

THE IMPLEMENTATION OF THE GAME-BASED LEARNING METHOD THROUGH ONLINE EDUCATIONAL GAMES USING KAHOOT TO IMPROVE ENGLISH VOCABULARY MASTERY OF GRADE I STUDENTS AT GLR CHRISTIAN ELEMENTARY SCHOOL SURABAYA

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Abstract

This study explored the effectiveness of Game-Based Learning (GBL) using Kahoot to enhance English vocabulary mastery among Grade I-B students at GLR Christian Elementary School. Conducted through Classroom Action Research (CAR) over three cycles, the method showed consistent improvement in student performance. Average scores rose from 88.59% (pre-test) to 98.85% (Cycle I), dipped slightly to 97.95% (Cycle II), and increased to 99.10% (Cycle III). Standard deviation dropped significantly, indicating more consistent achievement. The GBL approach also improved student engagement, independence, confidence, and vocabulary retention. All students achieved the learning standard. These results support previous research on the benefits of GBL in enhancing motivation and language skills. Kahoot is recommended as an effective and engaging tool for vocabulary instruction.

Keywords: Game-Based Learning, Kahoot, English vocabulary, Grade 1 students, learning motivation

INTRODUCTION

Language plays a crucial role in every student's life as a medium of communication and a tool for conveying information and fostering mutual understanding. In Indonesia, English is considered a second language and serves as a gateway for students to access global knowledge, technology, education, and communication (Tiara et al., 2020). Although English is taught from the early grades, many students still struggle to master essential vocabulary.

This phenomenon presents a contradiction: despite the recognition of English as a critical subject and the increasing demand for language skills in the global era, students' vocabulary mastery remains low. At GLR Christian Elementary School in Surabaya, for

example, only 20 out of 26 first-grade students demonstrated sufficient vocabulary knowledge during a basic assessment of classroom objects and the alphabet. Traditional teaching methods, such as board games and quizzes, have been applied but have not produced significant improvement in student participation or retention. While 24 out of 26 students frequently use digital devices at home and show enthusiasm for digital learning tools, classroom instruction remains dominated by conventional strategies. This discrepancy between technological readiness and outdated teaching approaches highlights the need for pedagogical innovation.

Several reasons may explain this mismatch. First, vocabulary mastery is foundational to language development; it directly supports students' reading, writing, speaking, and listening skills. According to Decarrio (as cited in Putri et al., 2022), vocabulary forms the building blocks of language, enabling learners to construct meaning and communicate effectively. Students who lack sufficient vocabulary often face difficulties expressing ideas, constructing coherent sentences, and understanding texts. Adelina (2024) emphasizes that the elementary years are a critical period for language development, requiring engaging and contextually relevant teaching strategies.

Furthermore, interactive digital learning methods have shown promising results. Riswanto and Soraya (2022) argue that integrating educational games in English instruction fosters student motivation and enhances vocabulary acquisition. During game-based learning sessions, students tend to be more enthusiastic and confident, and their performance often improves significantly. The rise of platforms like Kahoot, an interactive quiz-based game, offers exciting opportunities to align instruction with students' preferences for technology-rich experiences. Kahoot's ability to gamify content has been shown to increase learner engagement and reinforce vocabulary retention.

Given the gap between traditional instruction and students' digital learning tendencies, this study focuses on the following research question: How can game-based learning using online educational games improve English vocabulary mastery among Grade I students at GLR Christian Elementary School Surabaya? The goal is to investigate whether implementing digital game-based tools like Kahoot can effectively support vocabulary development in early-grade learners and enhance their overall language learning outcomes.

Based on the initial observations conducted in Grade I at GLR Christian Elementary School Surabaya, it was found that students possess limited English vocabulary. Two main contributing factors emerged from this observation. Firstly, the English learning process still predominantly adopts conventional teaching methods, which tend to be monotonous and less engaging for young learners. Secondly, students often perceive English as a foreign and challenging language, leading to a lack of confidence and enthusiasm in learning it.

