

## Game-based learning in English language education: A trend and mapping analysis

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### Abstract

This study presents a bibliometric analysis of research on game-based learning in English language education, aiming to identify publication trends, influential studies, thematic structures, and research gaps. Data were collected using Publish or Perish from Google Scholar, resulting in an initial dataset of 500 documents published between 2020 and 2026. After data screening and cleaning, 499 publications were analyzed using VOSviewer to generate co-occurrence, overlay, and density visualizations. The findings reveal a substantial increase in research output over time, rising from 30 publications (6.01%) in 2021, the lowest point in the dataset, to 177 publications (35.47%) in 2025, the highest level of scholarly activity. Citation analysis indicates that the most influential studies emphasize the integration of digital tools, gamification strategies, and learner-centered pedagogies. Keyword co-occurrence analysis identifies motivation, engagement, and vocabulary learning as dominant research themes, while emerging trends highlight the growing adoption of advanced technologies such as artificial intelligence and adaptive learning systems. However, higher-order language skills, including writing and critical reading, remain relatively underexplored. This study contributes to the literature by providing a comprehensive overview of the intellectual structure of the field and identifying future research directions for more complex and integrative applications of game-based learning in English language education.

**Keywords:** game-based learning, English language education

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**Contribution to Literature:** This study offers a comprehensive bibliometric overview of game-based learning in English language education, revealing dominant research themes, influential publications, and emerging trends. It also identifies significant gaps, particularly the limited attention given to higher-order language skills and complex learning outcomes.

## 1. Introduction

The integration of digital technology into language education has significantly transformed the ways in which English is taught and learned, particularly in English as a Foreign Language (EFL) contexts. Among various technological innovations, game-based learning has emerged as a promising pedagogical approach that enhances learners' engagement, motivation, and overall learning experience. Digital games are no longer viewed merely as entertainment tools but are increasingly recognized as effective instructional media that foster interactive and learner-centered environments (Derakhshan & Zare, 2023; Ebadi & Bashir, 2021). In language learning, especially, the incorporation of game elements such as rewards, competition, and immediate feedback has been shown to create meaningful and enjoyable learning experiences that sustain students' interest and participation (Ahmed et al., 2022; Mahyoob, 2020).

In the context of English language education, vocabulary learning has received considerable attention within game-based approaches, as it constitutes a fundamental component of language proficiency and communication. A strong vocabulary base enables learners to comprehend texts, express ideas effectively, and participate in meaningful interactions (Schmitt, 2008). However, vocabulary acquisition is often perceived as monotonous and challenging, particularly when traditional teaching methods rely heavily on memorization and repetition (Teng, 2020; Webb & Nation, 2017). Consequently, integrating game-based learning into vocabulary instruction has been proposed as a way to make learning more engaging and effective, as digital games provide contextualized practice, repetition, and multimodal input that facilitate retention and comprehension (Li, 2021).

Beyond vocabulary development, game-based learning has also been associated with improvements in other English language skills, including reading, writing, listening, and speaking. The interactive and immersive nature of digital games allows learners to actively construct knowledge, apply language in meaningful contexts, and develop communicative competence (Quwaider et al., 2019). Moreover, game-based environments support both cognitive and affective aspects of learning by reducing anxiety, increasing confidence, and promoting sustained engagement (Alhebshi & Gamlo, 2022; Halbrook et al., 2019). These benefits are closely linked to motivational theories, particularly Self-Determination Theory, which emphasizes the importance of autonomy, competence, and relatedness in fostering intrinsic motivation (Ryan & Deci, 2000; Zhang et al., 2025).

Despite the growing body of research on game-based learning in English language education, existing studies tend to focus on specific variables or limited contexts. A considerable number of studies emphasize vocabulary acquisition and learner motivation, often through experimental or quasi-experimental designs, demonstrating significant improvements in both learning outcomes and affective engagement (Ahmed et al., 2022; Sihombing & Tambunan, 2023). For instance, recent research has shown that digital game-based tools can significantly enhance students' motivation and vocabulary learning outcomes by creating interactive and enjoyable learning environments (Zhang et al., 2025). Similarly, the implementation of specific game-based applications, such as FunBingo, has been reported to foster enjoyment, interest, and satisfaction while also contributing to measurable gains in vocabulary learning.

