

The Effectiveness of Game-Based Learning Methods in Grammar Learning: Systematic Literature Highlights (SLR)

Christina Awing, Nurfaradilla Mohamad Nasri

Fakulti Pendidikan, Universiti Kebangsaan Malaysia, Bangi, Malaysia

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Abstract

Game-Based Learning refers to an educational approach that incorporates elements and mechanics of the game into the learning process to improve engagement, motivation and knowledge retention. It involves the use of games or game-like activities to teach and strengthen educational concepts and skills. Grammar is an important aspect of language proficiency; many students struggle to understand the complex rules and structures that govern grammatical concepts. Students' grammar problems become a significant obstacle in language learning. In this regard, the purpose of this study is to identify the effectiveness of game-based learning (GBL) methods in grammar learning based on previous studies from 2019 to 2023. The main data search databases of Google Scholar, Education of Resources Information Center (ERIC) and Scopus were used to identify articles related to the effectiveness of game-based learning (GBL) methods in grammar learning. A total of 829 articles identified were related to the articles search for the title of this study based on the keywords used. The articles that were selected because they met the criteria and qualifications at the end of the selection process were 17 articles. The findings showed that the GBL approach in grammar learning can improve students' academic achievement, increase student motivation and increase student involvement in learning activities. The findings are expected to encourage the play methods approach in learning to provide added value to students to master grammar.

Keywords: Effectiveness, Game-Based Learning, Grammar Learning.

Introduction

The goal of the Malaysian Education Development Plan (PPPM) 2013-2025 is to improve the quality of education in Malaysia. In order to support the development of 21st century learning skills, the practice and culture of the teaching and facilitation process (PdPc) in schools require certain elements. Traditional teaching methods are no longer sufficient to produce competitive, innovative, and creative students (Ahmad, Looi, Wahid & Yusof, 2019). Instead, a shift towards student-centered strategies throughout the PdPc process in the classroom is necessary to implement 21st century learning methods and skills. In this regard, the teacher in charge of planning PdPc in the classroom needs to create activities that prioritize students as the main participants in the learning process. This approach will result in better quality and

beneficial learning activities.

Therefore, Game-Based Learning (GBL) is one of the methods used in active learning. Game-based learning methods refer to teaching strategies that incorporate game elements into the learning process (Armadi Derus & Mohammad 2021; Cabrera-Solano 2022; Muntrikaeo & Poonpon 2022). In recent years, GBL has emerged as an innovative and exciting approach to enhance the teaching and learning experience across a range of subjects, including language learning. Game-based learning methods have gained significant attention in the field of education as an approach to improve the teaching and facilitation experience (PdPc). In the field of language learning, researchers and educators have explored the effectiveness of game-based learning methods in different language skills and areas, including grammar teaching.

This method leverages the inherent motivation and involvement factors associated with the game to create an immersive and interactive learning environment (Yiing Yiing & Mahamod 2021) (Ching & Nordin 2021) as well as the students build their own experience through play activities while learning Mohamad, Hamzah and Osman (2020). The study of Nor Hadibah Hushani et al. (2022) also stated that game-based learning uses student-centered methods to increase interest and motivation among students in the field of education, specifically in language learning.

Grammar teaching focuses on the rules and structures that govern the use of language (Amira Abdul Razak & Zamri Mahamod 2021). Grammar is a fundamental aspect of language learning, allowing students to understand and produce grammatically accurate sentences. Traditional grammar teaching often involves repetitive training, memorization, and drill-based activities, which can be boring and uninteresting to students. Furthermore, students are required to explain language formulas and be thorough when constructing sentences. On the other hand, game-based learning methods take advantage of the power of play and exploration to make grammar learning more fun and meaningful (Subadah, 2020). This method usually uses digital or analog games, from virtual simulations and online platforms to board games and card games, to facilitate grammar teaching (Cabrera-Solano 2022). Therefore, this systematic literature review examines the effectiveness of Game-Based Learning (GBL) method in the teaching and learning grammar. Through this survey, the researchers will clearly synthesize the impact of GBL on teaching and learning grammar and readers will be able to explore the gaps in GBL research that can be used as a reference for future research.