To address these issues, the researcher proposes the integration of game-based learning (GBL), specifically using the Kahoot educational game platform via tablets. Game-based learning is an innovative educational approach that integrates game elements such as interactivity, competition, and reward systems to foster an engaging and motivating learning environment (Aini, 2018). According to Firdaus and Muryanti (2020), vocabulary acquisition is the foundation of language learning, and interactive games provide meaningful practice that enhances both vocabulary understanding and retention. In addition, Tafonao (2018)

emphasizes that educational games supported by technology result in better learning outcomes compared to traditional approaches, especially in the digital age.

Furthermore, Kahoot has been proven to be an effective educational tool in motivating and involving students in classroom activities. According to Licorish et al. (2018), Kahoot is accessible, customizable, and fosters active participation, collaboration, and formative assessment. This is supported by Irwan et al. (2019), who state that Kahoot allows individual performance assessments through competitive quizzes, simulating real-time comprehension checks in a fun and dynamic way.

The framework guiding this research involves four stages of game-based learning, as proposed by Samudera (2020): (1) selecting games relevant to the learning topic, (2) providing preliminary instruction and explanation of game rules, (3) conducting game-based learning activities, and (4) evaluating the outcomes. These steps ensure that the integration of games into the learning process remains structured, educationally meaningful, and focused on achieving specific learning objectives.

The central focus of this study is to enhance vocabulary acquisition, which plays a crucial role in language proficiency. Nation (2017) posits that vocabulary mastery significantly improves the effectiveness of communication and comprehension. Schmitt (2020) further highlights the role of repetition and active engagement in acquiring new vocabulary. These findings align with Damayanti (2023), who found that online games positively impacted vocabulary learning in elementary school students. Likewise, Suryani and Jusnita (2020) demonstrated the effectiveness of word search games in increasing students' vocabulary, while Sektiarti (2022) showed similar results using running dictation games.

According to Webb and Nation (2017), vocabulary learning is maximized through four essential components: comprehensible input, meaningful output, vocabulary-focused practice, and grammatical awareness. Kahoot's features correspond to these components, offering immersive and interactive learning experiences that promote vocabulary development in context.

Thus, by implementing the Kahoot game as a tool within the game-based learning framework, this research aims to transform the English learning process into a more interactive, confidence-building, and vocabulary-enriching experience for Grade I students. This aligns with the school's broader objective of improving students' English communication abilities through engaging and developmentally appropriate instructional methods.

RESEARCH METHOD

This study was conducted at GLR Christian Elementary School (Sekolah Dasar Kristen GLR) in Surabaya, Indonesia. The research focused on first-grade students (Grade I) who demonstrated limited English vocabulary proficiency. In response to this problem, an intervention using game-based learning (GBL) was deemed necessary to enhance vocabulary acquisition. The classroom action research was implemented over a period of two months, from May to June 2025. This study adopted the Classroom Action Research (CAR) model, which is a systematic inquiry conducted by teachers to improve teaching and learning processes (Arikunto et al., 2017). The research model comprised four main stages in each cycle: (1) Planning, (2) Implementation, (3) Observation, and (4) Reflection.

Each cycle included two 35-minute sessions per meeting per week, following the school's academic schedule. Prior to each cycle, a simulation was conducted as part of the planning phase.

The participants were 26 first-grade students (13 boys and 13 girls) from class I-B at GLR Christian Elementary School. The sampling technique was purposive, based on the specific criteria relevant to the study's aim: improving English vocabulary acquisition through GBL. The classroom teacher acted as a facilitator and observer during the intervention.

According to Irwanto et al. (2019), purposive sampling is effective in educational research where specific characteristics are required to study the treatment effect meaningfully.

The study investigated the effectiveness of game-based learning (GBL) using Kahoot to enhance vocabulary mastery among Grade I students in an EFL context.

