging implementation in actual EFL/ESL classroom settings. Moreover, the review uncovers that while gamification has been adopted across various educational levels from primary education to tertiary education, it appears to have found particular resonance at the higher education level. This trend signifies not only the adaptability of gamification strategies to suit different learning stages but also its escalating popularity within the ESL/EFL sector. The broad embrace of gamification reflects a recognition of its effectiveness in enhancing language learning experiences and outcomes, suggesting that it is becoming a mainstay in language education pedagogy.

The versatility of gamification is further evidenced by its successful integration with various pedagogical models, such as the flipped classroom and ubiquitous learning environments. In the flipped classroom model, as described by researchers like [Hung \(2018\)](#) and [Zou \(2020\)](#), students are encouraged to engage in pre-class self-learning to grasp foundational concepts. This preparatory work allows in-class time to be devoted to more interactive and gamified activities that foster higher-order thinking skills, such as application, analysis, and evaluation of the learned material. The fusion of gamification with ubiquitous learning environments, as explored by [Liu and Chu \(2010\)](#), takes advantage of digital technologies to enable learning experiences

that transcend the traditional classroom's temporal and spatial limitations. For example, students can practice English listening and speaking skills using their cellphones during their personal time due to the popularity of mobile applications and online learning channels like Youtubes. Browsing the internet and different websites has almost become part of the daily routine among learners in the new technological era. Playing games using cellphones could be a gamified channel for students to equip English language better, providing online games stimulate virtual communicating settings with other players at all times, forming a self-initiated learning community. In some of these gamified learning channels, learners can participate in outdoor treasure hunt games or story relay races that incorporate authentic language use during scheduled class sessions. These activities not only reinforce language skills but also engage learners in a dynamic and context-rich environment. The confluence of gamified learning with these innovative educational frameworks offers a multifaceted approach to language education. By combining the intrinsic motivational pull of games with the flipped classroom's emphasis on active learning, or the anytime-anywhere approach of ubiquitous learning, educators can create an effective learning process that is both enjoyable and efficacious. This holistic approach not only aligns with contemporary educational needs but also promises to enhance students' language proficiency and overall learning outcomes, making it an appealing option for educators and learners alike.

The study by [Chan and Lo \(2022\)](#) provides strong empirical support for the positive reception of gamification in higher education settings. With an overwhelming majority (87%) of university and college students in Chan and Lo's study, which was conducted among undergraduate students in various universities and colleges in Hong Kong in 2022, expressing favorable views on the effectiveness of gamified learning experiences. The respondents were from different disciplines in different majors, but they were all ESL learners across different institutions. The data underscores a clear enthusiasm for this educational approach. The high percentage of students (94.2%) who consider game-based learning a significant motivator for classroom participation is particularly telling of gamification's potential to enhance student engagement. Kahoot, as noted in the study, stands out as a highly effective digital tool that fosters creativity and innovation within the classroom. It does so by enabling students to actively participate in the learning process, not only through engagement with the content but also by creating their own quizzes. This kind of interactive platform allows students to both learn from the instructor and their peers, and to contribute to the learning process by designing their own test items, thus stimulating their imagination and creative thinking. Moreover, recognition and positive perception towards among university language teachers in Hong Kong regarding the motivational and participatory benefits of tasks that involve appealing visuals and audio further substantiates the claim that gamification can greatly enhance the learning environment. The use of such sensory stimuli, integrated into game-based tasks, appears to be an effective strategy in capturing students' attention and fostering a more dynamic and interactive classroom atmosphere. [Chan and Lo's \(2022\)](#) findings align with broader educational research that suggests gamification, when thoughtfully applied, can lead to increased student motivation, improved engagement, and potentially better learning outcomes. The study's insights are particularly valuable for educators looking to implement gamified elements into their curricula to harness the motivational benefits and cater to the learning preferences of the current generation of students.



However, there is a need to explore the intersection of gamification with variables such as gender and social class. These factors can profoundly influence educational access, engagement, and outcomes, and their interaction with gamified learning experiences remains underexplored. Chan and Lo (2022) indicate that factors beyond educational background and proficiency in English language acquisition, such as gender, significantly influence learners' competencies and attitudes toward using games in classroom settings. The research also reveals that variables including demographics and gender-related differences have a considerable impact on the mastery of digital technology, the practicality of implementing gamification, and consequently, the effectiveness and success of gamified learning experiences. These factors also affect the dynamics of the interactive learning environment and the student-teacher rapport in both virtual and traditional classroom contexts. For instance, the study observed that preferences for competitive learning strategies are affected by gender differences, social background, and age. It was noted that boys generally show more enthusiasm for participating in game-based learning environments compared to girls, and they are more incentivized by the drive to achieve high scores and succeed in competitive aspects of games (Chan and Lo, 2022). Younger learners would need more extrinsic motivation like visuals, colours, animations and sounds for attention getting, which illustrates age group could be another variable to determine the level of technicality and importance of deployment of gamification in classrooms. Addressing these considerations can contribute to a more equitable and inclusive approach to game-based learning in the EFL context, ensuring that the benefits of gamification are accessible to a diverse range of learners.