However, these studies are often fragmented and context-specific, making it difficult to obtain a comprehensive understanding of the overall research landscape. Most investigations concentrate on isolated aspects, such as particular language skills, specific types of games, or individual learner variables, without providing a broader synthesis of trends, patterns, and thematic developments in the field. In addition, there remains limited clarity regarding which English language skills are most frequently targeted, how research themes have evolved over time, and what gaps persist in the current body of knowledge. This fragmentation highlights the need for a systematic mapping of research to identify dominant themes, emerging trends, and underexplored areas in game-based English language learning.

To address this gap, bibliometric analysis offers a powerful methodological approach to quantitatively examine the structure and development of a research field. By analyzing publication trends, citation patterns, and keyword co-occurrence, bibliometric studies can reveal influential works, major research clusters, and thematic evolution over time. Such an approach enables researchers to move beyond individual study findings and develop a holistic understanding of the field, thereby providing valuable insights for future research directions. Therefore, this study aims to conduct a bibliometric analysis of game-based learning in English language education, focusing on publication trends, thematic structures, and research gaps, using data retrieved through Publish or Perish and analyzed with VOSviewer.

## 2. Literature Review

### 2.1 Game-Based Learning in Language Education

Game-based learning (GBL) refers to the use of games as instructional tools to facilitate learning through interactive and engaging environments. In recent years, GBL has gained increasing attention in educational contexts due to its potential to transform traditional teacher-centered approaches into more learner-centered practices (Derakhshan & Zare, 2023; Ebadi & Bashir, 2021). Unlike conventional instruction, game-based learning integrates elements such as challenges, rewards, and feedback, which can enhance learners' engagement and persistence in learning activities (Ahmed et al., 2022; Nadeem et al., 2023).

It is important to distinguish between game-based learning and gamification. While gamification refers to the incorporation of game elements into non-game contexts, game-based learning involves the use of actual games as learning tools. Both approaches aim to increase motivation and engagement; however, GBL provides a more immersive experience where learners interact directly with content through gameplay (Elaish et al., 2019; Kingsley & Grabner-Hagen, 2018). This distinction highlights the pedagogical value of digital games as not only motivational tools but also meaningful learning environments.

### 2.2 Game-Based Learning in English Language Education

In English language education, particularly in EFL and ESL contexts, game-based learning has been widely applied to support the development of various language skills. Vocabulary learning remains one of the most prominent areas due to its fundamental role in language acquisition and communication (Schmitt, 2008; Webb & Nation, 2017). Digital games provide repeated exposure to lexical items, contextualized usage, and multimodal input, which facilitate vocabulary retention and comprehension (Li, 2021).

Beyond vocabulary, game-based learning has also been used to enhance other language skills such as reading, writing, listening, and speaking. The interactive nature of games allows learners to actively engage in meaning-making processes, apply language in

authentic contexts, and develop communicative competence (Quwaider et al., 2019). These affordances make GBL a versatile approach that can address both receptive and productive language skills in integrated learning environments.

### 2.3 Effects of Game-Based Learning on Motivation and Learning Outcomes

One of the most significant contributions of game-based learning lies in its impact on learner motivation. Motivation plays a crucial role in language learning, as it influences learners' willingness to engage, persist, and achieve learning goals (Dörnyei, 2020). Game-based environments stimulate both intrinsic and extrinsic motivation by combining enjoyment, challenge, and reward systems (Ryan & Deci, 2000; Zhang et al., 2025).

Empirical studies have consistently demonstrated that game-based learning enhances students' motivation, engagement, and learning outcomes. For example, digital game-based interventions have been found to reduce anxiety and increase motivation compared to traditional instruction (Ahmed et al., 2022; Alhebshi & Gamlo, 2022). Similarly, the use of educational games such as FunBingo has shown positive effects on learners' enjoyment, interest, and vocabulary development, indicating the potential of game-based tools to support both affective and cognitive dimensions of learning. These findings suggest that GBL not only improves learning performance but also creates a more positive and supportive learning environment.

### 2.4 Research Trends and the Need for Bibliometric Analysis

As shown in Table 1, several bibliometric studies have investigated game-based learning from different perspectives, including cultural heritage education (Camuñas-García et al., 2023), teacher training and education (Alghamdi et al., 2026), technology-enhanced language learning (Hwang et al., 2023), and digital game-based language learning in broader language education contexts (Putikadyanto et al., 2022). These studies have provided valuable insights into publication trends, thematic developments, and emerging research directions, demonstrating the growing scholarly interest in game-based learning across diverse educational settings.