Problem Statement

One common challenge student faces in language learning is the difficulty in understanding grammar. Although grammar is an important aspect of language proficiency, many students struggle to understand the complex rules and structures that govern grammatical concepts. This problem hinders their ability to communicate effectively and hinders their entire language acquisition process.

Grammar plays an important role in the understanding and production of language. It serves as the backbone of effective communication, allowing individuals to accurately convey their thoughts, ideas and intentions. The study (Gopal et al. 2022) summarize without a solid grammatical understanding, students may have difficulty in constructing grammatically correct sentences, which can lead to misunderstandings and misinterpretations.

Grammar provides the necessary framework to organize and structure languages. It helps students understand how words, phrases and sentences work in the language system, allows

them to create meaning and communicate information efficiently. By mastering grammar, students can improve their reading comprehension, writing skills, and oral communication, thus improving their overall language proficiency.

Furthermore, grammar serves as a tool for language analysis and critical thinking. It allows the student to deconstruct and analyze sentences, identify the relationship between words and their role in sentence structure. These analytical skills improve students' ability to understand and interpret complex texts, fostering high-order thinking skills. Therefore, (Mat Rabi et al. 2020) explains that the application of HOTS elements in language skills increases student knowledge.

In conclusion, the student's grammatical problems become a significant obstacle in language learning. Grammar is a fundamental component of language proficiency, facilitating effective communication, language analysis and critical thinking. By identifying the reasons behind students' difficulties and implementing appropriate teaching strategies, educators can help students overcome these challenges and improve their understanding and grammar applications. Subsequently, will contribute to the development and mastery of their language as a whole.

Research Objectives

This systematic literature review is to comprehensively examine the effectiveness of Game-Based Learning (GBL) methods in teaching and learning grammar.

- i. To identify trends or patterns of previous studies on Game-Based Learning (GBL) in these five years starting from 2019 to 2023 in terms of: (a) the title and year of study, (b) stage or level of education (c) research approach used?
- ii. To identify the impact of Game-Based Learning (GBL) methods of the students' learning to learn grammar and teacher's teaching.

Research Questions

- i. What is the trend or pattern of previous studies on Game-Based Learning (GBL) in these five years starting from 2019 to 2023 in terms of: (a) the title and year of study, (b) stage or level of education (c) research approach used?
- ii. What is the impact of Game-Based Learning (GBL) methods on students' learning to learn grammar and teacher's teaching?

Research Methodology

This study uses the Systematic Literature Review method. This method was chosen to ensure that the identified literature review information could be analyzed more thoroughly. In the process of conducting this systematic literature review, the researcher was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). PRISMA helps researcher to clearly construct research questions guided by systematic studies that need to be carried out, identifying criteria for inclusion or exclusion in systematic studies and helping researcherers to find large databases of scientific literature within a set time period (Sierra-correa & Cantera Kintz,2015). There are three main phases applied based on the PRISMA flow chart, namely article identification aspect (identification), article selection screening (screening) and inclusion phase (included) (Valerie & Shahlan, 2021).

Article Search Strategy

The search process for the selected articles is focused on the results of observations from previous research that has been conducted online using the main search databases, namely Google Scholar, Education of Resources Information Center (ERIC) and Scopus related to this research question. The data search strategy was carried out using the keywords "effectiveness", "Game-based learning", "teaching and learning", and "grammar". Articles relevant to those keywords are displayed in the database for selection.