The hesitancy among some EFL/ESL teachers to embrace gamification as a teaching tool reflects the multifaceted challenges of integrating innovative methods into existing educational frameworks. In the high-pressure environment of secondary education in China, for instance, the focus on achieving top scores in the publication examination, namely *Gaokao*, can lead to a preference for conventional, test-focused teaching strategies. Consequently, the perception persists that gamification may not directly enhance test performance, which makes educators cautious about deviating from tried-and-true pedagogies. The research by Chan and Lo (2022) presents similar concerns in the context of university education in Hong Kong where teachers there expressed that tight teaching schedules make it difficult to introduce games into the classroom. A significant number of language teachers also reported an absence of adequate training and resources to support the use of gamified learning. Moreover, some educators felt that there was a mismatch between the games available and the actual content that needed to be delivered in their courses (Chan and Lo, 2022). Beyond these concerns, the general adoption of gamification and digital tools in education is not without its hurdles. Resistance to change from established teaching methods, technical challenges associated with the need for appropriate infrastructure and support, difficulties in ensuring that gamified content aligns with educational objectives, and the complexities of assessing the impact of such methods on standardized tests all present significant obstacles. Furthermore, the success of gamification often hinges on the broader support of educational institutions, which must be willing to invest in the necessary changes to policy, allocate funding, and offer professional development for educators. While gamification offers exciting possibilities for increasing student engagement and motivation,

realizing its full potential in language learning requires a concerted effort to address these barriers. It also calls for a commitment to ongoing research to better understand how gamification can be effectively implemented across various educational settings.

The body of empirical research collectively validates the advantages of integrating gamification into EFL/ESL teaching and learning processes. Instead of isolating a single advantage, these studies often highlight a range of positive outcomes. For instance, experiments have shown that gamification can enhance student engagement and motivation, as well as alleviate anxiety in learning English listening and speaking skills, as noted by Hung (2018). Additionally, it can foster motivation and improve linguistic, digital, and intercultural competencies, according to Sevilla-Pavón and Haba-Osca (2017). The perspective that learning ought to be enjoyable, stimulating, and driven by the learners themselves aligns with the principles of gamification, as discussed by Ongoro and Mwangoka (2019). This supports the ongoing trend of gamified EFL classrooms, where educators are encouraged to clarify the objectives and methods of gamification to students and to optimize the benefits of a gamified educational environment. However, it is crucial to apply gamification thoughtfully in EFL settings to broaden the chances for students to enhance their English proficiency within the time constraints of the curriculum.

In an effort to enhance educational outcomes, gamification in English learning activities has incorporated elements such as fair rules, transparent objectives, and social interaction opportunities. This research identified points, badges, feedback, quizzes, and progress bars as the most commonly employed gamification components in EFL/ESL teaching. Points and badges assign value to tasks, provide positive reinforcement, aid in self-assessment, and bolster student participation. As such, the consistent and systematic allocation of points for student involvement is recommended as an effective reward mechanism in gamified learning contexts. The use of immediate feedback and quizzes is instrumental in helping learners recognize their performance levels and advancement. The advantage of online gamified platforms is that they allow for swift responses from teachers or peers to student submissions, enabling timely self-evaluation and potential improvement. Progress bars are particularly useful in setting clear goals and guiding learners, as demonstrated in the study by Ding et al. (2018). The progress bars in their gamified activities show individual scores, class average scores, and potential rewards. This feature enables students to track their personal achievements, compare them with the class average, and identify the effort required to obtain rewards, thereby encouraging them to strive for excellence and keep pace with high-achieving peers.

The research underscores competition as a key factor when designing gamification elements for EFL and ESL instructional environments. Leaderboards and time restrictions are pivotal in cultivating a competitive atmosphere within the gamified learning space. Leaderboards, which display participants' rankings based on their performance, not only recognize the achievements of top students but also instill a sense of competence (Ding et al., 2018). However, the introduction of competition has its pros and cons. While it may motivate students to engage with gamified tasks, meet deadlines, and aim for high leaderboard positions, it can also evoke fear and stress, depending on individual temperaments. Dindar et al. (2021) conducted a study to assess the influence of gamified competition and cooperation on Chinese students' English vocabulary

acquisition. The participants were divided into two groups: one experienced gamified competition, which “was realized through ranking learners with a leaderboard and announcing a single winner at the end,” and another experienced gamified cooperation, which “was achieved by giving a shared goal to the group members and rewarding the whole group with badges rather than rewarding specific individuals” (Ding et al., 2018, p. 153). The study found that gamified cooperation and competition had comparable effects on task effort, learning outcomes, and motivation, but gamified cooperation led to greater social relatedness. In light of these findings, it is suggested that future gamified learning activities should further explore how to boost students’ motivation and performance through gamified cooperation. Teachers are encouraged to help students create shared goals, fostering a collaborative environment where students can benefit from peer discussions and collective task completion.

The architecture of a gamified learning environment is founded on the integration of three distinct concepts: dynamics, mechanics, and components, as identified by Bicen and Kocakoyun (2018). Game dynamics include, *inter alia*, a spectrum of motivational elements such as status, rewards, opportunities for personal expression, the exhilaration of competition regulated by explicit and effectuated rules, and the quest for achievement. Game mechanics are the structural elements that drive the gameplay, including a leveling system, a narrative context that provides a backdrop for activities, challenges to overcome, achievements to unlock, leaderboards for tracking performance, and similar features (Bicen and Kocakoyun, 2018). Furthermore, game components, also known as elements, are the tangible items within the game that players interact with. These can range from self-representation tools such as avatars, to forms of feedback, points, trophies, badges, a progress bar, virtual gifts, and more (Detterding et al., 2011). The purpose of these rules and features is to captivate the participants’ interest, trigger intrinsic motivation, foster a competitive spirit, and stimulate curiosity. Through these means, gamification aims to enhance the learning experience and boost academic achievement.

