

# Whatsapp and Wordplay: Gamified English Learning in Nonformal Classroom

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## Abstract

English vocabulary mastery presents a significant challenge for nonformal education students characterized by heterogeneous backgrounds and limited face-to-face instructional time. This study explores the effectiveness of gamified vocabulary challenges through WhatsApp in improving vocabulary mastery among Grade XI students at PKBM Arrohmah Demak Package C program. Employing a pre-experimental design with one-group pretest-posttest, the research involved 40 students participating in a two-week gamification program with structured daily and weekly tasks. Data were collected through standardized vocabulary tests and participation tracking via WhatsApp platform. Analysis using paired sample t-test and Pearson correlation revealed significant improvement in mean scores from 56.2 to 74.8 with participation rates reaching 87.5%. The multidimensional assessment system measured timeliness, completeness, accuracy, and creativity with an overall achievement of 77.4%. A strong positive correlation was identified between participation levels and learning achievement. Findings confirm that integrating gamification and mobile learning through WhatsApp effectively enhances vocabulary mastery in nonformal education contexts. This platform offers high accessibility and flexibility suitable for adult learner characteristics. Despite its effectiveness, challenges such as limited internet access and low student creativity require attention in future digital learning implementations.

**Keywords:** *gamification, mobile learning, nonformal education, vocabulary learning, WhatsApp*

## INTRODUCTION

Mastery of English vocabulary presents a distinct challenge for students in nonformal education settings, particularly in Paket C programs that serve learners with diverse backgrounds and learning motivations. Conventional instruction relying heavily on lecturing and rote memorization often fails to sustain students' interest, especially when addressing a generation that has grown up in the digital era (Dörnyei & Ryan, 2023; Saraka, 2020). At the same time, the demand for English proficiency continues to increase as part of global requirements, prompting educators to seek innovative approaches that are more aligned with the characteristics of contemporary learners (Graddol, 2022; Rose et al., 2021).

Gamification in language learning has demonstrated significant potential in enhancing students' motivation and learning outcomes (Sailer & Homner, 2020; Setiani et al., 2024; Zainuddin et al., 2020). The concept of gamification, which integrates game elements such as points, challenges, and achievements into learning activities, creates more engaging and meaningful learning experiences (Koivisto & Hamari, 2020; Setiani et al., 2024). Recent studies reveal that gamification not only increases student engagement but also promotes sustained learning through consistent positive reinforcement mechanisms (Sailer & Homner, 2020; Setiani et al., 2024). In the context of vocabulary learning, gamified approaches enable students to interact with learning materials more actively and enjoyably, thereby reducing foreign language anxiety, which is often a major barrier in language acquisition (Hung et al., 2022; Purgina et al., 2020).

WhatsApp, as a mobile learning platform, offers exceptional accessibility, particularly within the context of nonformal education in Indonesia. With smartphone penetration exceeding 85% among adolescents and young adults, WhatsApp has become a familiar and easily accessible medium that does not require complex additional infrastructure (Statista Research Department, 2023). The use of instant messaging applications in language learning has been proven effective in facilitating authentic communication, providing rapid feedback, and fostering supportive learning communities (Andújar & Salaberri-Ramiro, 2021; Cumanda & Villacres, 2024; Klimova, 2021). The combination of gamification and mobile learning technology creates opportunities to design learning experiences that are flexible, personalized, and compatible with the digital lifestyles of contemporary learners (Crompton & Burke, 2020; Turahman, 2024).

Previous research indicates that the integration of mobile technology with gamification strategies can significantly enhance vocabulary retention (Crompton & Burke, 2020; Fithriani, 2021; Puspitarini & Hanif, 2022). However, studies focusing on the implementation of WhatsApp-based gamification in nonformal education contexts, particularly within Paket C programs, remain limited. Learning in nonformal settings is characterized by limited face-to-face instructional time, heterogeneous learner profiles, and high flexibility, thus requiring adaptive and easily accessible instructional strategies (Afrianti, 2003; Rogers & Horrocks, 2021). This study seeks to address this gap by exploring the effectiveness of a gamified vocabulary challenge delivered through WhatsApp in improving English vocabulary mastery among Grade XI Paket C students at PKBM Arrohmah Demak. The intervention integrates structured daily and weekly tasks while maintaining an enjoyable learning atmosphere (Kapp & Blair, 2020; Koivisto & Hamari, 2020).

