

INTERNATIONAL JOURNAL OF
MODERN EDUCATION
(IJMOE)

www.gaexcellence.com/ijmoe



GAMIFICATION IN FOREIGN LANGUAGE LEARNING: A BIBLIOMETRIC REVIEW

Wan Anis Ilani Wan Kamaruddin¹, Najjah Salwa Abd Razak^{2*}, Masdini Harina Ab Manan³

¹Language Centre, National Defence University of Malaysia, Malaysia

 wan.anis@upnm.edu.my

 <https://orcid.org/0009-0007-4386-2590>

²Language Centre, National Defence University of Malaysia, Malaysia

 najjah@upnm.edu.my

 <https://orcid.org/0000-0002-2721-5568>

³Language Centre, National Defence University of Malaysia, Malaysia

 masdini@upnm.edu.my

 <https://orcid.org/0000-0002-6680-1914>

Article Info:

Article history:

Received date: 25.11.2025

Revised date: 10.12.2025

Accepted date: 04.02.2026

Published date: 01.03.2026

To cite this document:

Wan Kamaruddin, W. A. I., Abd Razak, N. S., & Ab Manan, M. H. (2026). Gamification In Foreign Language Learning: A Bibliometric Review. *International Journal of Modern Education*, 8(29), 96-110.

Abstract:

Gamification has emerged as an innovative pedagogical approach in foreign language learning, enhancing learner engagement, motivation, and outcomes. This study conducts a bibliometric analysis to map the intellectual structure and research landscape of gamification in this domain. Data were retrieved from the Scopus database using the keywords *gamification*, *teaching*, *learning*, and *language*, yielding 1,239 documents refined through OpenRefine for accuracy. Scopus Analyzer provided insights into publication output, sources, citations, and contributing countries, while VOSviewer visualized co-authorship, keyword co-occurrence, and citation networks. Findings indicate a steady growth in research between 2015 and 2025, with a marked surge after 2018 and a peak in 2024. Spain, the United States, Indonesia, and Malaysia are identified as leading contributors, representing both established and emerging research hubs. Keyword analysis revealed seven thematic clusters encompassing gamification, e-learning, motivation, and language acquisition, alongside emerging areas such as artificial intelligence, virtual reality, and digital storytelling. Highly cited studies focused on systematic reviews, Duolingo, and gamified tools like Kahoot. Overall, the study highlights gamification as a rapidly expanding, interdisciplinary field and provides an overview of key publication trends and thematic directions to inform future research and pedagogical practice in language education.

DOI: 10.35631/IJMOE.829007

Keyword:

Digital, Foreign Language, Gamification, Language Learning



© The authors (2026). This is an Open Access article distributed under the terms of the Creative Commons Attribution (CC BY NC) (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited. For commercial re-use, please contact ijmoe@gaexcellence.com.

Introduction

Gamification, the application of game design elements in non-game contexts, has emerged as a transformative strategy in foreign language learning. This approach aims to enhance student engagement, motivation, and overall learning outcomes by integrating interactive and competitive elements into educational frameworks. The increasing interest in gamification within language education reflects its potential to create immersive and enjoyable learning experiences, thereby fostering a more effective and engaging environment for language acquisition. This paper explores the current state of gamification research in foreign language learning, focusing on its impact on learner motivation, engagement, and academic performance.

Research on gamification in foreign language learning has demonstrated varied outcomes, with several studies highlighting its positive effects on student motivation and engagement. For instance, gamification has been shown to significantly improve vocabulary retention and grammar accuracy among English language learners (Tamayo et al., 2023; Alenazi, 2025). The use of digital tools such as Kahoot, Quizlet, and Duolingo in gamified learning activities has been particularly effective in enhancing student interest and learning efficiency (Alenazi, 2025; Ali & Abdalgane, 2022). Additionally, gamification fosters collaborative learning environments, which further boosts student motivation and engagement (Batlle Rodríguez & Vicenta González Argüello, 2023; Cuello et al., 2024).

Despite these positive findings, the effectiveness of gamification in foreign language learning is not universally consistent. A systematic review of 21 empirical studies revealed mixed results, with some studies reporting positive changes, others negative, and some showing no differences at all (Luo, 2023). Factors influencing these outcomes include methodological limitations, biases in experiment settings, technical limitations, and individual differences among learners (Luo, 2023). Moreover, the short-lived positive effects of gamification and the negative impact of competitive elements have been identified as significant drawbacks (Zhihao & Zhonggen, 2022); Zhang & Hasim, 2023).

The integration of gamification in language learning also faces several challenges. Technological barriers, resistance to change, and the necessity for digital literacy among educators are key obstacles to effective implementation (Zhou & Wei, 2024). Additionally, cultural opposition and gaps in technical skills can hinder the successful adoption of gamified learning strategies (Davardan & Taghizadeh, 2025). Despite these challenges, the potential benefits of gamification, such as increased motivation, better retention, immediate feedback, and improved teamwork, underscore its value in language education (Davardan & Taghizadeh, 2025).