## 6 Conclusions, recommendations, and limitations

To this end, a total of 30 journal articles, which are indexed in the Social Sciences Citation Index and were retrieved from the Web of Science database utilizing pertinent search terms, were thoroughly selected, reviewed, and dissected by the researchers from various analytical standpoints. This investigation offers a synthesis of the prevailing utilization of gamification in the realm of EFL/ESL pedagogy and learning. By examining 30 empirical studies, this study has discerned a widespread adoption of gamification in language classrooms. The impetus for integrating gamification into EFL/ESL instruction encompasses a spectrum of objectives: the enhancement of learners’ English linguistic proficiencies, the positive influence on students’ attitudes and emotional engagement, the establishment of authentic language learning milieus, and the nurturing of learners’ holistic competencies. With gamification progressively infusing into educational frameworks, it becomes imperative to explore its potential as a facilitative tool in EFL instruction, both within traditional classroom boundaries and in digitally enhanced learning spaces. As educational methodologies shift towards more immersive paradigms,

the developmental benefits of innovative educational strategies are celebrated for their potential to foster engagement and learning through hands-on practice (Lo, 2024a). This aligns with the broader trend of integrating creative and innovative approaches into pedagogy, which emphasizes creativity, innovation, and the iterative process of learning (Lo, 2024b).

The conclusions drawn from this review emphasize that the structural development of a gamified educational setting ought to be guided by three core principles: dynamics, which drive the motivational aspects; mechanics, which define the underlying framework and rules of engagement; and components, which represent the tangible elements and tools used by participants within the system. Those responsible for designing gamification-based learning experiences are tasked with crafting a harmonious integration of gaming elements and educational content, taking into account the learners’ educational level, cognitive abilities, and capacities. This tailored approach ensures that the gamified learning not only captivates and motivates but also aligns with the educational objectives and learner prerequisites.

To address the first research question, the study has proved predominately that gamification is an effective strategy within various teaching methodologies in EFL/ESL classes, which could be in the form of different digital channels and methodology designs. Considering the second research question, the factors affecting the relationship between gamification and EFL outcomes include motivational forces, educational and social backgrounds, gender, digital literacy, language competency, expected learning outcomes, perceptions and psychological behaviors, cognitive awareness and institutional support and resources. In addition, various investigated and proposed gaming elements have been examined in different academic settings in different EFL/ESL classes in order to delve into the third research questions. All these review acknowledge the increasingly documented advantages of gamification for EFL pedagogy and endorses further exploration and application of game-based educational methods to improve EFL/ESL students’ mastery of the English language. The study adds to the growing body of literature on the efficacy and effects of gamification in EFL/ESL education and aims to be a valuable reference for both scholars and practitioners spearheading the development and early adoption of gamified educational interventions. Moreover, to enhance the effectiveness of gamification and other digital methodologies, schools should provide technical tools, high-speed internet, modern high-performance laptops, and access to online services, alongside arranging workshops on ICT education and reducing administrative burdens on teachers (Lo and To, 2023a). Additionally, integrating ICT-related solutions into CPD to address systemic gaps and skill-based deficiencies is crucial, including considerations for student support, socio-emotional challenges, and innovative teaching strategies (Lo and To, 2023b).

The insights offered in this review are designed to inform the creation of cutting-edge gamified learning resources, to elevate the EFL educational process, and to augment the language proficiency of EFL students. It highlights the critical role of deliberate gamified instructional design and promotes its careful incorporation as a means to enhance educational outcomes in language acquisition. Tsang and Davis (2024) found that entertainment-oriented activities such as playing games and listening to songs were the most commonly enjoyed events in the EFL classroom while activities that are simple, easy, free, relaxed, and different from the usual were also deemed

enjoyable by young learners. These findings underscore the importance of maximizing learners' positive emotions, which can significantly contribute to their well-being and the effectiveness of mastering a foreign language. Educators, curriculum designers, and researchers may consider these preferences when developing gamified instructional materials to create more engaging and emotionally supportive learning environments.

The landscape of gamification within EFL instruction, as delineated by this review, presents several avenues for future scholarly inquiry. The majority of the extant literature scrutinizes gamification predominantly through the lens of student engagement and outcomes. There exists a substantial gap in understanding the perspectives of educators and institutions regarding the deployment of game-based learning methodologies. Future research endeavors should aim to provide a more holistic view by examining how teachers and educational establishments perceive, adopt, and adapt to the integration of gamification within their curricula and teaching practices. Similar to how Lo (2023) found that ESL teachers in Hong Kong identified both benefits and challenges in digital learning and online education, it is crucial to explore how educators view the integration of gamification, considering factors like technology proficiency, workload, and the potential for professional development.

