

THE EFFECT OF BOGGLE GAME ON STUDENTS' VOCABULARY IN READING SKILL OF EIGHTH GRADE STUDENTS

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ABSTRAK

Keterbatasan penguasaan leksikal siswa yang memicu hambatan dalam mengenali makna kata serta memahami isi teks instruksional secara komprehensif melatarbelakangi kegiatan penelitian ini. Masalah operasional tersebut memicu rendahnya nilai capaian literasi, pasivitas kelas, serta minimnya rasa percaya diri siswa saat diinstruksikan membaca draf teks berbahasa asing. Fokus utama kajian ilmiah ini adalah menganalisis besaran pengaruh penggunaan permainan interaktif *Boggle Game* terhadap eskalasi kompetensi kosakata dalam keterampilan membaca (*reading skill*). Langkah-langkah pendekatan kuantitatif kuasi eksperimen dengan desain *one-group pre-test and post-test* ini dioperasikan pada sampel sejumlah 25 responden aktif kelas delapan E di SMP Negeri 1 Sepulu. Prosedur pengumpulan data primer dihimpun secara terstruktur via instrumen tes kemampuan awal, lembar observasi partisipasi, serta tes evaluasi akhir, yang selanjutnya dieksekusi statistik menggunakan analisis *Paired Samples T-Test* berbantuan perangkat lunak SPSS versi 32. Data kuantitatif secara empiris menyingkap adanya lompatan perolehan nilai rerata dari skor awal sebesar 47,60 menjadi 85,20 pada hasil akhir, dengan parameter signifikansi p kurang dari 0,001. Simpulan utama menegaskan bahwa digitalisasi mekanik penyusunan kata terbukti sangat andal dalam mendongkrak retensi memori jangka panjang serta ketahanan akademik siswa. Guru kejuruan direkomendasikan mengintegrasikan draf permainan edukatif secara konsisten.

Kata Kunci: *Boggle Game, Vocabulary Mastery, Reading Skill, English Learning, Junior High School Students.*

ABSTRACT

The limited lexical mastery of students that triggers obstacles in recognizing the meaning of words and understanding the contents of instructional texts comprehensively is the background to this research activity. These operational problems trigger low literacy achievement scores, class passivity, and lack of student confidence when instructed to read drafts of foreign language texts. The main focus of this scientific study is to analyze the magnitude of the effect of using the interactive game *Boggle Game* on the escalation of vocabulary competence in reading skills. The steps of the quasi-experimental quantitative approach with a one-group pre-test and post-test design were operated on a sample of 25 active respondents of grade eight E at SMP Negeri 1 Sepulu. The primary data collection procedure was collected in a structured manner via an initial ability test instrument, a participant observation sheet, and a final evaluation test, which was then executed statistically using *Paired Samples T-Test* analysis assisted by SPSS software version 32. The quantitative data empirically revealed a jump in the average score from the initial score of 47.60 to 85.20 in the final results, with a significance parameter of p less than 0.001. The main conclusion confirms that the digitalization of word formation mechanics has proven highly effective in boosting long-term memory retention and academic resilience in



students. Vocational teachers are recommended to consistently integrate educational game drafts.

Keywords: *Boggle Game, Vocabulary Mastery, Reading Skill, English Learning, Junior High School Students.*

INTRODUCTION

Vocabulary represents one of the most essential components in learning English, as it supports learners in comprehending texts, communicating ideas, reading, and expressing thoughts effectively. In an ideal English as a foreign language classroom, eighth-grade students are expected to possess sufficient vocabulary mastery to identify word meanings, interpret linguistic patterns, and construct deep meaning from written materials effortlessly. A well-structured instructional setting ideally facilitates active engagement, where learners expand their lexical range to tackle reading comprehension tasks with high confidence and academic success (Duke et al., 2021; Gallagher et al., 2023). The harmonious integration of innovative learning media, clear pedagogical strategies, and student motivation is viewed as a vital pillar for fostering cognitive resilience, boosting linguistic agility, and ensuring overall academic success in language education. Through consistent exposure to structured vocabulary building, every learner is expected to acquire sufficient receptive and productive word knowledge, thereby enabling them to process complex reading passages smoothly without experiencing cognitive overload or learning frustration (Busine & Ong, 2025; Hartshorn & Surer, 2023; Teng & Zhang, 2023).