Despite these contributions, limited attention has been devoted to comprehensively mapping game-based learning specifically within English language education. Previous studies have not sufficiently examined the distribution of English language skills, dominant research themes, influential publications, and emerging trends across EFL and ESL contexts. Therefore, a bibliometric analysis is needed to provide a systematic overview of the field. By employing Publish or Perish and VOSviewer, the present study identifies publication trends, influential works, thematic clusters, and research gaps, thereby offering a more comprehensive understanding of the intellectual structure and future directions of research on game-based learning in English language education.

Table 1. Research on game-based learning in English language education.

| No | Title                                                                                                             | Reference                    |
|----|-------------------------------------------------------------------------------------------------------------------|------------------------------|
| 1  | Mobile game-based learning in cultural heritage education: a bibliometric analysis                                | Camuñas-García et al. (2023) |
| 2  | Game On: A bibliometric analysis of gamification and game-based learning in teacher training and education        | Alghamdi et al. (2026)       |
| 3  | Game-based language learning in technological contexts: An integrated systematic review and bibliometric analysis | Hwang et al. (2023)          |
| 4  | A Bibliometric analysis of digital game-based language learning to support future language learning               | Putikadyanto et al. (2022)   |

### 3. Research Method

#### 3.1. Research Design

This study employed a bibliometric and scientometric research design to analyze the development of scholarly work on game-based learning in English language education. Bibliometric analysis enables systematic examination of publication patterns, citation structures, and thematic evolution within a research domain, while scientometric visualization supports the identification of knowledge clusters, collaboration networks, and emerging research themes. The analysis focused on publications from 2020 to 2026, capturing recent advancements in digital and game-based pedagogies. Data were retrieved using Publish or Perish (PoP) from Google Scholar, yielding approximately 500 documents based on predefined search terms. After screening for relevance, duplicates, and incomplete records, the dataset was retained for bibliometric mapping, while a subset of 15–20 representative articles was selected for in-depth qualitative interpretation.

#### 3.2. Data Sources

All bibliographic data were retrieved from Google Scholar via Publish or Perish, selected for its broad and inclusive coverage of peer-reviewed publications in language education and applied linguistics. The search strategy employed the following Boolean string: (“game-based learning” OR “digital game-based learning” OR “educational games” OR “gamification”) AND (“English language learning” OR “EFL” OR “ESL”). To ensure relevance, titles and abstracts were screened, and studies unrelated to English language education or focusing on non-educational gaming contexts were excluded. The final dataset represents research specifically addressing game-based learning within EFL or ESL environments.

#### 3.3. Procedure of Data Collection

The data collection process followed a structured sequence, including retrieval of publications using Publish or Perish within the specified timeframe (2020–2026), followed by screening and filtering based on relevance and data completeness. Duplicate and non-eligible records were removed, and the refined dataset was exported in CSV format for descriptive statistical analysis and in RIS/BibTeX format for network visualization. Subsequently, VOSviewer was used to generate co-occurrence maps, citation networks, and collaboration structures. From the full dataset, 19 key articles were purposively selected based on relevance and citation impact to support deeper interpretation of thematic findings. All outputs were reviewed to ensure consistency and alignment with the research objectives.

#### 3.4. Data Analysis

Data analysis was conducted using a two-step approach combining statistical and network-based techniques. First, descriptive statistics using Microsoft Excel were applied to identify publication trends, leading authors, journals, and contributing countries, providing an overview of research activity in the field. Second, scientometric network analysis using VOSviewer was performed to examine keyword co-occurrence, citation relationships, co-authorship networks, and thematic clustering. Key metrics such as link strength, node density, and cluster formation were analyzed to interpret conceptual relationships and identify dominant and emerging research themes. This integrated approach enabled a comprehensive mapping of the research landscape while also highlighting potential gaps and future research directions.

## 4. Results and Discussion

### 4.1. Game-Based Learning in English Language Education 2020- 2026

The analysis of publication output from 2020 to 2026 reveals a substantial growth in research on game-based learning in English language education. From the initial dataset of 500 retrieved articles, one document was excluded due to incomplete metadata, resulting in a final dataset of 499 publications suitable for bibliometric analysis.

As presented in Table 2 and visualized in Figure 1, publication activity began with 38 documents (7.62%) in 2020. A slight decrease was observed in 2021, when the number of publications declined to 30 documents (6.01%). However, research interest increased considerably in subsequent years, reaching 49 publications (9.82%) in 2022 and 73 publications (14.63%) in 2023. The upward trend continued in 2024 with 88 publications (17.64%), indicating growing scholarly attention to game-based learning in English language education.