Moreover, cultural differences play a significant role in how gamification is perceived and implemented in educational settings. Lo et al. (2024) highlighted cross-cultural differences in student motivation and independent learning skills between Hong Kong and the United Kingdom, suggesting that cultural contexts can influence educational practices and outcomes. Factors such as cultural values relating to education, educational practices, and societal expectations for educational outcomes might also shape student attitudes towards independent learning and the strategies they pursue, as some strategies may be viewed as more valuable or effective than others according to socio-historical tradition (Lo, 2024c). This could similarly affect how gamification is adopted and adapted in EFL instruction. As Wu (2024) pointed out, the complexity of language learner psychology across different cultural landscapes indicates that motivational strategies need to be culturally sensitive to be most effective. Understanding these cultural nuances is essential for developing effective gamification strategies that are responsive to the diverse needs of learners in different educational contexts.

Furthermore, the current distribution of research, with a heavier focus on higher education settings (60%), followed by secondary schools (27%), and to a lesser extent, elementary schools (13%), indicates an imbalance that warrants attention. Subsequent studies are encouraged to delve into the effects and methodologies of gamifying the learning experience at the foundational levels of education, specifically in elementary schools and kindergartens. Exploring these earlier educational stages could yield insights into the foundational impacts of gamification on language acquisition and cognitive development.

This study, while comprehensive in its approach to investigating the use of gamification in EFL/ESL instruction through SSCI-indexed journal articles from the Web of Science, acknowledges several limitations that could impact the breadth and depth of its findings. Firstly, by focusing solely on SSCI-indexed journal publications, the study potentially overlooks a wealth of relevant information that could be found in other scholarly or industry

publications not indexed by this database. Consequently, this selection criterion may lead to an incomplete representation of the current state of gamification in EFL/ESL education. Secondly, the decision to deliberately omit conference papers, book chapters, unpublished theses, literature reviews, and secondary data analyses from the scope of this literature review was a strategic measure implemented to ensure that the review remained focused and manageable. However, this exclusion inherently limits the study's comprehensiveness, as it may omit significant contributions to the field that reside within these types of publications. High-quality and pertinent empirical studies that fall outside the inclusion criteria might have provided additional insights and thus, their absence is recognized as a limitation. Lastly, the study's reliance on previously published materials means that it is subjected to the methodological rigors or shortcomings of those sources. If the original research contained biases or methodological flaws, these would inadvertently carry over and potentially affect the conclusions drawn in this review. Future research may aim to mitigate these limitations by expanding the range of sources considered and by critically evaluating the methodologies of the included studies to provide a more robust and comprehensive analysis.

## Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

## Author contributions

SC: Writing – original draft, Writing – review & editing. NL: Writing – original draft, Writing – review & editing.

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The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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## References