Future research in gamification for foreign language learning should focus on addressing these challenges and optimizing the design and implementation of gamified educational experiences. Recommendations include aligning gamified elements with pedagogical goals, incorporating learner feedback, and ensuring accessibility and teacher training (Zhang & Hasim, 2023; Zhou & Wei, 2024). A hybrid approach that integrates the strengths of multiple gamification tools, such as Duolingo, Rosetta Stone, Edmodo, and Tandem, may offer a more comprehensive solution for language education (Stošić & Guillén-Gámez, 2024). By integrating gamification into educational frameworks, educators can create more effective and equitable language learning strategies.

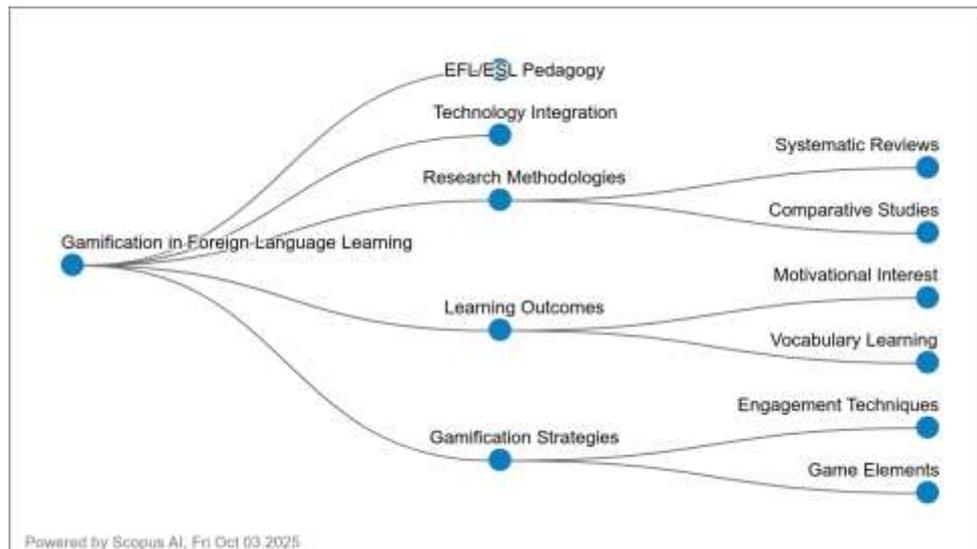


Figure 1: Concept Map of Gamification in Foreign Language Learning

Source: (Scopus AI, 2025)

The concept map in Figure 1 highlights the multifaceted research landscape of gamification in foreign language learning, emphasizing its applications, methodologies, and outcomes. Central to this field are pedagogical approaches in EFL/ESL education, where gamification is often integrated with technology to enhance learner engagement. Research in this area employs diverse methodologies, including systematic reviews and comparative studies, to evaluate effectiveness and refine practices. A major focus lies in examining learning outcomes, particularly in relation to motivational interest and vocabulary learning, which are consistently identified as key benefits of gamified instruction. Furthermore, gamification strategies are explored using engagement techniques and game elements, which provide learners with interactive, rewarding, and immersive experiences. Collectively, these themes underscore the role of gamification as both a pedagogical tool and a motivational driver, fostering active participation and improved achievement in language acquisition. Overall, the concept map illustrates that research in this area not only investigates the theoretical underpinnings of gamified learning but also emphasizes practical applications that strengthen student engagement, motivation, and measurable language proficiency outcomes.

In conclusion, while gamification offers promising opportunities for advancing foreign language learning, its implementation should be strategically designed and continuously evaluated to ensure optimal effectiveness and to address potential limitations. Continued research and innovation in this domain are anticipated to generate more sophisticated strategies

and tools, further transforming language education into a more engaging, efficient, and accessible experience for learners worldwide.

To systematically examine the scholarly landscape of gamification in foreign language learning, this study was guided by the following research questions:

- RQ1: What are the research trends in this field according to the year of publication?
- RQ2: What are the top 10 most cited articles on gamification in foreign language learning?
- RQ3: Which are the top 10 countries contributing the highest number of publications?
- RQ4: What are the most frequently occurring keywords related to this research area?
- RQ5: How do countries collaborate through co-authorship networks in this domain?

Methodology

Bibliometrics represents a systematic approach to collecting, organizing, and analyzing bibliographic data derived from scientific publications (Alves et al., 2021; Assyakur & Rosa, 2022; Verbeek et al., 2002). Rather than limiting itself to descriptive statistics such as identifying prolific journals, publication years, or leading authors (Wu & Wu, 2017), bibliometric analysis extends to advanced methodologies like document co-citation analysis, which reveal intellectual structures and research trends within a field. Conducting a rigorous literature review, therefore, demands an iterative process that begins with the careful selection of keywords, followed by comprehensive database searches, and culminates in detailed analytical procedures. Such an approach enables the construction of a robust and reliable bibliography, ensuring both breadth and depth of coverage (Fahimnia et al., 2015). Guided by this principle, the present study concentrated on high-impact publications, recognizing their pivotal role in shaping theoretical frameworks and advancing scholarly discourse. To guarantee data accuracy and comprehensiveness, Elsevier's Scopus database was employed as the primary data source (Al-Khoury et al., 2022; di Stefano et al., 2010; Khiste & Paithankar, 2017). Moreover, to maintain scholarly rigor, the analysis was restricted to peer-reviewed journal articles, while excluding books and lecture notes (Gu et al., 2019). Publications spanning from 2015 to October 2025 were collected for subsequent analysis.