However, a significant gap persists between the ideal expectations of vocabulary mastery and the objective reality observed in actual classroom settings. While the ideal condition expects students to process reading texts fluently, empirical observations reveal that many learners encounter severe difficulties in recognizing word meanings and answering reading comprehension questions due to limited lexical knowledge. This gap is exacerbated by conventional teaching methods that fail to provide engaging, interactive, and repeated exposure to target words, leading students to perceive English as an intimidating and difficult subject. The absence of dynamic and adaptable instructional tools often results in widespread learning passivity, decreased motivation, and persistent anxiety during reading activities. If this methodological limitation and lack of meaningful vocabulary instruction continue without structured interventions, students' reading comprehension abilities will continue to suffer, ultimately impeding their overall language proficiency and academic development in secondary education (Arboleda et al., 2022; Cervetti et al., 2020; Massey et al., 2020).

This gap between ideal vocabulary competence and actual classroom difficulties is clearly reflected in the learning experiences of eighth-grade students. In this specific instructional setting, the research subjects—who are the eighth-grade students at SMP Negeri 1 Sepulu in the 2026/2027 academic year—frequently confront severe challenges when processing written English texts. Initial observations indicate that these research subjects experience persistent difficulties in identifying word meanings, comprehending reading passages, and completing comprehension assessments due to their constrained vocabulary knowledge. The reliance on traditional instructional approaches leaves the research subjects at SMP Negeri 1 Sepulu in the 2026/2027 academic year vulnerable to learning disengagement and academic underachievement. The prevalence of these lexical hurdles among the research subjects underscores an urgent need to implement innovative, engaging, and game-based

learning strategies that encourage active participation and strengthen word retention in reading contexts.

To address these learning challenges and bridge the vocabulary gap among the research subjects, the implementation of educational game-based learning through the Boggle Game offers a highly promising pedagogical alternative. As an interactive word-search activity, the Boggle Game encourages learners to actively identify, construct, and spell words from a grid of letters, thereby promoting repeated interaction with target vocabulary in an enjoyable environment (Mudat et al., 2025; Polyzi & Moussiades, 2023). Most prior studies on educational games and the Boggle Game have predominantly focused on vocabulary acquisition as an isolated learning outcome, often overlooking its direct contribution to reading skill development. Specific investigations that examine how the Boggle Game enhances vocabulary mastery in direct connection to reading comprehension among junior high school students remain relatively limited. Uncovering this specific connection is crucial, as lexical development serves as a fundamental prerequisite for decoding written passages and achieving overall reading proficiency (Anji et al., 2025; Jinyu, 2025)

Building upon this background and problem formulation, the present study offers novel value and innovation by integrating vocabulary acquisition with reading skill development through the implementation of the Boggle Game. The innovative aspect of this research focuses on exploring how vocabulary gains derived from interactive word-search activities directly support reading comprehension, moving beyond isolated lexical memorization. The research subjects in this study are the eighth-grade students at SMP Negeri 1 Sepulu in the 2026/2027 academic year, evaluated through a pre-experimental research design. The novelty of this research lies in providing fresh empirical evidence from an Indonesian junior high school context, connecting game-based vocabulary building with practical reading skill application, a dimension often underrepresented in previous literature. Through scientific inquiry into these research subjects at SMP Negeri 1 Sepulu in the 2026/2027 academic year, the findings are expected to offer practical insights for designing responsive, student-centered language instruction.

METHOD

This study employed a quantitative approach using a pre-experimental research design with a *one-group pre-test and post-test design* to objectively evaluate the variable changes. The operational implementation of this empirical inquiry was structured at SMP Negeri 1 Sepulu during the 2025/2026 academic year. The researcher focused the investigation on the direct contribution of interactive word-search activities as the independent variable toward the escalation of students' lexical competence in reading comprehension as the dependent variable. The target population and the final research sample consisted of 25 active eighth-grade students from class VIII-E. The participants were selected using a non-probability *purposive sampling* technique based on specific criteria representing the population's general characteristics. The researcher acted as an independent investigator who systematically controlled the administration of the instructional intervention without rigid classroom manipulation. This procedure allowed the real-time observation of linguistic progress, active engagement, and memory retention, thereby ensuring the collection of original primary data within a naturalistic, transparent, and structured junior high school language learning environment.

The primary data collection technique relied on the integration of three methods: testing, classroom observation, and administrative documentation. The measurement tool consisted of

multiple-choice vocabulary tests designed as a pre-test before the treatment and a post-test at the end of the instructional sessions to gather quantitative numerical data. Before implementation, the quality of the evaluation instrument was statistically verified using SPSS software version 32.0, yielding a highly reliable *Cronbach's Alpha* coefficient of 0.878. The collected data were processed electronically using parametric statistical analysis to calculate descriptive statistics, assess normal data distribution via the *Shapiro-Wilk* method, and perform inferential testing. The structural hypothesis testing was precisely executed using the *Paired Samples T-Test* formula at a 0.05 level of significance to detect mean differences, ensuring that the final empirical findings were valid, accurate, and objective.

