

THE EFFECT OF THE INTEGRATION OF SPACED REPETITION AND QUIZLET ON ENGLISH SPEAKING SKILLS AT THE ELEMENTARY SCHOOL LEVEL

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Abstract

This study aims to investigate the influence of the Spaced Repetition (SR) method assisted by Quizlet media on the improvement of English speaking skills of elementary school students. The research design used a quasi-experiment with Nonequivalent Control Group Design. The sample consisted of two groups: the experimental group that was taught with the integration of SR and Quizlet, and the control group that was taught by the Direct Instruction/Shadowing method. Students' initial abilities are measured through the pretest, and the final achievement through the same posttest. The results of the descriptive analysis showed a more significant increase in the experimental group. The mean increased from 62.96 to 84.07 (a difference of 21.11 points), while the control group only increased from 58.34 to 72.41 (difference of 14.07 points). A decrease in standard deviation in the experimental group (9,935 to 9,043) indicated a better equitable distribution of abilities. The results of the inferential statistical test reinforce these findings. The Independent Sample T-Test on the posttest data yielded a significance value of $p = 0.001$ ($p < 0.01$), which proves a statistically significant difference in improvement between the two groups. Simple linear regression analysis revealed that the SR-Quizlet method was a strong predictor of ability improvement, with a contribution of 64.7% (Coefficient of Determination $R^2 = 0.647$). It was concluded that the integration of the Spaced Repetition method and Quizlet media was effective and superior in improving the English speaking skills of elementary school students compared to conventional methods. This success is supported by a synergistic three-phase learning syntax: (1) reinforcement of early memory through a multisensory approach, (2) consolidation of long-term memory through gamified Spaced Repetition and Active Recall, and (3) improvement of productive skills through contextual application. This study recommends this model as an innovative, evidence-based strategy for teaching speaking at the elementary level.

Keywords: Spaced Repetition, Quizlet, Speaking Ability, English, Elementary School, Quasi-Experimental



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INTRODUCTION

In the era of globalization, bilingual proficiency, especially English, has become a must to meet the needs of cross-border communication. Speaking skills in English in an educational setting are considered a very important fundamental competency. This skill assessment process includes four main components: comprehension, fluency, pronunciation, and vocabulary mastery ¹. However, the reality conditions in one of the State Elementary Schools (SDN) in Purwakarta Regency show that students experience significant difficulties in their speaking skills. Many of them have difficulty understanding the text, speaking fluently, pronouncing words appropriately, and lack vocabulary ².

Speaking skills are productive and require direct interaction, which makes them different from receptive skills such as listening and reading. This causes children who are unable to interact effectively to experience greater difficulties in the context of learning ³. To facilitate more effective learning, an interactive and engaging learning approach is needed, so that students can actively participate in their learning process.

One method that can be used is Spaced Repetition (SR), which is based on the principle of repeating the subject matter at specific time intervals to strengthen students' long-term memory. Research by Zeitlin and Sadhak shows that Spaced Repetition improves learning effectiveness by allowing students to remember information for longer⁴. In this context, digital media such as Quizlet can be integrated to support speaking learning. Quizlet provides interactive features such as flashcards, audio, and games that can make learning vocabulary and pronunciation fun ⁵.

Spaced Repetition has several benefits, namely improved Memory Retention The use of the Spaced Repetition method plays an important role in strengthening vocabulary and phrase retention, so that students can more easily access the vocabulary that has been learned when speaking. Effective Pronunciation Exercises, The audio and flashcard features in Quizlet support pronunciation practice, helping students pronounce vocabulary correctly and confidently. Increased

¹ Nagaletchimee Annamalai et al., "Investigation of Malaysian ESL Students' Learning Experience of the Smartphone Applications for English Language Learning," *International Journal of English Language and Literature Studies* 11, no. 4 (December 2022), <https://doi.org/10.55493/5019.v11i4.4678>.

² Benjamin D. Zeitlin and Nishanth D. Sadhak, "Attitudes of an International Student Cohort to the Quizlet Study System Employed in an Advanced Clinical Health Care Review Course," *Education and Information Technologies* 28, no. 4 (April 2023), <https://doi.org/10.1007/s10639-022-11371-3>.

³ Muhammad Rizky Setiawan and Pangesti Wiedarti, "The Effectiveness of Quizlet Application towards Students' Motivation in Learning Vocabulary," *Studies in English Language and Education* 7, no. 1 (March 2020), <https://doi.org/10.24815/siele.v7i1.15359>.