Data Search Strategy

The data collection process for this study was conducted using the Scopus advanced search feature, ensuring both precision and comprehensiveness in identifying relevant literature. The search strategy employed the string TITLE-ABS-KEY (Gamification AND (teaching OR learning) AND (LANGUAGE)) AND PUBYEAR > 2014 AND PUBYEAR < 2026 AND (LIMIT-TO (LANGUAGE, "English") OR LIMIT-TO (LANGUAGE, "French")) executed in October 2025 (refer table 1), which was specifically designed to capture publications focused on the intersection of gamification, teaching or learning, and language education. To guarantee the timeliness and currency of the data, the retrieval was limited to publications from 2015 to 2025, with an access date of October 2025 (refer table 2). Language restrictions were also applied to include only publications written in English and French, thereby ensuring accessibility and maintaining consistency in the analysis. Studies in languages other than English and French, as well as those published before 2015, were systematically excluded. Following this screening process, the search yielded a total of 1,239 publications, representing a substantial body of research that spans a decade of scholarship in gamification and language education. This dataset provides a robust foundation for bibliometric analysis, enabling the

identification of research trends, key contributors, influential journals, and evolving thematic patterns. The deliberate use of Scopus, a comprehensive and authoritative database, combined with clearly defined inclusion and exclusion criteria, ensured that the final dataset was both reliable and representative. By adopting this rigorous search and screening protocol, the study not only guarantees transparency and reproducibility but also establishes a solid empirical basis for subsequent analysis of gamification’s role and impact within the domain of foreign language learning.

Table 1: The Search String

Scopus	<p>TITLE-ABS-KEY (Gamification AND (teaching OR learning) AND (LANGUAGE)) AND PUBYEAR > 2014 AND PUBYEAR < 2026 AND (LIMIT-TO (LANGUAGE , "English") OR LIMIT-TO (LANGUAGE , "French"))</p> <p>Access date: October 2025</p>
---------------	--

Table 2: Search and Selection Criteria

Criterion	Inclusion	Exclusion
Language	English and French	Non-English
Time line	2014 – 2025	< 2015

Data Analysis

VOSviewer, developed by Nees Jan van Eck and Ludo Waltman at Leiden University, Netherlands , (van Eck & Waltman, 2010, 2017) is a widely recognized bibliometric software designed for the visualization and analysis of scientific literature. Renowned for its intuitive interface and advanced capabilities, the tool specializes in generating network visualizations, clustering related items, and producing density maps. Its flexibility supports the exploration of co-authorship, co-citation, and keyword co-occurrence networks, thereby offering researchers a comprehensive overview of intellectual structures and research dynamics within a field. The software’s continuous updates, metric computation features, and customizable visualizations further enhance its utility, making it an indispensable resource for both novice and experienced scholars. Among its notable strengths is the ability to transform complex bibliometric datasets into interpretable visual maps, allowing for efficient and insightful exploration of large-scale data.

For this study, datasets containing publication year, title, author names, journal, citations, and keywords in PlainText format were retrieved from the Scopus database, covering the period from 2015 to October 2025. These data were processed using VOSviewer version 1.6.20, which applied clustering and mapping techniques to generate visual networks. Unlike traditional Multidimensional Scaling (MDS), which emphasizes similarity measures such as cosine or Jaccard indices, VOSviewer employs a more suitable normalization technique—the association

strength (AS_{ij})—to reflect item relatedness within low-dimensional spaces (Appio et al., 2014), (Van Eck & Waltman, 2007). This methodological distinction allows VOSviewer to deliver more accurate and meaningful representations of bibliometric relationships, consolidating its position as a leading tool in bibliometric and scientometric analysis.

$$AS_{ij} = \frac{C_{ij}}{w_i w_j}$$

which is “proportional to the ratio between on the one hand the observed number of cooccurrences of i and j and on the other hand the expected number of co-occurrences of i and j under the assumption that co-occurrences of i and j are statistically independent” (Van Eck & Waltman, 2007)

Findings and Discussion

This section answers the research questions by presenting and discussing the findings on gamification in foreign language learning, focusing on publication trends, highly cited works, contributing countries, common keywords, and international research collaborations.

RQ1: What Are The Research Trends In Gamification In Foreign Language Learning According To The Year Of Publication?