The most significant increase occurred in 2025, which recorded 177 publications (35.47%), representing the highest publication output during the study period. In contrast, 2026 accounted for 44 publications (8.82%). This lower figure should be interpreted cautiously, as publication data for 2026 may still be incomplete at the time of data collection.

Overall, the findings demonstrate a strong and sustained increase in research productivity, particularly from 2022 onward. The sharp growth observed in recent years reflects increasing academic interest in leveraging game-based approaches to enhance learner engagement, motivation, and language development within technology-enhanced English learning environments.

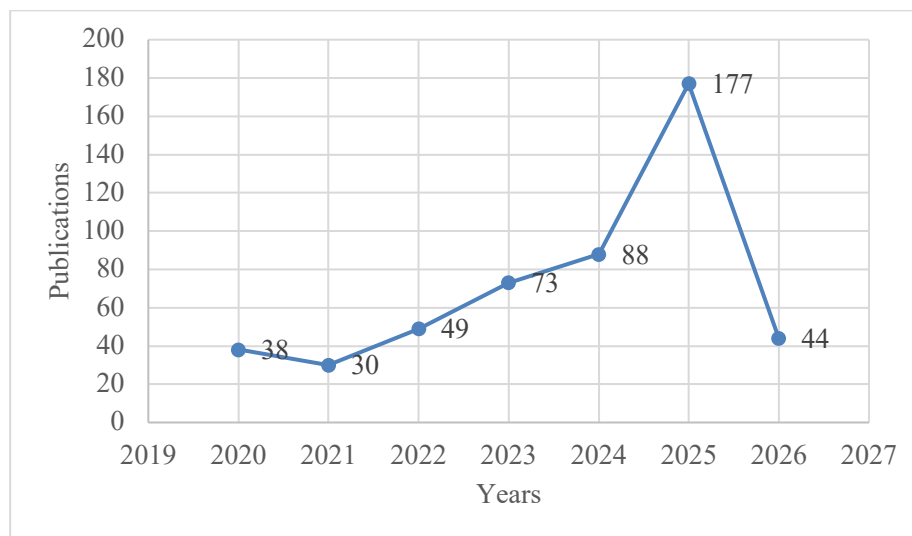


Figure 1. Annual report of publications.

Table 2. Annual report research on “game-based learning in English language education”.

| Years | Publications | (%) of Publications |
|-------|--------------|---------------------|
| 2020  | 38           | 7,62%               |
| 2021  | 30           | 6,01%               |
| 2022  | 49           | 9,82%               |
| 2023  | 73           | 14,63%              |
| 2024  | 88           | 17,64%              |
| 2025  | 177          | 35,47%              |
| 2026  | 44           | 8,82%               |
| Total | 499          | 100 %               |

## 4.2. Most Influential and Highly Cited Publications

The citation analysis reveals the most influential publications shaping research on game-based learning in English language education. As presented in Table 3, the most highly cited study is Gamified Flipped EFL Classroom for Primary Education: Student and Teacher Perceptions (Zou, 2020), with 243 citations. This study highlights the integration of gamification within flipped learning environments, emphasizing both student engagement and teacher perspectives, which likely contributes to its strong academic impact.

The second most cited publication, Entertainment Video Games for Academic Learning: A Systematic Review (Martinez et al., 2022), with 234 citations, reflects the growing interest in synthesizing evidence on the educational potential of digital games. Similarly, the third-ranked study by Fan et al. (2020), focusing on augmented reality in early language learning, demonstrates the increasing influence of immersive technologies in language education research.

Subsequent highly cited works further reinforce the importance of technology-enhanced learning tools, including studies on Quizizz (Degirmenci, 2020), Kahoot! (Chiang, 2020), and mobile-assisted applications (Purgina et al., 2020). These studies indicate that widely accessible digital platforms play a crucial role in promoting engagement, motivation, and learning outcomes, which contributes to their high citation frequency.

In addition, several studies with substantial citation counts focus on gamification and vocabulary or grammar learning, such as Castillo-Cuesta (2020), highlighting the dominance of foundational language components in game-based research. Studies examining learner motivation and perception, such as Halim et al. (2020), also appear prominently, further confirming that affective factors are central to the field.