- Aguiar-Castillo, L., Clavijo-Rodríguez, A., Hernández-López, L., De Saa-Pérez, P., and Pérez-Jiménez, R. (2021). Gamification and deep learning approaches in higher education. *J. Hosp. Leis. Sport Tour. Educ.* 29:100290. doi: 10.1016/j.jhlste.2020.100290
- Alawadhi, A., and Abu-Ayyash, E. A. S. (2021). Students' perceptions of Kahoot!: an exploratory mixed-method study in EFL undergraduate classrooms in the UAE. *Educ. Inf. Technol.* 26, 3629–3658. doi: 10.1007/s10639-020-10425-8
- Al-Dosakee, K., and Ozdamli, F. (2021). Gamification in teaching and learning languages: a systematic literature review. *Rev. Romaneasca Pentr. Educatie Multidimensionala* 13, 559–577. doi: 10.18662/rrem/13.2/436
- Almusharraf, N. (2023). Incorporation of a game-based approach into the EFL online classrooms: students' perceptions. *Interact. Learn. Environ.* 31, 4440–4453. doi: 10.1080/10494820.2021.1969953
- Aziz, S. A. (2022). Enhancing learning participation of international students in the classroom using social media: the case of international students in the UK University. *Int. J. Educ.* 15, 101–108. doi: 10.17509/ije.v15i2.28907
- Barcomb, M., and Cardoso, W. (2020). Rock or lock? Gamifying an online course management system for pronunciation instruction: focus on English/r/and/l/. *CALICO J.* 37, 127–147. doi: 10.1558/cj.36996
- Bicen, H., and Kocakoyun, S. (2018). Perceptions of students for gamification approach: Kahoot as a case study. *Int. J. Emerg. Technol. Learn.* 13, 72–93. doi: 10.3991/ijet.v13i02.7467
- Bolat, Y. I., and Taş, N. (2023). A meta-analysis on the effect of gamified-assessment tools' on academic achievement in formal educational settings. *Educ. Inf. Technol.* 28, 5011–5039. doi: 10.1007/s10639-022-11411-y
- Calvo-Ferrer, J. R. (2017). Educational games as stand-alone learning tools and their motivational effect on L2 vocabulary acquisition and perceived learning gains. *Br. J. Educ. Technol.* 48, 264–278. doi: 10.1111/bjet.12387
- Caponetto, I., Earp, J., and Ott, M. (2014). Gamification and Education: a Literature Review. *Proceedings of the 8th European Conference on Games-Based Learning - ECGBL 2014*, 1, 50–57.
- Chan, S., and Lo, N. (2022). Teachers' and students' perception of gamification in online tertiary Education classrooms during the pandemic. *SN Comput. Sci.* 3:215. doi: 10.1007/s42979-022-01117-w
- Chapman, J. R., and Rich, P. J. (2018). Does Educational Gamification Improve Students' Motivation? If So, Which Games Elements Work Best? *J. Educ. Bus.* 93, 314–321. doi: 10.1080/08832323.2018.1490687
- Chen, Y.-M. (2022). Understanding foreign language learners' perceptions of teachers' practice with educational technology with specific reference to Kahoot! And Padlet: a case from China. *Educ. Inf. Technol.* 27, 1439–1465. doi: 10.1007/s10639-021-10649-2
- Chen, C. M., Liu, H., and Huang, H. B. (2019). Effects of a mobile game-based English vocabulary learning app on learners' perceptions and learning performance: a case study of Taiwanese EFL learners. *ReCALL* 31, 170–188. doi: 10.1017/S0958344018000228
- Dahlstrom, E., Brooks, D. C., Grajek, S., and Reeves, J. (2015) ECAR study of undergraduate students and information technology, 2015 (research report). EDUCAUSE Center for Analysis and Research. Available at: <http://www.educause.edu/library/resources/2015-student-and-faculty-technology-research-studies>
- Dehghanzadeh, H., Fardanesh, H., Hatami, J., Talae, E., and Noroozi, O. (2021). Using gamification to support learning English as a second language: a systematic review. *Comput. Assist. Lang. Learn.* 34, 934–957. doi: 10.1080/09588221.2019.1648298
- Deterding, S., Dixon, D., Khaled, R., and Nacke, L. (2011). From game design elements to gamefulness: Defining "gamification." Proceedings of the 15th international academic mind trek conference: Envisioning future media environments, 9–15. doi: 10.1145/2181037.2181040
- DeWitt, D., Alias, N., and Siraj, S. (2015). Collaborative learning: interactive debates using Padlet in a higher education institution. In International educational technology conference (IETC 2015), 27–29 May 2015, Istanbul, Turkey. Available at: [https://eprints.um.edu.my/13630/1/971662\\_Journal-Submission\\_WN.pdf](https://eprints.um.edu.my/13630/1/971662_Journal-Submission_WN.pdf)
- Dicheva, D., Dichev, C., Agre, G., and Angelova, G. (2015). Gamification in education: a systematic mapping study. *Educ. Technol. Soc.* 18, 75–88.
- Dindar, M., Ren, L., and Järvenoja, H. (2021). An experimental study on the effects of gamified cooperation and competition on English vocabulary learning. *Br. J. Educ. Technol.* 52, 142–159. doi: 10.1111/bjet.12977
- Ding, L., Er, E., and Orey, M. (2018). An exploratory study of student engagement in gamified online discussions. *Comput. Educ.* 120, 213–226. doi: 10.1016/j.compedu.2018.02.007
- Dominguez, A., Saenz-de-Navarrete, J., de Marcos, L., Fernandez-Sanz, L., Pages, C., and Martinez-Herraiz, J.-J. (2013). Gamifying learning experiences: practical implications and outcomes. *Comput. Educ.* 63, 380–392. doi: 10.1016/j.compedu.2012.12.020
- Ebadi, S., Rasouli, R., and Mohamadi, M. (2021). Exploring EFL learners' perspectives on using Kahoot as a game-based student response system. *Interact. Learn. Environ.* 31, 2338–2350. doi: 10.1080/10494820.2021.1881798