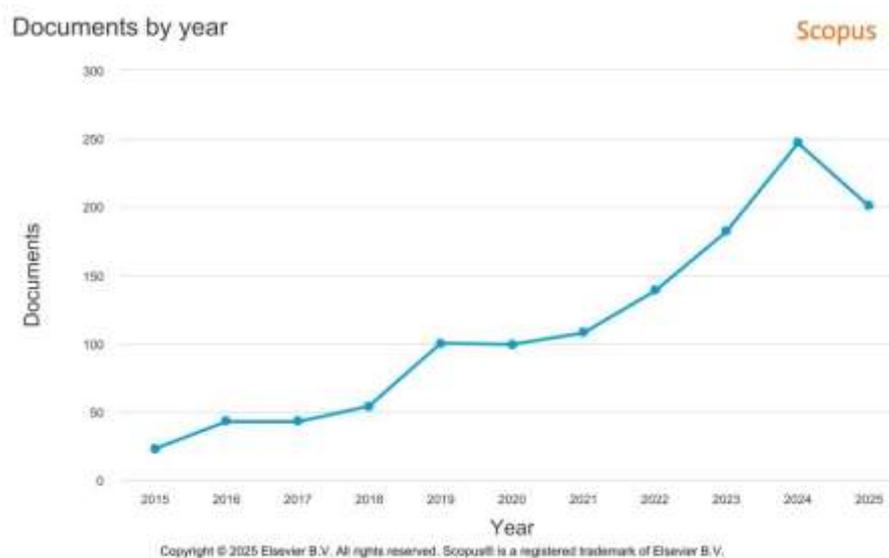


Figure 2: Number Of Documents Based On Year Of Publications

The bibliometric data reveals a steady increase in publications on gamification in foreign language learning from 2015 to 2025, with notable acceleration after 2018. The early years (2015–2017) show relatively low outputs (23–43 publications), reflecting the nascent stage of gamification as an emerging research trend in applied linguistics and education technology. From 2018 onward, the number of publications grows significantly, particularly between 2018 and 2022, where the output more than doubles within four years. This surge corresponds with the broader global adoption of digital tools in education, particularly amplified during the COVID-19 pandemic (2020–2021), which necessitated remote and engaging learning solutions. The spike in 2023 (182 documents) and peak in 2024 (247 documents) highlight a period of heightened scholarly attention, possibly driven by institutional interest in digital

pedagogies, increased funding for technology-enhanced learning, and the recognition of gamification as a motivating tool for learners.

Interestingly, 2025 shows a slight decline to 201 publications after the 2024 peak. This could be interpreted as the field reaching a certain level of maturity, where research is consolidating rather than expanding rapidly. The drop may also result from shifting research priorities, publication lags, or saturation in foundational studies, with scholars moving toward more specialized or interdisciplinary applications. Nonetheless, the overall upward trajectory across the decade underscores the growing recognition of gamification as a significant pedagogical strategy in language education. The trends suggest that while the peak years reflect strong enthusiasm and experimentation, the slight decrease may indicate a transition toward refinement, critical evaluation, and sustainable integration of gamification rather than exponential growth.

RQ1: What Are The Most Cited Articles On Gamification In Foreign Language Learning According To The Year Of Publication?

The citation data highlights a strong influence of systematic reviews and case studies focusing on mobile-assisted language learning and gamification tools such as Duolingo and Kahoot. Loewen et al. (2019) leads with 246 citations, underscoring the global popularity of Duolingo as a research subject and its relevance in applied linguistics. Similarly, Dehghanzadeh et al. (2021) and Shortt et al. (2023), both systematic reviews, gained high citations (204 and 159), reflecting the demand for comprehensive syntheses of gamification research to guide practitioners and future scholars. Articles like Lin et al. (2018) and Zarzycka-Piskorz (2016) that evaluate Kahoot in educational contexts also secured notable attention, showing the appeal of easily adoptable gamification tools in classrooms. The consistent citations of studies focusing on mobile platforms suggest that accessibility, scalability, and learner motivation are central to the academic discourse on gamification in foreign language learning.

The presence of older but still highly cited works, such as Figueroa-Flores (2015) and Darejeh and Salim (2016), indicates that foundational studies continue to shape the field by establishing early frameworks for gamification in language learning and user engagement. Interestingly, interdisciplinary contributions such as Plappert et al. (2016), focusing on motion-language datasets, also attracted substantial citations, demonstrating the crossover between language technology, AI, and gamification research. The high citation counts for articles published in top journals like *Computer Assisted Language Learning* and *ReCALL* reflect their visibility and credibility within applied linguistics and educational technology. Overall, the trend suggests that widely used platforms (Duolingo, Kahoot), innovative classroom strategies (BYOD, clickers), and systematic reviews dominate scholarly attention because they provide both theoretical grounding and practical implications for teaching, making them essential reference points in the field.