Based on the background outlined above, this study is guided by the following research question: How does the implementation of a gamified vocabulary challenge through WhatsApp enhance English vocabulary mastery among Grade XI Paket C students at PKBM Arrohmah Demak? Specifically, the study examines students' levels of participation in gamified learning activities, the development of their vocabulary learning outcomes over a two-week intervention period, and the quality of task completion, including timeliness, completeness, accuracy, and creativity. The purpose of this study is to describe and analyze the effectiveness of

using WhatsApp as a gamified learning platform to improve English vocabulary mastery among students in nonformal education settings. Specifically, the study measures improvements in students' vocabulary scores from pretest to posttest, identifies patterns of student participation in completing daily and weekly challenges, and evaluates the quality of student performance across various aspects of task completion (Dörnyei & Ryan, 2023; Nation & Webb, 2020; Rogers & Horrocks, 2021). The findings are expected to provide a comprehensive overview of the potential integration of mobile technology and gamification in language learning within nonformal education contexts.

This study offers practical contributions for educators in nonformal education settings by providing insights into designing more engaging and accessible language learning experiences through the use of technologies that are already familiar to students. From a theoretical perspective, the study enriches the literature on mobile-assisted language learning and gamification within the still underexplored context of nonformal education. Furthermore, the findings may serve as a reference for educational policymakers in developing effective distance or blended learning programs, particularly for equivalency education programs that require high flexibility while maintaining optimal instructional quality.

## **RESEARCH METHODOLOGY**

This study employed a quantitative approach with a pre-experimental design using a one-group pretest–posttest design to examine the effectiveness of WhatsApp-based gamification in improving students' English vocabulary mastery. This design was selected because it is appropriate for research aiming to identify changes in participants' abilities after the implementation of an intervention in a natural setting without a control group, which is particularly relevant to nonformal education contexts that face limitations in organizing experimental groups (Winarko et al., 2023). The study was conducted over a two-week period at PKBM Arrohmah and involved 40 eleventh-grade Paket C students as research participants, selected through purposive sampling based on their willingness to participate in the program and ownership of a smartphone with an active WhatsApp application.

The instructional intervention was designed based on gamification principles by integrating elements of challenges, rewards, and feedback through structured daily and weekly tasks. Each day, students received vocabulary challenges via the class WhatsApp group consisting of five new words presented with contextual usage, and they were required to submit evidence of mastery in the form of sentences, images, short videos, or audio recordings, according to their creativity. A point-based mechanism was applied based on four assessment criteria: timeliness of submission (maximum of 10 points), task completeness (maximum of 10 points), accuracy of vocabulary use (maximum of 10 points), and creativity of presentation (maximum of 5 points), resulting in a maximum total of 35 points per day. This approach adopted the Self-Determination Theory framework, which emphasizes the roles of autonomy, competence, and social relatedness in fostering learners' intrinsic motivation (Ryan & Deci, 2020). At the end of each week, face-to-face

review sessions and vocabulary quizzes were conducted to assess students' retention and comprehension.

The data collection instruments consisted of a standardized vocabulary test adapted from the Cambridge English Vocabulary Profile at the A2–B1 proficiency levels, comprising 50 multiple-choice items and 10 gap-filling items designed to assess meaning comprehension, contextual usage, and collocations. The same test was administered as a pretest prior to the intervention, the first posttest after the first week, and the second posttest at the end of the second week to measure incremental progress. Content validity of the instrument was established through expert judgment by two English language lecturers, while reliability was examined using Cronbach's alpha, yielding a coefficient of 0.87, which indicates good internal consistency (Mutiarawati & Dema, 2023). In addition to the test data, student participation data were collected through daily task submission tracking on the WhatsApp platform, along with documentation of performance scores for each assessment criterion.

Data analysis was conducted using descriptive statistics to illustrate levels of participation, daily task performance, and the distribution of test scores. Improvements in vocabulary mastery were analyzed using paired-sample t-tests to compare pretest and posttest scores, with the significance level set at  $\alpha = 0.05$ . Prior to conducting parametric testing, the assumption of data normality was examined using the Shapiro–Wilk test. Participation data were categorized into three levels based on task submission frequency: consistently active (six days per week), partially active (three to five days per week), and inactive (fewer than three days per week). Pearson correlation analysis was employed to explore the relationship between participation levels and posttest achievement scores. All statistical analyses were performed using SPSS version 26, with careful attention to objectivity and transparency in reporting the results.