- El Shaban, A., and Abobaker, R. (2021). "Versatile Padlet: a useful tool for communicative teaching" in Policies, practices, and protocols for the implementation of technology into language learning (IGI Global), 54–76.
- Fan, J., and Wang, Z. (2020). The impact of gamified interaction on mobile learning APP users' learning performance: the moderating effect of users' learning style. *Behav. Inform. Technol.*, 1–14. doi: 10.1080/0144929X.2020.1787516
- Fithriani, R. (2021). The utilization of mobile-assisted gamification for vocabulary learning: its efficacy and perceived benefits. *Comput. Assist. Lang. Learn. Elect. J.* 22, 146–163. Available at: <https://old.callej.org/journal/22-3/Fithriani2021.pdf>
- Ge, Z. G. (2018). The impact of a forfeit-or-prize gamified teaching on e-learners' learning performance. *Comput. Educ.* 126, 143–152. doi: 10.1016/j.compedu.2018.07.009
- Giannetto, D., Chao, J. T., and Fontana, A. (2013). Gamification in a social learning environment. *Issues Informing Sci. Inf. Technol.* 10, 195–207. doi: 10.28945/1806
- Govender, T., and Arnedo-Moreno, J. (2021). An analysis of game design elements used in digital game-based language learning. *Sustain. For.* 13:6679. doi: 10.3390/su13126679
- Hamari, J., Koivisto, J., and Sarsa, H. (2014). Does gamification work? – A literature review of empirical studies on gamification. 2014 47th Hawaii international conference on system sciences, 3025–3034. doi: 10.1109/HICSS.2014.377
- Hanus, M. D., and Fox, J. (2015). Assessing the effects of gamification in the classroom: a longitudinal study on intrinsic motivation, social comparison, satisfaction, effort, and academic performance. *Comput. Educ.* 80, 152–161. doi: 10.1016/j.compedu.2014.08.019
- Ho, J. (2020). Gamifying the flipped classroom: how to motivate Chinese ESL learners? *Innov. Lang. Learn. Teach.* 14, 421–435. doi: 10.1080/17501229.2019.1614185
- Homer, R., Hew, K. F., and Tan, C. Y. (2018). Comparing digital badges-and-points with classroom token systems: effects on elementary school ESL students' classroom behavior and English learning. *Educ. Technol. Soc.* 21, 137–151.
- Hong, J. C., Hwang, M. Y., Liu, Y. H., and Tai, K. H. (2022). Effects of gamifying questions on English grammar learning mediated by epistemic curiosity and language anxiety. *Comput. Assist. Lang. Learn.* 35, 1458–1482. doi: 10.1080/09588221.2020.1803361
- Hung, H. T. (2017). Clickers in the flipped classroom: bring your own device (BYOD) to promote student learning. *Interact. Learn. Environ.* 25, 983–995. doi: 10.1080/10494820.2016.1240090
- Hung, H. T. (2018). Gamifying the flipped classroom using game-based learning materials. *ELT J.* 72, 296–308. doi: 10.1093/elt/ccx055
- Hung, H. C., and Young, S. S. C. (2015). An investigation of game-embedded handheld devices to enhance English learning. *J. Educ. Comput. Res.* 52, 548–567. doi: 10.1177/0735633115571922
- Hwang, G. J., Hsu, T. C., Lai, C. L., and Hsueh, C. J. (2017). Interaction of problem-based gaming and learning anxiety in language students' English listening performance and progressive behavioral patterns. *Comput. Educ.* 106, 26–42. doi: 10.1016/j.compedu.2016.11.010
- Jia, Y., Xu, B., Karanam, Y., and Volda, S. (2016). Personality-targeted gamification: a survey study on personality traits and motivational affordances. In Proceedings of the 2016 CHI conference on human factors in computing systems (pp. 2001–2013). Association for Computing Machinery, doi: 10.1145/2858036.2858515
- Kaban, A., and Karadeniz, S. (2021). Children's reading comprehension and motivation on screen versus on paper. *SAGE Open* 11:215824402098884. doi: 10.1177/2158244020988849
- Kalyuga, S. (2006). Rapid assessment of learners' proficiency: a cognitive load approach. *Educ. Psychol.* 26, 735–749. doi: 10.1080/01443410500342674
- Kapp, K. M. (2012). *The gamification of learning and instruction: Game-based methods and strategies for training and education*. Francisco, CA: Pfeiffer.
- Kaya, G., and Cilsalar Sagnak, H. (2022). Gamification in English as second language learning in secondary education aged between 11-18: a systematic review between 2013-2020. *Int. J. Game Based Learn.* 12, 1–14. doi: 10.4018/IJGBL.294010
- Kingsley, T. L., and Grabner-Hagen, M. M. (2018). Vocabulary by gamification. *Read. Teach.* 71, 545–555. doi: 10.1002/trtr.1645
- Kirsch, J., and Spreckelsen, C. (2023). Caution with competitive gamification in medical education: unexpected results of a randomised cross-over study. *BMC Med. Educ.* 23:259. doi: 10.1186/s12909-023-04258-5
- Krishnan, S. D., Norman, H., and Yunus, M. M. (2021). Online gamified learning to enhance teachers' competencies using classcraft. *Sustain. For.* 13:10817. doi: 10.3390/su131910817
- Lam, Y. W., Hew, K. F., and Chiu, K. F. (2018). Improving argumentative writing: effects of a blended learning approach and gamification. *Lang. Learn. Technol.* 22, 97–118.
- Laura-De La Cruz, K. M., Noa-Copaja, S. J., Turpo-Gebera, O. W., Montesinos-Valencia, C. C., Bazán-Velásquez, S. M., and Pérez-Postigo, G. (2023). Use of gamification in English learning in higher education: a systematic review. *J. Technol. Sci. Educ.* 13, 480–497. doi: 10.3926/jotse.1740