⁴ Benjamin D. Zeitlin and Nishanth D. Sadhak, "Attitudes of an International Student Cohort to the Quizlet Study System Employed in an Advanced Clinical Health Care Review Course," *Education and Information Technologies* 28, no. 4 (April 2023), <https://doi.org/10.1007/s10639-022-11371-3>.

⁵ Hani Arum Permatasari et al., "Enhancing EFL Learners' Vocabulary Mastery through Quizlet: A Classroom Action Research Study," *AJARCODE (Asian Journal of Applied Research for Community Development and Empowerment)* 9, no. 2 (May 2025), <https://doi.org/10.29165/ajarcode.v9i2.649>.

Motivation, Integration of technologies such as Quizlet has its own appeal for students, which can increase motivation to learn and reduce boredom during the learning process. Research by Matondang and Ismahani shows that students who use the Quizlet app have a positive learning experience and are more enthusiastic about learning.⁶ Therefore, the combination of the Spaced Repetition method and the use of Quizlet media can be an effective solution in improving students' English speaking skills in elementary schools.

The findings of this study carry important pedagogical implications for the practice of teaching English in primary schools. Successful integration *Spaced Repeats* (SR) and *Quizlet* Not only does it prove statistical superiority, but it also signals a paradigm shift towards student-centered learning (*student-centered*) and evidence-based (*Evidence-Based*). First, this approach accommodates the diversity of students' learning styles⁷. Multimodal features *Quizlet* (visual, auditory, kinesthetic) combined with the SR repetition scheme allows each student to access and consolidate the material through the cognitive channels that best suit him/her. Second, this study highlights the potential of gamification in formal education. Elements of the game in *Quizlet* (such as *Match* and *Blast*) successfully transforms vocabulary practice from a passive memorization task into an active and enjoyable challenge, thereby intrinsically motivating students to practice more often a critical factor in language mastery.

RESEARCH METHODS

This study used an experimental method with a quasi-experimental design of Nonequivalent Control Group Design, which involved two groups of samples that were purposively selected based on class: the experimental group that obtained learning through the Spaced Repetition method assisted by Quizlet media and the control group that was taught by the Direct Instruction method. Both groups were given the same pre-test and post-test to measure English speaking ability, so that the difference in results between the two groups could be analyzed to test the effect of the integration of these methods and media on the improvement of *elementary school students'* speaking skills.

⁶ Annisa Mutiah Matondang and Siti Ismahani, "The Use of Quizlet Application on the Tenth Grade Students' Vocabulary Mastery at MA Laboratorium UINSU," *Linguistic, English Education and Art (LEEAA) Journal* 7, no. 2 (June 2024), <https://doi.org/10.31539/leea.v7i2.10428>.

⁷ Durratul Hikmah and Abdul Hannan, "Quizlet: A Digital Media for Learning Informatics Terms," *International Journal of English Education and Linguistics (IJoEEL)* 1, no. 1 (April 2019), <https://doi.org/10.33650/ijoeel.v1i1.450>.

RESULTS AND DISCUSSION

The Use of the Spaced Repetition (SR) Method Assisted by Quizlet Media on Improving Students' English Speaking Skills

1. Reinforcement of Early Memory through a Multisensory Approach in the Recognition Phase

An effective learning process begins with an introduction to material designed to form a strong memory imprint. In this case, the theme "My Morning Routine" is taught through multisensory stimulation, which involves visual, auditory, and kinesthetic (VAKT). Students watch contextual videos (visual components), use Quizlet flashcards equipped with audio pronunciation (auditory components), and do reading and imitating pronunciation activities (kinesthetic components). This multimodal approach not only assists students in understanding concepts more deeply but also improves pronunciation accuracy from the start⁸. The integration of various channels of experience in learning will help students in a stronger information processing process, for example, supporting better results in comprehension and pronunciation development. Research shows that multisensory experiences can strengthen recall and comprehension, making them particularly relevant in education, especially at the stage of introduction to new material.

2. Strengthening Long-Term Memory through Spaced Repetition and Active Recall in the Repetition Phase

After the introduction phase, it is important to consolidate long-term memory. The principle of Spaced Repetition is applied in a structured manner through the Quizlet medium that allows the repetition of material at increased time intervals. Thanks to interactive game features such as Match, Blast, and Blocks, students engage in more challenging activities, which creates a fun and engaging learning atmosphere. Their ability to strengthen vocabulary retention and sentence structure also improved with the application of the Active Recall technique, in which students attempt to remember meaning before the answer is⁹ displayed. John Ebbinghaus states that structured, active repetition can counteract the effects of forgetfulness; This method has been shown to be effective for retaining information in memory. By turning exercises into fun games, students not only learn but also feel motivated and fully engaged in their learning process.