Pre-test and post-test were designed to measure vocabulary mastery before and after the GBL intervention, based on the Cambridge Primary Curriculum. Each test consisted of 15 items: 5 matching picture-to-word questions, 5 true/false statements, and 5 multiple-choice items. Minimum Mastery Criteria (KKM) was 68. Classical completeness required $\geq 80\%$ of students to achieve 68. Formula used to measure test success:

$$P = \frac{A}{B} \times 100\%$$

Notes:

P = Percentage of students who passed

A = Number of students scoring ≥ 68

B = Total students (n = 26)

(Nation, 2017)

The observation instrument evaluated four aspects of GBL (Samudera, 2020): game relevance, clarity of material explanation, structure of game execution, learning evaluation. scoring ranged from 1 to 5 on a likert scale. Formula used to evaluate implementation quality:

$$PC = \frac{M}{T} \times 100\%$$

Notes:

PC = Performance score

M = Maximum individual score

T = Total observed score

The goal was $\geq 80\%$ implementation accuracy (Samudera, 2020).

Students completed a Yes/No questionnaire regarding: enjoyment and willingness to play again, confidence in using vocabulary, engagement and understanding (adapted from Anindya, 2021). Formula used to analyze student reflection responses:

$$PC = \frac{Y}{B} \times 100\%$$

Notes:

PC = Percentage of students answering "Yes"

Y = Number of students selecting “Yes”

B = Total number of students (n = 26)

(Anindya, 2021)

Success Indicators

Table 1 - Success Indicators

No	Indicator	Criteria	Supporting Theory
1	≥80% students active in Kahoot	≥20 of 26	Aini (2018) – Games boost motivation
2	Teacher follows all 4 GBL steps	≥80% implementation	Samudera (2020) – Structured method
3	≥80% students score ≥68	At least 21 students	Nation (2017) – Vocabulary threshold
4	Students independently answer	≥80% show autonomy	Irwanto et al. (2019) – Encourages independence

These indicators demonstrate the effectiveness of the GBL method in fostering vocabulary acquisition and learner autonomy in early EFL education.

Analysis and Interpretation

Prior to implementing GBL, a pre-test was administered to assess students' baseline vocabulary knowledge on the theme Animals. The test consisted of 15 items, and the Minimum Mastery Criterion (KKM) was set at 68.

From the results:

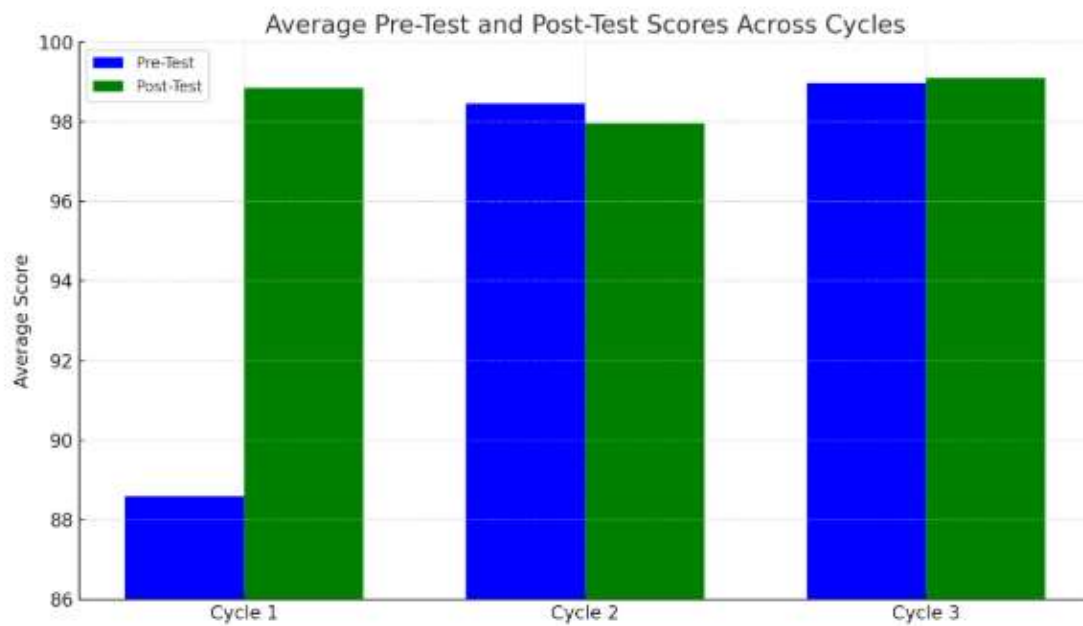
- 20 students (76.9%) met or exceeded the KKM.
- 6 students (23.1%) scored below the KKM.