- Lee, J. J., and Hammer, J. (2011). Gamification in education: what, how, why bother? *Acad. Exch. Q.* 15, 1–5.
- Lee, S. M., and Park, M. (2020). Reconceptualization of the context in language learning with a location-based AR app. *Computer Assisted Language Learning*, 33, 936–959.
- Li, M., Ma, S., and Shi, Y. (2023). Examining the effectiveness of gamification as a tool promoting teaching and learning in educational settings: a meta-analysis. *Front. Psychol.* 14:1253549. doi: 10.3389/fpsyg.2023.1253549
- Limantara, N., Meyliana Hidayanto, A. N., and Prabowo, H. (2019). The elements of gamification learning for vocabulary acquisition among college learners. *Int. J. Mech. Eng. Technol.* 10, 982–991. Available at: <https://iaeme.com/Home/issue/IJMET?Volume=10&Issue=2>
- Ling, Q., Wang, H., and Wang, Z. H. (2019). A study on the effectiveness of mobile game-based learning for vocabulary acquisition among college learners. *Technol. Enhanced Foreign Lang. Educ.* 6, 9–15. Available at: <https://ir.nwnu.edu.cn/bitstream/39RV6HYL/1802>
- Liu, T. Y., and Chu, Y. L. (2010). Using ubiquitous games in an English listening and speaking course: impact on learning outcomes and motivation. *Comput. Educ.* 55, 630–643. doi: 10.1016/j.compedu.2010.02.023
- Lo, N. P. K. (2020). “Revolutionising language teaching and learning via digital media innovations” in *Learning environment and design* (Singapore: Springer), 245–261.
- Lo, N. P. K. (2023). Digital learning and the ESL online classroom in higher education: teachers’ perspectives. *Asia-Pac. J. Second Foreign Lang. Educ.* 8, 24–22. doi: 10.1186/s40862-023-00198-1
- Lo, N. P. K. (2024a). The confluence of digital literacy and eco-consciousness: harmonizing digital skills with sustainable practices in education. *Platforms* 2, 15–32. doi: 10.3390/platforms2010002
- Lo, N. P. K. (2024b). From theory to practice: unveiling the synergistic potential of design and maker education in advancing learning. *SN Comput. Sci.* 5:360. doi: 10.1007/s42979-024-02726-3
- Lo, N. P. K. (2024c). Cross-cultural comparative analysis of student motivation and autonomy in learning: perspectives from Hong Kong and the United Kingdom. *Front. Educ.* 9:1393968. doi: 10.3389/feduc.2024.1393968
- Lo, N. P. K., Bremner, P. A. M., and Forbes-McKay, K. E. (2024). Influences on student motivation and independent learning skills: cross-cultural differences between Hong Kong and the United Kingdom. *Front. Educ.* 8:1334357. doi: 10.3389/feduc.2023.1334357
- Lo, N. P. K., and Mok, B. C. Y. (2019). “Gaming literacy and its pedagogical implications” in *Digital humanities and new ways of teaching* (Singapore: Springer), 133–154.
- Lo, N. P. K., and To, B. K. H. (2023a). To Learn or Not to Learn: Perceptions Towards Continuing Professional Development (CPD) and Self-identity Among English Language Teachers During the COVID-19 Pandemic. *SN Computer Science*, 4, 1–23. doi: 10.1007/s42979-023-01779-0
- Lo, N. P. K., and To, B. K. H. (2023b). The transformation of identity of secondary school teachers: professional development and English language education strategies in Hong Kong during the COVID-19 pandemic. *Cogent Educ.* 10. doi: 10.1080/2331186X.2022.2163790
- Luo, Z., Brown, C., and O’Steen, B. (2021). Factors contributing to teachers’ acceptance intention of gamified learning tools in secondary schools: an exploratory study. *Educ. Inf. Technol.* 26, 6337–6363. doi: 10.1007/s10639-021-10622-z
- Mei, B., and Yang, S. (2019). Nurturing environmental education at the tertiary education level in China: can mobile augmented reality and gamification help? *Sustain. For.* 11:4292. doi: 10.3390/su11164292
- Mohammed, Y. B., and Ozdamli, F. (2021). Motivational effects of gamification apps in Education: a systematic literature review. *Brain* 12, 122–138. doi: 10.18662/brain/12.2/196
- Ongoro, C. A., and Mwangoka, J. W. (2019). Effects of digital games on enhancing language learning in Tanzanian preschools. *Knowl. Manag. E-Learn.* 11, 325–344. doi: 10.34105/j.kmel.2019.11.017
- Palová, D., and Vejačka, M. (2022). Implementation of gamification principles into higher Education. *Eur. J. Educ. Res.* 11, 763–779. doi: 10.12973/eu-jer.11.2.763
- Peter, A., Salimun, C., and Seman, E. A. A. (2019). A concept paper on the impacts of individual gamification elements on user’s intrinsic motivation and performance. *J. Phys. Conf. Ser.* 1358:012058. doi: 10.1088/1742-6596/1358/1/012058
- Puong, T. T. H. (2020). Gamified learning: are Vietnamese EFL learners ready yet? *Int. J. Emerg. Technol. Learn.* 15, 242–251. doi: 10.3991/ijet.v15i24.16667
- Putu Wulantari, N., Rachman, A., Nurmalia Sari, M., Jola Uktorseja, L., and Rofi’i, A. (2023). The role of gamification in english language teaching: A Literature Review. *J. Educ.* 6, 2847–2856. doi: 10.31004/joe.v6i1.3328
- Qiao, S., Yeung, S. S., Shen, X., and Chu, S. K. W. (2022). The effects of a gamified morphological awareness intervention on students’ cognitive, motivational and affective outcomes. *Br. J. Educ. Technol.* 53, 952–976. doi: 10.1111/bjet.13178