⁸ Dana Kristiawan, Khaliq Bashar, and Dian Arief Pradana, "Artificial Intelligence in English Language Learning: A Systematic Review of AI Tools, Applications, and Pedagogical Outcomes," *The Art of Teaching English as a Foreign Language (TATEFL)* 5, no. 2 (November 2024), <https://doi.org/10.36663/tatefl.v5i2.912>.

⁹ Emma James, M. Gareth Gaskell, and Lisa M. Henderson, "Offline Consolidation Supersedes Prior Knowledge Benefits in Children's (but Not Adults') Word Learning," *Developmental Science* 22, no. 3 (May 2019), <https://doi.org/10.1111/desc.12776>.

3. Improving Productive Skills through Contextual Application in the Strengthening Phase

The language skills that have been consolidated are then applied in a meaningful context in the reinforcement phase. Students are expected to work on a formative test on Quizlet as a final exercise and collaborate on a Practice Worksheet (LKPD) that simulates communicative situations. This phase allows students to apply vocabulary and sentence patterns in an applicative way, thus practicing aspects of fluency and comprehension of their language, which is the main goal in language education.

4. Synergy of Cognitive Principles and Technological Ease as Determining Factors for Success

The success of this method lies in the synergy between the principles of cognitive psychology and the features of digital technology. Evidence-based implementations of Spaced Repetition and Active Recall are easily managed through Quizlet's user-friendly interface. This digital platform not only supports learning methods that optimize retention, but also provides hands-on feedback and different types of activities that keep the learning experience engaging. A study by Dumanlar et al. shows that pedagogical innovations that integrate evidence-based learning strategies with interactive digital platforms can provide practical solutions in addressing the challenges of teaching speaking skills at the primary education level ¹⁰. In other words, this combination has the potential to present a more efficient, effective, and fun method of helping students learn to speak in English.

Through a multisensory approach to material recognition and the use of the Spaced Repetition method integrated with Quizlet's technology, students can optimize their mastery of English speaking skills. By adding an interesting and engaging learning experience, it is hoped that students can overcome language learning challenges and become more confident in speaking. Learning using the SR method is divided into 3 phases, namely the material introduction phase, the distance repetition phase, and the application reinforcement phase.

In the material introduction phase, the use of a multisensory approach has been shown to be effective in helping students build a strong memory imprint. By introducing context through the "My Morning Routine" video, students are given engaging visual stimulation. After that, they switched to using Quizlet's audio-equipped flashcards. These activities include reading text (visual), listening to pronunciation (auditory), and imitation (kinesthetic), which reinforce the recall process. The influence of Quizlet's media is very evident here where the audio feature provides a consistent and accurate pronunciation model, while the translation on the flashcard enriches the contextual understanding of meaning. Through this process, students can form a proper memorization

¹⁰ Perihan Dumanlar et al., "An Evaluation of Language Development and Working Memory in Children with Hearing Loss," *Journal of the American Academy of Audiology* 35, no. 5 (May 2024), <https://doi.org/10.1055/s-0044-1790279>.

foundation before entering the repetition stage. This approach is relevant to the principle of Spaced Repetition (SR), which emphasizes the importance of repeating material in a structured manner to improve retention.¹¹

The spaced repetition phase is a core component in the application of the Spaced Repetition (SR) method. This method composes repetitions at increased time intervals to maximize memory retention, according to the theory of repetition described by Ebbinghaus.¹² This structured repetition is optimized using Quizlet media, which serves as a catalyst in the learning process. Through the Flashcard feature, students are expected to do an active recall, where they try to guess the meaning of vocabulary before the answer appears. This activity deepens the recall process and strengthens vocabulary retention significantly, thus supporting better comprehension.

In addition to the use of flashcards, Quizlet offers interactive game features such as *Match*, *Blast*, and *Blocks* to add dynamic to the replay. This game is not only fun but also effective in practicing vocabulary access speed, strengthening memory under time pressure, and assisting students in better sentence formation through the Blocks feature. This synergy between optimally planned repetition and gamification increases the frequency of exercises, keeps students motivated, as well as engages them in a more active and enjoyable learning process.¹³ The cumulative repetition pattern applied during each meeting ensures that the learned vocabulary works well through the transfer from short-term memory to long-term memory. Ebbinghaus, in his research on forgetfulness, notes that repetition between increasingly distant intervals can reduce the rate of forgetfulness and improve memory ability. Thus, the application of the distanced repetition method provides a strong framework to ensure that the knowledge gained by students is not quickly lost, but rather well internalized.