Table 3: Most Cited Author

Authors	Title	Year	Source title	Cited by
Shortt et al. (2023)	Gamification in mobile-assisted language learning: a systematic review of Duolingo literature from public release of 2012 to early 2020	2023	Computer Assisted Language Learning	159
Dehghanzadeh et al. (2021)	Using gamification to support learning English as a second language: a systematic review	2021	Computer Assisted Language Learning	204
Loewen et al. (2019)	Mobile-assisted language learning: A Duolingo case study	2019	ReCALL	246
Lin et al. (2018)	Kahoot! It: Gamification in higher education	2018	Pertanika Journal of Social Sciences and Humanities	140
Rachels & Rockinson-Szapkiw (2018)	The effects of a mobile gamification app on elementary students' Spanish achievement and self-efficacy	2018	Computer Assisted Language Learning	187
Hung (2017)	Clickers in the flipped classroom: bring your own device (BYOD) to promote student learning	2017	Interactive Learning Environments	118
Plappert et al. (2016)	The KIT Motion-Language Dataset	2016	Big Data	207
Darejeh & Salim (2016)	Gamification Solutions to Enhance Software User Engagement—A Systematic Review	2016	International Journal of Human-Computer Interaction	129
Zarzycka-Piskorz (2016)	Kahoot it or not?: Can games be motivating in learning grammar?	2016	Teaching English with Technology	115
Figueroa-Flores (2015)	Using Gamification to enhance second language learning	2015	Digital Education Review	196

RQ3: Which Are The Top 10 Countries Contributing The Highest Number Of Publications On Gamification In Foreign Language Learning?



Figure 3: Country Mapping Based On Number Of Publication

The bibliometric distribution shows Spain leading with 105 publications, followed by the United States (82), and Southeast Asian countries like Indonesia (72) and Malaysia (71) emerging as strong contributors. Spain's dominance may be linked to its active research communities in applied linguistics, second language acquisition, and digital pedagogy, supported by European Union funding initiatives that encourage innovation in education technology. The United States, a consistent leader in educational technology research, demonstrates strong engagement due to its established infrastructure, large academic networks, and emphasis on integrating gamification into diverse educational contexts. The high outputs from Indonesia and Malaysia suggest increasing regional investment in technology-enhanced language education, likely influenced by national education reforms, growing digital adoption, and large populations of language learners eager to engage with English and other foreign languages.

China, Germany, India, and the United Kingdom also show strong contributions, reflecting their diverse academic interests in both language learning and digital innovation. China and India, with vast numbers of English learners, are natural hubs for research on gamification as a tool to improve foreign language proficiency, while Germany and the UK benefit from strong interdisciplinary collaboration between education, psychology, and computer science. Saudi Arabia's 47 publications highlight its growing investment in educational technology and English language teaching reforms, aligning with national strategies to modernize education. Russia's 39 publications, though lower in comparison, indicate sustained but more modest engagement, possibly limited by linguistic research priorities or fewer international collaborations. Overall, the distribution reflects a balance between traditional research leaders (Spain, US, UK, Germany) and rapidly growing contributions from emerging economies (Indonesia, Malaysia, China, Saudi Arabia), illustrating both global interest and regional educational needs driving research in gamification for foreign language learning.

RQ4: What Are The Most Frequently Occurring Keywords Used In The Research?

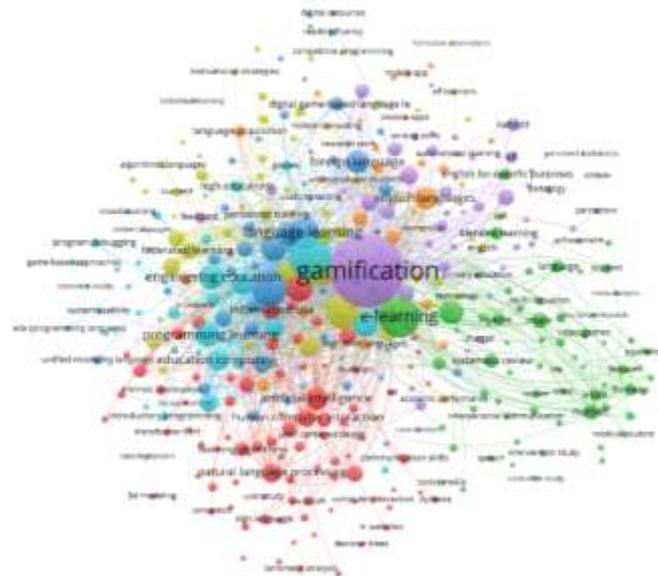


Figure 4: Network Visualization Map of Keywords' Co-Occurrence

Co-occurrence analysis in VOSviewer examines how frequently two or more author keywords appear together within the same set of documents. The purpose is to reveal thematic relationships and research patterns in a field by grouping keywords into clusters that represent shared concepts or topics. Each node (keyword) is sized according to the number of occurrences, while the links between nodes represent the strength of co-occurrence (total link strength). The visualization helps identify dominant themes, emerging areas, and connections across subfields, thereby offering a structured map of the intellectual landscape of gamification in foreign language learning research.

The analysis was conducted using *full counting*, with a minimum threshold of 5 occurrences per keyword. Out of 2897 total keywords, 379 met this threshold, and after applying a minimum cluster size of 5, seven clusters were generated. The results show that “gamification” (798 occurrences, 5358 link strength) is the central hub, strongly connected to themes such as “students,” “e-learning,” “motivation,” and “language learning.” Other clusters highlight interdisciplinary links with “artificial intelligence,” “virtual/augmented reality,” “engineering education,” and “computer programming,” indicating that gamification research has expanded beyond language education into broader educational technology and computational fields. This contributes to the body of knowledge by demonstrating how gamification is not only a motivational tool in language acquisition but also intersects with AI, CALL (computer-assisted language learning), and immersive technologies. Such findings provide evidence of the field’s maturation, the diversification of research approaches, and the integration of gamification into both traditional and emerging learning contexts.