Article Selection Criteria

In order to obtain suitable research articles, the selection process should comply with the article inclusion and exclusion criteria based on **Table 1**. The selected research articles must also be within the most recent five-year publication period which is from 2019 to 2023. The selection of article published within the last five years must be chosen so that the proposed issue is still relevant and popular (Kong & Mohd Effendi, 2020). In addition, the selected journal articles are also empirical studies to obtain good research findings through the research process that has been studied (Siti Azira Jose & Mohd Ewan, 2021). **Table 1** below is the inclusion and exclusion criteria for the articles selected for this study.

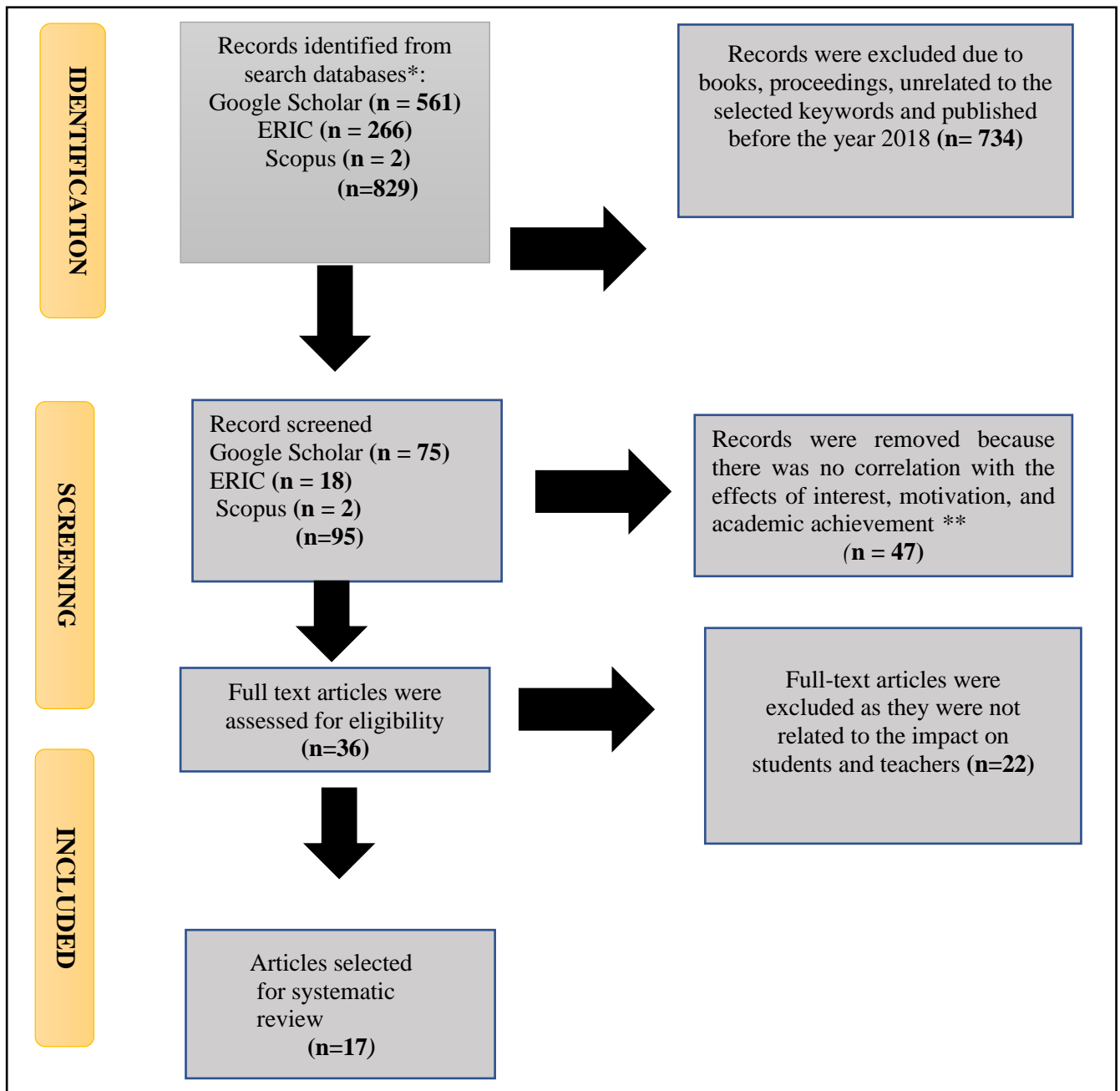
Table 1

Inclusion and exclusion criteria

Inclusion Criteria	Exclusion Criteria
Previous studies from 2019 to 2023	Studies conducted outside the range
Studies from researchers in the same field	Books, reports and records of conference proceedings
Articles written in English or Malay related to the effectiveness of Game-Based Learning (GBL) methods in teaching and learning grammar	Articles written in foreign languages and not related to the effectiveness of Game-Based Language (GBL) methods in teaching and learning grammar
Empirical research	Non-empirical research

Data Selection Process

This selection process of this article was carried out by using the main databases which are Google Scholar, Education of Resources Information Center (ERIC) and Scopus. A total of 829 articles that have been identified have been related to article search for the title of this research based on the keywords used. A total of 561 articles from the Google Scholar database, that use the keywords "Game-Based Learning", "Grammar Teaching and Learning" and "Grammar". There were 266 articles identified from an ERIC search database that used the keywords "Game-Based Learning", "effectiveness" and "grammar" and two articles identified from Scopus. These identified articles will go through a screening process based on **Figure 1**. A total of 734 articles was screened for not meeting the selected criteria and five articles will be screened to meet the article inclusion criteria, the researcher only used 17 articles to be analyzed in the SLR study conducted.



Source: Adapted from the PRISMA model (Matthew et al., 2021)

Observation and Discussions