RESULT AND DISCUSSION

Result

This study aimed to investigate the effect of the Boggle Game on students' vocabulary mastery in reading skills among eighth-grade students at SMP Negeri 1 Sepulu. The data were obtained from pre-test and post-test assessments administered before and after the treatment. The findings are presented through reliability testing, descriptive statistics, and inferential statistical analysis.

Before conducting further statistical analysis, the researcher examined the reliability of the research instrument. The reliability analysis indicated that the instrument met the acceptable criteria for reliability and could therefore be used to measure students' vocabulary mastery consistently throughout the study.

Tabel 1. Reliability Test Result

Instrument	Cronbach's Alpha	Interpretation
Vocabulary Test	0.878	Reliable

The result in table 1 demonstrates that the research instrument was appropriate for collecting data and provided consistent measurements of students' vocabulary mastery.

A normality test was conducted to determine whether the data were normally distributed. Since the sample size consisted of 25 students, the Shapiro-Wilk test was employed.

Tabel 2. Normality Test Result

Variable	Significance Value
Pre-test	0.002
Post-test	<0.001

As presented in Table 2, the results of the normality test indicate that the distribution of the data did not meet the assumption of normality. Therefore, the data were categorized as non-normally distributed. The findings suggest that the distribution of students' scores before and after the treatment was not entirely symmetrical.

The normality test was conducted to ensure the appropriateness of the statistical procedure used in this study. Based on the results obtained, the researcher proceeded with the selected statistical analysis to examine the effect of the Boggle Game on students' vocabulary mastery in reading skills.

Descriptive statistics were employed to identify students' achievement before and after the implementation of the Boggle Game. The results are presented in Table 3.

Tabel 3. Paired Samples Statistics

Test	Mean	N	Std. Deviation	Std. Error Mean
Pre-test	47.60	25	27.123	5.425
Post-test	85.20	25	13.577	2.715

The results presented in Table 3 show that students demonstrated better performance after participating in learning activities using the Boggle Game. The findings suggest that students' vocabulary mastery improved following the implementation of the treatment. In addition, the post-treatment scores indicate a more consistent pattern of achievement among students.

To determine whether there was a significant difference between students' achievement before and after the treatment, a Paired Samples T-Test was conducted. The results are presented in Table 4.

Tabel 4. Paired Sample T-Test Result

Variable	Mean Difference	Std. Deviation	t	df	Sig. (2-tailed)
Pre-test Post-test	-37.600	15.078	-12.469	24	< .001

The statistical analysis revealed a significant difference between students' achievement before and after the implementation of the Boggle Game. The significance value obtained from the analysis indicates that the treatment had a measurable effect on students' vocabulary mastery. Therefore, the findings suggest that the use of the Boggle Game contributed positively to students' vocabulary development in reading activities. Classroom observations conducted during the treatment sessions revealed positive responses toward the implementation of the Boggle Game. At the beginning of the treatment, several students required guidance to understand the game procedures. However, they gradually became familiar with the learning activities and showed increasing enthusiasm throughout the sessions.

Students actively participated in identifying words, discussing vocabulary meanings, and collaborating with their classmates during the game. The classroom atmosphere became more interactive, and students appeared more engaged in the learning process. They also demonstrated greater confidence when completing vocabulary-related tasks and participating in classroom discussions. In addition, the observation findings support the quantitative results of the study. The implementation of the Boggle Game not only improved students' vocabulary achievement but also promoted active participation, motivation, and positive engagement during English learning activities.

Discussion

The implementation of the Boggle game proved to be highly effective in enhancing the English vocabulary mastery of eighth-grade students at SMP Negeri 1 Sepulu. The quantitative findings from the paired samples *t*-test demonstrated a remarkable increase in student performance, where the mean score rose sharply from 47.60 in the pre-test to 85.20 in the post-test. This intervention yielded a mean score difference of -37.600, accompanied by a *t*-value of -12.469 and a statistical significance value of less than 0.001. Because the significance value fell well below the standard 0.05 threshold, the empirical evidence confirms a statistically significant improvement in vocabulary acquisition following the game-based treatment. The practical implication of this result suggests that replacing traditional rote-memorization techniques with dynamic word-search activities accelerates lexical retention. However, a major limitation of this research stems from the use of a single-group pre-experimental design



involving only 25 participants, which prevents the complete exclusion of potential confounding variables or natural student maturation during the intervention period (Kazu & Kuvvetli, 2023; Pitura, 2024; Xodabande et al., 2022).