More recent publications, including those related to artificial intelligence and digital learning environments (e.g., Azamatova et al., 2023), demonstrate relatively high citations per year, suggesting a rapid increase in scholarly attention toward advanced technological integration. This trend indicates a shift from traditional digital games toward more intelligent and adaptive learning systems.

Despite the diversity of topics, the citation distribution reveals a clear pattern: most influential studies focus on motivation, vocabulary acquisition, and technology integration, while relatively limited attention is given to higher-order language skills such as writing and critical reading. This imbalance suggests a significant gap in the literature and highlights the need for future research to explore more complex dimensions of language learning within game-based environments.

Table 3. Most cited articles on game-based learning in English language education

| No | Cites | Title                                                                                                                                                         | Year | Cites Per Year | Ref.                   |
|----|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------------|------------------------|
| 1  | 243   | Gamified flipped EFL classroom for primary education: Student and teacher perceptions                                                                         | 2020 | 40.50.00       | Zou (2020)             |
| 2  | 234   | Entertainment video games for academic learning: A systematic review                                                                                          | 2022 | 58.50.00       | Martinez et al. (2022) |
| 3  | 208   | Augmented reality for early language learning: A systematic review of augmented reality application design, instructional strategies, and evaluation outcomes | 2020 | 34.67          | Fan et al. (2020)      |
| 4  | 199   | The use of Quizizz in language learning                                                                                                                       | 2021 | 39.80          | Degirmenci             |

| No | Cites | Title                                                                                                                                                                                      | Year | Cites Per Year | Ref.                             |
|----|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------------|----------------------------------|
|    |       | and teaching from the teachers' and students' perspectives: A literature review                                                                                                            |      |                | (2020)                           |
| 5  | 183   | Teachers' perceptions and experience in using technology for the classroom                                                                                                                 | 2021 | 36.60          | Boonmoh et al. (2024)            |
| 6  | 162   | Kahoot! in an EFL reading class                                                                                                                                                            | 2020 | 27.00.00       | Chiang (2020)                    |
| 7  | 151   | WordBricks: Mobile technology and visual grammar formalism for gamification of natural language grammar acquisition                                                                        | 2020 | 25.17.00       | Purgina et al. (2020)            |
| 8  | 148   | Using digital games for enhancing EFL grammar and vocabulary in higher education                                                                                                           | 2020 | 24.67          | Castillo-Cuesta (2020)           |
| 9  | 132   | Pupils' motivation and perceptions on ESL lessons through online quiz-games                                                                                                                | 2020 | 22.00          | Halim et al. (2020)              |
| 10 | 129   | The application of ICT techs (mobile-assisted language learning, gamification, and virtual reality) in teaching English for secondary school students in Malaysia during covid-19 pandemic | 2020 | 21.50          | Azar & Tan (2020)                |
| 11 | 120   | The impact of ChatGPT on language learners' motivation                                                                                                                                     | 2023 | 40.00.00       | Yıldız (2023)                    |
| 12 | 101   | Game-based learning platform and its effects on present tense mastery: Evidence from an ESL classroom                                                                                      | 2020 | 0,72430556     | Idris et al. (2020)              |
| 13 | 100   | Investigating effects of digital gamification-based language learning: A systematic review                                                                                                 | 2020 | 0,71319444     | Dehganzadeh & Dehganzadeh (2020) |
| 14 | 97    | Ten years of gamification-based learning: A bibliometric analysis and systematic review                                                                                                    | 2024 | 48.50.00       | Al-Hafdi & Alhalafawy (2024)     |
| 15 | 95    | Mobile-assisted language learning (MALL) for higher education instructional practices in EFL/ESL contexts: A recent review of literature                                                   | 2021 | 19.00          | Zain & Bowles (2021)             |
| 16 | 87    | A systematic review of augmented reality applications in language learning                                                                                                                 | 2021 | 17.40          | Majid & Salam (2021)             |
| 17 | 84    | The benefits of gamification in the English learning context                                                                                                                               | 2020 | 14.00          | Rahmani (2020)                   |
| 18 | 83    | Kahoot! as a gamification tool in vocational education: More positive attitude, motivation and less anxiety in EFL                                                                         | 2021 | 0,70833333     | Sercanoğlu Öden et al. (2021)    |
| 19 | 83    | The effect of using artificial intelligence and digital learning tools based on project-based learning approach in foreign language teaching on students' success and motivation           | 2023 | 27.67          | Azamatova et al. (2023)          |