This study is based on the synthesis of previous studies on Game-Based Learning (GBL), which were systematically analysed and intertwined. The following research questions were conducted to obtain the research findings and to assist in achieving the research objectives for this meta-analysis study.

PK 1.3.1 What are the Trends or Patterns of Previous Studies on The Effectiveness of Game-Based Learning (GBL) methods on PdPc Grammar from 2019 to 2022 in terms of: (i) Researchers and years, (ii) Stage or Level of Study (iii) Research approach?

Table 3

List of Articles Collected from Various Countries

No	Researcher / Year	Title	Country
1	Syafiqah Yacob & Md Yunus (2019)	Language Games in Teaching and Learning English Grammar: A Literature Review	Malaysia
2	Guna et al. (2019)	"Pemanfaatan Modifikasi Permainan Trivial Pursuit Sebagai Media Pembelajaran Guna Meningkatkan Kosa kata Bahasa Inggris Anak"	Indonesia
3	Fong Peng & Fikri Ismail (2020)	The implementation of play approach in teaching and learning of Malay language for preschool students	Malaysia
4	Idris et al. (2020)	Game-Based Learning Platform and its Effects on Present Tense Mastery: Evidence from an ESL Classroom"	Malaysia
5	Subadah (2020)	Joy of Learning of Malay Vocabulary Using Unique Vocabulary App: Singapore Experience	Singapura
6	Che Ibrahim et al. (2020)	Students' Perception on Quizziz As Game Based Learning in Learning Grammar in Written Discourse	Indonesia
7	Armadi Derus & Mohammad (2021)	APLIKASI PEMBELAJARAN BERASASKAN PERMAINAN DALAM PENGAJARAN BAHASA MELAYU	Malaysia
8	Yiing Yiing & Mahamod (2021)	Keberkesanan Kahoot Terhadap Pencapaian Murid Sekolah Rendah dalam Pembelajaran Kosa Kata Bahasa Melayu (The Effectiveness of Kahoot on Primary School Pupils' Achievement in Learning Malay Language Vocabulary)	Malaysia
9	Suhaimi & Nasri (2021)	Pelaksanaan 'Colourful Sentence Strips' Dalam Meningkatkan Pembinaan Ayat Mudah Bahasa Inggris (Implementation of 'Colourful Sentence Strips' in Improving Simple Sentence Construction)	Malaysia
10	Ching & Nordin (2021)	Penilaian terhadap permainan interaktif didik hibur dalam pembelajaran tatabahasa Bahasa Melayu sekolah rendah	Malaysia
11	Nor Hadibah Hushani et al. (2022)	Tahap minat dan penerimaan murid terhadap bahan pengajaran dan pembelajaran gamifikasi dalam subjek Bahasa Melayu sekolah rendah	Malaysia
12	Ling & Abdul Aziz (2022)	The Effectiveness of Game-based Learning Strategies on Primary ESL Learners' Vocabulary Learning.	Malaysia
13	Orejuela et al. (2022)	"FLIPPING THE LANGUAGE CLASSROOM:" EFFECTS OF GAMIFYING INSTRUCTION IN THE ENGLISH	Filipina