- Rahman, M. H. A., Ismail, I. Y. P., Noor, N. A. Z. M., and Salleh, N. S. M. (2018). Gamification elements and their impacts on teaching and learning: a review. *Int. J. Multimedia Appl.* 10. Available at: <https://airconline.com/abstract/ijma/v10n6/10618ijma04.html>
- Reynolds, E. D., and Taylor, B. (2020). Kahoot! EFL instructors’ implementation experiences and impacts on students’ vocabulary knowledge. *Comput. Assist. Lang. Learn. Elect. J.* 21, 70–92. Available at: <https://old.callej.org/journal/21-2/Reynolds-Taylor2020.pdf>
- Rueckert, D., Pico, K., Kim, D., and Calero Sánchez, X. (2020). Gamifying the foreign language classroom for brain-friendly learning. *Foreign Lang. Ann.* 53, 686–703. doi: 10.1111/flan.12490
- Sandberg, J., Maris, M., and Hoogendoorn, P. (2014). The added value of a gaming context and intelligent adaptation for a mobile learning application for vocabulary learning. *Comput. Educ.* 76, 119–130. doi: 10.1016/j.compedu.2014.03.006
- Santana, S. J., Souza, H. A., Florentin, V. A. F., Paiva, R., Bittencourt, I. I., and Isotani, S. (2016). A quantitative analysis of the most relevant gamification elements in an online learning environment. Proceedings of the 25th international conference companion on world wide web, pp. 911–916. doi: 10.1145/2872518.2891074
- Seaborn, K., and Deborah, F. (2015). Gamification in Theory and Action: A Survey. *Int. J. Hum. Comput.* 74, 14–31. doi: 10.1016/j.ijhcs.2014.09.006
- Setiawan, M. R., and Wiedarti, P. (2020). The effectiveness of Quizlet application towards students’ motivation in learning vocabulary. *Stud. English Lang. Educ.* 7, 83–95. doi: 10.24815/siele.v7i1.15359
- Sevilla-Pavón, A., and Haba-Osca, J. (2017). “Learning from real life and not books”: a gamified approach to business English task design in transatlantic telecollaboration. *Ibérica (Castellón de La Plana, Spain)* 33, 235–260.
- Shortt, M., Tilak, S., Kuznetcova, I., Martens, B., and Akinkuolie, B. (2021). Gamification in mobile-assisted language learning: a systematic review of Duolingo literature from public release of 2012 to early 2020. *Comput. Assist. Lang. Learn.* 36, 517–554. doi: 10.1080/09588221.2021.1933540
- Smiderle, R., Rigo, S. J., Marques, L. B., de Miranda, P., Coelho, J. A., and Jaques, P. A. (2020). The impact of gamification on students’ learning, engagement and behavior based on their personality traits. *Smart Learn. Environ.* 7, 1–11. doi: 10.1186/s40561-019-0098-x
- Stockwell, G. (2010). Using mobile phones for vocabulary activities: examining the effect of platform. *Lang. Learn. Technol.* 14, 95–110.
- Stoyanova, M., Tugarova, D., and Samardzhiev, K. (2018). Impact of motivation, gamification and learning style on students’ interest in Maths classes – a study in 11 high school grade. *Adv. Intell. Syst. Comput.* 716, 133–142. doi: 10.1007/978-3-319-73204-6\_17
- Strmečki, D., Bernik, A., and Radošević, D. (2015). Gamification in e-learning: introducing gamified design elements into e-learning systems. *J. Comput. Sci.* 11, 1108–1117. doi: 10.3844/jcssp.2015.1108.1117
- Sun, J. C. Y., and Hsieh, P. H. (2018). Application of a gamified interactive response system to enhance the intrinsic and extrinsic motivation, student engagement, and attention of English learners. *J. Educ. Technol. Soc.* 21, 104–116.
- Tabassum, A. (2024). Challenges of implementing gamification in medical education: a scoping review. *J. Bahria Univ. Med. Dental College* 14, 155–160. doi: 10.51985/JBUMDC2023260
- Tsang, A., and Davis, C. (2024). Young learners’ well-being and emotions: examining enjoyment and boredom in the foreign language classroom. *Asia Pac. Educ. Res.* doi: 10.1007/s40299-024-00828-3
- Varker, T., Forbes, D., Dell, L., Weston, A., Merlin, T., Hodson, S., et al. (2015). Rapid evidence assessment: increasing the transparency of an emerging methodology. *J. Eval. Clin. Pract.* 21, 1199–1204. doi: 10.1111/jep.12405
- Wang, D., Khambari, M. N. M., Wong, S. L., and Razali, A. B. (2021). Exploring interest formation in English learning through Xplore RAFF+: a gamified AR mobile app. *Sustain. For.* 13:12792. doi: 10.3390/su132212792
- Wood, M. (2016). Padlet: a graffiti wall for today’s agriculture teacher. *Agric. Educ. Mag.* 88:20.
- Wu, H. (2024). The more, the better? A multivariate longitudinal study on L2 motivation and anxiety in EFL oral presentations. *Front. Educ.* 9:1394922. doi: 10.3389/feduc.2024.1394922
- Wu, C. J., Chen, G. D., and Huang, C. W. (2014). Using digital board games for genuine communication in EFL classrooms. *Educ. Technol. Res. Dev.* 62, 209–226. doi: 10.1007/s11423-013-9329-y
- Ziegeler, D. (2023). According to NP: a diachronic perspective on a skeptical evidential. *J. English Linguist.* 51, 162–190. doi: 10.1177/007542231163844
- Zohud, N. W. I. (2019). Exploring Palestinian and Spanish teachers’ perspectives on using online computer games in learning English vocabulary. *Publicaciones de La Facultad de Educación y Humanidades Del Campus de Melilla*, 49, 93–115.
- Zou, D. (2020). Gamified flipped EFL classroom for primary education: student and teacher perceptions. *J. Comput. Educ.* 7, 213–228. doi: 10.1007/s40692-020-00153-w