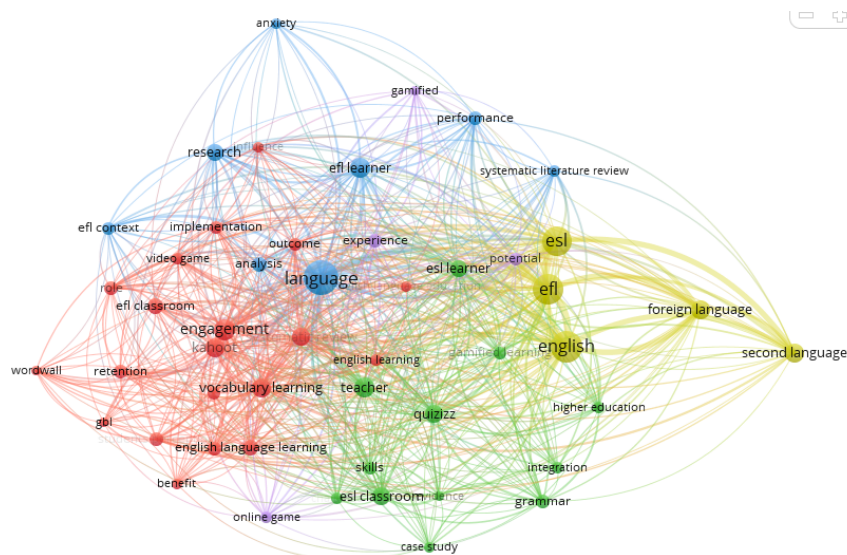


Figure 2. Network visualization based on co-occurrence of terms.

#### 4.3. Visualization of Research Data Mapping of game-based learning in English language education

As illustrated in Figure 2, the co-occurrence network reveals a structured distribution of interconnected themes, resulting in the identification of five major clusters, each representing a dominant research focus within the field of game-based learning in English language education.

The first cluster (red), consisting of 20 items, represents the core pedagogical and outcome-oriented dimension of the field. Key terms such as engagement, vocabulary learning, student perception, retention, and implementation indicate a strong emphasis on how game-based learning influences learner involvement and language acquisition outcomes. The inclusion of widely used platforms such as Kahoot and Wordwall further highlights the practical orientation of this cluster, suggesting that much of the research is grounded in classroom-based applications and measurable learning effects.

The second cluster (green), comprising 12 items, reflects the instructional and contextual dimension of game-based learning. Terms such as gamified learning, grammar, higher education, teacher, and integration indicate a focus on how game-based strategies are implemented across different educational settings. The presence of tools like Quizizz suggests that this cluster emphasizes instructional design and the role of educators in integrating game-based approaches into formal learning environments.

The third cluster (blue), with 8 items, captures the research-oriented and psychological dimension of the field. Keywords such as analysis, anxiety, performance, and systematic literature review suggest a focus on evaluating the effectiveness of game-based learning, particularly in relation to learner performance and affective factors. This cluster highlights the growing interest in understanding not only outcomes but also the underlying psychological mechanisms influencing learning.

The fourth cluster (yellow), consisting of 5 items, represents the general linguistic and contextual foundation of the research domain. Terms such as EFL, ESL, foreign language, and second language indicate that this cluster serves as a conceptual backbone, framing the broader context in which game-based learning is applied.

The fifth cluster (purple), with 4 items, reflects an emerging and exploratory dimension, including terms such as experience, gamified, online game, and potential. This cluster suggests a developing area of research that focuses on learner experiences and the

future possibilities of game-based learning, although it remains less densely connected compared to the other clusters.

Overall, the network visualization reveals that research on game-based learning in English language education is primarily centered on learner engagement, vocabulary development, and instructional implementation, supported by strong integration of digital tools. At the same time, the relatively smaller and less connected clusters indicate that areas such as learner experience, higher-order language skills, and deeper cognitive processes remain underexplored. These findings highlight a clear imbalance in the research landscape and suggest opportunities for future studies to expand beyond dominant themes toward more complex and integrative language learning outcomes.

To further examine the temporal evolution and thematic intensity of research on game-based learning in English language education, overlay and density visualizations were generated using VOSviewer, as presented in Figures 3 and 4.