		LANGUAGE PROFICIENCY OF FILIPINO ESL STUDENTS"	
14	Kesgin & Kartal (2022)	Comparison of story-based and game-based vocabulary teaching in secondary school English lessons	Turkey
15	Cabrera-Solano (2022)	Game-Based Learning in Higher Education: The Pedagogical Effect of Genially Games in English as a Foreign Language Instruction	Eropah
16	Fakhrudin et al. (2022)	Implementing Quizziz as Game Based Learning in Teaching Grammar in Written Discourse	Indonesia
17	Ardi & Rianita (2022)	Leveraging Gamification into EFL Grammar Class To Boost Student Engagement.	Indonesia

Based on this research question, a total of 17 articles were selected after going through the search and selection process according to the research criteria that have been set. **Table 3** above shows 17 research articles that were selected and related to this study based on the author's name, article year, title and country that conducted the study, which is almost identical to the title of this study. Based on the findings of the above study, it is clear that a study almost identical to the title of this study, which is the effectiveness of Game-Based Learning (GBL) Methods of teaching and learning of grammar was conducted in 2022 over this five-year period. There were six studies related to GBL on grammar learning conducted. The study also selected articles from within the country and abroad. Based on the findings, 10 studies were conducted in Malaysia, four studies were conducted in Indonesia, and one study in Singapore, Philippines, European countries and Turkey.

Table 4

Summary of Education Level and Study Approach in the Article

No	Researcher / Year	Education level					Research approach			
		Kindergarten	Primary	Secondary	University	General	Quantitative	Qualitative	Mixed	Document Analysis
1	Syafiqah Yacob & Md Yunus (2019)					/				/
2	Guna et al. (2019)		/				/			
3	Fong Peng & Fikri Ismail (2020)	/						/		
4	Idris et al. (2020)		/					/		
5	Subadah (2020)		/				/			
6	Che Ibrahim et al. (2020)				/		/			

7	Armadi Derus & Mohammad (2021)					/				
8	Yiing Yiing & Mahamod (2021)		/				/			/
9	Suhaimi & Nasri (2021)					/				
10	Ching & Nordin (2021)		/					/		
11	Nor Hadibah Hushani et al. (2022)		/					/		
12	Ling & Abdul Aziz (2022)					/				/
13	Orejuela et al. (2022)			/			/			
14	Kesgin & Kartal (2022)			/					/	
15	Cabrera-Solano (2022)					/	/			
16	Fakhruddin et al. (2022)				/		/			
17	Ardi & Rianita (2022)				/		/			
Total		1	6	2	3	5	8	4	1	3

Based on **Table 4** above, which is a summary of the education level and research approach in the article that has been studied. Studies related to the topic of the effectiveness of game-based learning methods in learning grammar skills are widely studied among primary school students. There are six studies that have examined the study of learning grammar skills using a game-based learning approach among primary school students. This GBL approach clearly demonstrates a positive effect on the learning of primary school students to learn grammar skills such as vocabulary. There were three studies that were studied in general involved non-student and student responses, two studies at the university level and one study involving kindergarten students.