After the repetition phase, students enter the step of applying the knowledge they have taught. Here, Quizlet is back in action through the Test feature, which provides various forms of questions, from multiple-choice to filled. It serves as a retrieval practice at the end of the session, which is important for reinforcing the memory that has been built before.¹⁴ This activity not only tests students' knowledge but also provides a rich format to deepen their understanding of the

¹¹ Syafiqah Hasram et al., "The Effects of WordWall Online Games (WOW) on English Language Vocabulary Learning Among Year 5 Pupils," *Theory and Practice in Language Studies* 11, no. 9 (September 2021), <https://doi.org/10.17507/tpls.1109.11>.

¹² Lisshaline Shanmuga Nathan and Harwati Hashim, "A Systematic Review on Gamified Learning for Improving Language Skills in ESL Classrooms," *International Journal of Academic Research in Business and Social Sciences* 13, no. 4 (March 2023), <https://doi.org/10.6007/IJARBS/v13-i4/16873>.

¹³ Elizabeth Flores-Salgado and Aldo Falú Gutiérrez-Koyoc, "Working Memory and Cross-Linguistic Influence on Vocabulary Acquisition," *Brain Sciences* 14, no. 8 (August 2024), <https://doi.org/10.3390/brainsci14080796>.

¹⁴ Monica Bolocan, Claudia I. Iacob, and Eugen Avram, "Working Memory and Language Contribution to Verbal Learning and Memory in Drug-Resistant Unilateral Focal Temporal Lobe Epilepsy," *Frontiers in Neurology* 12 (December 2021), <https://doi.org/10.3389/fneur.2021.780086>.

material that has been taught. In addition, students experience real practice by participating in group Practice Worksheets (LKPD). This LKPD is designed to train students' speaking and collaboration skills in a more tangible context. The emphasis on communicative contexts relevant to daily life allows students to strengthen fluency and comprehension. Before the session ends, the flashcards are displayed again for the final recall, which reinforces everything that has been learned and provides an opportunity for students to revise the last information they learned.¹⁵

Results

This study applied *the Spaced Repetition* (SR) method with the help of *Quizlet* media to investigate whether there was an impact on improving English speaking skills in elementary school students and comparing it with learning using the shadowing method. This study involved two groups, namely the experimental group and the control group. The experimental group received the treatment using *the Spaced Repetition* (SR) method supported by *Quizlet* media, while the control group used *the shadowing method*. The purpose of this study is to answer questions about the influence of *the Spaced Repetition* (SR) method supported by *Quizlet media* on the improvement of English speaking skills of elementary school students.

The descriptive analysis in this study is to describe the data that has been collected so that it can be described clearly based on the data that has been obtained through quantitative analysis. The descriptive analysis in this study was obtained using the spss application to process the data. This descriptive analysis was used to determine whether there was an improvement in students' English speaking skills through average scores, minimum and maximum scores, and standard deviations from the results of the pretest and posttest both in the experimental group and in the control group. Table 1 shows the results of the lowest, highest, mean, and standard deviations for the experimental group and control group as follows.

Table 1. Descriptive data of pretest and posttest scores

Classes	Test Type	Score		Red	Standard Deviation
		Min	Max		
Experiments	Pretest	41	80	62,96	9,935
	Posttest	67	100	84,07	9,043
Control	Pretest	40	85	58.34	11,947
	Posttest	50	95	72,41	10,812

(Source: Research, 2025)

¹⁵ Amalini Lutfia Ozila and Zelhendri Zen, "Web-Based E-LKPD for the Indonesian History Subject for Grade XI Senior High School," *Indonesian Journal Of Educational Research and Review* 6, no. 1 (April 2023), <https://doi.org/10.23887/ijerr.v6i1.59342>.

Based on descriptive analysis, the application of the Spaced Repetition (SR) method assisted by Quizlet media proved to be effective in improving the English *speaking* skills of elementary school students. The experimental class that used this method showed a more significant increase in mean (from 62.96 to 84.07) than the control class that used the *shadowing method* (from 58.34 to 72.41). The increase in the experimental class of 21.11 points was also higher than that of the control class (14.07 points). In addition, the decreased standard deviation in the experimental class (9,935 to 9,043) showed that students' abilities became more even after the intervention. Observations during learning also revealed that teacher and student activity in the experimental classroom was higher, supported by students' enthusiasm in using Quizlet's interactive features, which encouraged engagement and motivation to learn.

The results of the inferential analysis further corroborate the findings.