## **FINDING AND DISCUSSIONS**

### **Findings**

#### ***Level of Student Participation in Gamified Learning***

The implementation of a gamified vocabulary challenge via WhatsApp over a two-week period revealed considerable variation in participation levels among 40 eleventh-grade Paket C students at PKBM Arrohmah. Based on the frequency of daily task submissions, students were categorized into three distinct participation groups. The results of this categorization indicate that more than half of the students demonstrated consistent commitment to the designed learning program.

Table 1. Student Participation Levels in Gamified Learning

<b>Participation category</b>	<b>Number of student</b>	<b>Percentage</b>
Consistently Active (6 days/week)	22	55%
Partially Active (3–5 days/week)	13	32.5%
Inactive (<3 days/week)	5	12.5%
<b>Total</b>	<b>40</b>	<b>100%</b>

The data presented in Table 1 reveal that 22 students, or 55% of the total participants, were classified as consistently active, submitting assignments almost every day throughout the program. This group demonstrated high enthusiasm for the vocabulary challenges and actively interacted in the class WhatsApp group. Meanwhile, 13 students (32.5%) fell into the partially active category, completing tasks at a frequency of 3–5 days per week. Although not as consistent as the first group, students in this category still showed a fairly good level of engagement in the learning process. Only 5 students (12.5%) were categorized as inactive, submitting assignments on fewer than 3 days per week, indicating the presence of certain barriers to participating in this digital-based learning program.

The observed participation pattern indicates that the majority of students were able to adapt to the gamified learning format delivered via WhatsApp. The high percentage of consistently active students suggests that WhatsApp is a familiar and easily accessible platform for non-formal education students. Several factors were observed to contribute to the high level of participation, including ease of access to WhatsApp on smartphones, a motivating point-based system, and positive peer pressure within the class group that encouraged students to remain engaged. Nevertheless, students in the inactive group faced challenges such as limited internet data, inflexible work schedules, and a lack of initial understanding of the gamification mechanisms.

### **Improvement in English Vocabulary Mastery**

The vocabulary test results showed a consistent and progressive improvement from the pretest to the posttest in the second week. The assessment was conducted in three stages to examine the gradual development of students' vocabulary mastery throughout the two-week intervention period.

Table 2. Students' Vocabulary Test Results

<b>Test type</b>	<b>Mean score</b>	<b>Highest score</b>	<b>Lowest score</b>
Pretest	56.2	78	34
Posttest week 1	68.5	88	40
Posttest week 2	74.8	94	46

Table 2 shows a clear upward trend across all measurement stages. The mean pretest score was 56.2, indicating that students' initial vocabulary mastery was at a low-to-moderate level. After one week of intervention, the mean score increased to 68.5, representing a gain of 12.3 points or approximately 21.9% relative to the initial score. This improvement continued in the second-week posttest, with the mean score reaching 74.8, reflecting an additional increase of 6.3 points from the first week and a total gain of 18.6 points (33.1%) from the pretest score.

Notably, the consistency of improvement was observed not only in the mean scores but also across the ranges of the highest and lowest scores. The highest score increased from 78 in the pretest to 88 in the first posttest and further to 94 in the second posttest. Similarly, the lowest score improved from 34 to 40 and then to 46, indicating that even students with lower initial proficiency experienced positive development. The widening

of the gap between the highest and lowest scores from 44 points (pretest) to 48 points (second posttest) suggests that although individual differences remained, all groups of students benefited from the instructional intervention.

The results of the paired-sample t-test revealed that the improvements from the pretest to the first-week posttest ( $t = 8.45, p < 0.001$ ) and from the pretest to the second-week posttest ( $t = 12.67, p < 0.001$ ) were both statistically significant. These findings confirm that the gamified vocabulary challenge delivered via WhatsApp was effective in enhancing students' vocabulary mastery. The greater improvement observed in the first week (12.3 points) compared to the second week (6.3 points) can be explained by a learning curve effect, in which students experience rapid progress during initial exposure to new material, followed by a slower rate of improvement as they approach higher levels of mastery.