The overlay visualization (Figure 3) illustrates the progression of research themes over time, where color variations indicate the relative recency of keyword usage. Earlier studies are represented by darker tones, while more recent research appears in lighter colors. The visualization reveals that foundational terms such as language, engagement, vocabulary learning, and EFL classroom are positioned at the center of the network, indicating their long-standing and continuous relevance within the field. These terms form the core of game-based learning research and demonstrate sustained scholarly attention over time.

More recent trends, indicated by lighter color gradients, highlight the emergence of terms such as gamified, performance, systematic literature review, and experience. This shift suggests that current research is moving beyond basic implementation and vocabulary-focused studies toward broader evaluations of learning effectiveness, learner experience, and evidence-based synthesis. Additionally, the increasing appearance of terms related to higher education, integration, and digital tools reflects the expansion of game-based learning into more diverse educational contexts.

The visualization also indicates a growing intersection between technology-driven approaches and pedagogical practices, where tools such as Quizizz, Kahoot, and other online platforms are increasingly embedded within instructional strategies. This trend demonstrates a transition from isolated use of digital games toward more structured and pedagogically integrated applications.

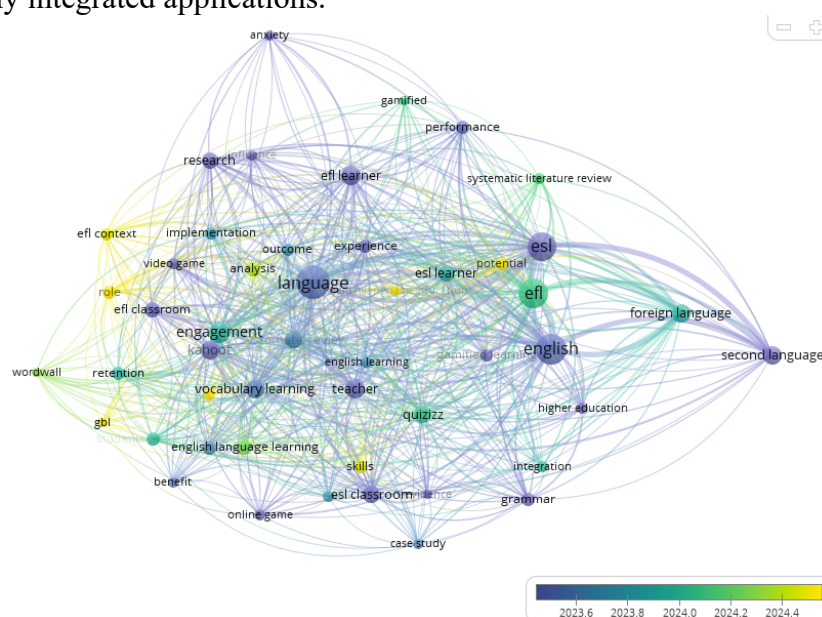


Figure 3. Overlay visualization based on co-occurrence of terms.

The density visualization (Figure 4) further supports these findings by illustrating the concentration and frequency of research themes. High-density areas, represented by warmer colors, are centered around keywords such as vocabulary learning, engagement, English learning, and EFL/ESL, indicating that these topics have been the most extensively studied and form the core of the research field. These areas represent well-established domains with a high volume of scholarly output.

In contrast, lower-density regions, shown in cooler colors, include terms such as experience, potential, and online game, suggesting emerging or less-explored areas. These findings indicate that while the field has matured around certain dominant themes, there remain opportunities for further exploration, particularly in areas related to learner experience, higher-order cognitive processes, and innovative technological applications.

Overall, the combined overlay and density visualizations reveal a clear pattern: research on game-based learning in English language education has evolved from a strong focus on vocabulary acquisition and learner engagement toward more integrated, technology-driven, and experience-oriented approaches. However, the uneven distribution of research intensity suggests that certain areas remain underdeveloped, highlighting the need for future studies to address more complex language skills and deeper learning processes within game-based environments.