Inferential analysis was conducted to test the statistical significance of the increased speaking ability produced by the treatment, as well as to measure the magnitude of the influence of the Quizlet-media-assisted Spaced Repetition (SR) method.

Before testing the main hypothesis, a prerequisite test is performed to ensure that statistical assumptions are met. The normality test with the Shapiro-Wilk method confirmed that the distribution of *pretest* and *posttest* data from both groups was normal, with all significance values (*sig.*) above 0.05 (ranges from 0.095 to 0.258). Furthermore, the Levene's Test homogeneity test showed that the *variance of pretest* (*sig.* = 0.254) and *posttest* (*sig.* = 0.564) data between the experimental and control classes was homogeneous. This feasibility is further strengthened by the results of observation of learning activities, which also show the similarity of variance. The fulfillment of these assumptions of normality and homogeneity proves that the data is worthy of further analysis using parametric statistical tests.

To test the research hypothesis whether there is a significant difference in improvement between the two groups the Independent Sample T-Test was performed. The test results of the *pretest data* showed no significant initial difference between the experimental and control groups (*sig.* = 0.119 > 0.05), so H_0 was accepted. These findings are important because they validate the initial conditions equivalent, so any differences in the *posttest* can be more believed to be the result of different treatments. On the other hand, the test of the *posttest data* yielded a significance value of $p = 0.001$ ($p < 0.01$). This value is so statistically significant, that H_0 is rejected and H_1 is accepted. Thus, it can be concluded with a high level of confidence that there is a significant difference in improvement in speaking skills between students who study with the SR-Quizlet method and students who study with the *shadowing method*.

A more in-depth analysis was carried out to quantify the strength of the influence of the treatment. Simple linear regression analysis was performed by *posttest* as a bound variable (Y) and *pretest* as an independent variable (X). The resulting regression equation is $\hat{Y} = 27.833 + 0.830X$. A regression coefficient (β) of 0.830 indicates that any one-point increase in *pretest* scores is predicted to contribute to an increase in *posttest scores* by 0.830 points after receiving the SR-Quizlet treatment. The regression significance test confirmed that this relationship was very significant (sig. = 0.001).

The overall contribution of the SR-Quizlet method was measured through the Coefficient of Determination (R^2), which was 0.647. This indicates that 64.7% of the total variation in students' speech improvement (from *pretest* to *posttest*) can be explained or predicted by the application of the Quizlet-media-assisted Spaced Repetition method. The remaining 35.3% of the variation was said to be influenced by factors outside of this research model, such as students' intrinsic motivation, environmental support, individual learning style, or other psychological factors. These findings not only prove the existence of a significant influence, but also show that the SR-Quizlet method is a strong predictor factor and contributes the majority to improving student learning outcomes in the context of this study.

CONCLUSION

Based on the results of the research and discussions that have been conducted, it can be concluded that the Spaced Repetition (SR) method integrated with Quizlet media has a significant effect and is more effective in improving the English speaking ability of elementary school students compared to the *shadowing* method. This increase occurred due to the effective synergy between cognitive learning principles and digital technology which is manifested in three learning phases. First, the phase of material recognition through a multisensory approach with audio-visual-based video and *flashcards* successfully builds a strong initial memory foundation for *pronunciation* and *comprehension*. Second, the spaced repetition phase that applies the principles of Spaced Repetition and *Active Recall through Quizlet's interactive features* (such as *Flashcard*, *Match*, and *Blast*) optimally strengthens vocabulary retention and sentence structure in long-term memory. Third, the application strengthening phase through *Test Quizlet* and group LKPD succeeded in translating the knowledge that has been internalized into applicable speaking skills, increasing *fluency* and *comprehension* in a real context.

Empirical evidence shows a superior improvement in the experimental group. On the descriptive side, the experimental group experienced a mean increase of 21.11 points (from 62.96 to 84.07), higher than the control group which only increased by 14.07 points. The ability of students in the experimental classroom also became more even, which was indicated by the decrease

in standard deviation. From the inferential side, the statistical test (*Independent Sample T-test*) confirmed that this difference in increase was statistically significant with a value of $p = 0.001$ ($p < 0.01$). Furthermore, regression analysis showed that this method was a strong predictor of increased speech ability, with a contribution of 64.7% (Coefficient of Determination $R^2 = 0.647$).

Thus, this study successfully proves that the integration of Spaced Repetition and Quizlet is an innovative, effective, engaging, and evidence-based learning model. This combination not only addresses memory retention problems but also increases motivation, engagement, and equity in learning outcomes, so it can be recommended as one of the alternative strategies to improve the quality of learning English speaking skills at the elementary school level.

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