### **Quality of Students' Performance in Daily Challenges**

The evaluation of students' performance on daily tasks was conducted using an assessment rubric covering four aspects: timeliness, completeness, vocabulary accuracy, and creativity. Each aspect was rated using a predetermined scale, with a maximum total score of 35 points per day.

Table 3. Students' Performance in Daily Challenges

<b>Assessment Aspect</b>	<b>Maximum Score</b>	<b>Mean Score</b>	<b>Percentage of Achievement</b>
Timeliness	10	7.5	75%
Completeness	10	8.2	82%
Vocabulary Accuracy	10	7.8	78%
Creativity	5	3.6	72%
<b>Total</b>	<b>35</b>	<b>27.1</b>	<b>77.4%</b>

The data presented in Table 3 indicate that, overall, students achieved an average score of 27.1 out of a maximum of 35 points, equivalent to approximately 77.4% of the total possible score. This achievement suggests that the majority of students completed the tasks satisfactorily, although there remains room for improvement. The completeness aspect obtained the highest average score of 8.2 (82%), indicating that students were relatively disciplined in completing all required components of the tasks. This finding reflects the effectiveness of the point-based system in motivating students to complete each element of the daily challenges. The vocabulary accuracy aspect achieved an average score of 7.8 (78%), demonstrating that students were generally able to use newly learned vocabulary appropriately within relevant contexts. Timeliness reached an average score of 7.5 (75%), indicating that most students were able to submit their assignments within the designated deadlines, although some submissions were still delayed. This

relatively good level of timeliness suggests that the flexibility of WhatsApp, which allows task submission at any time throughout the day, supported students with diverse schedules in maintaining participation.

However, the creativity aspect received the lowest average score, at 3.6 out of 5 points (72%). This lower score indicates that students tended to rely on conventional approaches when demonstrating vocabulary mastery, such as composing simple sentences or submitting photos with brief captions. Only a small number of students ventured to create creative videos, digital comics, or other innovative presentations. This phenomenon may be attributed to students' limited digital skills, lack of confidence in expressing creativity, or unfamiliarity with task formats that demand higher levels of creative engagement.

### ***Relationship Between Participation and Learning Achievement***

Correlation analysis using Pearson's correlation revealed a significant positive relationship between students' level of participation and their second-week posttest scores ( $r = 0.68$ ,  $p < 0.001$ ). Students classified as consistently active achieved an average posttest score of 79.4, while the partially active group obtained an average score of 71.2, and the inactive group achieved only 58.6. These data confirm that active and consistent engagement in completing daily challenges contributes significantly to the improvement of vocabulary mastery. Students who interacted more frequently with learning materials and completed tasks regularly had greater opportunities to practice new vocabulary, receive feedback, and strengthen memory retention. This finding aligns with language learning principles emphasizing the importance of repeated exposure and sustained practice for effective vocabulary acquisition.

## **Discussion**

### ***The Effectiveness of WhatsApp-Based Gamification in Vocabulary Learning***

The progressive improvement in vocabulary mastery demonstrated in this study confirms the effectiveness of a gamification-based approach implemented through the WhatsApp platform. The increase in the mean score from 56.2 on the pretest to 74.8 on the second-week posttest represents a 33.1% improvement within a two-week period, which can be considered a significant achievement in the context of vocabulary learning. These results are consistent with findings indicating that gamified applications such as Quizizz are effective in improving students' vocabulary achievement by providing engaging features and facilitating a more interactive learning process (Panmei & Waluyo, 2023; Sari, 2024; Zhao, 2023). Similarly, the use of Quizlet in vocabulary learning has been shown to enhance students' enthusiasm and motivation in learning English (Dizon & Tang, 2021). Related studies also reveal that Quizlet is effective in

facilitating vocabulary learning in an engaging manner and in fostering greater student enthusiasm in English language learning.