RQ5: What Is Co-Authorship by Countries' Collaboration?

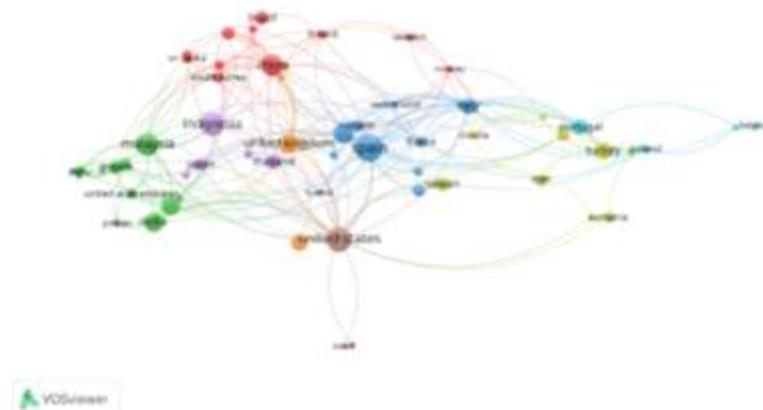


Figure 5: Network Visualization Map Of Co-Authorship By Countries' Collaboration

Co-authorship by countries in VOSviewer analyzes how researchers from different nations collaborate on publications, with each country represented as a node and the connections showing the strength of joint authorship links. The larger the node, the higher the publication volume, while thicker links indicate stronger collaborative ties. This approach helps reveal not only the leading contributors in a research field but also the global collaboration patterns, regional clusters, and international partnerships that shape knowledge production. It highlights which countries are central hubs driving research and which operate more peripherally or within specific regional networks.

In this analysis, the full counting method was applied with a minimum threshold of 5 documents per country, resulting in 61 countries meeting the threshold out of 98 and forming 8 distinct clusters. The United States (83 documents, 1305 citations, link strength 39) and Spain (104 documents, 956 citations, link strength 38) emerge as central players with extensive international collaboration networks. Other significant contributors include Malaysia, China, Germany, and the United Kingdom, showing both strong output and notable link strength. The findings contribute to the body of knowledge by illustrating the increasingly globalized nature of gamification in foreign language learning research, where traditional leaders like the US and Europe dominate but emerging countries such as Malaysia, Indonesia, and Saudi Arabia demonstrate growing influence. This suggests a diversification of scholarly voices, reflecting how the field is shaped not only by Western institutions but also by expanding research communities across Asia and the Middle East, thereby enriching the theoretical and practical perspectives within the discipline.

Conclusion

This study aimed to examine the development of research on gamification in foreign language learning through a bibliometric approach, focusing on publication trends, influential works, collaboration networks, and thematic patterns. The analysis demonstrated a steady rise in scholarly output between 2015 and 2025, with a notable surge from 2018 onwards and a peak in 2024, reflecting a growing recognition of gamification as a valuable educational tool. Spain, the United States, Indonesia, and Malaysia were identified as the most productive contributors, while co-authorship analysis highlighted the role of both established and emerging countries

in shaping international collaboration. The keyword mapping revealed core themes such as gamification, e-learning, motivation, and language acquisition, while also identifying intersections with emerging technologies including artificial intelligence, virtual reality, and mobile applications. Highly cited works were dominated by systematic reviews and case-based studies, indicating a strong reliance on synthesizing prior research and analyzing widely used tools such as Duolingo and Kahoot.

This study extends the understanding of gamification in language education by offering an evidence-based overview of its global growth, disciplinary expansion, and intellectual structure. The findings contribute to the field by highlighting not only the increasing maturity of the research but also its interdisciplinary scope that connects education, psychology, and computer science. Practical implications include the potential for educators and policymakers to align gamification strategies with pedagogical goals, integrate digital tools effectively, and respond to regional educational needs. Nevertheless, the study is limited by its reliance on Scopus-indexed publications and restriction to English and French works, which may exclude valuable perspectives in other languages and databases. Future research may benefit from multi-database comparisons, longitudinal analyses of pedagogical outcomes, and exploration of culturally sensitive applications of gamification. In conclusion, bibliometric analysis proves to be a valuable method for mapping the intellectual landscape of gamification in language education, offering guidance for future inquiry and demonstrating the significance of this growing domain in advancing innovative teaching practices.

Acknowledgements: The authors would like to express their gratitude to the National Defence University of Malaysia for providing access to SCOPUS, as well as to the editors and peers who contributed valuable insights and constructive feedback that greatly enhanced the quality of this paper.

Funding Statement: No Funding.