In addition, based on the previous studies that have been reviewed, there are eight studies that use the quantitative research design method. Quantitative research used by past researchers is distributing questionnaires, surveys, quasi experimental research, and case studies. There were two studies that used quantitative design where researchers interview the respondents to obtain information from the respondents. This study involved responses among university students. The researchers surveyed students' opinions related to the effectiveness of game-based learning. There is one study that uses a mixed methods in which the researchers use questionnaires and interview respondents, while there were three studies conducted by the researchers through document analysis related to game-based

learning in grammar teaching.

PK 1.3.2 What is the impact of Game-Based Learning (GBL) method on the students' learning to learn grammar and teacher's teaching.

Table 5

The impact of Game-Based Learning (GBL) method on student learning

No.	Researcher / Year	The Impact of Game-Based Learning		
		Academic achievement	Interest and motivation	Active involvement in PdP
1	Syafiqah Yaccob & Md Yunus (2019)	/	/	
2	Guna et al. (2019)		/	/
3	Fong Peng & Fikri Ismail (2020)	/	/	/
4	Idris et al. (2020)	/		
5	Subadah (2020)	/	/	
6	Che Ibrahim et al. (2020)		/	
7	Armadi Derus & Mohammad (2021)	/	/	/
8	Yiing Yiing & Mahamod (2021)		/	/
9	Suhaimi & Nasri (2021)		/	/
10	Ching & Nordin (2021)		/	
11	Nor Hadibah Hushani et al. (2022)	/		
12	Ling & Abdul Aziz (2022)			/
13	Orejuela et al. (2022)	/		
14	Kesgin & Kartal (2022)	/		
15	Cabrera-Solano (2022)		/	
16	Fakhrudin et al. (2022)	/		/
17	Ardi & Rianita (2022)		/	/
Total		9	11	8

Table 4 above shows the impact of game-based learning approach in the studies reviewed. Among the impacts of this GBL method can improve the academic achievement and language proficiency of students in the aspect of grammar. There were nine studies that show the results from the GBL approach to academic achievement and student performance. The game-based learning approach is also very enjoyable for students, thus increasing the interest and motivation of learning to learn a language. 11 studies that have shown an increase in student interest and motivation when a playful approach is applied in learning. In addition, the game-based learning approach directly increases student engagement in learning activities in the classroom. Eight studies that showed the findings that students were actively and freely involved in the classroom when the PdP was based on play activities. There are two studies that show the results that a game-based approach can improve students' performance and mastery of learning, students are also interested and motivated in learning and students are more active in PdP in the classroom.

A game-based learning approach can stimulate student enthusiasm and self-efficacy in the student learning process (Juric, 2018) and these learning-oriented behaviours promote learning achievement. It is clear that game-based learning improves students' motivation and self-efficacy as well as promotes student engagement in learning activities. The study of Syafiqah Yacob & Md Yunus (2019), Guna et al. (2019), Fong Peng & Fikri Ismail (2020), Subadah (2020), Che Ibrahim et al. (2020), Armadi Derus & Mohammad (2021), Yiing Yiing & Mahamod (2021), Suhaimi & Nasri (2021), Ching & Nordin (2021), Cabrera-Solano (2022), and Ardi & Rianita (2022) showed game-based learning stimulates students' interest and motivation to learn grammar, vocabulary and a second language. This game-based learning approach is not only learning approach that involves playing activities during the learning process, but this approach is also applied in online games.