The success of this program cannot be separated from the characteristics of gamification that integrate elements of challenge, reward, and feedback, which foster students' intrinsic motivation. The point system implemented in the daily challenges created a structured yet flexible learning environment, allowing students to monitor their progress in real time. Research has shown that Mobile Assisted Language Learning (MALL) has a positive effect on improving students' English proficiency, particularly in vocabulary acquisition, as it provides access to diverse learning resources and practice activities aligned with students' interests (Klimova & Polakova, 2020; Wiwin et al., 2024). The consistent improvement observed from the first to the second week indicates that continuous exposure to new vocabulary through daily tasks facilitates the transfer of information from short-term memory to long-term memory, which is essential for sustainable vocabulary mastery (Nation, 2022).

Interestingly, the improvement in the lowest score from 34 to 46 indicates that even students with lower initial proficiency benefited from this approach. This finding suggests that WhatsApp-based gamification has the potential to reduce ability gaps in the classroom by providing learning opportunities that are accessible to students at all proficiency levels. These results support the argument that smartphone-based technology in language learning can expand learners' vocabulary range, provide engaging and interactive English practice, and promote learner autonomy and self-directed learning due to its practical, portable, and flexible nature (Aprilani, 2021; Burston, 2022). The high accessibility of WhatsApp enables students from diverse economic backgrounds and varying levels of technological proficiency to participate equally, making this platform inclusive for nonformal education contexts.

### ***The Role of WhatsApp as a Mobile Learning Platform***

WhatsApp has proven to be an effective platform for implementing gamified learning in nonformal education settings. The student participation rate of 87.5% (consistently active and partially active students) indicates that this platform is familiar and easy to use for Paket C learners, who exhibit heterogeneous characteristics in terms of age, educational background, and technological skills. Previous studies have shown that WhatsApp is highly valuable for practicing all language skills, particularly when implemented in small groups and combined with offline classes to enhance students' sense of responsibility and participation in discussions (Andújar & Salaberri-Ramiro, 2021; Bounnik & Deshen, 2020; Rizkiawati & Ganesha, 2024). In this study, the use of a class WhatsApp

group fostered a supportive learning community in which students interacted not only with the teacher but also motivated one another through peer learning.

The flexibility of WhatsApp in facilitating task submission anytime and anywhere aligns well with the characteristics of nonformal education learners, most of whom are adult learners with work commitments. A punctuality score of 75% indicates that despite busy schedules, students were able to complete assignments within the specified deadlines. This finding reinforces the view that mobile devices have become an essential part of daily life and can be utilized for various activities, including learning. WhatsApp's ability to support multiple media formats, such as text, images, audio, and video, provides students with the freedom to demonstrate their vocabulary mastery according to their individual preferences and skills.

Nevertheless, the use of WhatsApp as a learning management system also has limitations. The platform is not specifically designed for educational purposes and therefore lacks features such as automatic progress tracking, integrated assessment systems, and structured content organization found in conventional LMS platforms. Teachers are required to manually document student participation and assessment, which can increase administrative workload. Research has identified technical issues and confusion as challenges associated with smartphone use in language learning (Putu et al., 2024). In the context of this study, some students experienced difficulties related to limited internet data and disruptive notifications that could divert their attention from learning. Therefore, the implementation of MALL should carefully consider students' access to smartphones, internet connectivity, costs, usability, and workload to ensure the effectiveness of smartphone-based instructional design.

### **Challenges in Implementing Gamified Learning**

Although the findings demonstrate high effectiveness, several significant challenges were identified in the implementation of gamified learning via WhatsApp. First, variations in participation levels indicate that not all students were able to engage consistently in digital learning. Five students (12.5%) categorized as inactive faced barriers such as limited internet data, inflexible work schedules, and low digital literacy. This condition reflects the reality of nonformal education in Indonesia, where learners come from diverse socio-economic backgrounds and do not all have equal access to technology and the internet. Factors such as student access, internet connectivity, and implementation costs should therefore be seriously considered when designing MALL to ensure inclusivity (Putu et al., 2024).

Second, the relatively low creativity score (3.6 out of 5, or 72%) indicates that students tended to adopt conventional approaches when demonstrating their vocabulary mastery. Most students produced simple sentences or submitted photos with brief captions, while only a few attempted to create creative videos or innovative presentations. This phenomenon may be attributed to several factors: first, limited digital literacy, which reduces familiarity with editing applications or creative tools; second, a lack of self-confidence and fear of making mistakes in front of peers; and third, limited exposure to learning formats that emphasize creativity after years of teacher-centered conventional instruction. To address this issue, teachers need to provide adequate scaffolding, including examples of creative work, simple application tutorials, and a supportive learning environment in which errors are viewed as a natural part of the learning process.