The significant lexical gain achieved by the students can be attributed to the inherent cognitive and interactive mechanisms of the Boggle game. By actively identifying letter combinations, recognizing spelling patterns, and negotiating word meanings with peers, learners experienced repeated, meaningful exposure to target English words. This interactive process shifted vocabulary acquisition from passive reception to active problem-solving, which subsequently facilitated better reading comprehension when students encountered these terms in written passages. Methodologically, these findings imply that integrating competitive, game-based media into language instruction fosters stronger cognitive connections and improves text decoding abilities. Nevertheless, this study is constrained by its exclusive reliance on short-term assessment data, leaving the long-term retention of the newly acquired vocabulary unmeasured. Future research should incorporate delayed post-tests to evaluate whether these linguistic gains persist over extended periods (Morsi & Sivakami, 2025; Syed et al., 2025; Webb et al., 2023).

Beyond quantitative achievement, the game-based approach significantly transformed the affective dimensions of the classroom environment by enhancing student engagement and collaboration. Working in small groups to solve vocabulary puzzles fostered an interactive atmosphere where students actively discussed answers, reduced their hesitation, and built academic confidence. This playful setting effectively minimized language learning anxiety, allowing students to approach unfamiliar reading texts with greater willingness and self-assurance. The pedagogical implication for educators is that creating a low-anxiety, highly collaborative classroom ecosystem is essential for maximizing learner participation and confidence in foreign language contexts. Even so, the qualitative observations regarding student motivation remain limited by the subjective nature of classroom monitoring, as no standardized psychological instruments were deployed to measure changes in student anxiety or motivation levels directly (Jin et al., 2020, 2021; Li et al., 2022).

The integration of game-based learning demonstrated its superiority over conventional teaching methods by encouraging active peer communication and contextual language use. Rather than relying on isolated list memorization, students learned to manipulate letter matrices, spell terms accurately, and apply vocabulary directly to reading tasks. This collaborative problem-solving structure aligned well with the cognitive needs of junior high school learners, transforming routine vocabulary practice into a meaningful social activity. Institutional implications suggest that school curricula should formally incorporate interactive educational games to modernize English language instruction and boost overall reading competency. Nonetheless, a operational limitation involves the potential challenge of maintaining classroom discipline and managing time constraints when scaling up game-based activities to larger or more chaotic classroom settings (Annamalai et al., 2021; Cabrera-Solano, 2022; Serra & Gilabert, 2021).

In conclusion, the Boggle game serves as a valid, practical, and effective instructional tool for improving vocabulary mastery and supporting reading skills among junior high school students. The combination of significant quantitative score gains and positive affective responses highlights the transformative potential of game-based learning in language classrooms. Theoretically, this research reinforces the value of interactive, student-centered paradigms in foreign language education. However, the overarching limitation of this study



remains its restricted sample size of 25 students within a single school, which limits the generalizability of the findings across broader demographic populations. Consequently, future studies should adopt true experimental designs featuring larger sample sizes and dedicated control groups to validate the efficacy of the Boggle game across diverse educational environments.

CONCLUSION

The implementation of the interactive Boggle Game has been shown to significantly improve students' vocabulary mastery in reading skills at the junior high school level. The letter matrix-based word-formation activity significantly transformed conventional, passive learning patterns into a dynamic, interactive, and student-centered oral and written exploration process. The integration of this educational game successfully facilitated spelling recognition, lexical enrichment, and a more effective understanding of the meaning of reading texts. In addition to improving cognitive competence in decoding foreign language texts, this treatment has been proven effective in reducing language anxiety, building academic confidence, and stimulating students' intrinsic motivation during teaching and learning activities. Thus, the word game mechanism has proven highly reliable in boosting long-term memory retention and students' overall reading skills.

The implications of this research provide practical guidance for English language educators to integrate game-based learning into instructional modules to create a communicative and enjoyable classroom atmosphere. School management is urged to support the use of interactive game-based learning media to strengthen students' foreign language literacy. However, because this quasi-experimental study employed a one-group pre-test and post-test design with a sample size limited to one class, the findings were limited in eliminating confounding variables and measuring long-term memory retention. Therefore, future research is recommended to employ a true experimental design involving a control group, expand the sample size of schools, and complement the evaluation with a longitudinal delayed post-test.

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