Conflict of Interest Statement: The authors declare that there is no conflict of interest regarding the publication of this paper. All authors have contributed to this work and approved the final version of the manuscript for submission to the International Journal of Modern Education (IJMOE).

Ethics Statement: This study did not involve any human participants, animals, or sensitive data requiring ethical approval. The authors confirm that the research was conducted in accordance with accepted academic integrity and ethical publishing standards.

Author Contribution Statement: All authors contributed significantly to the development of this manuscript. Wan Anis Ilani Wan Kamaruddin was responsible for the conceptualization, methodology and interpretation of results. Masdini Harina Ab Manan handled data collection and analysis. Najjah Salwa Abd Razak contributed to drafting, and critical revision of the manuscript. All authors read and approved the final version of the manuscript prior to submission.

References

- Al-Khoury, A., Hussein, S. A., Abdulwhab, M., Aljuboori, Z. M., Haddad, H., Ali, M. A., Abed, I. A., & Flayyih, H. H. (2022). Intellectual Capital History and Trends: A Bibliometric Analysis Using Scopus Database. *Sustainability (Switzerland)*, 14(18). <https://doi.org/10.3390/su141811615>
- Alenazi, M. H. (2025). Gamification in ELT: Investigating Its Impact on Motivation and Language Learning Outcomes. *Theory and Practice in Language Studies*, 15(8), 2584–2591. <https://doi.org/10.17507/tpls.1508.15>
- Ali, R., & Abdalgane, M. (2022). The Impact of Gamification “Kahoot App” in Teaching English for Academic Purposes. *World Journal of English Language*, 12(7), 18–27. <https://doi.org/10.5430/wjel.v12n7p18>
- Alves, J. L., Borges, I. B., & De Nadae, J. (2021). Sustainability in complex projects of civil construction: Bibliometric and bibliographic review. *Gestao e Producao*, 28(4). <https://doi.org/10.1590/1806-9649-2020v28e5389>
- Appio, F. P., Cesaroni, F., & Di Minin, A. (2014). Visualizing the structure and bridges of the intellectual property management and strategy literature: a document co-citation analysis. *Scientometrics*, 101(1), 623–661. <https://doi.org/10.1007/s11192-014-1329-0>
- Assyakur, D. S., & Rosa, E. M. (2022). Spiritual Leadership in Healthcare: A Bibliometric Analysis. *Jurnal Aisyah : Jurnal Ilmu Kesehatan*, 7(2). <https://doi.org/10.30604/jika.v7i2.914>
- Battle Rodríguez, J., & Vicenta González Argüello, M. (2023). Gamification and learning Spanish as a modern language: student perceptions in the university context. *Language Learning in Higher Education*, 13(1), 89–103. <https://doi.org/10.1515/cercles-2023-2016>
- Cuello, V. P. G., Corredor, B. Y. A., Aranguren, R. L. C., Martelo, C. A. S., & Vanegas, J. A. B. (2024). Gamification in the Learning Process of English Vocabulary. In C. Montenegro, A. Rocha, & C. L. J. M (Eds.), *Lecture Notes in Networks and Systems* (Vol. 773, pp. 265–281). Springer Science and Business Media Deutschland GmbH. https://doi.org/10.1007/978-3-031-44131-8_27
- Darejeh, A., & Salim, S. S. (2016). Gamification Solutions to Enhance Software User Engagement—A Systematic Review. *International Journal of Human-Computer Interaction*, 32(8), 613–642. <https://doi.org/10.1080/10447318.2016.1183330>
- Davardan, F., & Taghizadeh, M. (2025). Navigating Gamification in Language Education: Analyzing the Experiences of MA TEFL Students. *2025 12th International and the 18th National Conference on E-Learning and e-Teaching, ICeLeT 2025*. <https://doi.org/10.1109/ICeLeT66022.2025.11025326>
- Dehghanzadeh, H., Fardanesh, H., Hatami, J., Talaei, E., & Noroozi, O. (2021). Using gamification to support learning English as a second language: a systematic review. *Computer Assisted Language Learning*, 34(7), 934–957. <https://doi.org/10.1080/09588221.2019.1648298>
- di Stefano, G., Peteraf, M., & Veronay, G. (2010). Dynamic capabilities deconstructed: A bibliographic investigation into the origins, development, and future directions of the research domain. *Industrial and Corporate Change*, 19(4), 1187–1204. <https://doi.org/10.1093/icc/dtq027>
- Fahimnia, B., Sarkis, J., & Davarzani, H. (2015). Green supply chain management: A review and bibliometric analysis. In *International Journal of Production Economics* (Vol. 162, pp. 101–114). <https://doi.org/10.1016/j.ijpe.2015.01.003>