Third, the significant achievement gap between consistently active students (79.4) and inactive students (58.6) highlights the importance of strategies aimed at increasing engagement among less active learners. Research suggests that combining WhatsApp-based learning with offline sessions can enhance students' sense of responsibility and participation (Bouhnik & Deshen, 2020; Hening et al., 2021). In this context, teachers may implement strategies such as conducting personal follow-ups with inactive students to identify specific barriers, providing internet data support or allocating school time with free Wi-Fi access, forming study buddy systems in which active students support less active peers, and offering positive reinforcement and public recognition for every small improvement achieved by students.

### ***Practical and Theoretical Implications***

The findings of this study offer significant practical contributions for educators in nonformal education settings. First, the WhatsApp-based gamification learning model can be adopted as an effective alternative or complement to face-to-face instruction, particularly for students with limited time and mobility. The integration of technology with instructional techniques such as drilling has been shown to improve vocabulary mastery, enhance learning motivation, and create a more comfortable classroom atmosphere (Hening et al., 2021). This model is also highly relevant for distance learning or blended learning contexts that have become increasingly common in the post-pandemic era.

Second, the multidimensional assessment system encompassing punctuality, completeness, accuracy, and creativity provides a holistic evaluation framework that can be adapted across various subjects. From a theoretical perspective, this study enriches the MALL literature by

providing empirical evidence of its effectiveness in the context of nonformal education in Indonesia, particularly in Paket C programs, which have received limited research attention. The strong positive correlation between participation and learning achievement ( $r = 0.68$ ) reinforces the theory that engagement is a key predictor of learning success in digital learning environments. These findings also support the view that smartphone-supported language learning applications are beneficial for learners and are recommended for use in vocational education as part of informal learning processes (Mutiaraningrum & Nugroho, 2021).

However, several limitations of this study should be acknowledged. First, the two-week intervention duration is relatively short for measuring long-term vocabulary retention. Future research is therefore recommended to explore the long-term effects of gamification on vocabulary retention. Second, the pre-experimental design without a control group limits the ability to draw strong causal conclusions. Third, this study focused solely on one language skill—vocabulary—and did not examine its impact on other language skills. Future studies may employ quasi-experimental designs with control groups to provide stronger evidence of the effectiveness of this approach (Hidayat, 2024), as well as explore its application across different proficiency levels and its impact on students' long-term motivation in language learning.

## **CONCLUSION AND SUGGESTION**

### **Conclusion**

The implementation of a gamified vocabulary challenge through WhatsApp was proven to be effective in improving English vocabulary mastery among Grade XI Paket C students at PKBM Arrohmah Demak, as indicated by a 33.1% increase in mean scores from the pretest to the second-week posttest. The high level of student participation (87.5%) demonstrates that WhatsApp is a familiar, accessible, and inclusive platform for learners from diverse backgrounds in nonformal education settings. The multidimensional assessment system encompassing punctuality, completeness, accuracy, and creativity provided a structured yet flexible learning framework, while the strong positive correlation between participation and learning achievement underscores the importance of active engagement in digital learning environments.

Nevertheless, several challenges were identified, including limited internet access, low levels of student creativity, and varying degrees of participation. Therefore, educators are encouraged to integrate digital learning with face-to-face sessions to strengthen vocabulary retention and provide personalized support for students encountering participation barriers. The provision of adequate scaffolding, such as tutorials on the use of creative applications and examples of innovative student work, may help enhance learners' creativity. In addition, nonformal education institutions should consider providing internet data packages or free Wi-Fi access to mitigate technical constraints faced by economically disadvantaged students.

### **Suggestion**

Future research is recommended to employ quasi-experimental designs with longer intervention durations to examine long-term vocabulary retention, its impact on other language skills such as speaking and writing, and the development of gamification models integrated with learning management systems to reduce teachers' administrative workload. Collaboration among educators, policymakers, and educational technology practitioners is essential to establish an inclusive, effective, and sustainable digital learning ecosystem within the context of nonformal education in Indonesia.

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