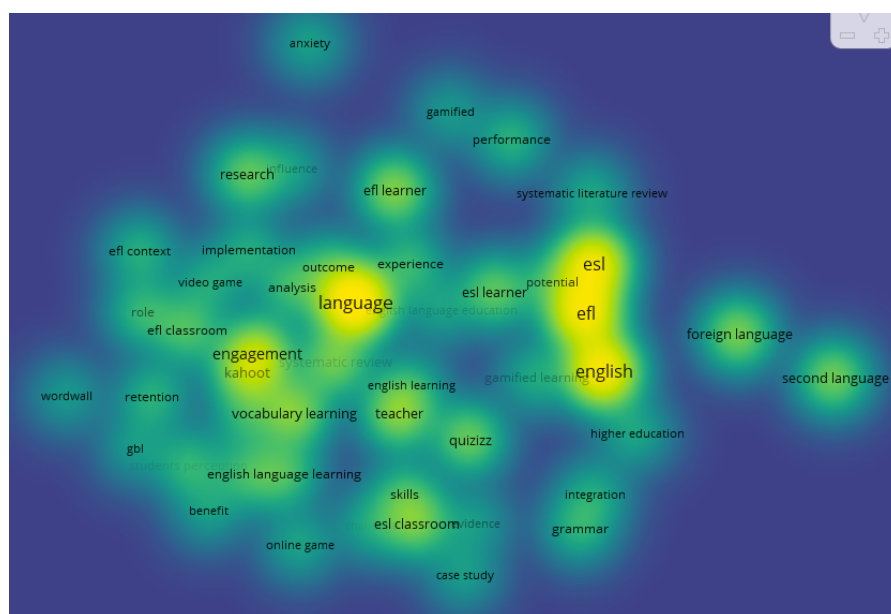


Figure 4. Density visualization based on the co-occurrence of terms.

#### 4.4.Synthesis and Implications

The combined findings from publication trends, citation analysis, and bibliometric mapping indicate a consistent yet uneven development of research on game-based learning in English language education. The increasing number of publications reflects growing global interest in digital and interactive pedagogies, particularly in response to the need for more engaging and learner-centered learning environments (Derakhshan & Zare, 2023; Ebadi & Bashir, 2021). Citation patterns further reveal that the most influential studies are those integrating technological innovation with pedagogical application, especially in gamified learning, mobile-assisted platforms, and systematic reviews (Ahmed et al., 2022; Elaish et al., 2019).

At the conceptual level, the findings show a strong concentration on motivation, engagement, and vocabulary learning, confirming previous studies that highlight the effectiveness of game-based approaches in enhancing learner involvement and

vocabulary acquisition (Li, 2021). However, the dominance of these themes also reveals a significant gap, as higher-order language skills such as writing and critical reading remain underexplored (Webb & Nation, 2017). This imbalance is further supported by the lower density of terms related to learner experience and deeper cognitive processes.

The overlay analysis indicates a recent shift toward more integrative and technology-driven approaches, including artificial intelligence and adaptive learning systems, suggesting an evolving research direction (Alhebshi & Gamlo, 2022; Halbrook et al., 2019). From a theoretical perspective, these developments align with Self-Determination Theory and constructivist principles, emphasizing the role of interaction, autonomy, and meaningful engagement in learning (Ryan & Deci, 2000). However, their application in supporting complex language skills remains limited.

Overall, the findings suggest that while game-based learning is well-established in enhancing motivation and vocabulary, its potential for developing higher-order competencies is still underutilized. Future research should therefore expand toward more complex language skills, incorporate diverse learner variables, and design game-based environments that support deeper cognitive engagement and long-term learning outcomes.

## 5. Conclusion

This study provides a comprehensive bibliometric analysis of research on game-based learning in English language education from 2020 to 2026, revealing a steadily growing research landscape driven by the increasing integration of digital technologies in language learning. The findings indicate that the field is predominantly centered on learner motivation, engagement, and vocabulary development, supported by the widespread use of digital tools such as gamified platforms and mobile-assisted learning applications.

The analysis also highlights that the most influential studies tend to combine technological innovation with pedagogical relevance, contributing significantly to both theoretical understanding and practical application. At the same time, the bibliometric mapping reveals an imbalance in research focus, with relatively limited attention given to higher-order language skills such as writing, critical reading, and deeper cognitive processes.

Furthermore, emerging trends suggest a shift toward more integrative and technology-driven approaches, including artificial intelligence and adaptive learning environments. However, these developments remain in early stages and require further empirical investigation across diverse educational contexts.

Overall, this study contributes to the field by providing a structured overview of research trends, thematic developments, and existing gaps. It underscores the need for future research to move beyond dominant themes and explore more complex and integrative dimensions of language learning, thereby maximizing the pedagogical potential of game-based learning in English language education.

## Conflict of Interest Statement

The authors declare that there is no conflict of interest regarding the publication of this article.

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## Author Contributions

Maani: Conceptualization, initial draft writing; methodology, data collection, editing, and revision.

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