- Figuroa-Flores, J. F. (2015). Using Gamification to enhance second language learning. *Digital Education Review*, 27, 32–54. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-84937509244&partnerID=40&md5=028b796bd3633cd7e78c1c997388bf0d>
- Gu, D., Li, T., Wang, X., Yang, X., & Yu, Z. (2019). Visualizing the intellectual structure and evolution of electronic health and telemedicine research. *International Journal of Medical Informatics*, 130. <https://doi.org/10.1016/j.ijmedinf.2019.08.007>
- Hung, H.-T. (2017). Clickers in the flipped classroom: bring your own device (BYOD) to promote student learning. *Interactive Learning Environments*, 25(8), 983–995. <https://doi.org/10.1080/10494820.2016.1240090>
- Khiste, G. P., & Paithankar, R. R. (2017). Analysis of Bibliometric term in Scopus. *International Research Journal*, 01(32), 78–83.
- Lin, D. T. A., Ganapathy, M., & Manjet, M. (2018). Kahoot! It: Gamification in higher education. *Pertanika Journal of Social Sciences and Humanities*, 26(1), 565–582. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85045525024&partnerID=40&md5=2f289beb827fad108109309ed6388c45>
- Loewen, S., Crowther, D., Isbell, D. R., Kim, K. M., Maloney, J., Miller, Z. F., & Rawal, H. (2019). Mobile-assisted language learning: A Duolingo case study. *ReCALL*, 31(3), 293–311. <https://doi.org/10.1017/S0958344019000065>
- Luo, Z. (2023). The Effectiveness of Gamified Tools for Foreign Language Learning (FLL): A Systematic Review. *Behavioral Sciences*, 13(4). <https://doi.org/10.3390/bs13040331>
- Plappert, M., Mandery, C., & Asfour, T. (2016). The KIT Motion-Language Dataset. *Big Data*, 4(4), 236–252. <https://doi.org/10.1089/big.2016.0028>
- Rachels, J. R., & Rockinson-Szapkiw, A. J. (2018). The effects of a mobile gamification app on elementary students' Spanish achievement and self-efficacy. *Computer Assisted Language Learning*, 31(1–2), 72–89. <https://doi.org/10.1080/09588221.2017.1382536>
- Shortt, M., Tilak, S., Kuznetcova, I., Martens, B., & Akinkuolie, B. (2023). Gamification in mobile-assisted language learning: a systematic review of Duolingo literature from public release of 2012 to early 2020. *Computer Assisted Language Learning*, 36(3), 517–554. <https://doi.org/10.1080/09588221.2021.1933540>
- Stošić, L., & Guillén-Gámez, F. D. (2024). The potential of IT tools in foreign language acquisition: A comparative assessment. *Training, Language and Culture*, 8(4), 95–108. <https://doi.org/10.22363/2521-442X-2024-8-4-95-108>
- Tamayo, M. R., Cajas, D., & Sotomayor, D. D. (2023). Using Gamification to Develop Vocabulary and Grammar Among A1 Level of English Students: A Quasi-Experimental Design. In M. Botto-Tobar, Z. V. M, M. L. S, P. Torres-Carrión, & B. Durakovic (Eds.), *Communications in Computer and Information Science: Vol. 1757 CCIS* (pp. 177–190). Springer Science and Business Media Deutschland GmbH. https://doi.org/10.1007/978-3-031-24978-5_16
- van Eck, N. J., & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, 84(2), 523–538. <https://doi.org/10.1007/s11192-009-0146-3>
- van Eck, N. J., & Waltman, L. (2017). Citation-based clustering of publications using CitNetExplorer and VOSviewer. *Scientometrics*, 111(2), 1053–1070. <https://doi.org/10.1007/s11192-017-2300-7>
- Van Eck, N. J., & Waltman, L. (2007). Bibliometric mapping of the computational intelligence field. *International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems*, 15(5), 625–645. <https://doi.org/10.1142/S0218488507004911>
- Verbeek, A., Debackere, K., Luwel, M., & Zimmermann, E. (2002). Measuring progress and evolution in science and technology - I: The multiple uses of bibliometric indicators.

- International Journal of Management Reviews*, 4(2), 179–211.
<https://doi.org/10.1111/1468-2370.00083>
- Wu, Y. C. J., & Wu, T. (2017). A decade of entrepreneurship education in the Asia Pacific for future directions in theory and practice. In *Management Decision* (Vol. 55, Issue 7, pp. 1333–1350). <https://doi.org/10.1108/MD-05-2017-0518>
- Zarzycka-Piskorz, E. (2016). Kahoot it or not?: Can games be motivating in learning grammar? *Teaching English with Technology*, 16(3), 17–36.
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-84994613839&partnerID=40&md5=466a2f8b739c98e1e69155430bfde0be>
- Zhang, S., & Hasim, Z. (2023). Gamification in EFL/ESL instruction: A systematic review of empirical research. *Frontiers in Psychology*, 13.
<https://doi.org/10.3389/fpsyg.2022.1030790>
- Zhihao, Z., & Zhonggen, Y. (2022). The Impact of Gamification on the Time-Limited Writing Performance of English Majors. *Education Research International*, 2022.
<https://doi.org/10.1155/2022/4650166>
- Zhou, Y., & Wei, M. (2024). Gamification and language learning: Perspectives from learners. In *Technology-Mediated Language Learning and Teaching* (pp. 334–366). IGI Global.
<https://doi.org/10.4018/979-8-3693-2687-9.ch012>