One of the most commonly used online game-based learning platforms is Kahoot. Based on several previous studies, there were four studies that reviewed the effectiveness of Kahoot quiz games and one study using Quizzi in language learning. The study of Idris et al. (2020) Review, Armadi Derus & Mohammad (2021), Yiing Yiing & Mahamod (2021), and Ardi & Rianita (2022) demonstrate the finding that the Kahoot application platform can improve students' academic performance, increase interest and motivation and increase active student engagement in learning activities. This approach also directly creates a fun learning atmosphere in the classroom. Table 4 below shows studies that use Kahoot and Quizzi platforms as games in the PdP process.

Table 6

Effectiveness of Kahoot Game Applications

Idris et al. (2020)	The effectiveness of the Kahoot! platform, improves test performance among young learners of English as a second language (ESL).
Armadi Derus & Mohammad (2021)	The results of this study show an increase in student achievement in the Kahoot! Game-based learning application in learning the Malay language. Kahoot! game can increase students' interest and motivation towards learning. Students are also actively involved in classroom activities and show a sense of enjoyment for learn.
Yiing Yiing & Mahamod (2021)	The use of Kahoot gamification can drive an impressive improvement in students' academic performance. Kahoot acts as a counter-system capable of fostering students' motivation and engagement to answer quiz questions as well as self-assessment during learning.
Ardi & Rianita (2022)	The results of the study show that the Kahoot platform can increase student engagement in six ways, which is to enable students to set goals, helping students focus more on tasks, enable students to build passion and interest in learning, enabling students to experience fun learning activities, facilitating student collaboration with their friends, and meet students' needs for rewards and a sense of competition. Its convenience allows students to enjoy learning English grammar.
Che Ibrahim et al. (2020)	The findings show that most students strongly agree that Quizzi quizzes make students more interested in learning grammar in written discourse.

In addition, the GBL approach can also stimulate students' motivation to actively participate in the process of learning grammar through play methods. The use of game-based applications can attract students' interest and involvement in learning vocabulary and Malay language (Subadah, 2020). This game-based application in this learning activity is very enjoyable and creates a healthy competition in student learning. This is clearly proven

through the results of the study (Ardi & Rianita, 2022) showing that the Kahoot game application can increase student engagement in six ways, which is to enable students to set goals, helping students focus more on tasks, allowing students to build passion and interest in learning, enabling students to experience fun learning activities, facilitate student collaboration with their peers, and meet students' needs for rewards and a sense of competition. The study (Khairuddin & Mailok, 2020) also states that the use of GBL can increase student motivation as well as engage students in a friendly competitive environment with other students. The healthy nature of competition among students can increase motivation and increase their level of mastery in learning. For example, students strive to achieve a good position in the participant's ranking chart, showing increased patience and perseverance as they repeatedly engage in a given activity until they gain a solid understanding of the daily lesson. As a result, they managed to achieve mastery over the topic being studied. As a result, game-based methods of learning are mainly focused on the development of skills across various levels of the game, rather than solely emphasizing competition (Halim & Manis, 2021).

Conclusion

Overall, this systematic literature review study aims to review the level of effectiveness of game-based learning (GBL) method of teaching and learning grammar. Based on the findings from the 17 articles selected in this study, the GBL approach has increased students' interest and motivation in learning aspects of grammar such as learning Malay vocabulary. The use of play methods in learning can increase students' interest by stimulating a sense of curiosity and forming a positive attitude of students towards learning Malay especially grammar. In addition, this approach also encourages the active involvement of students and further fosters students' confidence to try in learning grammar. Through this approach, students will also learn with passion and focus in the classroom because of the learning that applies play method as opposed to traditional and teacher-centered teaching. The GBL approach also clearly shows the increase in students' academic achievement. Students can master the Malay language by using GBL in their learning process. This GBL is one of the PdP alternatives that teachers need to apply so that students are more actively involved in the learning process. GBL is also one of the 21st century teaching methods that promotes the integration of technology in this teaching. Therefore, educators need to play an important role in generating a conducive, contemporary and relevant learning environment suitable for the current generation.

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