Despite a majority achieving the KKM, targeted support was needed for the six students who did not. A brief qualitative analysis identified specific challenges ranging from low confidence, poor visual-word association, and inconsistent participation.

The implementation of game-based learning (GBL) using Kahoot over three classroom action research cycles demonstrated a consistent improvement in vocabulary mastery among Grade I students.

Pre-test and Post-test

Figure 1 – Results of Pre-test and Post-test



In Cycle I, the approach resulted in significant gains in student achievement, as evidenced by an increase in the post-test average from 88.59% to 98.85%, with a reduced standard deviation from 12.48 to 2.30. This improvement supports the claim that GBL can lead to both individual mastery and equitable learning outcomes (Nation, 2017).

In Cycle II, while the average pre-test score increased to 98.46%, the post-test average declined slightly to 97.95%. This minor regression is attributable to the suboptimal implementation strategy, including group-based gameplay that may have hindered individual accountability. Additionally, insufficient reinforcement of vocabulary prior to the post-test likely contributed to the decrease. Despite this, the completion rate remained at 100%, maintaining compliance with the minimum mastery criteria (Nation, 2017).

Cycle III addressed these challenges by returning to individualized gameplay and enhancing teacher oversight. As a result, the pre-test average increased to 98.97%, and the post-test average improved to 99.10%, with a reduced standard deviation of 2.01. These outcomes confirm the sustained effectiveness and consistency of GBL when implemented with structured supervision (Samudera, 2020).

Observation

Table 2 - Indicators of the Game-Based Learning (GBL) Method

No	Indicator of Game-Based Learning (GBL) Method	Percentage		
		Cycle I	Cycle II	Cycle III
1	Selecting relevant games	100%	80%	100%
2	Providing material explanations	100%	100%	100%
3	Conducting game-based learning activities	80%	80%	100%
4	Evaluating learning outcomes	80%	80%	100%

Observation data further validates the effectiveness of the GBL approach. In Cycle I, the implementation indicators for relevant game selection, material explanation, gameplay, and evaluation were rated at 100%, 100%, 80%, and 80%, respectively. These ratings dipped slightly in Cycle II, particularly in game relevance (80%) and gameplay evaluation (80%), due to technical limitations and group-based execution. However, in Cycle III, all four indicators reached 100%, reflecting optimized strategy and execution (Aini, 2018; Irwan et al., 2019).

Students Reflection

Student reflection responses also highlight the cognitive and affective benefits of GBL. As for the cycles, participation remained at 100%, while enjoyment and motivation rose from 92% to 96%. Independent effort improved from 85% in Cycle II to 100% in Cycle III, indicating strengthened autonomy (Irwan et al., 2019). Vocabulary retention also rose to 100% in Cycle III, supported by the visual and repetitive nature of the Kahoot platform, aligning with Nation's (2017) framework of meaning-focused input and repetition.

Finally, self-confidence in using English words increased from 88% in Cycle II to 96% in Cycle III. This growth suggests that an emotionally supportive and engaging learning environment—facilitated through GBL—can foster a more confident use of language (Samudera, 2020; Aini, 2018).

In conclusion, the findings confirm that GBL using Kahoot is not only effective for vocabulary acquisition but also beneficial for building learner autonomy, enjoyment, and equitable outcomes, especially when properly supervised and individualized.

CONCLUSION

The implementation of the game-based learning method through online educational games, particularly using the Kahoot platform, has proven to be effective in improving the English vocabulary mastery of Grade I students at GLR Christian Elementary School Surabaya. Through interactive and enjoyable learning experiences, students became more enthusiastic, actively engaged, and motivated to learn. The significant increase in post-test scores across each cycle of action indicates that the use of online educational games can effectively support students in understanding and retaining vocabulary. Therefore, this method may serve as an innovative alternative instructional strategy that positively contributes to the English learning process at the elementary school level.

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